# Social Change and Reproductive Behaviour in Rural Bangladesh, 1983-1996.

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**Lutfun Nahar**

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*Te Whare Wānanga*
*o Waikato*

## Abstract

Recent changes in the reproductive behaviour of women in the rural areas of Bangladesh have occurred at a time when the country has been and still is predominantly agricultural and socio-economic conditions poor. Attempts to explain the causes of these changes, especially consideration of the role of family planning programmes, in such an unfavourable context, have generated enormous controversy among academics.

This study examines the determinants of these recent reproductive changes in rural Bangladesh over a 13-year period. It uses quasi-experimental design based on comparison between three areas: national rural, Matlab intervention and Matlab control, using time series analysis of the repeated surveys. The changes were measured by two major proximate determinants: demand for additional children and trends in current contraceptive use. The outcome of these two factors, the fertility decline, was also analysed. The specific objective was to examine whether the family planning programme is a determinant of, or a mechanism towards, the changes in reproductive behaviour, and what role other micro and macro factors play in this.

The major findings of the study show that the demand for no additional children was generated prior to the fertility decline among rural women of Bangladesh indicating a demand for fertility control. The family planning programme has helped to mitigate the demand for fertility control modifying supply logistics since the late 1970s.

In terms of the determinants of reproductive change at the macro, micro and community level, this study documented that reproductive behaviour is strongly affected by biosocial and cultural factors related to macro level social structures existing at the community level. It is less strongly affected by social factors, and weakly affected by economic factors. However, the strong relationship between biosocial and cultural factors and reproductive behaviour changed over the period studied. In all three areas studied, young women who have fewer living children or sons have started using contraceptives though the old women are the major users.

Changes in reproductive behaviour have resulted from social change coming in response to land crises, community contextual factors, the Non-Government Organisation programmes, and other macro level social changes occurring in more recent times. These changes affect both the macro and community level social structures related to patriarchy, which, in turn, influence the proximate determinants: the demand for no additional children and the current use of contraceptives.

The study suggests that reproductive women in all three areas shared a similar notion of desired family size and level of demand for no more children prior to the fertility decline of the 1980s. This desired family size is much lower than the actual fertility rate and is probably affected by the prior mortality changes and improved survivorship. During the period studied, desired family size reduced further but it reduced equally, despite a different level of family planning intervention in one of the three areas. With this same level of desired family size, Matlab family planning intervention with an efficient supply logistics show an extremely successful mechanism for increasing contraceptive use and there reducing fertility levels in the mid 1970s, while high fertility in the other two areas began to decline in the 1980s.

Finally, examining the four possible postulates, the present study found that no one postulate alone could explain the changes in reproductive behaviour among rural Bangladeshi women. Further in-depth study is needed for better understanding of the dynamics of these reproductive changes.

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# PART I: INTRODUCTION AND BACKGOUND

# Chapter 1: Introduction

## 1.1 Back ground

Bangladesh is one of the world's least developed countries with an agricultural economy and a traditional social system still in its evolvement. In recent times, however, it has seen rapid changes in the reproductive behaviour of rural women. In the 20 years, between 1975 and 1996, despite an apparent absence of factors often cited as the fundamental forces for reproductive change, the factors influencing fertility shifted significantly. Thus the desired family size has changed from four to 2.6 children; the Contraceptive Prevalence Rate (CPR) rising from eight to 49 percent; and the total fertility rate (TFR) declining from more than 6 to about 3.3 births per woman. This rapid change in the reproductive behaviour of women has occurred in what would be seen as a conservative and unfavourable social setting, a country whose economic growth is slow, whose infrastructure is underdeveloped, and whose socio-economic institutions are arguably less cohesive that had been the case in the past.

In Bangladesh, macro level development is minimal. A cross-country comparison provides evidence that Bangladesh's overall development can be ranked as among the worst in the world. The *World Development Report* (World Bank 1991) listed Bangladesh as the '*World's fifth poorest society*' with a per capita annual income of only $180 in 1989. Numerically, the country has the world's eighth largest population and has the highest crude density (2500 per square mile). No country apart from a few island nations resembles Bangladesh in having such dense settlement and this is a case when crude density closely correlates with more refined measures of pressures on land and other natural resources. In terms of the per capita purchasing power index used by the United Nations, Bangladesh can only be compared with Tajikistan, also a very poor country, with a total fertility rate of 3.4 in 1997 (UN 1999, cited in Caldwell et al. 1999). In terms of per capita income, Vietnam comes very close to Bangladesh, but its per capita purchasing capacity is 60 percent higher and its mortality level is much lower than that for Bangladesh. In addition, at the time when fertility first began to decline, as was also the case in Thailand and Nepal, a considerable proportion of the Bangladeshi population, 78 percent, were directly or indirectly dependent on agriculture or agriculture based industries. A significant proportion of women was probably working on the labour force but had been excluded from the statistics. Over the years, dependency on agriculture has not changed (UN 1981; Hossain et al. 1985; Goletti 1994). Despite this dependency on agricultural production, recent statistics show that more than 60 percent of the rural population are either landless or functionally landless (Hossain et al. 1985; Cleland et al. 1994; Razzaque et al. 1998). The rest do not have enough farmland for the subsistence of their families. Moreover at the time of the onset of fertility decline, the level of education was low with strong differential education levels for male and female. One third of males and 44 percent of females aged six years and above have not received any formal education (Mitra et al. 1997). But recent changes in the education policy are reducing the gap between levels of male and female education.

Nevertheless one can identify some socio-economic improvements at the macro level, especially in the field of public health. These have increased the overall survival level of the population, and created large birth cohorts with attendant momentum effects. Infant mortality rates, though high in the 1960s and 1970s reduced to 129 per thousand live births in 1980 went down to 94 by 1991, and to 69 by 1997 (Mitra et al. 1997; BBS 1995, internet edition 2002); As a result, life expectancy at birth improved from 48 years by 1980, to 56 years by 1991, and to 59 by 1997 (BBS 1994; BBS internet edition 2002). In the South and South East Asia region, Bhutan, India, Nepal, Cambodia, Laos and Myanmar approaches close to Bangladesh in terms of infant mortality rates, life expectancy and total fertility rates (Bongaarts and Watkins 1996). Levels of infant mortality though high compared to any other developing countries at the time of fertility decline, was not as high as in some European countries during the period of their reproductive change (Knodel 1979).

Urbanization used to be slow during the period of colonial administration and the Pakistani sovereignty period but since independence from Pakistan it has risen rapidly (World Bank report 1992, 1999; Caldwell et al. 1999). More importantly, some development is starting to shift at both the macro and community levels.

Apparel industries are booming across the country, bringing in 76 percent of the total export earnings in 1996. This industry has provided employment to a million young women aged 15-29, mainly recruited from the rural Bangladesh beside other men and women. These workers constitute 10 percent of the total women of that age group (Caldwell et al. 1999; BGMEA internet edition 2002). Their repatriation of earning has affected the rural economy. Non Governmental Organizations (NGO) have expanded their networks into the most remote corners of village in Bangladesh, with the aim of improving social justice and women's status and are now covering close to 90 percent of the villages. Their penetration into rural Bangladesh has had a real impact on the traditional lifeways. The development of these two sectors have changed the rural economy and its social structure (Paul-Majumder and Begum 2002; Pit and Khandker 1995; Heshmi et al 1996). In addition, the international migration of the rural workforce, mainly men, has brought immense changes in the economic and cultural life of the rural population. These include power shifts within families because of the men being absent and the financial benefits coming from remittances.

Linguistically and religiously, Bangladesh is a highly homogeneous society. About 98 percent of the population belong to the Bengali ethnic group with a few tribal minorities in some hill districts, and of the total population, 88 percent are Muslim (Mitra et al. 1997). It is predominantly a traditional, patriarchal society with only a slow shift towards nucleation of traditional family structures (Amin 1998; Nahar et al. 1996; Ruzicka and Chowdhury 1978). One of the more serious outcomes of such socio-cultural characteristics is the low status for women, with *purdah*[1] as its most manifested practice (World Bank Report 1992; Jahan 1975; Cain et al. 1979; Aziz et al. 1985; Caldwell et al. 1999; Cleland et al. 1994), although this has weakened in recent times (Razzaque et al. 1998). The patriarchal culture and the low status of women, similar to that in other South Asian societies traditionally have generated a strong demand for children, especially sons. However, the social structures and kin networks are less cohesive compared to some other traditional societies and are being increasingly diluted which bearing a

[1] System of keeping women inside the restricted premises of the house and if they go out they have to wear certain kind of dress to cover themselves (for details see Jahan 1975)

prospect of change more rapidly than before (Arthur and McNicoll 1978; Rahman 1986; Paul-Majumder and Begum internet edition 2002).
The family planning programme officially started in 1960 but the contraceptive prevalence rate was very low until 1975 (Schulz et al. 1972; Rahman 1986; Mitra et al. 1997), despite reported evidence of demand for no additional children and moderate ideal family sizes. The Contraceptive prevalence rate started a rapid rise from 1980 reaching 49 percent in 1996 when it was associated with a total fertility rate of 3.3 births per woman. The average desired family size had declined further to 2.5 in 1996, below the TFR which shows that there is still a significant unmet need for fertility control among the rural women. This evidence of rapid change in ideal family size, in current contraceptive use and in fertility itself, raises a number of related issues that have wider theoretical significance. Not surprisingly the rapid changes have led to debates among academics over whether it is development alone, or population programmes alone, or a combination of both development and population programmes that have changed the reproductive behaviour of the rural women in Bangladesh.

The literature concerning changes in reproductive behaviour reveals that most demographers and sociologists in the 1970s thought it unlikely that reproductive changes would occur in Bangladesh (Demeny 1975; Berelson 1978; Cassen 1978; Mauldin and Berelson 1978). But following the recent change in reproductive behaviour of rural women in Bangladesh, a number of authors came to the conclusion that the causes of reproductive changes in Bangladesh were the sustained political commitment of the government for an effective family planning programme. In contrast, so it has been argued, the role of macro level development, urbanization, employment of women, or education, factors that most demographers and sociologists thought would be the crucial drivers to fertility decline, seem to be of minimal importance in the case of Bangladesh (Carty et al. 1993; Larson and Mitra 1992; Cleland et al. 1994).

More recently, other researchers have challenged these arguments, urging that comprehensive investigations into recent changes in the reproductive behaviour of the Bangladeshi population be conducted. Caldwell et al. (1999) carried out a study in one of the remotest areas of Bangladesh and concluded that in reality there had been rapid changes in the society both at the macro and micro level. Most of their respondents had reported major advances occurring in the fields of transport and communications. Sixty percent of his respondents reported positive changes over the years (Caldwell et al. 1999). A similar positive social change relating to women's employment and women's movement was reported by Aziz and Mosley (1994). There was thus a need, so Caldwell et. al argued, for recent changes in reproductive behaviour to be investigated more comprehensively; this thesis attempts to respond to this challenge. The present author is also aware of the recent stalling of the fertility decline.

In the last chapter this debate about the possible causes of reproductive change in Bangladesh will be informed by three major theoretical paradigms, which will be discussed in detail in chapter three. They are the demographic transition, social change theory and diffusion theory. The demographic transition theory postulates that macro level socio-economic development, that increases industrialization, and urbanization and education, leads to declines in mortality and increased population growth, and that improved survivorship, along with further modernisation as a part of socio-economic development create a demand for no more children, and subsequently lowers fertility. Chesnais (1992) shows that the sequence of mortality decline and then fertility change is the norm. The theory of social change complements transition theory, but argues that social changes at the individual and community level are the fundamental forces for reproductive change.

In contrast to these above two theories, diffusion theory argues that effective family planning programmes alone, through the diffusion of new ideas can change attitudes and thus the reproductive behaviour of women, without the pre-requisite of major socio-economic development. Obviously, this theory would have been appealing if declines in fertility in Bangladesh were to have occurred in the absence of manifest economic growth, but with evidence of an active programme.

## 1.2 Postulates of the study

The causes of these sweeping rapid changes in reproductive behaviour both at the national level are probably rather complex and are perhaps difficult to explain from any single theoretical perspective. The present study will thus explore several general postulates:

i. That family planning programmes created a demand for fertility control and so generated ideational changes, which led to a need for family planning and the programme then assured access to contraceptives. Or,

ii. That both positive and negative social and economic changes at all of the macro, micro and community levels, generating changes in demand for no more children and predated a fertility decline, and that in this case, the family planning programme merely ensured access to fertility control techniques. Or,

ii. That mortality declines were followed by fertility declines as transition theory in its simplest form argues. Or,

iv. That macro level development provided economic change that was associated with a reduced demand for children and thus led to decline in fertility.

These four basic postulates will be explored in search of explanations for the changes in the reproductive behaviour of the rural Bangladesh women. The study will explore the changes in reproductive behaviour over a period of 13 years using a study design that permits a comparison between the three areas. They will be called the "National rural area", the "Matlab 'intervention' area", and the "Matlab 'control' area". The National rural area covers the whole rural area including Matlab.[2] The Matlab intervention area, is half of the Matlab Health and Demographic Surveillance System area in which only an intensive family planning and maternal child health interventions has been in place since 1977. In contrast, the Matlab control area is the other half of the Matlab Health and Demographic Surveillance area where interventions have only come through normal government family planning programme. The study has a further major advantage in using these three areas as the data were collected almost at the same time and remarkably, similar questions were asked in the surveys. The availability of data at the similar times, for three separate areas, provides a unique opportunity

[2] Matlab is a small rural area of Bangladesh covering merely 0.002 percent of the total area and with only 0.001 percent of its total population (census 1991). Thus in intent and practice, the study permits comparisons between virtually independent areas, even though Matlab is included in the data collected for national rural area.

to conduct a study using a sort of quasi- experimental design. This can be based on comparisons between three areas and to examine the changes in reproductive behaviour over a 13-year period time in each area. Table 1.1 shows when the national and Matlab surveys were undertaken, and what their names were.

**Table 1.1: Date and name of the surveys in three areas in two point of time.**

| | National rural | Matlab | |
|---|---|---|---|
| | | Intervention | Control |
| **Time 1** | Contraceptive prevalence surveys (CPS), 1983 | Knowledge Attitude and Practice surveys (KAP), 1984 | Knowledge Attitude and Practice surveys (KAP), 1984 |
| **Time 2** | Bangladesh Health and Demographic surveys (DHS), 1996 | Bangladesh Health and Demographic surveys (DHS), pilot study 1994 | Bangladesh Health and Demographic surveys (DHS), pilot study 1994 |

In this thesis, reproductive behaviour will be measured primarily by analysing two factors, "demand for no additional children" and "current contraceptive use". The outcome, as it were, of these two variables taken together is the fertility trend, which is also discussed at length when examining changes. Analysis will be carried out on both demand for no additional children and current contraceptive use, using the three sets of comparable data from the three populations across at two separated periods.

## 1.3 Significance of the Study

This study of reproductive change in Bangladesh is important from both a theoretical and a policy perspective, because of the position Bangladesh occupies in both academic debates and in policy perspectives. The study of the achievement of reproductive changes occurring, despite an unfavourable socio-economic setting, is the key issue. The Bangladesh model has been cited as an useful model for other developing countries' population problems, especially those countries that largely depend on external resources for development.

During the twentieth century, there was an unprecedented population growth in the third world, mostly due to declines in mortality levels. As a result, while it took 123 years to double the world's population from one billion to two billion in

1927, it will take only 10 more years for the world population to reach eight billion from its present position of six billion (UN 2000). Asia contributes 60 percent to the world's population. Bangladesh's ranks fifth in the world, and fourth in Asia in its contribution to world population growth (UN 2000). Over the last 50 years from 1950, fertility decline has occurred in most Asian countries with comparatively better socio-economic conditions. But a steep fertility decline in one of the world's poorest countries like Bangladesh makes Bangladesh's fertility transition an important case study.

The role of the Bangladesh national family planning programme and the conclusion reached in several studies about changes in reproductive behaviour have again divided academics on the relative contributions of development and of policy intervention, a debate that is in some sense a re-run of Bucharest, population conference debates (1974). The national family planning programme is the official mechanism through which each government in developing countries encourages and facilitates the use of contraception with the explicit goal of reducing the population growth by lowering fertility. In the post International Conference on Population and Development (ICPD-1994) era, the research agenda in the field of health and population changed to a new and broader direction. A number of countries and organizations have been reorienting their family planning and health programmes in line with the *Cairo Action Plan* of (ICDP-1994). In addition, over the years national family planning programmes have been altered, modified or enhanced to meet the requirements of, or adjusted to be in line with, the national policies of the respective countries (Mauldin and Ross 1991, 1996; Ross and Stover 2001). In 1996, 80 percent of countries had official policies for reducing population growth while a further seven percent gave indirect support to reducing population growth (Tsui 2001).

On the other hand, the Third World countries have development policies and programmes, through which their respective governments aim to improve the lives and well being of their populations. Development programmes have been prescribed to make overall structural improvements, the benefits of which are often designed to go to the under-privileged groups in the society. However, the redistribution of resources between population control and development programmes without proper assessments of the contributions of respective programmes might hinder rather than help development.

The present study provides an opportunity to identify the relative roles of family planning and development in reproductive changes. The identification of the basic causes of this will provide data perhaps of use to other developing, and least developed nations with similar social settings and problems. Finally and most importantly, this study of changing reproductive behaviour in Bangladesh provides an excellent case study to examine the old debate that has continued over the last half of the twentieth century on development vs. intervention that has been revived again around Bangladesh's fertility decline.

## 1.5 Organization of the Thesis

The thesis is structured into four main parts. Part I comprises six chapters. Following the introduction in this first chapter, the second describes the country's setting, geography and environment, its population, social and economic conditions, and some socio-cultural aspects of Bangladesh pertinent to the thesis. The evolution of the national and Matlab family planning programmes is also outlined. Chapter three critically assesses the classical demographic transition, social change and diffusion theories of reproductive changes, and the linkages between development and family planning programmes, and this provides a theoretical rationale for the study. Chapters four and five review social change and family planning programme developments both at a national rural level and in the Matlab area in the recent past, and outlines an analytical framework for studying the dynamics of recent fertility decline in rural Bangladesh. Chapter six serves two functions. It describes the data and methodology used in the analysis and defines the variables and examines the empirical relationship of these variables with demand for additional children or current contraceptive use. The chapter also presents the analytical techniques used in the analysis. Chapter seven describes the distribution of characteristics of the sample population.

Part II deals with attitudinal changes and comprises four chapters. The first chapter covers macro level trends in fertility and in patterns of demand for additional children. The following three chapters present a bivariate analysis of the variable demand for no additional children and examine its relationship with biosocial, socio-economic and socio-cultural factors.

Part III also consists of four chapters and covers the second central variable. The first chapter of part III discusses trends in contraceptive use, and the next three chapters discuss the bivariate relationship between current contraceptive use and biosocial, socio-economic and socio-cultural factors. Part IV consists of two chapters. The first presents a multivariate analysis of the demand for no additional children and the second comprises a multivariate analysis of current contraceptive use. Finally, Part V synthesises the early chapters and presents a conclusion.

# Chapter 2: Country Setting

## 2.1 Introduction

Changes in reproductive behaviour largely depend on the social cultural features and the economic development of a society and their intertwined relationships. None of the countries from historical Europe to today's Third World began demographic transition from any single, unanimously agreed point of socio-economic development. Thus, in order to fully understand the changes in reproductive behaviour of a particular society, it is important to understand the country's setting, past history, cultural heritage and/or the various economic and social dynamics, development stages and the complex relationship of these factors that make up the society. Therefore, the present chapter will discuss the social, economic, and cultural and health related factors in Bangladesh. Each of these factors has an important impact on reproductive behaviour and its change in this particular society.

## 2.2 Geography

The geography of a country, its temperature and natural adversities and their aftermath greatly shape the behaviour of a population. Bangladesh is a low-lying delta which stretches latitudinally between $21^0$ 5' and $26^0$ 40' N and longitudinally between $88^0$ 5' and $92^{\ 0}$ 40' E. Eighty percent of the land is alluvial plain lying between the Indian foothills of the Himalayan Mountains in the North, and the Bay of Bengal in the South with most elevations less than 30 feet above sea level. The most significant feature of this alluvial landscape is the extensive network of rivers and their tributaries. Some of these rivers are among the world's largest.

According to the UN (1981) this river system has had an immense influence on the social and economic life of the population. It has determined the kind of agricultural production and has provided drainage, a vast supply of fish and an unparalleled grid of inland waterways for cheap and convenient transportation. However, this river system has also been the cause of some of the country's worst hazards, with seasonal flooding bringing widespread loss of life, crops and property. Cyclones from the Bay of Bengal occasionally intensify seasonal flooding to the point of national disasters (Arthur and McNicoll 1978).

The climate of the country has also, had an immense influence on the reproductive behaviour of the population. A high seasonality has characterized the natality pattern of the country with peak births in the late monsoon and early winter (Becker 1981). The country is subtropical with six season but climatologically there are three prominent seasons: summer, monsoon, and winter. Summer and winter are the most marked seasons. The winter (December – February) with temperatures ranging from 10 to 29 Celsius is relatively dry with little rainfall. The summer, with temperatures varying from $26^{o}$- $38^{o}$ begins in April with rain and thunderstorms followed by the Monsoon. The Monsoon features temperatures between $23^{o}$- $38^{o}$ and brings with it heavy rainfall (132 cm), which often leads to the water rising to a level that sufficiently inundate all agricultural lands. The rural inhabitants at that point become isolated and inaccessible to any form of modern transportation. The major forms of transportation during the monsoon in the rural areas are rowboats or motorboats.

## 2.3 History

Like geography, the origins of a nation or tribe also determine its cultural behaviour and practices, which in turn affect the reproductive outcomes of the population (Dyson & Moore 1983). Bangladesh was settled in 1000 B.C by the Bang tribe, a group of Dravidian speaking people driven out of their northern homeland by the Aryans, the race of lighter-skinned people originating from the Iranian and central Asian plateau (UN 1981). The then Bengal, was ruled by the four successive empires of Hindu and Buddhist religions and was stable, secure and prosperous. Muslims came to Bengal during the thirteenth century. For six centuries Muslim domination was at its peak also bringing in a flow of new Muslim immigrants from many other lands. These included Turks, Pakthuns, Persians and Muslims from other ethnic group extractions. New settlements were formed and old settlements expanded to the East and South. A centre of Muslim trade and commerce, *Sonargeon,* developed along the course of the *Brahamaputra* River and became one of the largest cities in the sub-continent. With the establishment of the British colonial administration in Bengali in1757, the settlement of new inhabitants became rare.

The British colonial administration introduced a series of social and administrative reforms in their two hundred years rule. During this time, there was a Hindu and Muslin gap in education, commerce and government services. A movement grew up for separate homelands for Hindus and Muslims. This movement for separate homeland for the Hindus and the Muslims led the British government to partition India on the basis of religion. Pakistan and India were thus created in August 15, 1947. The partition made Bangladesh a part of Pakistan until 1971, but mistrust and conflicts arise again between East and West Pakistan due to the disparity developed on education, culture, trade, commerce, and industrial fields. Finally, in December 1971, Bangladesh emerged as an independent nation in the world map following a nine-month liberation war with Pakistan.

Bangladesh has a unitary form of government. Administratively the country is divided into six divisions,[1] Subdivided into 70 sub-districts and again into 470 *thanas* (Police Station). Each *thana* consists of a number of *unions*. Each *union* contains a cluster of 20 villages with a population of 24,000 to 30,000. The *union* is the lowest administrative base where Health and family planning workers are posted to work with the community. A parallel unit in the urban areas is the municipality. All district towns, and some of the police stations are also treated as municipalities. However, all the union level workers are under the control of *thana* offices.

## 2.4 Population Size and Growth

Despite a century old tradition of vital registration and census, systematic information about the trends, size and growth and distribution of population is handicapped by the poor quality of the data. The demographic history of Bangladesh was seriously affected by unique environmental circumstances. Unlike Europe, where prevalent diseases or disease control dominated the

[1] Originally the country had four divisions. Two divisions were created by sub-dividing Khulna and Chittagong.

demographic history, the demographic history of Bangladesh is dominated by devastating floods, cyclones, and war and refugee movements. The natural calamities over the two centuries together with man-made calamities decimated populations in this area. One such famine (the Great Bengal Famine) eliminated one third of the Bengal population during the period 1769-76. Arthur and McNicoll (1978) cited 12 such devastating episodes, which greatly affected the growth of population in Bengal and also made inter-censal estimates of growth difficult, despite their existence since 1871. In addition, certain elements related to India's independence movement affected both upward and downward counts in successive censuses. Both Hindus and Muslims, for example, reported excess population in order to demonstrate numerical superiority. Despite these fluctuations, the overall pattern noted by Kingsley Davis, in his famous book on India (1951) was that the probable size and growth of undivided India had remained virtually stationary for a long time. The pattern was a gradual growth over a short period followed by an abrupt decline. The excess of births over deaths, which builds up a population surplus, was virtually checked by catastrophes such as war, famine or epidemics, thus nullifying the increase, which the Malthusian doctrine of population would have clearly envisioned (Caldwell 1998a.)

The population estimates of Bangladesh are thus based on Kingsley Davis's (1951) estimates of the population of India. The population size of East Bengal (now Bangladesh) was about 16 million in 1600 A.D, reaching 19 million by 1750 A.D. It is assumed that the population remained at this level for over a century, after which a gradual enhancement of growth occurred, accelerating in 1870. The population growth during this period was between 0.2 and 0.3 with a marked decline between 1750-1770. From 1870 to 1961, the population increased to 48.7 million. However up to the 1920's the population growth was slow because of environmental adversity and technological constraints. Following that period, mortality declined more or less steadily except during the Bengal Famine of 1943 and the partition of India, when the level of mortality reached a peak. In the 1940's, population growth rate exceeded one percent annually. The gradual increase of population extracted from different sources is given in Table 2.1. The World War II, the 1943 famine, communal riots, communal movement and epidemics characterized the period of pre independence from colonial administration. As a result, population growth between 1941 to 1951 was very low (UN 1981). The population of Bangladesh during the Pakistan era, according to the 1961 census was 50 million and the average annual increase was 1.96 percent between 1951and 1961. The population growth was remarkably slow until 1961, but the absolute increase of population over the two decades (1951-74), was 29546,742, which was greater than the cumulative increase in population over two and a half centuries. Improvements in the standard of living and public health could have contributed to the decline in mortality when birth rates out-numbered the death rates leading to an unprecedented increase in the size of the population.

**Table 2.1: Population growth, inter-censal increase and annual growth rate in Bangladesh, 1881-1991.**

| Year | Inter-censal increase (Population in million) | Percentage of Average annual growth rate |
|---|---|---|
| 1881 | 21.4 | 0.90 |
| 1891 | 20.8 | 0.80 |
| 1901 | 28.9 | 0.69 |
| 1911 | 31.5 | 0.94 |
| 1921 | 33.2 | 0.60 |
| 1931 | 35.6 | 0.74 |
| 1941 | 42.0 | 1.70 |
| 1951 | 44.2 | 0.50 |
| 1961 | 55.2 | 2.26 |
| 1974 | 76.4 | 2.48 |
| 1981 | 89.9 | 2.35 |
| 1991 | 111.5 | 2.17 |
| 1997 | 124.3 | 1.73 |

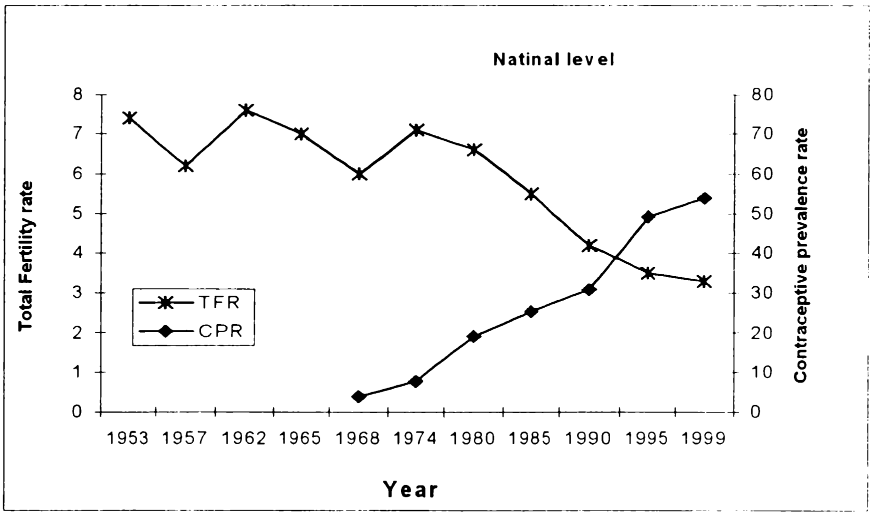
Sources: UN 1981; BBS 1994, BBS internet edition 2002.

The first census of independent Bangladesh was conducted in 1974. The population, despite deaths due to war and famine was 71 million with an inter-censual increase of 2.62 percent. In the 1981 census, the inter-censual growth showed downward trends and by the 1991 enumeration a decisive decline was evident.

## 2.5. Fertility

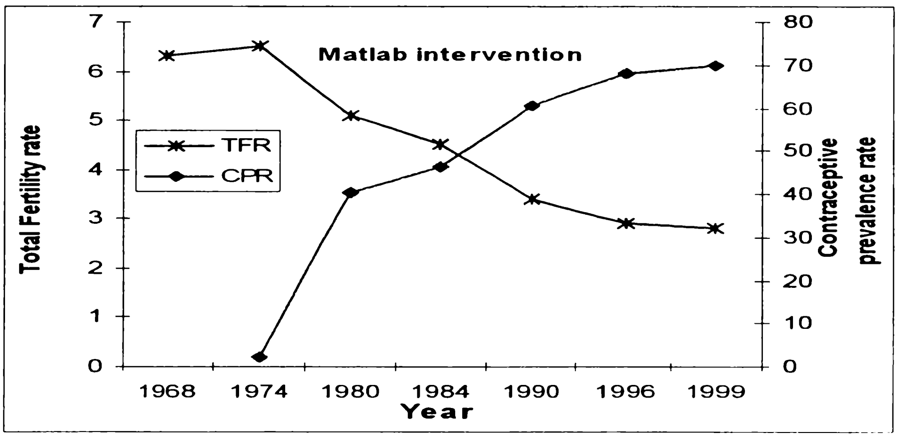
In general, fertility levels of both rural Bangladesh and Matlab were high and ranging around seven to eight births woman (UN 1981; BBS 1995; Curlin et al. 1976; Schultz 1972; DSS report 1984; Rahman et al. 1982) and the levels of contraceptive use were low. The Figures 2.1a to 2.1c provide clear evidence of

**Figure 2.1a: Trends in the total fertility rate and the contraceptive prevalence rate, national level, 1953-1999.**




Sources: UN 1981; BBS 1994; BBS internet edition 2002

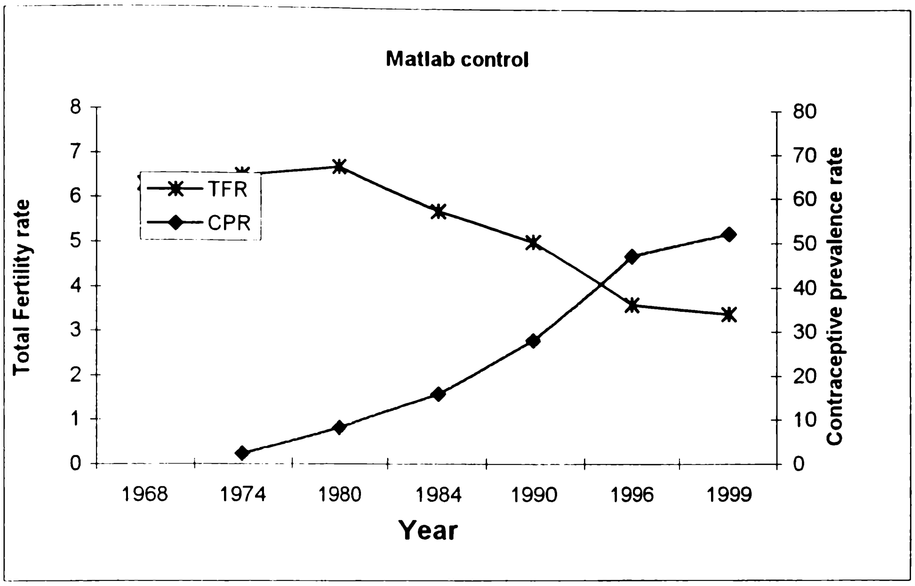
**Figure 2.1b: Trends in the total fertility rate and the contraceptive prevalence rate, Intervention area, Matlab, 1968-1999.**




Sources: Curlin et al. 1976; Fabeau 1994; HDSS report, 2001.

the trends in the total fertility rate (TFR) and the contraceptive use prevalence rate (CPR) of the three areas over the last 4 decades from 1953. As expected, CPR rose rapidly in the intervention area after the introduction of the FPHSP whereas the rise of CPR was slow at the national level and in the Matlab control area. More detailed information about fertility and contraceptive use will be discussed in subsequent chapters particularly, chapters 4, 7 and 12.

**Figure 2.1c: Trends in the total fertility rate and the contraceptive prevalence rate, Control area, Matlab, 1968-1999.**



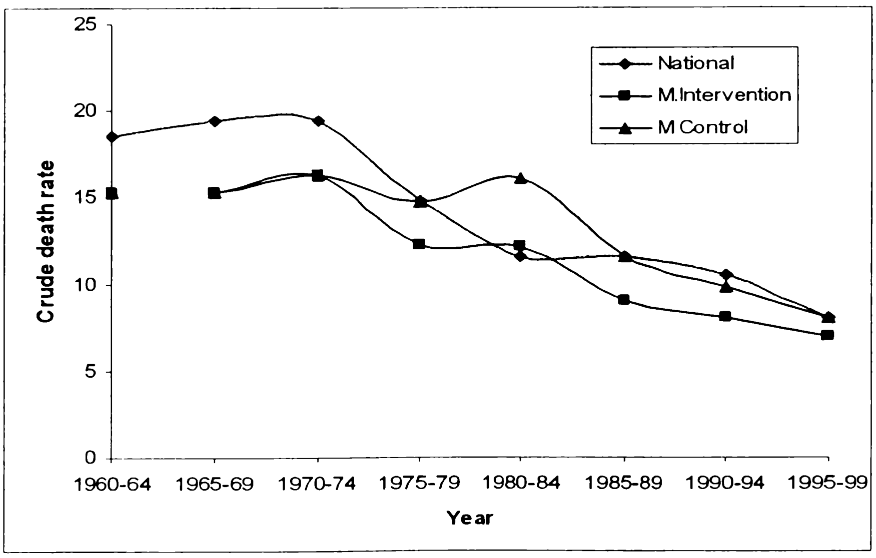

Sources: Curlin et al. 1976; Fabeau 1994; HDSS report, 2001

## 2.6 Mortality

### 2.6.1 General Mortality

The general mortality level of a country reflects its overall development. In the last 60 years from 1940s, overall development has reduced mortality levels and

**Figure 2.2: Trends in the crude death rate in National, Matlab intervention and Matlab control areas.**



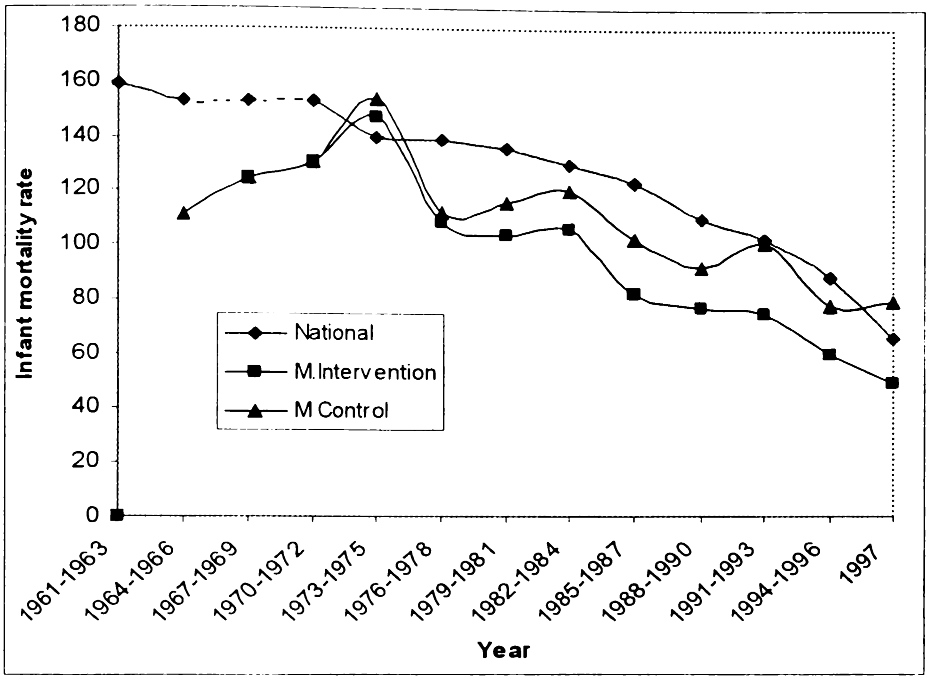

Sources: WB Report 1978-1999;
BBS 1995; Curlin et al. 1976; Fabeau 1994;HDSS report 2001;

increased the populations in the Third World countries. The large population size of Bangladesh is also a product of this particular relationship between development and mortality levels. Even before the 1940's the annual rate of growth was less than 0.70 percent. During the last 60 years, population has increased in an unprecedented way largely because of mortality decline. Mortality estimates by Kingsley Davis (1951) and the National Research Council (1981) showed that mortality in Bangladesh like most developing countries started declining slowly in the early period of the twentieth century, that is, in the 1920's and continued into the 1950's with a temporary halt and possibly a reversal during the 1940's. The main reason for the reversal was the 1943 famine, and the partition of India. The pace of mortality decline accelerated after 1950 and the crude death rate was around 20 per thousand population during the period between 1950 and 1970. Downward trends in crude death rates again halted. In the 1970's these downwards trends in the crude death rate were reversed due to the devastating cyclone in 1970, the liberation war during 1971 and the famine of 1974-75, with consequent prevailing economic uncertainty (Chen 1973; Curlin et al.1976). After that period, a consistent downward trend in general mortality level is evident in all the three areas.

### 2.6.2 Infant Mortality

The infant mortality rate in Bangladesh is one of the highest in Asia. The infant mortality rate in the early twentieth century exceeded 200 per 1000 live births but began declining in the 1920's. In 1951, the infant mortality had reduced to 168, and the decline continued through the 60's, remaining constant at around 140 per 1000 live births. During the early 1970's, national data on in infant mortality was not available but Matlab data shows that the infant mortality had increased during this period due to the unsettled social and economic conditions, the liberation war, and a period of famine brought about by floods. In 1975, the infant mortality rate, after adjusting the fluctuation, was found to be 175, reducing to 110 in the following year in Matlab. From 1970 to date, with a few fluctuations, the decline of infant mortality has continued until the end of the century to well below 100 per 1000 live births reaching 66 per 1000 live births. The decline in the infant mortality rate is even greater in the two areas of Matlab (Mitra et al. 1997; BBS 1995; BBS internet edition 2002; HDSS reports 1984, 2001; Mostafa et al. 1998)

**Figure 2.3: Trends in the infant mortality rate in National, Matlab intervention and Matlab control areas.**



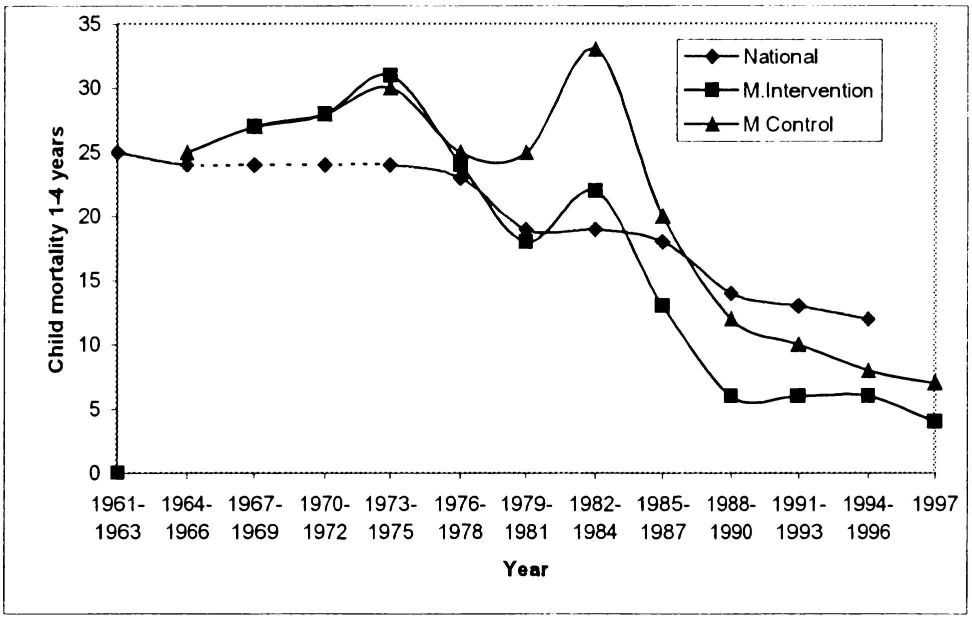

Note: Broken line indicates no data available.
Sources: WB Report 1978-1999; BBS 1995; 2002(access 9th September); Curlin et al. 1976; Fabeau 1994; Mostafa et al. 1998.)HDSS report, 2001;

### 2.6.3 Child Mortality

Unlike the overall mortality or infant mortality, the statistics of child mortality in the historical period are scant. Data collected during the Pakistan period (Schultz 1972) reported that child mortality during the 1956-57 period was 20 per 1000 children in the rural areas and 18 per 1000 children in the urban areas. Child mortality was fairly constant during the fifties and sixties. Matlab data shows, in the early seventies, that is, during the liberation war, floods, and famine, child mortality almost doubled. It rose from 25 in 1969-1970 to 35 during the famine period, in 1975. The impact of famine was worse on females. Female child mortality rose to 41 compared to 29 for male children during the same period (UN 1981). However, child mortality began to decline rapidly during the late eighties to 10 to 15 per 1000 children. The figure 2.4 drawn from the latest report published in ICDDR, B (2001) and the Bangladesh Demographic and Health

Survey (1997) showed that child mortality has been declining evenly for the last few years and is now about 7-9 per 1000 children.

**Figure 2.4: Trends in the mortality among children 1-4 years in National, Matlab intervention and Matlab control areas.**




Note: Broken line indicates data not available.
Sources: WB Report 1978-1999; BBS 1994; 2002(access 9th September);
Curlin et al. 1976; Fabeau 1994; Mostafa et al. 1998; HDSS report, 2001;

### 2.6.4 Public Health Measures and Mortality Decline

These declining mortality trends in Bangladesh, like all other countries, are probably due to public health measures and improvements in living standards. The major killers during the early twentieth century were malaria, typhoid and small pox, which contributed to three quarters of the total deaths (Robinson 1967) at that time. In the fifties, the causes of death widened to include malaria, typhoid, tuberculosis, diarrhoea and dysentery.

The declining mortality trends, which started in the 1930s, continued until the early sixties and the level of mortality fell by nearly 50 percent in the period between 1951-61. Most experts attribute this to the continuation and expansion of limited public health measures especially the control of communicable diseases endemic in the earlier decades. Since the early 1960's, the Government of Pakistan had improved medical facilities and had set up public health utilities through out the country. As a result, malaria was eradicated in the 1970s and small pox by 1976. The public health measures instituted during the Pakistan era were further intensified during the independent Bangladesh regime after 1972. Immunization of infants and children and mothers further following the international guidelines recommended by World Health Organization was expanded. As a result, death due to measles, a third ranking cause of death of the children, was eliminated. A substantial drop in neonatal mortality figures to 50 per 1000 live births in 1996 has again been attributed to the immunization of mothers (Sen internet edition 2002; Mitra et al. 1993 1997; Annul Report of the HDSS 1984 to 1999 ICDDR, B).

## 2.7 Economic Situation

### 2.7.1 Legacy of the Past

Bengal (now Bangladesh) maintained relative prosperity following its incorporation with the Mughal Empire in the Middle Ages[2] (UN 1981). Rice cultivation dominated the economy, as it does today, but a diversified agriculture with a successful local silk and cotton industry were the basis of a vigorous export trade. However, during the colonial administration, the balanced agrarian economy of the region was converted into a raw material base for British industries to produce export crops like indigo, sunflowers and later, jute and tea. Local manufacturing virtually ceased as a result of the competition with machine made yarns and fabric, and high taxes were placed on local products to force patronage of the British products. The rural economy was further deteriorated by a series of natural disasters during that period (Arthur and McNicoll 1978; Ahmed 1968; Islam 1968). Under this dis-industrialization process, the population of the main commercial centre also declined (Ahmed 1968).

The creation of Pakistan in 1947 did not improve the economy of the rural population of Bangladesh. The economic policy of Pakistan with a priority to "industrialization through import substitution", that is, industry at the expense of agriculture, popular during the 1950s further aggravated the already poor

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[2] Ruled India for 200 years since 1526.

economic condition of the rural eastern wing of Pakistan. Thus the industrialization, which developed mainly in West Pakistan, consumed the jute export surplus economy of the east wing (Bangladesh). During the 20 years of Pakistani rule, 1.5 to 3 billion dollars, mainly earned through the exports of East Pakistan was transferred to West Pakistan (Faaland & Parkinson 1976). The shrunken economy of the eastern wing which might have recovered with approximate economic policies, stagnated in the 1950s. However, it began to recover slowly in the late 1960s with the Green Revolution policy (Goletti 1994).

In the early part of the twentieth century, the growing population was accommodated by the expansion of cultivated land and an increase in the number of farms. By the early 1950's, the expansion of cultivated land had largely been exhausted. During the 1960's, East Pakistan was converted into a deficit economy. Ten percent of its food grain requirement was imported from outside the country. The reality of these changing regimes over the past centuries is that the regional agricultural surplus that Bengal previously enjoyed had been removed. Under the East India Company and the formal British administration, Bengal had significant grain surplus, which the British extracted through their colonial policy. Under Pakistan's rule, the possibility of restoring the agricultural sector was negated by the industrial policy. The rural economy, basically East Pakistan's economy, had had little chance to develop its economic base and so retained the same economic structure that had been established by the 1850's: cultivation of rice, jute and few other crops and export of mainly agricultural goods and products. Though the total output showed a slight improvement during the later period of Pakistan, it was far below its requirement for a rapidly growing population. Thus Bangladesh since its inception in 1971 has been basically an agricultural country, dependent largely on a deficit rural economy with little industrialization or urbanization.

### 2.7.2 Land and Landholding

80 percent of the population of Bangladesh dependent on a rural economy. In the absence of any alternative productive assets or resources in the rural area, land holding "bestows status, power and above all security" in the peasant life.

Ownership of land or use rights to it provides an access to local social product (Cain et al. 1979). The landless labourer or the marginal owner of the land can support their family during a good harvesting period but it is not a sustainable security for the poor in the long term or in times of natural disasters, or crop failures or during the lean periods (pre-harvesting period)[3]. Thus during the famines, droughts or food crises, most of the small and marginal farmers have had to sell their lands to rich farmers and become landless.

Historical data, though scarce, shows that, at the beginning of the twentieth century, the growing population was accommodated by the expansion of cultivable land and by an increase in the number of farms (Arthur and McNicoll 1978). The cultivated area grew by sixty percent in the first four decades of the last century. However, during the Pakistan era, 1950-70, expansion of cultivable land was virtually exhausted and the average size of the land holding also declined during this period (Ahmed 1968; Sen internet edition 2002; Akash internet edition 2001). The constant pressure of the population on land and farm size, and the complex inheritance law relating to land, led to further fragmentation of land with each succeeding generation[4] and pushed landholding to a size below subsistence level: the size needed to support a family's consumption.

Different surveys conducted during the Pakistan era, and later during the Bangladesh period, showed that the landless population was continuously increasing after the 1940's. The landless population in the rural area was 15 to 20 percent during the early sixties and rose to 30 percent in the seventies but did not increase further. However, the number of functionally landless[5] has substantially increased since 1960. Recent studies have shown that the functional landless including the landless has risen substantially (Alamgir 1976; Hossain et al. 1986; Razzaque et al. 1998). In addition, the average farm size has diminished rapidly. Different reports published by the Bureau of Statistics, Bangladesh (BBS-1994)

[3] There are two pre harvesting lean period in rural Bangladesh, major one in October November and the other one is in May June each year.

[4] According to Muslim inheritance law, all children inherit the parental property after the death of their parents. Sons got double than daughters. But rural properties are mostly inherited by males as the daughter either gives a way her claim to her brothers or claims it and later gives it to their husbands.

[5]Household owning less than 0.50 acres of farm land

showed farm size evenly distributed between small and medium categories during the 1960s[6]; and by 1984, nearly 70 percent of land holdings were in the small landholding category.

### 2.7.3 Land and Modernization

As noted earlier, Bangladesh has faced a significant number of natural disasters, famines and floods during the last three hundred years. Major disasters slowed down the population growth rate to 0.76 percent, but this was still twice the undivided Indian population growth rate overall during the 1871-1920 period (Davis 1951; Khan 1972)[7]. Environmental disasters and rapid population growth played a major role on the settlement process of Bengal (now Bangladesh.). The pressure of population was adjusted with the available land until 1940 but the continuous population pressure on land exhausted whatever surplus the country had and forced the population/ govt. to seek and exploit whatever other local means were available.

The diversified crop pattern started in the mid-nineteenth century with the expansion of jute cultivation and development of the jute industry. During the Pakistan period, improvements in agriculture were sought through crop diversification and intensity of land use, irrigation, and the use of high yielding varieties of rice. Initially, the use of irrigation and high yielding varieties of rice were limited mostly to the northwestern northeastern zone of the country. But crop diversification started to spread in the 1970s. The crop diversification and intensity of land use during the off-season increased the cereal crop production during the late 1960s nearly 85 percent of the land had come under cereal production by 1983/84 (Hossain 1988).

The use of modern agriculture inputs such as fertilizers and irrigation by the farmers was rare during 1960s and only 7 percent of the land was irrigated using a labour intensive indigenous method. The government policy to encourage the use of modern agriculture technology did not improve the condition of the rural

[6] 0.05 to 2.49 were treated as small farm size; 2.5 to 7.49 as medium farm size.

[7] The higher rate recorded may be due to census error or more rapid increase; Net migration during this period in this region was negligible.

farmers because of a lack of local infrastructure such as credit, extension services, distribution and cooperative water arrangements; a lack of appropriate high yielding varieties of crops that could be cultivated during the monsoon when all cultivable land had gone under water; and slow diffusion of modern agricultural technology among the illiterate rural population (Goletti 1994). So although production increased slowly, the increase occurred mostly in some selected areas where summer rice crops grew. As a result, the increase in rice production did not actually improve the standard of rural living or the total output at the national level. Higher rice production in the country was still dependent on good weather conditions.

Bangladesh inherited a largely static and traditional rural economy with few industrial bases: a densely settled population, growing faster than its available resources, interacting with a hazardous natural environment with little local infrastructure. Despite opportunities for industrial growth, the dominance of an agricultural economy dictated that the progress lay in the rural sector (Arthur and McNicoll 1978).

In the last 30 years from 1970, Bangladesh has achieved some progress in the use of modern agricultural input. Modern seed varieties, which crop in the dry season as well as in the wet season have been introduced and the diffusion of the use of modern agricultural technology spread in the 1970s. The shift of cropped land from traditional to high yielding varieties, as well as an increasing use of chemical fertilizers resulted in a 25 percent increase in yield in irrigated land and a 33 percent in cereal crop land during 1983-84. The increase in high yielding varieties of crops had risen to 40 percent by 1990, 50 percent by 1997. By 1990/1991 ninety percent of this irrigated land was being devoted to food crops (Goletti 1994; WB Report 1999). However, the average growth of the agricultural sector between 1980-1990 was only 2.6 percent, one of the lowest agricultural growth rates in comparison to other low-income Asian countries like India (3.1%) China (6.1%), or Pakistan (4.3 %) (World Bank 1992). The general macro-economic indicators such as GDP during the post-independent period from 1972-73 to 1986-87 grew at a rate of 4 percent per year corresponding to a per capita growth rate of 1.64, against a rate of 3.2 during the two decades prior to independence, mainly offset by a relatively high rate of population growth and a per capita growth rate of 0.66. However, a GDP of 4 percent per year was actually quite modest by any standard, particularly at such a low level of development. This increase in GDP is attributable to the modernization of the agricultural sector.

The unprecedented population growth with fixed and exhausted land resources and slow growth of agricultural production, in fact, increased the landless and marginal (functional) labour in the rural area. The natural corollary of the situation is the poverty and sub-standard living of the country's population. The poverty trend estimated through head count ratio showed that the poverty level during the 1988-89 had improved, and that over the period of 1970-74 it had remained at the same level as it had been in during the 1963-64 period. However, the period of 1970-74 was characterized by large-scale crises due to 9 months war and destruction, reconstruction of war damage, devastating floods, crop failure and famine. By 1983-1984 food prices had generally stabilized and poverty levels had improved slightly (Osmani 1990a, 1990b; Sen internet edition 2002).

### 2.7.4 Occupation Distribution and Household Economy

During the early 1970's, 60 percent of the labour force was absorbed in activities directly related to agriculture (Census 1974; Census 1981). This pattern changed during the eighties. During 1961 to 1974, the labour force engaged in the agriculture sector had declined from 57 percent to 1.7 percent and there was a new direction towards non-farming activities. Driven by the push factor, the majority of the new entrants in the labour market remaining in the rural areas were engaged in relatively low productive activities (Osmani 1990a; Khan and Hossain 1989). The income of the rural household was not derived solely from agricultural sources but also from non-farming activities in the post-harvesting or "slack" season. During these seasons, most members of the household, irrespective of the size of the farm, were engaged in some form of non-farming activity, which accounted for half of the total income of the household. One third of these total incomes, coming from the outside of agricultural sector, mostly in trade, fishing, and handicrafts for the poor, small business on agricultural products, and money lending for middle class agricultural families (Adnan 1977; Hossain 1994, 1991, and 1987) In addition, there were some household members engaged in the formal job sector and contributed towards the household income (Huq 1976).

## 2.8 Urbanization

As discussed in the previous section, Bangladesh is basically an agricultural country with only 5 percent of its total population living in the urban area in 1960. From 1960, urbanization started a slow rise. Despite the rise, recent statistics in Table 2.2 shows that 78 percent of the population are still living in the rural area. However, the city of Dhaka is growing fast. The population of Dhaka city in 1999 is reported as 6.5 million at the present growth rate (4.2 percent) and the population of Dhaka city will the 5th largest in the world by 2015.

**Table 2.2: Percent of urban population, growth of urban population and the population of Dhaka city, 1960-1999.**

| Year | % of urban population | Growth of urban population | Population of Dhaka city * |
|---|---|---|---|
| 1960 | 5.0 | 6.5 | 0.33 |
| 1975 | 9.0 | 6.6 | 1.6 |
| 1980 | 11.0 | 7.7 | 3.44 |
| 1985 | 18.0 | 7.7 | -- |
| 1990 | 13.0 | 6.6 | 4.1 |
| 1995 | 21.1 | 5.6 | -- |
| 1999 | 21.6 | -- | 6.5 |

*Population in millions
Sources: WB Report 1978-1999;
PRB 2002 (www.prb.org accessed September 11, 2002).

## 2.9 Society and Culture

### 2.9.1 Society and Social Organization

Bangladesh is a traditional patriarchal society organized primarily on the ownership of land. Like all other traditional societies, kinship ties, patronage, and neighbourhood across the landholding determine individual position in society (Cain et al. 1979).

The basic social and economic unit in the society is the family (nuclear or extended). These families extend mostly through patrilineally related kin. The first unit of the family is the household usually known as *Khana or Ghar or Chula* (hearth) where a group of closely related individuals usually parents, and their married and/or unmarried children live together and share meals. The head of the household is the patriarch who owns the land and usually holds it until he dies. The children work on the land as members of the household. The control of the patriarch over family matters is immense. The role of the wife of the patriarch over family formation and family building is also immense (White 1992).

A number of households *(chula or khana)* form a *bari*. The *bari is* a patrilineally or patrilocally established homestead, a basic residential and social unit and a sub system within the broader village organization. The affiliation of the members towards *bari* is distinct especially when an individual is faced with challenging new ideas or information about modernization or modern technology (Rahman 1986; Arthur and McNicoll 1978). There is another kin based grouping known as *Gusthi* formed through blood ties but members do not necessarily live together or close by. The affiliation of the members of *Gusthi* is less cohesive and involvement is in matters such as marriage (spousal selection, negotiation of dowries, household division, and settlement of land dispute among siblings. These linage groups are more significant among the big landowners. The villages are socially defined territorial boundaries, and do not have any corporate features. They are less cohesive and feature a lesser degree of solidarity than *bari*. Natural villages or hamlets, the basis of rural settlement and local allegiance, are weak in Bangladesh, which has had important consequences for development (Rahman 1986). In each village, there are neighbourhood clusters called *para*. These *paras* are, like the village, territorially defined social organizations and cohesive social units.

A *para* is formed in and around a big landholding farmer with his patronage groups and result in the formation of a *shomaaj*. They form however, the nucleus of a patronage group consists of the leader and his close relatives, and wider membership comes from adjacent households within the village. The small landowner or the landless workers receive preferential treatment in case of employment, support in bad times, seasonal credits, seeds and other materials for harvesting and other benefits in exchange for allegiance. The leader receives political and moral support in times of dispute with other *paras* or *shomaaj*. Each *shomaaj* has a specific set of customs and rules and social cultural and judicial functions. However, nowadays, patronage groupings based on land are decreasing; leaders of the *shomaaj* come from big landholdings, or highly educated, or established business groups and are known as *maatbors*. Sometimes groups of people who pray in the same mosque also form a *shomaaj*. A village may have more than one *shomaaj*. But they are all members of the broader village *shomaaj*. Apart from the Gusthi, these rural organizations are territorial based characterized by fluidity in membership. Thus, a man may reside in one village, have land in another village and attend a mosque in another. For work, he may go to his patronage group or outside.

At the smaller boundary, for example, *Bari* the institution is cohesive, strong and stable; however, as the radius extends allegiance to broader institutions, like the village, it becomes weak. The function of the village community in the rural society is filled by a variety of non-residential and overlapping groups with more or less specialized religious, political, cultural and economic groups. Kinship and patronage ties stand as the most powerful organizing force in the rural society. These two institutions at the local level provide a sense of security: blending all social groups together and thus defusing any strong manifestation of class. They also give the system a high measure of security (Arthur and McNicoll 1978)

However, because of pressure from increased population growth, both kinship and patronage bonds are weakening (Cain et al.1979). Assets have been diluted through the division and subdivision of land and the number of people dependent on particular pieces of land has increased substantially. These pressures over the land have weakened the kin patronage relationship. The kin leaders, or patriarchs have abandoned their earlier positions. The vertical linage and kinship structure has changed in recent years and the function of the society is now based on more formal commercial relationships. Payment of labour is cash not in the form of other commodities.

The local administrative system is weak in Bangladesh. The rural society does not have any strong local administrative system, which can respond to the national goals and provide an institutional base for rural development or change. The lowest institution in the local administration is the union consisting of 15-20 villages with a population of approximately 20 to 30 thousand. During the Pakistan era, a local government system was introduced. Chairmen and members of the union council were elected from large farm or leaders of the dominant linage or patronage groups. In other words these people became the new sources of local power and patronage groups. Though the government tried to introduce a territorial base structure with a traditional power relationship, the administrative system virtually became an instrument for those relationships. Attempts at creating an effective administrative structure independent of local elite did not succeed (Arthur and McNicoll 1978).

These rural social, economic and cultural organizations play a vital role in rural development. Although modern agricultural technology was introduced with the Green Revolution, as noted earlier, the diffusion of agricultural technology was limited. This trend is changing. Since independence, Government has moved to reach the rural population, especially the marginal groups through nationalized bank and Non Government activities (NGO). Now, the rural peasants form cooperatives, take out loans from banks or NGO organizations and irrigate their land, use high yielding varieties grain. The diffusion of modern agricultural technology is getting through. Presently, 50 percent of the land is irrigated and high yielding varieties of rice are used and total agricultural production has grown at a higher rate than the population growth rate since 1988 (Goletti 1994). In addition, NGOs like Grameen Bank and Bangladesh Rural Advancement Committee (BRAC) and other leading NGOs are providing financial support to the rural landless and marginal landless for economic development. All these efforts have reduced the dependency of the rural poor on traditional social structures.

### 2.9.2 Patriarchy and Gender

In a religious and cultural sense, Bangladesh is a patriarchal society. The natural corollary of such a culture is the domination of women. Women status in Bangladesh is one of the lowest (UN 1992). This low status or the subordination of the women was the historical legacy of the traditional social structure of the Indian subcontinent of which Bangladesh is a part. Historical studies have revealed that the status of women has been low ever since Aryans came and settled in India bringing along their patriarchal social structure. This condition has become even more deeply rooted with the Muslims coming in and settling in India (Mukhopadhyay 1984; Jeffery 1979). In the patriarchal social structure, men have greater control over material resources, knowledge and ideology (Batliwala 1994). Their control over material base is institutionalised through the social structure, political institutions, religious beliefs and cultural norms. The mechanisms through which these institutions work are the restriction of women movement and manifestation of *purdah* (Cain et al. 1979; Mandelbaum 1988; Amin 1995) *purdah*[8] is a system of secluding women and enforcing a high standard of female modesty. Although there are debates about the origin of *purdah*, studies on female seclusion and *purdah* reveal that the marriage and kinship pattern, that transfer women from her natal home to a new environment, a history of invasion from outside and a consequent culture to protect women by confinement inside, Islamic influence and modes of agricultural production contribute towards the female seclusion process (Jeffery 1979; Basu 1992).

Through this seclusion system, the movement of women has become restricted. It has placed severe restriction on the movement of women outside their homestead (*Bari*) and sets a standard of dress that hides their face and forms. Women who move out of their homestead in the public are considered as provocative and offensive. It denies women access to many opportunities and aspects of every-day life but mark them with a kind of social status, as a protected group (Jeffery 1979; Cain et al. 1979; Aziz et al. 1985).

The socialization of the women in patriarchal ideology starts at the very beginning, when she is a child (Jahan 1975). From early childhood, she learns that her role is to be engaged in the child care and housekeeping work which would

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[8]Purdah has a wide meaning. In the general sense, a modest way for female movement. Within the bari women have to cover her body and head when coming out of her own courtyard. She must wear a *burkha*, a lose cloth with a veil that covers her body from head to feet when going out to visit relatives in another village or cities. It also involves women not speaking with unknown males.

generate a realistic outlook towards her future role from a submissive daughter to a submissive daughter-in-law (Mukhopadhyay 1984; Jahan 1975). The second stage of socialization, a severe one, is the restriction on freedom of association, communication, and contact. On attaining puberty, female children are restricted to only family members and kin. *Bari* is the social and as well as physical boundary for the young daughter to move with a sense to protect the female children from sexual impurity, which bestows prestige and honour to the family and regarded as 'vital' for marriage purposes, are the driving forces when restricting their movement. As Aziz (1985) wrote "A man's honour is believed to be related to the sexual purity of his mother, sister, wife and daughter but it is not to his own sexual purity." In addition, a cultural belief exists that if women go to the cropland the purity of the land would be impeded.

The curtailment of free movement imposed by the in-laws in husband house is even more severe. Marriage in Bangladesh is patrilineal, and patrilocal. Most women start their married life in an extended family. Through the marriage system, women are transferred from their natal home to their husband's house where they are required to observe a culture and behaviour harmonious to the husband's family line. Women are expected to learn and follow the norms and disciplines of her new family and have little or no participation in the household decision-making processes. Strict norms govern contact and communication with non-relative male members and senior male members within the kin. Women are virtually confined within the courtyard of kitchen and living room. The degree of restriction on movement is usually severe in the first few years of marriage and decreases with increasing age and number of children (White 1992; Aziz et al. 1985; Jones 1982).

The degree of restriction on movement, a symbol of prestige and honour of the family, is higher among the middle and upper middle class and is treated as a way to upgrade a family from lower class to higher class (Maloney et al. 1981; Aziz et al. 1985). Until recently the restriction of movement extended up to the type of work a woman could do. Women could not go out of their bari and participate in the primary agricultural activities but could participate in the secondary agricultural work confined within the *bari* (Dixon 1976). They were not allowed to work in other houses within the *bari* on paid employment and this still holds true for the higher social class. However, women of poor families, widowed, deserted and old who are compelled to work in paid employment are allowed to work as domestic workers to rich families and other small works like plucking chillies, digging out potatoes, winding yarn for the rich weaving families, or beating half dried pots for the rich pot-making families. *Shomaaj is* not very rigid on these women coming out of *purdah* to feed themselves.

Broadly, the roles of men and women are fixed with men in the outside world and women confined to the private work of the home (Amin 1995). This division was maintained in two ways: through class and gender (Mead Cain 1979), and through setting up social, economic, religious and cultural norms. These prescribed roles of men and women are still entrenched, although in recent times have weakened somewhat. More women now take jobs in the formal sector. A growing number of poor girls have migrated to the urban areas to work in the garment industrial sector. These girls are mostly from the lower grid of the society. The restrictions on unmarried young girls and newly married women are still strong in the rural society (Amin 1995; Coleman 1990). A very negligible percent of the women in rural areas worked for cash money in the early 1980s (Mitra et al. 1987,1993). This trend are slowly changing in the rural areas. BDHS–97 (Mitra et al. 1997) documented a rising work for cash money among the rural women.

## 2.10 Education

Historically, education in the sub-continent during the pre-colonial administration was by selected localized centres: *Maktab*[9], *Madrasha*[10] and *Tolles*[11] based mostly on religious lines. The students were male with few exceptions. Education during the British period was centrally directed and confined mostly to the upper class people, however, girls had access to the education system. During the Pakistan period, universal primary education was reiterated. However, it is during the Bangladesh period that universal compulsory free primary education as the basic right of the citizen was recognized in the 1972 constitution. Successive

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[9] Informal religious teaching
[10] Formal religious schooling along with secular education (Muslim)
[11] Formal religious schooling along with secular primary education (Hindus)

governments reiterated their commitment to realize the goal of universal primary education to reduce the class and gender differences.

Between 1961 to 1981, the level of education progressed at a slow rate. The 1981 census showed that 24 percent of the population aged 5 years or older could read and write and at the higher age 29 percent of population age 15 years or more could read and write. However, the 1991 census showed an improvement of education levels. During this decade, the education level of the population age 7 and over increased to 32.4 percent.[12]. In 1994, government introduced direct monetary incentive to the family through "food for education of primary school children" and "scholarships for the girl students up to the eight grade". Development expenditure for primary education was more than double in 1996 than the 1990-1991 period (Amin and Sedgh 1998; Ahmad 1996).

The level of education is one of the lowest when compared to any other Asian nations. The education level of the Bangladeshi population was very low in the first three decades of the twentieth century. Seven to eight percent of the people

**Table 2.3: Percentage of the population 25 years and above with less than first level secondary education.**

| Country | Year | Percent |
|---|---|---|
| Nepal | 1971 | 99.7 |
| Iran | 1966 | 95.7 |
| India | 1971 | 94.9 |
| Thailand | 1970 | 94.6 |
| Bangladesh | 1974 | 92.3 |
| Indonesia | 1976 | 90.7 |
| Singapore | 1970 | 77.2 |
| Philippines | 1970 | 76.2 |
| Republic of Korea | 1970 | 72.6 |
| Sri Lanka | 1969 | 63.9 |
| Japan | 1970 | 61.5 |

Sources: UN 1981

could read and write during that period which increased to 14 percent in the forties. The level of education was more or less same during the Pakistan period (1947-1961). The 1961 Census Report showed that 16 percent of the people could read and write. However, UNESCO Statistics showed that the level of literacy

[12] The concept of literacy used in various censuses was not uniform and the base population used in the literacy rate calculation was also different. While censuses in 1974 and 1981 used age groups 5 plus, 1991 census used 7 years age groups.

among the population of age 25 and above in Bangladesh was higher than Nepal, India, Iran and Thailand and far below of some other Asian countries like, Sri Lanka, Korea, Indonesia and Singapore.

Despite secular education beginning in 1882, participation of the women in education remained low. The gender inequality and son preference in the Asian society are well documented in demographic literature. In Bangladesh, gender inequality and son preference exists (Chen et al. 1981; Rahman et al. 1992). This cultural norm restricted female enrolment and education of the female children. Statistics of the women literacy rate were not available until the 1961census. In the 1961 census, 11 percent of the females aged 5 year or above were found to be literate which had increased to 16 percent in 1981, and further increased to 20 percent in 1991. However, the literacy rate among the women aged 15 years or more was higher that overall rate. The literacy rate among women of age 15 years or more was 13 in 1974, which increased to 26 in 1991. It is interesting to note that whatever improvement education level was achieved during the pre liberation period, it was achieved mostly through rises in the education level of women. Improvement in the level of male education was surprisingly slow.

## 2.11 Religion and Language

Islam is the dominant religion practiced in Bangladesh. Eighty eight percent believes in Islam and 10.6 on Hinduism. Rest of one and half percent believes other religion of which 51 percent are Buddhists and 31 percent are Christian. Most of the people in Christian faith lived in the capital division of Dhaka. But Muslim and Hindus are living all over the country but the social and religious ritual differences between these two religious groups force them to live in the same co-religious residential clusters (Aziz 1979). In general, two communities are living harmoniously attending the same school and consult the health practioners from both religion. Ninety eight percent of the people speak Bengali while English is widely used in the offices, businesses.

Having discussed the general geo-political, socio-economic and cultural setting of the country, a brief description of the geo-political and socio-economic context of the Matlab area is equally important as the present thesis uses the data from Matlab for a comparative analysis.

## 2.12 Socio-economic context of Matlab

In general, socio-economic and cultural setting of Matlab is homogeneous to the overall national environment. But Chittagong division, where Matlab is situated, is a little more conservative and NGO activities are less proliferated than other divisions. Proportion of family planning workers are also less in this division (Mitra et al. 1993, 1997; Cleland et al. 1994).

Matlab field research area is a low-lying delta intersected by tributaries of the rivers, the Meghna and the Gomuti. It is situated in a rural area of Chandpur district of Chittagong division (eastern Zone) and 45 kilometer southeast of Dhaka, the capital city of Bangladesh. The climate is similar to the national level. The society is traditional patriarchal, religiously conservative and largely isolated from the modernization influences of urban areas.

The status of women is similar to national level. They were mostly confined within the *bari* and were maintained with strict observance of purdah their movement. Women could move from one village to another with male escorts (Rahman 1986; Aziz and Maloney 1985; Aziz and Mosley 1994). These trends have now been changed. The intensity of the observance of purdah has been substantially decreased (Aziz and Mosley 1994; Razzaque et al. 1998). The Matlab area is largely Muslim. About 88 percent of the population are Muslim and rest of them Hindus. During the early 1980s the education level was found low with 45 percent males and 73 percent females over age 15 have no formal education and are changing now. The 1996 DSS census reveals that the education level of the same age groups have now increased with 65 percent of the males and 47 percent of the females having some level of formal education. However, a striking change has taken place among the younger age groups. In this age group between ages 7-14 years, 70 percent of the children now have some form of formal education and the preferential education for boys that were evident in all earlier censuses has now became literally non-existent.

The economy of this area is dominated by subsistence farming and fishing. Most of the farmers live at a marginal level possess land on an average of less than two acres. Sixty six percent of them are even possess less than 0.50 acres land or landless (Razzaque et al. 1998). Modes of cultivation are primitive. Use of fertilizer and irrigation though small is increasing rapidly (unpublished data, DSS census 1996). Crops varieties produce in this area are same as that at the national level.

Through each year there are two major food shortage periods. These are before the two major harvesting periods i.e. November-December and April-May. The absence of any resources other than their own labour along with a small-scale landholding, farmers are in a very vulnerable position when faced with any adverse situations especially those arisen from any natural disaster like floods, cyclones or famine, which bring damages to the food and cash crops. Situation like these usually compelled farmers to sell their lands to meet those emergencies and buying their basic necessities for survival. Presently, these adverse situations, however, has reduced in at least a half of the HDSS area due to construction of an embankment for irrigation around the valley of Meghna and Danaghoda Rivers. And most of the comparison area is located inside the embankment area.

Having discussed the geo-political, socio-economic and cultural setting of the country and Matlab, it is equally important to explore the context of family planning programme and its evolution and what historical background the past programme had in dealing with the demand for fertility control among the Bangladeshi population.

## 2.13 Bangladesh Family Planning Programmes

The Bangladesh family planning programme is one of the oldest fertility control programmes in the world. From its inception in 1953, it has introduced structural and strategic changes for effective fertility control. Initially, it was a private attempt and limited to the urban areas. Later the government introduced the national family planning programme in different phases. However, most of the early efforts were confined to a limited group of people and were virtually non-existent in rural areas of East Pakistan. In 1965, a comprehensive family planning programme was introduced. But the alteration of the programme and the adaptation of new strategies did not have any discernable impact on fertility level. Despite the long existence of the family planning programme in Bangladesh, recent reviewers attributed bureaucratic inefficiency, political turmoil and societal constraints as the contributing factors to the low performance of the fertility control programme during the Pakistan period and the first few years of the Bangladesh period. In the next section, different strategies taken by the successive governments during the Pakistan and early Bangladesh period will be briefly discussed to highlight past family planning programme efforts.

### 2.13.1 Pre-independent National Family Planning programme

The Bangladesh family planning programme is considered the second oldest programme in the world. In the late 1940s and early 1950s, demographers all over the world believed that the low use or non-use of contraceptives among people of the Third World countries was due to a lack of crystallized reproductive goals among the population in relation to the new social and economic realities. They also thought that even if some of them did see the necessity of family planning, they lacked the means of implementing it in their lives (Davis1954). Policy planners in Pakistan were worried about the prospect of population growth. In 1953, a private family planning association was established to offer clinical services in the cities and large towns using external financial aid. Only the promotional staffs were incorporated in the programme. Three thousand service points were established covering an area with a population of one million but the utilization of the clinical services was very low.

In 1960, the Pakistan national family planning programme was introduced. The programme initially tried to give knowledge with redefinition of the situation. It was designed to make people aware of the need for and benefit of, fertility control through mass media, and to make contraceptive methods available through clinics and hospitals. An 'extension education' strategy with the 'diffusion' assumption that the adoption of contraception is a process that has to be stimulated, overseen and guided by some local agents which Rogers (1973) termed as 'change agent in aides' was introduced. This term actually refers to the grassroots level workers of the family planning programme who work intensively with clients to influence their innovative decision (Rahman 1986). The aim of this programme was to link the rural periphery with the clinical service point through these grassroots workers. This strategy was abandoned after 18 months of the programme because it did not have had any sustainable effect on the overall fertility level. Coordination of the various elements had been poor. Analysis of the programme documented that lack of proper coordinated supervision, education extension campaign programme failed to link the rural people with clinical services (Rahman 1986). Achievement of this programme was termed as stage setting (Cleland et al. 1994).

In 1965, comprehensive family planning services comprising clinical services, information, education, and communication (IEC), and expanded outreach programme were launched by establishing a separate Family Planning Board. The service strategy was based on female paramedic staff and an outreach system consisting of *dai* and male organizers. The main task of the *dai* was recruitment of IUD acceptors, and that of the male organizers was recruitment of vasectomy cases. Despite a considerable investment in this programme, the new approach did not change the contraceptive prevalence rate vis-à-vis the fertility level but only increased the basic knowledge of contraception.

The family planning programme between 1965-1970 was fairly comprehensive and more organized than the previous ones. During this period, however, several outstanding factors clouded the impact of the programme. Pakistan's political standing was deteriorating throughout this period. The government's capacity to organize a mass movement was weak due to lack of political credibility. Due to this inherent weakness, the government could not legitimise the programme. In addition, most Bengalis thought the programme was threat to numerical superiority of the East Wing. The high political echelons of the East Wing never openly supported the family planning programme. However, the programme itself had some inherent problems. Basically, during this period the government launched a single method approach and promoting one method at one time without assessing the needs of the population and ignoring the technical weakness of the method and social cost of accepting contraception.

This revised of the programme did not show any positive results. Assessment of National Impact Surveys-1969 (NIS) cited in Cleland et al. (1994) showed that 64 percent of women were aware of family planning methods after probing and 22 percent knew a place where they could obtain methods and 14 percent knew the supply point. Only 16 percent of women reported that their husband approved of family planning. Despite such knowledge, the contraceptive prevalence rate reported in 1969 was 3.9 percent per hundred couples.

The Pakistan family planning programme, though failing to show any discernable impact, contributed to the Bangladesh fertility control programme through the staff it had built. The staffs were employed in the Bangladesh fertility control programme. Subsequent Bangladesh programmes maintained the same strategy and provided the clinical services with an incremental outreach and Information Education and Communication (IEC) backup.

The period of the late 1960s and the early 1970s till 1972 was a period of political turmoil, war and famine and thus there was no breakthrough in the programme expansion. As a result of the nine-month independence struggle, Bangladesh inherited a war-ravaged economy. The bureaucracy had totally collapsed and the economy and the communication infrastructure were in disarray. The new nation was not in a position to effectively concentrate on development. However, realizing imminent population growth prospects, workers employed in the Pakistani programme were reinstated in the new organization established by the Bangladesh government. Reinstating these former staffs meant reinstating of the old organizational culture. The most serious problems related to the absorption of the male outreach workers in the health wing of the Ministry of Health and Population Control, and the absorption of the Pakistan family planning programme into a separate population wing. This bifurcated leadership created rivalries, conflicts, and acted as an obstacle towards a meaningful integration of the health and family planning outreach work. In addition, these male outreach workers had worked in public health campaigns against malaria, small pox and tuberculosis eradication and did not have the appropriate background experience of the Maternal Child Health and Family Planning (MCH-FP) activities that were related to women and children.

During the post-independence era, the programme was engaged with organization, reorganization, and related problems. A mechanism for coordinating and expanding the family planning activities at the grassroots level was non existent As a result, programme expansion and activities were restricted to small areas and small segments of population. Contraceptive use reported during 1975 was 7.7 per hundred couples. Despite poor performance, the imminent prospect of population growth forced the government to establish a clear focus of the population problems and set up a target in the first Five-Year plan (1973-1978) of Bangladesh. Year 1975 was the beginning of a commitment to a multi-sectoral and broad-based population control and family planning programme with a priority to deliver family planning services under the Ministry of Health and Population Control.

### 2.13.2 Family Planning Programme Interventions in Matlab

In 1975 the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR, B) launched a project known as Contraceptive Distribution Project (CDP) in half of the Health Demographic Surveillance System (HDSS) area to examine the latent demand for contraception. The project was simple to implement. *Dai,* an old illiterate woman from the lower social strata was specifically hired to visit households at 90-day intervals and distribute oral pills to women who showed interest in fertility regulation and to follow up clients for re-supply in future visits. These *dais* were a non-users, over childbearing age, and had no training on family planning. All these criteria were deliberately controlled to test the latent demand for contraceptives. A year later, condoms were added in the distribution. The programme continued for 21 months.

The initial results support the latent demand hypothesis. The Contraceptive Prevalence Rate (CPR) increased from 1 percent to 20 percent within six months but within nine months however, CPR started to decline. The CPR was 12 per hundred couples in the CPD intervention area when the programme was terminated in July 1977. The analysis of the CDP reveals that simple demand oriented distribution is inadequate in a situation where the social, psychological and health costs of contraception is high. Women who adopted family planning at that time had minimal social support from husband, in-laws and kin. In addition, there was no adequate information, advice and ancillary health care support for these women. There was no support system for them if anything went wrong. An extensive analysis and appraisal was conducted on CDP performance in order to introduce a creditable programme in the area and this concluded that an emphasis on a particular method was inappropriate. The credibility of the programme and its workers are the pre-requisite for the success of any fertility control programme. During the appraisal of the CDP, the community leaders, husbands and programme clientele were extensively consulted. The results of the consultation demonstrated that a workers credibility emphasis in rural culture was an important element to add into the new programme. Another point expressed in the discussion was that the illiterate and elderly birth attendants were not committed to family planning and did not have the necessary information and knowledge that clients needed (Huber and Rahman 1977 ).

Thus the comprehensive Family Planning and Health Services Project (FPHSP) was introduced in its research site Matlab in October 1977, after a careful evaluation of CDP. It introduced a cafeteria approach, distributed family planning methods to homes through Community Health Workers (CHW). These CHWs were literate, young and from respectable families. This programme turned out to be one of the most successful in reducing mortality and increasing the contraceptive prevalence rate thereby reducing fertility though it did not influence the desire for children (Chen et al. 1983; Rahman 1986; Rahman et al. 1982; Phillips at al. 1984, 1988; Koenig et al. 1987, 1994).

The Government of Bangladesh introduced some of the successful findings of the Matlab project specially the recruitment of more family planning workers (FWA) at the grassroots level (Phillips et al. 1996). It is believed that the recent success of the national family planning programme in reducing fertility may be attributed to these factors.

### 2.13.3 Other Family Planning programmes in the Country.

In addition to ICDDR,B, there are numerous organizations actively engaged in both family planning and development. Each of these projects has success in their respective fields. A summary of NGO activities and their achievement is given in Table 2. The four types of NGOs (presented in table 2.2) were expanded over time all over Bangladesh. The most successful NGOs were the Grameen Bank and the Bangladesh Rural Advancement Committee (BRAC) involved in poverty alleviation and community development programme. These two organizations were successful in expanding their activities all over Bangladesh.

However, these organizations do not offer active population control programmes. The NGOs involved in population control programmes restricted their activities to the urban areas until 1980. Several programmes though having an impact were short-lived. In 1981 the Government promulgated an ordinance permitting NGOs to operate as family planning services organization in rural areas and allowed donors to provide direct assistance to the NGOs. Since this promulgation, the number of NGOs has increased to 400 and reached at the grassroots level. The detail activities and expansion of the NGO programme will be discussed in a subsequent chapter.

**Table 2.4: Lists of different NGO and their activities.**

| Name of project | Type of activities | Year | CPR | |
|---|---|---|---|---|
| | | | Intervention | Control |
| **Companigonj** | Fixed site Health Family Planning Services | Mid 1970s | 10 | -- |
| **Zero Population growth** | Demand generation (Community Development) IEC | 1981 | 29.9 | 24.8 |
| **ICDDR,B**<br>**Munshigong**<br>**UGNPS**<br>**TAF**<br>**TPF** | Clinic service & Outreach | 1977-84<br>1981-87<br>1987-89 | 12 to 49<br>12 to 44<br>21 to 45 | 16<br>32<br>34 |
| **Swanirvar, Grameen Bank, BRAC, ASA, Jiggasha, Proshiksa and more.** | Community development, | | Unknown | Unknown |

Sources: Cleland et al. 1994
Koenig et al.1987

Having discussed the context in which the interaction between social change fertility and family planning was occurring, the objective of the next chapter is to discuss the general theoretical paradigm developed by demographers and sociologists over last 50 years to explain the fertility transition in broader perspectives.

## 2.14 Conclusion

The chapter has described the socio-economic, demographic, cultural and programmatic context in which reproductive changes had occurred among the rural women of Bangladesh. Bangladesh is a prairie alluvial land with a linguistically and religiously homogeneous society. However, the society has undergone changes over the years in social, economic, demographic and cultural aspects. The macro level social development (improved survivorship) changed the economic and demographic structure, changing the occupation distribution of the society and creates a large base population structure.

Despite those changes, the economy of Bangladesh is predominantly agricultural. Society is less cohesive and fluid. Modernization of rural economy has been started and increased rapidly. There are other macro level economic developments especially in the field of economic infrastructures. Change has also been occurred in government's policy to address the development and contraceptive policy issues.

# Chapter 3: Theories of Fertility Decline Leading towards Theoretical Framework

## 3.1 Introduction

Changes in reproductive behaviour in a particular society respond to a complex web of demographic, socio-economic and cultural change, and bio-technical innovation. Fertility decline is a response to the change in reproductive behaviour of a particular society. Social scientists and policy planners in their respective fields have attempted to identify the factors of reproductive change or fertility decline. The result has been a number of salient theoretical frameworks explaining the changes in reproductive behaviour on the basis of past trends and applying it across developing nations in event of the rapid population growth that characterised the post Second World War era. Some of those theories relevant to the present thesis are the demographic transition, social change and diffusion theories.

This chapter will review these three major theories dealing with the changes in reproductive behaviour focusing on the Third World country perspectives. The review will begin with the broad base demographic transition theory followed by the more specific approaches more directly related with reproductive behaviour and social change at both macro and micro level. A critical analysis of the each of the theories with reference to the changes in reproductive behaviour of the women in the Third World countries especially the East and Southeast Asia will also be included in each section. Finally, the changes that have occurred in the Third World countries since World War II and the evolution of family planning programmes will also be discussed. This chapter provides a historical perspective of changes in reproductive behaviour identifying the major determinants, both in the developed and developing countries, and the pace of change. This background will help to formulate a general theoretical framework for this thesis, which is presented at the end of the chapter.

## 3.2 Theories

### 3.2.1 Classical Transition theory

Demographic literature identifies Thomas Malthus as the first to express concerns about rapid population growth and its bleak consequences on human welfare in his classic essay *Essay on the Principle of Population*, almost two hundred years ago. During the nineteenth century, the Western countries, especially Europe and European settlements in North America, Australia and New Zealand were going through a demographic transition process. Different analyses were made of this fertility transition process, but none were recognised as Demographic Transition Theory (Caldwell 1976). Frank Notestein first published the Demographic Transition Theory in 1945. This framework drew on the experiences of Europe to predict the dynamics of how the Third World countries would achieve such transitions.

The demographic transition theory (Notestein 1945), states that fertility in the pre modern society had been kept high by the maintenance of a whole series of props that existed in the social-economic structure and cultural setting of the particular society at that time. These props included:

> Religious doctrine, moral codes, law, education, community customs, marriage habits, and family organization ... all focus towards maintaining high fertility (Notestein 1953: pp 39).

The process of modernization, basically, urbanization and industrialization severely weakened or removed these props by eroding the traditional extended family based social and economic systems: replacing them instead with individualism and personal aspiration. These then became the driving forces towards reproductive change (Caldwell 1976).

During this period when Notestein published his article, two independent demographic phenomena concerned academics and policy planners. Firstly, the completion of the first stage fertility transition among the Europe and European settlements elsewhere, and secondly, the improvement of the overall survival conditions of the population in the Third World countries mainly in Asia and Latin America, leading to a population explosion. Notestein explained these trends about non-industrialized agrarian societies, by adding that the fundamental nature of the agrarian family life, customs, religious beliefs, and education level had changed very little. The development and infrastructure that had led to change in the reproductive behaviour of the West was not present in the Third World countries. Modern nations had introduced several measures, for example, public health intervention in the Third World countries to reduce mortality but had failed to foster any social changes that would have led to change in the reproductive behaviour of women. Because of this 'one sided modernization' in the Third World countries, fertility would rise initially before eventually declining after a pause (Notestein 1953).

Under the same principles set by Notestein, Davis (1948) argued that the growth of world population was due to declining mortality in the first phase, with its consequential improvement in the life expectancy of the population. The change in reproductive behaviour (fertility decline) had occurred when large families proved to be an embarrassment in the highly urbanized and mobile modern society. He concluded that the lag of birth control behind death control is implicit in the growing rationalism of modern life which first influences the negative value (death) and later the positive value (high fertility) (Davis 1948). In the developing countries, kinship, Davis claimed, was the primary basis of social organization, so reproduction was a necessary means for every major goal in life and encouragement of high fertility was essential to maintain ancestral linkage and security in old age. He concluded that change in reproductive behaviour would occur only when Asian societies as well as others acquired modern civilization, urbanization, and western education.

A more convincing hypothesis attempting to explain the general trends of demographic transition across countries, points at the possible role played by mortality decline. This subset is known as the threshold hypothesis. This hypothesis states that the change in reproductive behaviour towards fewer children is interrelated with decline in mortality and changes in social values, norms and socio-economic institutions. In the third world countries, where women had a large number of children at the initial level the hypothesis states, improvements in social and economic conditions would have little effect on having a family size until a certain economic and social level had been reached. Once that level had been achieved, the demand for a large number of children would lessen.

The central assumption of the threshold hypothesis, therefore, is a regime of fluctuating high natality replaced by a declining natality caused by a decline in mortality, and changes in values, norms and socio-economic institutions. This decline could be triggered by one or more variables reaching a threshold value. The theory did not formulate a rigid causal chain between fertility and other variables but assumed that the threshold pattern would vary from region to region, or country to country, and between time periods (Srikantan 1977).

To summarise the basic assumptions of the demographic transition theory and its context to Bangladesh, demographic transition theory in a structural sense, postulates three stages of development (Keyfitz 1977 cited in McNamara 1982). Firstly, high fertility and high mortality results in a stationary population (pre-transition period), secondly, declining mortality increases the survival of the population while the high birth rate continues, but after a time lag, fertility starts to decline (transitional period). This gap between birth and death rates has accelerated population growth in the Third World countries and has created a very young population structure with a huge population momentum leading to a growth in absolute population. This is true in most of the contemporary Third World countries, including Bangladesh. These countries are striving to reach the third stage: a new balanced stage of low fertility and low mortality, which most developed countries had achieved during the early twentieth century. The mechanism by which developing countries would proceed from one stage to another is an integrated development programme: urbanization, industrialization and western education.

At the determinant level, the demographic transition theory holds the view that currently in the Third World, fertility is high because mortality is high, the opportunity for advancement is low, and the economic value of children is high. The opportunities for women to attain economic self-sufficiency are scant. In such a situation, deliberate limitation of family size would be non-existent, and a natural fertility regime will continue and be maintained through kinship structure and organization. The rationale and conscious choice for children would arise through the process of development. Development, according to transition theory, is the macro level structural change. These structural changes in the developing countries can be achieved through an integrated modernization programme because modernization improves health, increases education levels, raises the standard of living and personal aspirations, and helps to break down the old customs thus bringing fertility under control (Notestein 1945). The traditional transition theory thus provides a broader perspective of the demographic phenomena, which will assist in analysing the fertility decline mechanisms in Bangladesh.

***Critical Assessment of Classical Fertility Transition Theory***

Empirical research on change in reproductive behaviour (fertility transition) in Europe and the Third World countries provides unexpected and contradictory results of the causes of the change in reproductive behaviour in Europe and the Third World. Analysing 17 European countries Knodel and van de Walle (1979) found that changes in reproductive behaviour in these countries occurred at a varied levels of development. Development in this study was measured in terms of urbanization, industrialization, education and infant mortality. The first reproductive change, that is, fertility transition, commenced in rural France, which had a low rate of literacy in the late eighteenth century. The illiteracy rate during the fertility transition of each of the 17 countries varied from 60 to 21 and lower. However, 11 out of the 17 countries had high literacy rates when fertility began to decline, which would seem to provide plausible evidence of a link between education and fertility decline. In Contrast to the above findings, low literacy rates were found among the countries that began fertility decline at a later date compared to other countries in this region. The same was true about the level of urbanization and industrialisation and infant mortality level.

A similar time lag and lower level of determinants were also found in a recent study of the changes in reproductive behaviour in the developing countries. Bongaarts and Watkins (1996), found that the Human Development Index (HDI) was lower in a country, which started fertility decline at a later date in comparison to other countries within the same region. A comparison of infant mortality levels in 41 Third World countries and Europe (Bongaarts and Watkins 1996; Knodel et al. 1979) reveals that most of the European countries started fertility decline at a higher rate of infant mortality than the Third World countries. However, it is worth noting that fertility decline started in the Third World nations after the epidemiological breakthroughs of the 1930s and 1940s. This made comparison between the infant mortality levels of the two regions incompatible. However, these results may provide supporting evidence for the threshold hypothesis that development thresholds may vary by region, country and time (Srikantan 1977 1982).

In writing the threshold hypothesis and reviewing the socio-economic context of fertility transition in Europe and the Third World, Srikantan, (1977), argued that fertility transition in the Third World would not show a similar pattern to Europe because of the basic contextual contrasts between these two worlds. The Western world had enjoyed some economic advantages during their transition period that were absent in developing countries. For example, he observed that, during their industrialization and fertility transition, the Western nations had sent surplus population to the New World, to America and Australia and New Zealand, while the colonies served as a source of raw material and also a market for finished products, which quickened development process. But the Third World countries had to solve their problems and develop using their own materials and human resources. He added, however, that because of the revolution in modern contraceptive technology, the Third World was in a better position to control fertility. Because of these contrasts, the Western model of changes in reproductive behaviour (fertility transition) might not be repeated on the similar scale and length in Third World countries.

Dyson and Murphy (1985), studying the relationship between fertility and mortality threshold in the Third World countries, found that high mortality led to high fertility but low mortality did not always lead to low fertility as a result of the complex interaction between mortality and socio-demographic factors. A fall in mortality, for example, could increase fertility through its relationship with breastfeeding, postpartum amenorrhoea, and longer reproductive duration as a result of longer spousal survival. In illustrating this relationship, they noted that this was true for most of the Latin American countries and some of the Middle East countries but was less true in the East and South Eastern Asian countries where marriage is universal and age at marriage was very low. Similarly, several studies found although loose, a direct relationship between mortality and fertility and the relationship was not always unidirectional (Kaa 1996). Several other studies reported a relationship between mortality decline and fertility (Bongaarts 1986; Chesnias 1992). Van de Kaa (1996) reported four responses of fertility to declining mortality, two at the micro level and two at the community level. Chowdhury et al. (1976) concluded that child mortality experiences shape the reproductive norms and behaviour at the community level and that previous child death affect fertility among couples but that the two were not mutually exclusive.

In the 1950s and 1960s, development planners, including transition theorists advocated macro economic structural change to improve people's quality of life (Hoogvelt 1978), which would lead to fertility decline. Critics of macro level development show that a number of Asian countries with low levels of development underwent fertility declines (Mauldin 1982; Knodel 1987; Bongaarts & Watkins 1996). These countries were Taiwan, South Korea, Sri Lanka, and Kerala (India), Thailand, and China. The fertility decline pattern of these five Asian countries had several features in common: i. Better health and longer life. Expectancy at birth was more than 55 years in all these countries; ii. High literacy rate and education for boys and girls (China, Sri Lanka, Kerala); iii welfare institutions (China, Sri Lanka, Kerala of India) and iv. All countries had family planning programmes in existence. More recently, Vietnam, which has a vigorous family planning programmes similar to China, has gone through a fertility transition process. Its development in terms of per capita income is low. Urbanization at the time of transition was less than 20 percent but higher than Thailand. The life expectancy and female literacy levels were similar to Sri Lanka and but much higher than Bangladesh, India Nepal and Pakistan (Freedman 1995). The economy of South Korea, Thailand, China and Kerala (India) was predominantly rural (Casterline et al. 1991). In addition, results of Taiwan fertility analysis demonstrated that the impact of education varied in various stages of fertility decline (Freedman 1977, 1994)

Since independence from British colonial administration in 1947, Bangladesh, like other Third World countries, had under taken several measures to change the socio-economic structure. New industries and educational institutions were set up, and finally, rural development through Green Revolution was launched in the 1960s. Despite a range of social and economic development programmes, fertility and mortality decline in the 1960s and 1970s was slow and erratic (Mitra et al. 1997; Cleland 1994; Casterline 1991).

The contemporary fertility pattern and the diverse role of development in the Third World and the failure of the transition theory in explaining the dynamics of reproductive changes in these countries including Bangladesh, encouraged social scientists to further explore the drivers of reproductive change. The limitations of the broad base macro level approach enshrined in traditional transitional theory prompted a shift in focus to both macro and micro level factors of reproductive decision-making. These approaches tried to establish a causal relationship, between macro level social changes and the individual reproductive decision-making process.

The next section briefly discusses the concept and the theory of social change and its relationship with reproductive behaviour.

### 3.2.2 Social Change Theories

The concept of social change in its broad terms implies the alteration in the pattern of culture, social structure and social behaviour over time (Robertson 1981; Pool 1996). In respect of population, it implies a change in the form of macro-level behaviour, structure and institutions and change in the entire spectrum of human experiences, for example, size and growth of society, income and occupation structure, family and family structure, the spatial distribution of population and shift in religious affiliation (Pool 1996). These changes function through individuals, couples and families, and establish the common norms and behavioural structure of a population through their daily decision making process. In the later stage, these norms and behavioural structures dictate the attitudes and behaviour of the individuals in a society towards decision-making, especially reproductive decision-making processes. However, each society has distinctive features, and changes in the social fibre require a complex interaction of social, cultural, economic, political, religious and technological factors. Social change theory has two diverse explanations, one mainly from the sociological perspective, the other from the economic perspectives.

#### 3.2.2.1 Sociological Theories of Reproductive Change.

Sociologists have formulated theories on the social norms and cultural behaviour of population and their relationship with reproductive behaviour. Most sociological theories focus on societal constraints on the individual decision-making process and the unit of analysis is either the whole society or a segment of the population. Individuals and couples are treated as an entity in the society. Although the couples make fertility decisions, their decisions are strongly influenced by intra-societal differences. The strength of societal norms and their effect on reproductive behaviour is said to change with a transformation of power over fertility decision making from the society to the individual.

Sociologists in the 1950s initially focused on the strength of social norms and their effect on fertility but gradually shifted towards individual choice arguing that a shift from societal to individual choice occurred in the course of demographic transition. In agreeing with the argument, Jones (1982) provided examples of Muslim or Indian societies where the parents, family and society determine marriage and childbirth practices. He added that the cultural norm was to have a child immediately following marriage to consolidate the position of the wife in the family. In such societies, biology and society decided the number of children and the couples had almost no freedom of choice. It was expected that as the demographic transition progressed, having a child would become a matter of free choice of the couples. In analysing the developing countries, Lorimer (1954) hypothesized that kinship groups tended to generate strong cultural motives for high fertility and that cohesive groups (such as extended families) favoured high fertility. He added that extended families were likely to break down over the course of economic development, thereby weakening social constraints on the individual decision-making process. It is widely accepted in demographic literature that extended families encourage the maintenance of high fertility in the Third World countries and that concerted development would change the social norms to favour individual choice. However, empirical studies have shown that extended families in Third World societies are minimal (Jones (1982). In Bangladesh, for example, about sixty percent of the families are nuclear. Thus, the effect of extended family on high fertility in the Third World does not seem to be a plausible explanation. However, in Bangladesh there may be the existence of extended family of mutual obligation (Caldwell 1982; Omar Rahman 1999).

A major break through in the analytical framework was Kingsley Davis and Judith Blake writing in 1956. The classical Davis-Blake framework identified three classes and 11 sub classes of factors which they termed as 'intermediate variables'. The intermediate variables are classified by stages in the process of human reproduction from exposure to intercourse to the live birth (Pool and Sceats 1981). These are: intercourse, conception, and gestation and parturition. Any socio cultural forces, which Davis and Blake termed as explanatory variables, can affect fertility through the above three intermediate variables. Assigning positive and negative values to each of these 11 intermediate variables, Davis and Blake demonstrated how the types and elements of different socio-cultural organizations could enhance or depress societal fertility through the intermediate variables and even, at times with differing social organization have the same level of fertility by different institutional mechanisms. In the final analysis, the actual fertility of a society depends on the net balance values of all these intermediate variables. These intermediate variables were termed as proximate determinants by Bongaarts (1978, 1982). The proximate determinants of fertility are the biological and behavioural factors, that is, marriage, contraception, lactation and induced abortions. The proximate determinants act as a means of transmission between social behaviours and reproductive change (Jones 1982). However, the effect of each of the proximate determinants is not the same. The variation in these four factors determines differences in reproductive behaviour among the population.

Another sociological explanation of change in reproductive behaviour has come from Caldwell (1982) who linked the macro-level social constraints and individual decision-making process with reproduction. In his theory of wealth flow of generation, Caldwell explains the demographic transition in contemporary Third World nations, especially African societies. He argues that the fundamental issue in fertility transition is the direction and magnitude of inter- generational wealth flow, or the net balance of two flows, one from parent to child, and the other from child to parents. This flow has been from younger to older generations in all traditional societies. He concluded that a reversal of the intra-familial wealth flow would be needed to alter the reproductive tradition. A key mechanism, according to Caldwell (1982), was the widespread diffusion of western education, which prompted the break of the extended family norms and led to the nuclear family. He also emphasized the role of micro level changes in family organization and the status of women, and wrote that families in societies from Morocco to Bangladesh are, 'extended, patriarchal, endogamous' (Caldwell 1982). In such a social structure, there is a continuous downgrading of the value of women and women's work, which affect the reproductive decision negatively.

Mason (1986, 1987) expanded Caldwell's work to look more closely at the status of women and its relationship with reproductive change and hypothesised that women education and their position in the family and household have crucial influences on fertility. They affect women's autonomy, economic dependency, and social status, which in turn influence child supply and child demand. Several variants of the basic sociological explanation of the cost and benefits of childbearing have been added into the mainstream sociological theory of fertility transition in the last fifty years. These include, insurance and old age (Cain 1977), poverty-driven (Freedman and Freedman 1986; Mencher 1980; Basu 1986; Adnan 1992) and aspiration driven (Duza and Nag 1988).

These sociological approaches stress on the changes in social structure. The underlying theme is that the economic development will break down the societal constraints on individual 'choice' and improve the acceptance of voluntary regulation of fertility through family planning programmes.

### 3.2.2.2 Economic Theory of Reproductive Change

Economists treat development as a process of social change and explain the demographic phenomena from micro level perspectives. The economic explanation of reproduction known as New Household Economics was largely generated from the work of Becker of the Chicago School in the 1960s. According to this theory, the family is a decision-making unit that maximizes a utility function of the quantity of children and expenditure on each children, that is quality of children and the quantity of other commodities at specific costs. The underlying assumption of this theory is that the choice of number of children parallels that of all economic commodities, as childbearing involves resources and time. Household decisions on the optimal number of offspring take into account their cost, the household income, and the preferences for children over other goods. The important implication of this framework is that there is a strong quality and quantity trade-off and that the demand for children is highly responsive to their price (van de KAA 1996). An economically motivated decision to have fewer children can be achieved through effective contraception. Thus, an individual motivation based on economic considerations plays an important role in fertility reduction.

However, the economically determined explanation of decisions about family formation only reveals a partial picture. Although this theory does occupy a substantial portion of the literature, most sociologists find it difficult to conceptualise children as commodities. To address the shortcoming of the economic theory, Easterlin modified this theory to incorporate social and biological constraints on the economic process of fertility decision making (Easterlin 1978; Easterlin and Crimmins 1985). This theory directly addressed both the supply and demand side elements controlling the biological and behavioural determinants of reproductive changes.

The basic components of the Easterlin model are supply, demand for children, and the cost of fertility regulation. These three factors play a key role in any comprehensive fertility analysis. In Easterlin's model, social, economic and other determinants are seen as affecting reproductive outcomes via three mediating variables: supply, demand and the cost of fertility regulation. Demand refers to the number of surviving children a couple would have if fertility regulations were costless; supply means the number of surviving children couples would have if they did not attempt to limit their family size; and cost of regulation includes the economic, psychic, health, and social costs of acquiring and using contraception or abortion. The differential characteristics of the cost of regulation form the explanatory variables of fertility change. These variables are expected to change over the three stages of the development process. The first stage is excess demand and less supply of children, a perfect high fertility and high mortality regime. This stage is replaced by excess supply of children due to mortality improvements, a similar stage described in the transitional theory. In the third stage, due to the continued decline in demand/or an increase in supply, motivation reaches the point at which it exceeds the cost of regulation and couples begin to adopt birth control methods. For the reminder of the transition, the trend in the actual rate of childbearing is determined by trends in costs, demand, and supply.

The Easterlin model incorporates key features of other fertility theories developed by economists, sociologists and demographers. With these broadening analytical perspectives, some of the confrontational dimensions of the great debate of the 1970s have been reduced, but not resolved (Bongaarts 1993). Easterlin's model of fertility analysis is perhaps the most widely used analytical framework, which synthesizes economic and sociological approaches. The inclusion of socio-cultural factors in the economic approach to explaining fertility behaviour has greatly enhanced the fertility analysis of developing countries like Bangladesh. With an increasing number of children due to a decline in mortality, couples may realize the constraints of having a large number of children and may change their reproductive behaviour. In other words, conscious choice in a traditional society would come at certain levels of social change, for instance, mortality decline. As Easterlin's model is limited to marital fertility and the role of contraception, and is therefore relevant to the present study, which is concerned only with marital fertility.

*Critical Assessment of Social Change Theories*

Formulating a theory that explains the complex web of socio-economic structures and norms and their association with reproduction is a difficult task because each society is unique. Theoretical models thus face critical assessment. Caldwell's wealth flow theory has been criticized on the ground, that, while it fits well in Sub-Saharan Africa, it does not fit well in many parts of East Asia where fertility has declined with little apparent change in extended family norms (Freedman, 1979a, 1982; Thorton and Fricke 1987). It does not explain the pattern of western fertility decline where family nucleation had existed for centuries before fertility decline took place (Hajnal 1965; Cleland and Wilson 1987). It also does not explain the fertility decline in the South East Asian region. Cain (1982) argued that sex stratification within the family and extended family norms of mutual obligation, unlike Africa facilitated the fertility decline in Asia.

Criticism of the neo classical economic theory rests on its heavy reliance on the concept of utility function. Schultz (1974) argued that the New Household Economic Model developed by the Chicago School ignored the fact that most developing countries have an illiterate mass with cheap human labour and few opportunities for females to participate in the labour force. Summarizing the economic approaches, Jones (1982) pointed out several constraints of the New Household Economic model in its application to developing countries. One of the key factors was that 'mothers time is cultural bound; in some countries women are secluded in the house and do not have any job outside.' Secondly, the concept of household utility maximization does not coincide with the household structure, and the extended kinship of mutual obligation. In many developing countries, children are treated as productive agents or sources of security for future. In such a situation, reversing the wealth flow may be the starting point for fertility decline (Caldwell 1978). Thus, the socio-economic model incorporating the biological aspects comes closer to the reality of developing countries (Jones 1982).

In addition to the theoretical criticism, empirical research in East and South East Asian countries (Taiwan, Sri Lanka, Thailand, and Kerala in India), already having undergone fertility transition, revealed a wide range of socio-economic and cultural stages at which each country's fertility decline had taken place. Knodel et al. (1987), in their analysis, cited the distinct role and status of women in the fertility transition of Thailand and added that there was less control of women from the network kinship when making family reproductive decision. Although fertility decline occurred in Thailand at a stage of completely rural economic structure, there was micro level social changes during this period like monetization of the economy, rising consumer aspiration, change in agricultural technology that raised the costs of farming production. Knodel asserted that all these changes caused couples to think of large numbers of children as an economic burden. They also noted that the perceived cost of raising children especially the cost of education was high among the Thai couples studied. All these factors created a latent demand for fewer children. In addition, Buddhism, the majority religion, was largely silent about reproductive behaviour and emphasized individual responsibility. However, with the same kinship structure, fertility decline was delayed in the Philippines. The East Asian (China, Korea, Taiwan) and South Asian countries (Bangladesh, India, Nepal, Sri Lanka, Pakistan) have different patriarchal structures, yet both regions are going through the fertility transition process. Fertility decline in differential kinship structure gives rise to the hypothesis that kinship may not have been a strong barrier to fertility decline in Asia or that there might have been a change in the structure of extended family norms that brought about this change (Caldwell 1988). Caldwell in a quasi-anthropological study in South India found that in recent times the decision making in the extended families had shifted from the patriarch to the couples. Couples' interaction in the extended family increased as their number of children increased. In addition, studies in the past few decades ((Jones 1982; Casterline 1991) reveal that the proportion of extended family was few in the Asian societies and that these families are more nucleated in terms of economic resources than the normative kinship patterns would suggest.

Although fertility decline was slow in India in the 1960s and early 1970s, Dyson and Moore (1983) found a significant difference in kinship patterns between North and South India with an underlying cause of difference in female autonomy and fertility. However, several authors, analysing fertility decline in Kerala cited equitable distribution of wealth and income through social and economic reform by the state government, social development movements in the past and couples' perception about modernization as contributing towards the fertility decline (Mahadevan et al. 1987; Ratcliffe 1978). Mencher (1980) and Basu (1986) postulated poverty-driven hypotheses about Kerala's fertility noting that Kerala is the poorest and has India's most high-density population. High unemployment offers a dismal future for their children's employment and so couples are reacting by controlling their family size. Separating each of the components, Bhat, (1997) noted that female literacy is the main driving force that helps to conceptualise the high cost of rearing and educating children. Family planning programmes diffuse the knowledge of contraception and help couples to achieve their desired family size through the distribution of contraceptive technology. This accelerates the process of fertility transition. It is worth noting that the fertility transition in Kerala occurred in the absence of any significant change in the economic structure.

Finally, the results of the empirical analysis on the role of social change on reproductive behaviour suggest that reproductive changes occurred at a varied level of social change in different countries. It is difficult to find a universal and undisputed level of social change that can explain the reproductive change of all countries. In Bangladesh, the society is changing rapidly at the micro level. The theory does help application to the explanation of change in the society of Bangladesh. Changes in the Bangladesh society will be discussed in the next chapter.

### 3.2.3 Diffusion Theories

The failure of the traditional transition theory in explaining the fertility transition in Europe generated the diffusion theory. Broadly speaking, the diffusion theory views fertility decline as supply-driven. Thus it can be induced by active efforts to propagate contraceptive use.

In the last 50 years, substantial fertility decline has occurred in many Third World countries at varied levels of development. The Princeton University research of transition theory based on European historical data observed no threshold level of mortality, education, or urbanization but rather found enormous variation in the level of indicators at the time of fertility transition (Coale and Watkins 1986) and homogeneity in fertility behaviour within linguistic regions (Lesthaeghe and Walle 1979; Knodel 1979; Knodel et al. 1987). Diffusion theory was a reaction to the weak empirical showing of the extremely broad traditional transition theory (Greenhaugh 1995). The new paradigm acknowledged the power of the diffusion of ideas within a particular culturally defined region.

Diffusion theorists hold that any innovation, for example, fertility control messages and mechanisms, spread from one locality, social group or individual to another (Rogers 1962, 1973; Rogers and Shoemaker 1971; Brown 981; Retherford and Palmore 1982; Retherford 1985; Cleland and Wilson 1987). They argue that communication is central to this process because the vast majority of couples learn about birth control from others and acquisition of knowledge is followed by actual use. The theory further claims that ideational change and acceptance of fertility control innovation will first appear among a small segment of the population, for instance, among the opinion leaders, reference groups or social elites. These groups, by demonstrating the low risk and high gain of the innovative behaviour makes it socially more acceptable, and therefore, acts as a means of encouraging the willing yet hesitant, to follow the practice. These processes gradually lead to an acceptance of fertility control. This ideational change among the couples accelerates the process of fertility transition of a society. The theory claims that the proportion of acceptors increases substantially in the middle of this process and it may be much faster than the pace of economic and social change could achieve.

This diffusion theory has two variants. The first assumes that people are rational actors and fully understand the implications of alternative courses of action and that small family norms can take place through rational decision-making (Coale 1973; Watkins & Bongaarts 1996). In this formulation of diffusion theory, diffusion describes how rational actors alter their behaviour.

The second variant, however, challenges the notion that people are rational actors. This variant focuses on the possibility of 'pure diffusion' and instead emphasizes communication about contraception. Proponents of this theory argue that people alter fertility behaviour simply because new suggestions gain momentum irrespective of whether new circumstances have altered an individual's demand for children. This gives rise to the supply-led view of fertility change, which holds that fertility reduction is possible through intensive family planning programmes without structural changes that reduce the demand for children. Such an explanation, it is argued, is more consistent with the results of the European fertility project and data on developing countries from the World Fertility Survey (Cleland & Wilson 1987) and recent analysis of data from Bangladesh (Cleland et al. 1994).

Retherford (1979, 1983, 1985) attempted to develop an integrated framework of the diffusion process, and the effect of mortality and economic and social development on fertility control This framework is based on the transition theory's conception of demand for children, and argues that fertility transition theories use the concept of demand for children as a function of utilities and cost of alternative family size. In the same way diffusion theories are increasingly using the utility cost concept to explain the rate of adoption of birth control innovation and provide a common base for integrating the two major types of theories into a one comprehensive framework. Retherford argued that in an excess demand situation, spread of birth control knowledge and costless birth control techniques would fail to produce any change in reproductive behaviour. Development (declining mortality, reduction of child utility and advent of new goods and services) shifts the population from access demand to latent demand for birth control and helps to spread the use of birth control. Diffusion of birth control, and the timing and pace of reproductive change will be faster in a highly integrated society with common values, norms and institutions. Social integration, according to diffusion, is associated with geographical compactness, common political authority and cultural homogeneity in language, ethnicity and religion. Finally, in differentiating the role of diffusion and development, Retherford points out two things: that the role of birth control diffusion in transition is important, but the role of development is fundamental, as the diffusion of birth control is partly a consequence of development. Retherford adds that development generates mortality decline and transitional population growth and thus, stimulates the birth control diffusion programme that in turn reduces the population growth at the macro level and development increases family size and generates a latent demand for birth control at the micro level. Historical data (description in chapter two) about Bangladesh shows that both linguistically and culturally Bangladesh is a highly homogeneous society but has a less cohesive social structure and economic status. This may have been the probable cause of the universal diffusion of birth control message. This probably led several to come to the conclusion that the reproductive changes in Bangladesh occurred through diffusion of family planning programmes. But the change in the reproductive behaviour among rural women is more complex than simple diffusion. Details of those will be discussed in the next chapter.

*Critical assessment of diffusion theories*

The Diffusion theory provides a radical explanation of fertility transition ignoring a number of fundamental issues raised by the last few decades' research in this field. While diffusion ideas generated from several writers covered a broad base, diffusion theory advanced by Cleland and Wilson (1987), emphasized only communication about contraception and was strangely silent about the dynamics of social changes. It separates culture from rest of the socio-economic factors (Greenhaugh 1995) and by treating culture separately from the rest of social life (something that facilitates or obstructs contraceptive communication), it reproduces the functional myth that culture can be taken out of social, economic and political organization. The recent work of diffusion theory would seem too narrow and unidirectional and has failed to recognize the dynamics of the broader spectrum of social and economic change, particularly its contextual relationship with contraceptive communication (although they admit certain level of mortality as pre-condition for a fertility transition).

### 3.2.4 Summary

All the theories and frameworks discussed in these three broad groups explain the same phenomena within a separate framework. None of the theories provide a sufficiently comprehensive explanation of the change in reproductive behaviour of a population. However, a comprehensive study of all these theories contributes to an understanding of the various forces underlying the changes in reproductive behaviour in the Third World countries, especially, Bangladesh. Reviews in the present chapter however, showed that there was a considerable degree of overlapping across the various theories within the same school, with only the approach being different. These theories negate the influence of other frameworks and this is especially true between diffusion and others. To reiterate, sociologists argue that fertility reduction is the result of the development of macro level social and economic structures. Changes in social structure and cultural norms will change the reproductive behaviour. Micro economic theories emphasize the consumer choices of individual couples and difffusionists emphasis normative shift as having an independent role in determining fertility behaviour. Thus when an adherence to a single theoretical framework leads to a false conclusion, a consideration of the other theories at hand might provide the means to the better conclusion.

However, before constructing the theoretical framework for the present study, it would be helpful to discuss the background of fertility trends in the Third World countries, and the evolution of family planning programmes, the relative role of family planning and the development in the change of reproductive behaviour in a society.

## 3.3 Fertility Decline and Role of Government

### 3.3.1 Fertility in the Developing Countries since World War II

Since World War II, the Third World countries have shown an enormous potential for population increase at an even more rapid rate than Europe in the 19th century (David 1954). In the 1950s, developing countries alone contributed 67 percent of the total world population, of which Asia accounted for 55 percent (UN 1986). The population doubling time since 1927 has been reduced to 33, 14 and then 13 years. This phenomenon has been largely, what the transition theory term as fertility mortality adjustment, the reduction of mortality and constant high fertility in most in the Third World countries. The decline in mortality in the Third World led to an increase in population at a geometric rate. This unabated growth of population is in the long run unsustainable for any country. This situation was the rationale for the introduction of fertility control programme by the international community and national governments. The rapid advance in modern contraceptive technology in the 1960s provided opportunities in changing the dynamics of current population trends in the developing countries.

This is well illustrated by the widespread adoption of family planning programmes by the respective government in developing countries. By the 1980s, 117 out of 152 developing countries with 96 percent of population support family planning programmes. This included 37 out 39 countries with more than a population of 10 million (Mauldin 1982). Most of the developing countries' family planning programmes aimed at reducing fertility although a few also had implicit ideas of controlling fertility (Nortman 1984; Tusi 2001). India was the first among the nations to introduce family planning programmes in 1951 followed by Pakistan (of which Bangladesh was a part), the Republic of Korea, and Fiji in the early 1960s. Since 1954, the United Nations has played a decisive role in increasing global awareness of population programme and in integrating population policy into general macro level economic and social development programme by popularising the population and development agendas and debate through successive conferences and decade follow ups (Tsui 2001). Through this process a global consensus and commitment have arrived among the national governments and the international communities about fertility control.

The unanimous consensus about controlling population size did not, however, lead to a unanimous decision on the means necessary to achieve this particular goal of population control. Instead, a long standing debate over what methods and policies should be best employed to achieve such goal in developing countries has occurred. This debate seems to revolve around the relative role of family planning and development. The first attempt to address this problem came from the traditional transition theory. It suggested an integrated modernization programme and training in modern methods of communication through which modernization would promote higher age at marriage and practice of birth control and through this influence the fertility (Notestein 1983, cited in Rahman 1986). Most sociologists and demographers agreed to the above assumption, suggesting that the macro level development and social change will change the utility of child bearing, demand for children will go down and family planning programmes will enable them to have the number of children they actually want. However, a group of demographers promoting theory of diffusion believe that family planning programmes can reduce fertility independent of development (Cleland and Wilson 1987, Cleland et al. 1994). In the next section the empirical evidence of the relative role of these two components will be discussed.

### 3.3.2 Role of Family Planning Programmes VS Development

The debate on the relative role of family planning programme and development arises out of the fact that over the last 50 years, fertility decline has occurred in most of developing countries at a varied level of socio-economic development and family planning programme support (Casterline 1991; Guzman 1991 Ross and Stover 2001; Tsui 2001). In the early stages of fertility control effort, despite the introduction of family planning programmes in several large countries (India, Pakistan, China) and the establishment of international population bodies like the Population Council and the International IPPF, very few developing countries achieved the expected fertility decline. The total fertility rate (TFR) in the developing countries excluding China was 6.3 births in the mid 1960s. This low level of performance from the family planning programmes in the 1960s raised a question on the feasibility and scientific rationality of the programme at that time. Hauser (1967) in his Review of the book *A review of world developments* in the late 1960s, pointed out that it was not yet known whether birth control programmes brought about rapid fertility decline, or whether improvement in universal education or a new industry that would increase productivity, or a new innovation that would break the 'cake of customs'.

In 1980 substantial fertility decline occurred in developing countries. China achieved a steep fertility decline in the 1970s by a coercive programme and therefore, its experiences cannot be compared with other countries going through fertility decline. Total fertility rate of all developing countries excluding China reduced to 4.8 births per women with the major contributors being Thailand, South Korea, Brazil and Indonesia (Knodel 1987). But the relative role-played by the family planning programme and development was still unclear. The fertility declines in South Korea, Taiwan and Singapore, Malaysia and Sri Lanka had occurred simultaneously when massive social change and economic development had occurred and family planning programme was undertaken (Mauldin and Berelson 1978; Freedman et al. 1986, 1994; Knodel et al. 1987).

Since World War II, macro level development has been undertaken by respective governments of each country. As a result, substantial social and economic development has occurred in the developing countries during the last 50 years in the field of education and literacy, urbanization and industrialization, economic infrastructure, mass media and communication. In addition, there have been improvements in health and nutrition, a decline in infant and child mortality, economic and social empowerment of the poor and the women countries (WB reports 1978-2001). All these development activities have been undertaken in the presence of other activities such as family planning programme. The latter programmes have been expanded with improved contraceptive methods. The Majority of the national governments in the developing countries are actively promoting family planning with better logistic supports. In 1996, 80 countries out of 176 had policy to control fertility, and two thirds of the developing countries covering the majority of the developing countries population have population policies and programmes. Moreover, Government direct support to family planning programme increased from 55 to 79 percent during the 1976-1996 period. In addition, the availability of contraceptives had increased from 31 to 50 percent during the same period. As a result, Total fertility rate (TFR) in the developing countries in the 1990-1995 decreased to 3.5 per women (UN 1998). The TFR in Asia reduced from 5.7 to 3.0, in Latin America and Caribbean from 6.0 to 3.0; however, in Africa decreased only slightly from 6.7 to 5.8 woman. But the relative roles played by family planning and development was still unclear.

A number of countries like Bangladesh, Nepal and India, achieved a substantial level fertility decline in a very low economic situation. However, Knodel et al. (1987) analysing Thai data found that the fertility decline in Thailand occurred when the demand for contraception rose due to development, and organized family planning programmes hastened the process. The same conclusion was reached from a cross-countries analysis (Pritchett 1994; Schultz 1994; Bongaarts 1995; Maudlin and Ross 1991; Ross and Stover 2001). Two findings of fundamental significance that emerged from the research are that firstly a minimum degree of development is needed for the developing countries to reduce fertility but may not be as high as Europe had when fertility transition occurred. From the family planning perspective, fertility decline could be more readily affected in a society that had experienced changes in the socio-economic structure, than those could which had maintained a relatively static (traditional) social structure. But given the fact that demand for fertility control exists, a family planning programme with efficient contraceptives method is an essential tool to sustain fertility at a lower level.

In the context of Bangladesh, family planning programme was established in 1960 but the programme was very weak by any standard definition (Simmons 1986) and was inaccessible to most of the rural women. The demand for additional children was low but this was not met. In the later stages, the family planning programme coverage had improved. The macro level economic development was slow but not static. There were social changes in the form of improved survival of the population, a diversified agricultural sector, and changes in the rural occupation structure, improvements in the national infrastructures and micro credit and rural development programmes. The simultaneity of the family planning programme and social change in Bangladesh fuelled the old debate about family planning and development (Cleland et al. 1994; Caldwell et al. 1998, 1999).

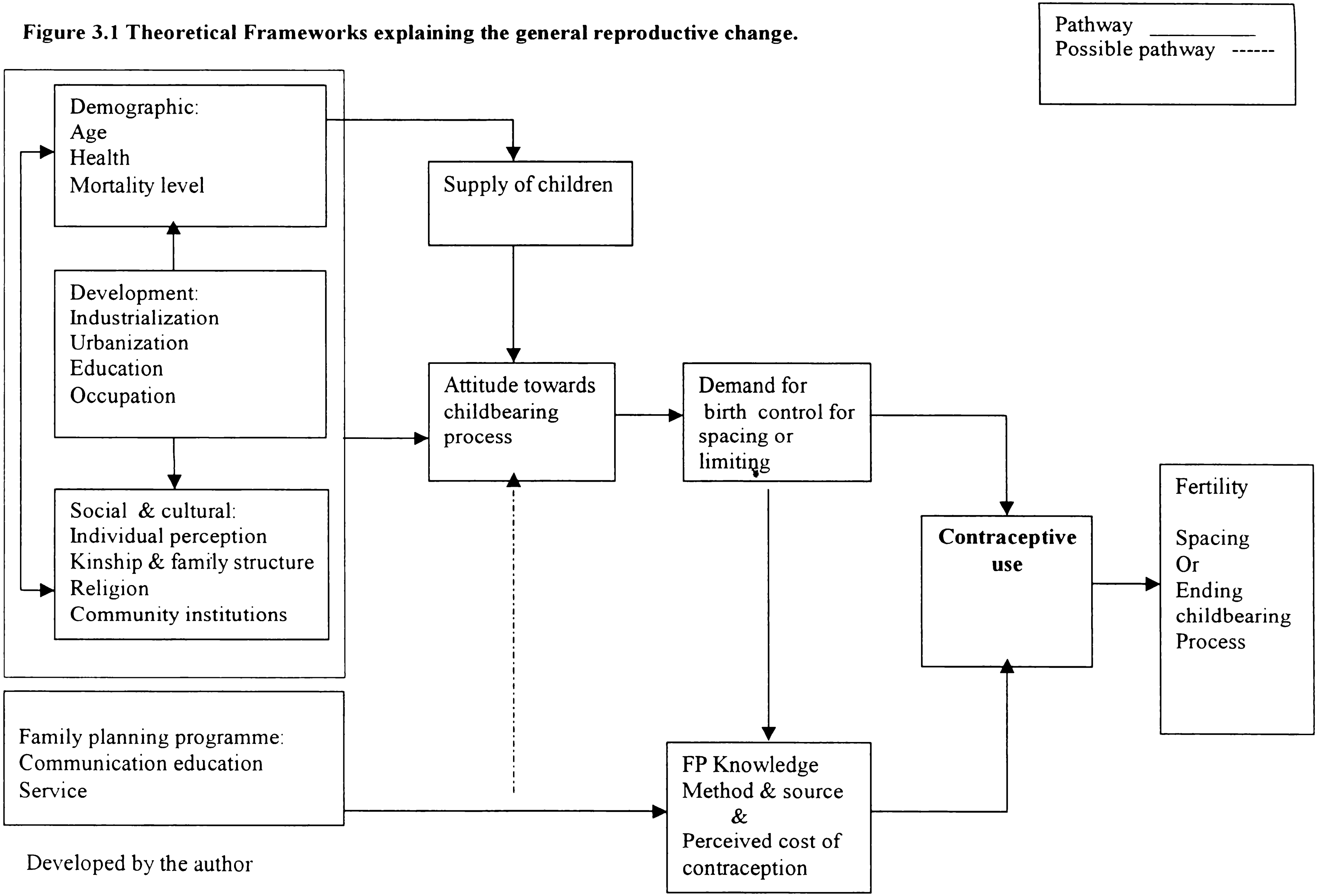
The details of the family planning programme effort and socio-economic changes in rural area of Bangladesh will be explored in the next chapter before developing the analytical framework. The present chapter will develop a theoretical framework on the basis of the theoretical literature reviewed above to explain the changes in reproductive behaviour of the rural women of Bangladesh.

## 3.4 Theoretical Framework

Given the overall review of the three major theoretical developments in the field of reproductive change, an attempt will be made here to formulate a theoretical framework for this thesis. The study of reproductive change and/or longitudinal effect of any factor can best be examined within the context of general social change that not only anticipates ideas on levels and directions of change in social structure but also considers how those changes affect and interact with the individual decision making process. Social change, that is, change in patterns of culture, social structure and social behaviour is very difficult to capture in one single concept or model. In fact, although demographic data analysis has a rich source of empirical data, efforts to build a single general theoretical framework to analyse data on reproductive behaviour is still underway (Kirk 1996). Demographic transition theory while it gives us a broader perspective of historical change of human reproductive behaviour does not provide us with the mechanism through which the social economic factors influence fertility behaviour. It provides a picture of general macro level development which affects the demographic aspects of population like age at marriage, health and mortality condition positively and increases the supply of children and changes the economics of children bearing. The theory of social change, in principle agrees with the above assumption and adds that these macro level developments break down the social structure and community norms and affect the micro level decision making about reproduction where quantity and quality of children play a crucial role. In contrast, the theory of diffusion provides a narrow definition of reproductive change which gives all credit to the fertility control programme.

Easterlin's model by accommodating all factors provides a comprehensive framework for analysing the present data. Figure 3.1 illustrates the principle social and economic factors and the role of family planning programmes on demand for children and contraceptive use. The framework is constructed on the basis of the three broad theoretical developments of reproductive change and the role of family planning, in particular the role, of contraception, on the basis of Easterlin's model of fertility analysis.

**Figure 3.1 Theoretical Frameworks explaining the general reproductive change.**




Developed by the author

An individual's reproductive behaviour and goals are influenced by two factors; change in socio-economic structure and cultural settings, and the availability of the apparatus to achieve such goals. Development through urbanization and education alters the social structure, for example, kinship norms. The improvement in the survival and changed social structure and other cultural norms affect attitudes towards the childbearing process and generates a demand for no more children.

The common feature of the approaches discussed earlier is change. Unlike the developed countries where marriage is declining, the developing countries face an unprecedented growth in the number of children. The socio-economic and cultural institutions act as a means of sustaining these high fertility conditions. The transition from high to low fertility in any society faces strong resistance in its initial changes. In traditional societies, the cultural values are strong and encourage large families. Departures from traditional structures and norms require a transformation of old values. Development activities and family planning programmes have been implemented in an attempt to change these values of couples and individuals. As a result, social dynamics are changing in the developing countries. The interaction of these macro level changes helps individuals to formulate their own views regarding the demand for additional children and fertility control. Family planning gives the individual direct access to a mechanism to fulfil their reproductive goals. This effort forms the basis of much of the debate related to fertility decline in the developing countries in the post World War II era, including fertility decline in Bangladesh. The present study is an attempt to explain the change in reproductive behaviour in Bangladesh.

The reproductive behaviour of couples, while affected by individual, family and macro level development, may also be greatly influenced by the community or group characteristics where they live. For example, as Freedman (1974) notes, the impact of individual education on fertility we can add the level of the education in community and examine whether the enlightened educational environment have any impact on fertility. Although it is difficult to assign a comparative role of each of the factors, it is evident that these various rural socio-cultural and community structures greatly influence the individual decision making process of reproducing couples.

The influence of demographic factors on the reproductive behaviour through excess supply was recognized in all the theories. Development and fertility control aimed at reducing the excess supply situation. These demographic factors are the product of socio-cultural and religious norms and were influenced by its change.

Family planning programmes exert their influence on reproductive behaviour in two ways: first, by influencing the demand for children through multi-media programmes or second, directly through contraception. While the independent effect of family planning programmes on contraceptive use is robust and confirmed, the role of family planning on generating demand for no additional children is controversial. The reasonable assumption is while the social, economic, cultural changes form the attitudes towards childbearing process, family planning programmes play a mediatory role to achieve such reproductive goals.

Having discussed the theoretical work in relation to reproductive change and developed a general theoretical framework, the next chapter will examine the changes in socio-economic and cultural situation, which will lead to develop the analytical framework for the thesis.

# Chapter 4: Framework for the Analysis of Fertility Change in Bangladesh

## 4.1 Introduction

Chapter three has discussed theoretical works and developed a general theoretical framework for the study. The following two chapters will examine the changes in socio economic situational factors and the family planning programmes, which have led to the changes in reproductive behaviour of the women of rural Bangladesh. The discussion will be divided into three main components. The first part concerns with the trends in mortality and its effect on population increase. The second part concerns with the socio-economic changes in the rural economy and the rural occupation structure, economic infrastructures, and education level of the rural community. The third part focuses on the cultural changes related to patriarchy and gender preferences, spousal relations and communication in such environments and religious affiliations. These changes are thought to be the fundamental forces for the changes in reproductive behaviour of the rural women in Bangladesh. Different strategic changes in the national family planning programme in the recent times will also be discussed to focus on the role of family planning programme on the changes in reproductive behaviour as the diffusion theory emphasised on family planning programme. An assumption has been made that the socio-economic and cultural settings of Matlab intervention area are homogeneous with the national environment. Matlab statistics will be provided along with the national statistics if the comparable statistics are available.

These analyses will lead to the development of an analytical framework, which will help in examining the dynamics of reproductive change in Bangladesh.

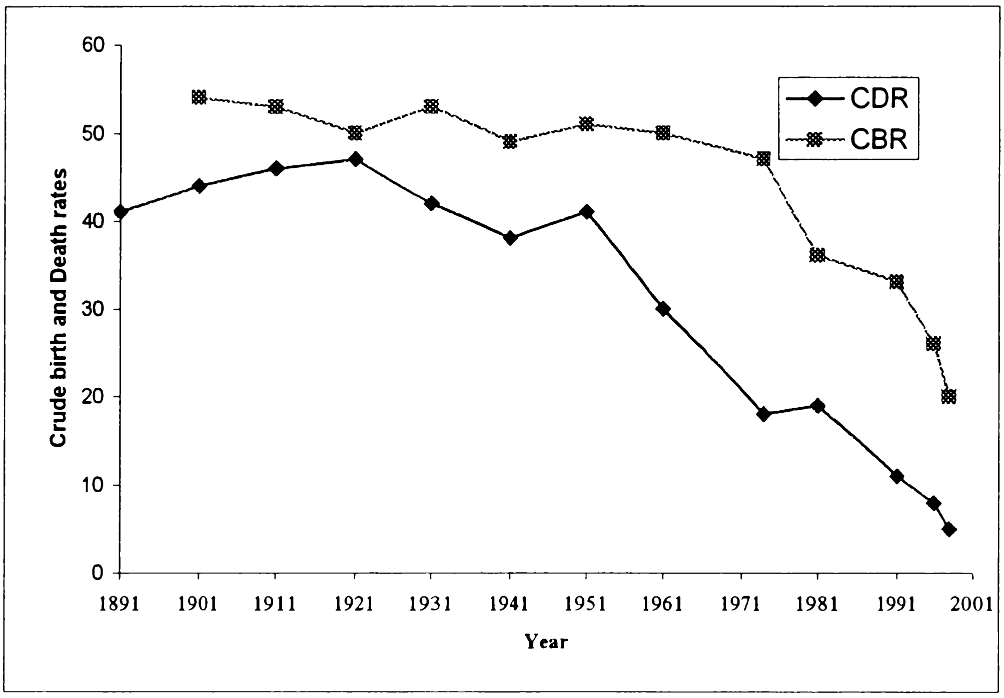
## 4.2 Mortality Decline and its Association with the Demand for Children

Transition theory (Davis 1963; Notestein 1973) and observation (Chesian 1992; Cleland 2001) shows that mortality decline (social development) is followed by fertility decline. The macro level health and demographic parameters, that is, total fertility rate (TFR), the mortality especially infant and child and the survival probability of the population, reflect the stages of macro level social development. This social development contributed to an overbearing increase in population by improving the survivorship and set up a stage to think for change in the reproductive behaviour differently. In fact mortality decline or improve survivorship is the starting point of reproductive change. Thus the relationship between mortality and fertility will be explored next.

### 4.2.1 General trends in overall mortality

The unprecedented population growth in Bangladesh as most reports and analyses demonstrate, is a recent phenomenon occurring within a single generation. Some authors have even termed it as a transitional phase, a temporary event that occurs when fertility adjusts to the new conditions of lower mortality (Miranda 1982).

**Figure 4.1: Crude birth and death rates during 1881-1994**




Sources: UN 1981; BBS 1994

The public health measures and historical trends in mortality discussed in chapter two provide a general understanding of the mortality trends. Figure 4.1 gives a clear picture of population growth over the last hundred years due to improvements in overall mortality. Population growth was more or less stationary until 1921. But as a result of public health measures in the first half of the twentieth century, mortality began to decline. During the first half of the century, from 1911 to 1960, mortality declined more than 34 percent in this area now known as Bangladesh (UN Monograph 1981). Figure 4.1 shows that there was an uninterrupted mortality decline with a stable birth rate until 1960. As a result of this mortality decline, life expectancy improved from 32 in 1941 to about 45 in 1960. BFS-1975 and Matlab data and National research council estimates suggest that life expectancy was constant during the 1970s and showed a gradual improvement during the 1980s reaching 55 years in the mid 1980s. Life expectancy at the national level for the 1975-86 periods was not available. But the BBS report (1994) reported a constant rate of life expectancy of 55 until 1990. In the 1994-1996 period, life expectancy at birth increased to 58 years at the national level and 68 and 64 years in the Matlab intervention and control areas respectively (BBS-1994 and Matlab annual reports- 1994-1996). The outcome of this improvement in survival level, a number of publications demonstrates, increased the population size of Bangladesh in the process of fertility and mortality adjustment as the demographic transition theory suggested (UN 1973; Chesnais 1992). Another outcome in the improvement in survival rates is the increase in number of years a couple could live together so increasing the probability of their having more children, which then effectively increases the population as was evident in most developing countries since World War II (Dyson and Murphy 1985). This rapid population growth exhausted the agricultural land in the rural area from 1940 and created a pressure on the limited land resources, the main source of income and livelihood for rural people. This constraint, in the 1950s and 1960s, in the absence of any substantial measures either to control family size or increase family income may have greatly helped to change their attitude towards the family building process.

Attitudes towards family formation are affected by infant and child mortality rates. The infant and child mortality is an indicator of the effect of macro level health care system. The improvement in the health care system improves child survival. At the micro level, high infant and child mortality adversely affect the subsequent reproductive behaviour both desired family size and contraceptives use behaviour through what demographers called 'replacement' and 'insurance effect' (Preston 1978). A number of studies analysing Matlab data found that child mortality in a natural fertility population results in excess fertility (Chowdhury et al. 1976) and in a contracepting population adversely affects the fertility regulation behaviour (Rahman 1998). The next section, thus will appraise the infant and child mortality level before and during the fertility decline period.

### 4.2.2 Infant and Child Mortality Trends

Tables 4.1a and 4.1b shows that total fertility rate (TFR), and infant and child mortality at the national rural level and in the Matlab intervention and control areas at different point of time in the eighties and nineties. The graphical presentations of the infant and child mortality are presented in chapter Two. The detailed infant and child mortality rates are attached in the appendix (Table A-1) where it reveals that in the first half of the twentieth century infant mortality declined from 205 per live births to less than 150. Although declines in infant mortality rates were not as evident as for the crude death rates, it accrued a 27 percent decline during this period. During the early 1970s, this decline in infant mortality halted due the unstable socio-political and economic situation. This period was characterized by the liberation war, flood and famine. Infant mortality rates were not available during the later half of 1970s. In 1980, the infant mortality rate reduced to 129. From 1981, systematic infant mortality decline is evident. While the infant mortality decline continued in the 1960s and 1970s, TFR was stable at around 7 until 1980. Table 4.1a shows that from 1979 both TFR and infant mortality began a steady decline and that by 1996 TFR had reduced to 3.5 children per woman. Infant mortality had reduced to 81 per 1000 live births and was declining further.

**Table 4.1a: Total Fertility Rate, Infant Mortality Rate and childhood (1-4) Mortality Rate of some selected years at the national level, 1979-1998.**

| Year | *TFR | *IMR | *Child 1-4 |
|---|---|---|---|
| 1979-81 | 6.8 | 129 | 19 |
| 1981-84 | 6.1 | 121 | 19 |
| 1985-87 | 5.1 | 114 | 18 |
| 1988-90 | 4.6 | 103 | 14 |
| 1991-93 | 3.4 | 86 | 13 |
| 1994-96 | 3.3 | 81 | 12 |
| 1997-98 | -- | 58.5 | -- |

* three years average rate.

Sources: UN 1981 page, 51; Vital registration system, BBS 1994; WB reports 1978-1999

Statistics on child mortality (1-4 years) rates are scarce at the national level. The Bangladesh Bureau of Statistics (BBS) 1994, and BDHS-96, and World Bank Reports 1978-1999 have child 1-4 year's mortality. It seems that while BBS figures underestimate the trends, BDHS-96 overestimate the trends. There is a sizable difference between the two estimates[1]. However, the trends do show that child mortality decline over the last 50 years was rather low. The first estimate of child mortality in the 1956-57 period (Table A-1, Appendix) was 20, a figure seemingly low for a country like Bangladesh but in the last 30 years, child mortality decline was slow. Table 4.1a shows that in 1985-87, child 1-4 years mortality had declined to 13.1 and stayed at around13 per 1000 children until 1993.

**Table.4.1b: Total Fertility Rate, Infant Mortality Rate and Child mortality Rate in Matlab intervention and control areas, 1966-1996.**

| Year | TFR | | IMR | | Child Mortality 1-4 | |
|---|---|---|---|---|---|---|
| | INT | CON | INT | CON | INT | CON |
| 1976-78 | 5.7 | 6.3 | 108.0 | 111.7 | 23.8 | 24.7 |
| 1979-81 | 5.0 | 6.6 | 103.7 | 116.8 | 18.4 | 24.8 |
| 1981-84 | 4.8 | 5.8 | 106.1 | 119.5 | 21.6 | 33.1 |
| 1985-87 | 4.3 | 5.5 | 82.5 | 101.8 | 13.1 | 20.0 |
| 1988-90 | 3.5 | 5.1 | 76.7 | 91.6 | 6.4 | 11.7 |
| 1991-93 | 3.0 | 4.0 | 74.5 | 101.5 | 6.3 | 9.8 |
| 1994-96 | 2.9 | 3.6 | 60.3 | 77.6 | 6.0 | 7.8 |
| 1997-99 | 2.9 | 3.4 | 48.2 | 69.8 | 4.4 | 6.8 |

INT= Intervention, CON=Control
Sources: [a] Curlin et al. 1976 [b] UN 1981; [c] Phillips et al. 1996; [d] DSS Annual report 1997.

The Matlab data provides a clearer picture of the fertility and mortality levels in the country. In Matlab, Table 4.1b presents total fertility rate (TFR), and infant and child mortality rate in the Matlab MCH-FP intervention and control areas between 1979-1999. In Matlab, estimates are credible, as already noted; they are based on a well-organized vital registration system. Yearly rates are available in the Appendix. The Table in the appendix (Table A-2) demonstrates that the fertility levels at the national level and in both areas of Matlab are similar to each other but that infant and child mortality levels were much lower than those at

[1] For consistency this thesis uses the Bangladesh Bureau of Statistics and World Bank report 1978-2001.

national level in the 1960s and early 1970s even before the introduction of the MCH-FP programme. These low levels of infant and child mortality in both areas of Matlab[2] were the effect of health intervention related with diarrhoea launched in the 1960s and 1970s by the Centres. In late 1977, Family Planning and Health Services programme (FPHSP) was introduced in half of the Matlab area known as intervention area. The effect of the intervention is clearly demonstrated in Table 4.1b. Table 4.1b shows that from 1979, TFR and infant mortality rates in the Matlab intervention area are in continuous decline. A substantial decline in infant mortality was evident in 1985. By 1999, infant mortality rate had declined to below 50, which is 48 per 1000 live birth. The rates of child mortality showed even better. Childhood mortality was around 24 per 1000 children when the programme started in the area, but apart from some fluctuations, child mortality has shown a steady decline and is 4.4 per 1000 children by 1999. Despite such a large decline in infant mortality, TFR is stalled at to 3 per woman for the last 10 years in the intervention area. This figure might be related to women's desired family size.

In the control area, TFR and infant mortality rates were very close as those of intervention areas until 1977. From 1978, a difference in TFR and infant mortality between the two areas is evident. As expected, TFR and infant mortality are higher in the control area. The Table shows that in the control area both infant and child mortality were rising until 1984 while the TFR was in slow decline. All three parameters, TFR, infant and child mortality rates began to decline consistently from 1985, but in a less accelerated manner than in the intervention area. In 1999, TFR declined to 3.4 per woman, infant mortality declined to 69.9 and child mortality rate declined to 6.8 per 1000 children. These steep infant and child mortality declines since 1986 coincided with a full range immunization drive in the Matlab intervention area and a national immunization drive for young children and mothers.

### 4.2.3 Mortality and the Demand for Children

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[2] Matlab field station was established by the South East Asian Treaty Organization (SEATO) in 1962 for treatment of Diarrhoeal disease in this area.

Mortality especially infant and child mortality in Bangladesh was higher than the contemporary third world countries of East and South East Asia and Latin American and Caribbean when fertility began to decline but not as high as some European countries which had finished fertility transition in the late nineteenth or early twentieth centuries. Although the estimates of demand for children in Europe in the pre-transitional period were not available, qualitative studies (van de Walle and Knodel 1980) documented that demand for additional children in some of the European countries was lower when infant and child mortality was high. Fertility decline in some European countries began at a much higher rate of infant mortality than it has been observed in Bangladesh in the early 1980s (Knodel and van de Walle 1979). In Matlab, infant and child mortality levels were even lower in both areas of Matlab when the MCH-FP programme was introduced into half of the area of Matlab in 1977 though the demand or desire for additional children was almost the same in all the three areas (Koenig et al. 1987). The demand or desire for additional children reported in the late sixties or early seventies might be related with past infant and child mortality decline and a resultant excess number of survived children in the past and more importantly on the adjustment of how many children wanted and how many children already survived per couple when mortality began to decline.

Life tables Population help to estimate the number of survived children a couple might have in different mortality regime. Mortality estimates reveals that the life expectancy of the Bangladeshi population was 20 years in 1920 (UN 1981). At this level of mortality, Cleland et al. (1994) estimates that only 40 percent of the children could expect to reach age 20 with a total fertility rate of 7 births per woman, the average parent would see only 2.8 children survive to maturity. Cleland et al. (1994) came to the conclusion that fertility level 90 years ago might have even been less than that recorded in 1960-1970 and that the average number of children who reached maturity might even be less than two per couple. One would expect that the demand for children among the couples would be high at this level of surviving children.

Studies carried out in the 1960s and 1970s showed that the life expectancy was lowest in 1920, gradually increased to 31 years in 1940 and to 48 years in the early 1960s (Davis 1951; Obidaullah 1966 cited in UN 1981). As a result of this improvement, couples would have 5.1 surviving children at age 20 out of 7 births per woman. This unprecedented number of surviving children was sustained for a fairly long time. In fact, the graph presented in this chapter clearly illustrates that the population had started increasing since 1940. As noted in chapter Two that this new rise in population coincided with the period when new land exploitation, the only source of rural income had been exhausted (since 1940). Thus this improved survival reduced the average land holding per family and reduced the economic ability of the parents to maintain a large family. This situation may cause sufficient stress for the parents to think about the number of children they would like to have.

Having discussed the mortality trends and the resultant high population growth, the effect of this high population growth on the overall economic change is important to discuss. But before discussing the rural economic structure, current use of contraceptive and fertility level and the role of other factors on fertility level will be discussed next.

### 4.3 Socio-economic changes and Contraceptive use and Fertility

In the 1950s and 1960s, development planners, including transition theorists, advocated macro-economic structural changes to improve the quality of human lives while maintaining stability in the society (Hoogvelt 1978) Bangladesh, like other Third World countries, had undertaken several measures to change the socio-economic structure. Since independence from British colonial administration in 1947, new industries had been set up at the cost of surplus agriculture, new educational institutions had also been set up and rural development in the name of Green Revolution was launched in the 1960s (details of these activities were discussed in chapter two).

Despite a whole range of social and economic development programmes, fertility in the 1960s and 1970s, even after the introduction of family planning programmes, was high and did not show any downward trend until 1980 (Mitra et al. 1997; Cleland et al. 1994; Casterline 1991). As shown in chapter Two, in the early 1980s, 10 years after the liberation of Bangladesh, the contraceptive prevalence rate started rising with a consequential fertility decline. The Contraceptive Prevalence Rate (CPR) in the 1970s was low and was reported to be only 7.7 per hundred women in 1975, but had risen to 19 at the national level in 1984 and by 1996 CPR had increased to 49 per hundred women (Mitra et al. 1997). In parallel to CPR, TFR was as high as 7 births per woman in the early 1970s but had reduced to six births per woman in the early 1980s. By 1996, it had declined to 3.5 births per woman.

In both areas of Matlab, the CPR was similar and the TFR was slightly lower than the national levels. As was shown in chapter two, the CPR started to rise sharply in the mid 1970s after the introduction of the Family Planning and Health Services (FPHSP) in the intervention area. In the control area, the CPR was low. Total fertility rate (TFR) was similar or slightly lower in both areas of the Matlab but reduced substantially in the intervention area after the introduction of the FPHSP. The TFR was 4.5 in 1978. By 1996, the TFR in the intervention area had reduced to 2.7 births per woman. On the other hand, the CPR in the intervention area was 49 while it was only 16 in the Matlab control area, during the same period. From 1984, the CPR increased rapidly with a consequent fertility decline both at the national level and Matlab control and intervention areas, with a greater success rate in the intervention area (Koenig et al. 1987; Mitra et al. 1997; Cleland et al. 1994). As a result of these rises in the CPR, the TFR started to decline but more rapidly in the intervention area than control area. By 1996, the TFR had reduced to 2.7 and 3.5 in the intervention and in the control areas respectively (Razzaque et al. 1998). More detailed trends in the fertility level and current contraceptive use will be presented in chapters 8 and 12.

**Table 4.2: Trends in mean age at marriage of the women at the national level and in the Matlab, 1961-1999.**

| Year | National | Matlab |
|---|---|---|
| 1961 | 13.9 | -- |
| 1974 | 15.9 | 16.4* |
| 1981 | 17.8 | -- |
| 1991 | 18.1 | -- |
| 1999 | 20.1 | 19.1 |

*1977. Sources: BBS 1994; Chowdhury et al. 1977; HDSS report 2001.

### 4.3.1 Role of Other Determinants in Fertility Decline

This level of fertility decline discussed in the earlier section is mainly due to a reduction in marital fertility. Separating the role of each of the proximate determinants, several analysts concluded that the role of other determinants such as age at marriage, lactation or postpartum amenorrhoea and abortion would have been minimal (Chowdhury and Bairagi 1992; Cleland et al. 1994). Historically, age at marriage has always been low in Bangladesh (Mitra et al. 1997; Nahar et al. 1997; Mostafa et al. 1999) and birth outside marriage has been literally non-existent. Ninety nine percent of the population has been married at least once before the age of 40 both at the national level and in the Matlab area (UN report 1981; Ruzicka et al. 1978). The mean age at marriage of Bangladeshi girls as shown in Table 4.2 was low in the 1960s but increasing in all three areas (UN report 1981; Chowdhury et al. 1977). In 1999, the reported mean age at marriage was 20.1 years and 19.1 years at the national level and Matlab area respectively (BBS internet edition 2002; HDSS report 2001).

**Table 4.3: Level of some of the determinants of fertility at the national level and in the Matlab.**

| Informatrion | National | Matlab |
|---|---|---|
| % of women married at age 40 | 99.0 | 99.0 |
| Average length of Breastfeeding (months) | 28.5 | 30 |
| Average birth interval in 1974 (Months) | -- | 33 |
| Lactational amenorrhoea, 1974 (months) | -- | 17 |
| Lactatonal amenorrhoca, 1991 (Months) | 12 | -- |

An unusually long-term breastfeeding practice among the women of Bangladesh has been documented in the literature. Mean breastfeeding length was reported to be 30 and 28.5 months in the Matlab area and the national rural area respectively (Khan et al. 1980; Huffman et al. 1978; Cleland et al. 1994). The mean duration of birth interval reported in Matlab in 1974 was 33 months of which 45 percent, that is 17 months were due to lactational amenorrhoea (Chen et al. 1974; Huffman et al. 1987). At the national level, lactational or postpartum amenorrhoea was found to be 12.4 month in 1989 (Cleland et al. 1994). The breastfeeding pattern over the last 20 years has not changed (Mitra et al. 1997; HDSS report 2001) though there was report of the change in the length of postpartum amenorrhoea in Matlab intervention area. Examining the contribution of each of the factors of fertility decline between 1975 and 1989, Cleland et al. (1994) observed that the role of age at marriage, breastfeeding and lactational amenorrhoea were minimum but the role of contraceptives had risen from 5 to 29 percent.

The present study focuses on marital fertility decline, that is, rise of demand for fewer children in the light of the level of socio-economic and cultural changes and the use of contraceptives for achieving such goals among the married reproductive women.

### 4.3.2 Macro Level Development in Bangladesh and Other East and South East Asian Countries

The rise in contraceptive use and decline in marital fertility in Bangladesh began at a very depressed level of macro socio-economic development compared to other countries in the East and South East Asian regions. A comparative level of socio-economic and demographic status of some Asian countries are given in Table 4.4 to explore the level of socio-economic development of Bangladesh compared to those countries at the time of fertility decline in Bangladesh. The Table shows that the per capita income in Bangladesh was US$ 140, the lowest per capita income of all developing countries when fertility began to decline.

**Table 4.4: Socio-economic and demographic indicators at the onset of fertility decline in some Asian countries.**

| Country | Date | Density* | E0 | IMR | % Urban | % Agri | % liter-ate | Per capita Income+ | HDI |
|---|---|---|---|---|---|---|---|---|---|
| **South Asia** | | | | | | | | | |
| Bangladesh | 1981 | 811 | 47 | 130 | 12 | 73 | 30 | 140 | 0.32 |
| India | 1973 | 308 | 50 | 131 | 21 | 71 | 36 | -- | 0.36 |
| Nepal | 1988 | 356 | 51 | 120 | 11 | 93 | 25 | 180 | 0.33 |
| Sri Lanka | 1962 | 447 | 62 | 65 | 19 | 56 | 70 | | 0.62 |
| **Southeast Asia** | | | | | | | | | |
| Thailand | 1968 | 245 | 56 | 80 | 13 | 81 | 76 | -- | 0.60 |
| Vietnam | 1980 | 747 | 56 | 90 | 19 | 72 | 87** | -- | -- |
| **East Asia** | | | | | | | | | |
| Korea | 1962 | 1169 | 54 | | 30 | 63 | -- | -- | 0.58 |
| Taiwan | 1955 | 1040 | 59 | 70 | 27 | 54 | 81 | -- | -- |

Note: *pre-transition period, **adult literacy , E0=life expectancy at birth, IMR=infant mortality rate, -- no data. + in US dollar

Sources: Bongaarts et al. 1996; Casterline 1991; World Bank 1978, 1983;

Infant mortality rate (IMR) was 130 per 1000 live births and life expectancy was 47 years. A point worth noting here is that fertility transition started in most Third World Nations at a point superseding the line of 50 years life expectancy at birth (Bongaarts & Watkins 1996). Among the developing countries, India is the only country that had a similar IMR at the time when fertility began to decline. Urbanization, which the transition theory has given so much importance to, was only 12 percent in Bangladesh at the time and closer to Thailand (13 percent), and Nepal (11 percent) percent. The examination of all the macro-level development indicators of the Third World fertility decline suggests an interesting contrast between those in Bangladesh and the rest of the Third world. While at the time of transition, some of the development indicators of several Third World countries had shown improvement, some others remained static, and all development indicators of Bangladesh show the lowest comparable values to any other East and South East Asian countries at the time of its transition.

The Human Development Index (HDI) however, provides a better estimate of the change of a society. The Human Development Index (HDI) developed by United Nation Development programme (UNDP) using life expectancy, level of education and real gross domestic products was used by Bongaarts and Watkins (1996) to explore the level of social change that each countries had at the time of fertility decline. Bongaarts and Watkins argued that countries with HDI below 0.30 were likely to be pre transitional, an average HDI of 0.49 to be transitional in Asia and 0.75 to be post transitional, mostly occurring in the developed countries. The HDI in the pioneering countries of East and South East Asia were, South Korea 0.58, Sri Lanka 0.62, Thailand 0.60, but India 0.36 and Nepal 0.33. The HDI reveals that the index for Bangladesh was 32, the lowest among developing nations at the stage of fertility decline. However, it is interesting to note that the rate of increase in HDI between 1960 and 1980 was 45 percent in Bangladesh. Caldwell et al. (1999) pointed out that this increase was the second largest among South Asian countries and the fifth fastest of the 12 Asian countries for which Bongaarts prepared such estimates. The other interesting feature, Bongaarts and Watkins observed was that the first country within a region began fertility transition at a relatively high level of development, but that the other countries within the region achieved transition at a much lower level of change and socio-economic threshold level. This threshold level seemed to move downwards for each new country starting a fertility transition. Given this particular observation, the decline in fertility in Bangladesh would be expected and explains why it occurred at a much lower HDI level.

Taking the definitions of several sociologists about social change, a review will be made in the next sections on the socio-economic and cultural changes of rural Bangladesh and Matlab area which might have reduced the demand for additional children and the raised the in current contraceptive use.

### 4.3.3 Rural Economic Structure

Social change in relation to Bangladesh refers to a change in the macro- and micro- level behaviour, change in the structure and institutions, and in the broader spectrum of the rural population, transformation of members' work patterns and income, shift in family size and structure, religion and other cultural values and norms related to individuals and society (Pool 1995; Robertson 1981). For the last six decades, the rural life in Bangladesh has undergone a process of change. (Khan 1967; Zaidi 1970; Arthur and McNicoll 1978; Adnan 1993; Caldwell et al. 1999; Caldwell et al. 2000). These changes have been both positive and negative. The positive changes are more related with macro level economic infrastructure and the negative one's with agricultural land holdings. These two positive and negative changes may have contributed to the changes in the reproductive behaviour of women in rural Bangladesh.

In the past, villages in Bangladesh were self-sustaining units. The main occupation of the rural population involved around agriculture with a complementary unit of weaving, pottery, carpentry, oil pressing, barber, blacksmithing, and other craftsmanship (Mukerjee 1971). My own memories of childhood in one of the Matlab villages[3] were that the villages were largely self-sufficient. Villagers provided crops annually to servicemen like barbers, boatmen and other service groups. In exchange, the barbers visited each *Bari* every alternate week for hair cutting. In the same way, the boatmen provided pedestrians

[3] Village *Sholodhana* in Matlab is my mother's natal village.

with a boat and other auxiliary services to cross-rivers and canals in the village. In the early days and even in the early 1960s, rural infrastructure was very poor. Few roads, and bridges over the river and canals were to be found. The most feasible mode of transportation in the rural areas was walking. Rural people walked to go anywhere within a 10 miles radius and needed to cross-rivers and canals. The special boatmen group maintained the boat as a ferry for the pedestrians. This whole system of road and communication also restricted women in their movements. These systems have now been abolished with the establishment of market places where barbers have their saloons and the local indigenous variety of ferry system having been abolished with the improvement of rural road and communication infrastructures.

The self-sufficiency of the community first faced constraints when land extension and expansion possibilities were exhausted in the 1940s. In addition, the cumulative partition of the landed property through a complex process of inheritance made the landholding much smaller with each generation[4]. The landed peasant after a generation turned into a poor peasant and could no longer support their family with his smaller land holding. This process substantially increased the landless or marginal landless households in the village within a short time.

The levels of landless and functional landless[5] are presented in Table 4.5. The Table shows that 50 percent of households was landless or functional landless in both areas by 1982. The proportion functional landless at the national level is not

**Table 4.5: Percent of landless and functional landless during 1960-1996 at the National level and in the Matlab area.**

| | National* | | | Matlab** | |
|---|---|---|---|---|---|
| **Categories** | **1960** | **1977** | **1982** | **1982** | **1996** |
| **Percent landless** | 33 | 41 | 37 | 27 | 38 |
| **Percent functional landless** | | | | | |
| **(<0.50 land)** | 42 | 51 | 47 | 50 | 66 |

Sources: * Hossain et al.. 1986 cited in Cleland et al. 1994
** 1982 unpublished DSS census data; Razzaque et al. 1998

[4] According to Muslim inheritance law, all children inherit the parental property after their parental death. Sons share is double than that of the daughters. But rural properties are mostly inherited by men as the daughters either give their claim away to their brothers or claim it to give to their husbands.
[5] Households with less than 0.50 acres of land.

available but the Matlab data shows that 66 percent of the households in the Matlab area are either landless or functional landless. It is evident that the number of absolute landless and functional landless households is fast growing. The average farm size at the national level had decreased rapidly. In 1960, 48 percent of the households had 2.5 or more acres of land, which had reduced to 30 percent in 1983-84 (Hossain 1988). In addition, big land holding peasants stopped renting out their land to landless tenants due to the land crisis. Recent empirical research on structural change in agriculture reveals that average land holding declined from 3.54 to 2.27 acres between 1960-1983, and average landholding of the landless tenants declined from 2.42 acres to 0.19 acres in the same period with no increase in sown land (Akash internet edition 2001). With this shrinking land holding size, the prospects of employing labour in the agriculture also shrank. Most farm households then were forced to manage tasks without employing outside labourers (Hossain 1988).

**Table 4.6: Percent of female head and sex ratio of the active population of selected age groups in Matlab areas, 1974-1996**

| Information | Percent |
|---|---|
| % of female total head in Matlab, 1974 | 5 |
| % percent of total female head, 1996 | 18 |
| % percent of married female head out of total female head | 50 |
| Sex ratio among 25-39 age 1974 | 85 |
| Sex ratio among 15-49 age, 1982 | 92 |
| Sex ratio among 20- 64 age, 1996 | 89 |

Source: Razzaque et al. 1998; Nahar et al. 1996; Ruzicka et al. 1978.

However, despite the growing landless and functional landless in the rural areas, relative migration at the national level was comparatively slow, but increased recently (BBS 1995 internet, BBS 2001 WB report 1999). During the study period, migration in the Matlab area is greater than at the national level (DSS reports 1985-1997[6]). Reports of the successive censuses of Matlab demonstrate indirect support of increased migration by the rural population. An analysis of the three censuses in Matlab (1974, 1982 and 1996 censuses) reveals an increasing number of female-headed households, an increase from six to 18 percent during 1974-1996 (Table 4.6). Of these female-headed households, 50 percent of the heads were married. This could indicate an increase in migration of the former

[6] Each year Demographic surveillance System (DSS) Matlab published annul reports on vital events and migration.

male household heads, although there might have been an over-estimation of the rates due to redefinition of headship (successive censuses might have asked questions in different ways). In addition, in the Matlab rural community, sex ratios among the active population have been decreasing continuously indicating the presence of more females than males in the community. For example, in 1974 the sex ratio was 85 among the 25-39 age group and the same pattern in sex ratio expanded to age groups 15-49 in 1982 (average sex ratio was 92) and further expanded to age groups 20- 64 in 1996 (89%). Recent trends in migration at the national level documented in the 1991 census reflects the same migration pattern in the rural population as well as similar sex ratios of the active population in the village communities (BBS internet edition 2001). In addition, the 1961 national census showed that an urban area contained only 5 percent of the total population, but by 1981, this had increased to 15 percent, and to 24 percent by 1999 (WB Report 1999). The rate of growth of the urban population was much faster (5 percent) than that of the rural population (1 percent).

Migration to urban or other areas exposed the young active population to newer social and economic environments and might have caused a change in their attitude towards reproduction. However, not only migration, as we will see in the next section population increase also influence the rural occupation structure as well.

### 4.3.4 Occupation Distribution

The changes in the land occupancy and their pressure on the economy forced the rural population to seek alternative sources of earnings. This need changed the rural occupation structure and led to migration to other rural or urban areas. The employment structure in the rural society shifted towards a non-agricultural sector. More and more rural young shifted their occupation towards non-agricultural work or set up small businesses like selling vegetables, groceries merchandise, or other small non-agricultural work. The changing occupation structures, at the national level and in Matlab area are presented in Table 4.5a and

**Table 4.7a: Changing occupation structure in the national rural area, Bangladesh, 1961 - 1982.**

| Type of Occupation | 1961-74 | 1974-81 |
|---|---|---|
| Sectoral change | | |
| Agriculture | 56.8 | -1.7 |
| Manufacturing | 4.7 | 22.0 |
| Large | 2.7 | 5.4 |
| Small | 2.0 | 16.6 |
| Trade | 4.8 | 32.5 |
| Transport | 3.2 | 9.9 |
| Construction | -0.7 | 7.1 |
| Others | 31.1 | 30.2 |
| Total | 100.0 | 100.0 |

Source: Hossain et al..1986 cited in Cleland et al. 1994.

4.5b. These tables show clear evidence of the changing rural occupation structure At the national level, there have been major shifts of occupation structure. Fifty seven percent of the labour force was engaged in agriculture during 1961-1974 but this trend had reduced to –1.7 percent in 1974-81 with the labour force engaged in manufacturing, trade, transport and construction. In the Matlab area, although exact estimates of the labour force are not available, the occupations of the heads of households demonstrate a similar trend. There was a substantial decline in agricultural labour and an increase in the trade, non-labour workforce

**Table 4.7b: Changing occupation structure during 1974-1996 in Matlab.**

| Type of Occupation | 1974 | 1982 | 1996 |
|---|---|---|---|
| Landowner | 35.2 | 31.4 | 24.3 |
| Agricultural labour | 20.9 | 21.5 | 8.4 |
| Non agricultural labour | 22.1 | 18.4 | 24.8 |
| Trade | 6.2 | 8.3 | 13.0 |
| Services | 4.7 | 6.4 | 5.5 |
| Housewife | 6.1 | 11.0 | 18.0 |
| Others | 5.5 | 2.7 | 5.6 |

Source: computed from Razzaque et al. 1998

during 1974-1996. But this shift in occupational structures did not improve the poverty level. Osmani (1990a, 1990b) treated these shifts as "push-factors" of stagnant agriculture and concluded that they were not going to improve the living condition for the rural population because of the low real wages, low productivity in the non-farm sector and low rate of migration. The assessment of poverty levels by the Task Force of Poverty Alleviation (1991) observed that the poverty level in the rural area declined from 71.3 percent during the 1973-74 period to 65 percent in 1981-82 to 37 percent in 1988-89. However, this decline in poverty level between 1970-1988 was virtually on the same level as 1963-64 (Hossain et al. 1986; Sen internet edition 2002). The average rate of improvement was much lower than that of the five "Asian Tigers". A recent survey (Sen 2002) shows that rural poverty level did decline further to 26 percent by 1995-96. However, a comparative analysis of the trends in daily wage rates of the male agricultural labourers, the cost of living and the rice equivalent showed signs of improvement in their purchasing power between 1970-1986. In analysing national data, Hossain (1988), showed that the wages of agricultural labour had increased and that the daily normal wage of agricultural labour could buy 3.5 kg of rice in 1983/84 which was 44 percent more than the buying capacity during 1975-1982 and 25 percent more than 1970. However, daily food consumption between 1973-1984 increased from 678 grams to 831 grams daily. All these facts revealed that although there were changes in rural life, these changes were minimal compared to the changes in any Western countries or the South East Asian nations.

**Table 4.8: Nutritional status of the children of rural area, Bangladesh,1975-1996.**

| Level of malnutrition* | 1975-76 | 1981-82 | 1985-86 | 1995-96 |
|---|---|---|---|---|
| Mild (1st degree) | 17.7 | 28.8 | 33.1 | 47 |
| Moderate (2nd degree) | 53.0 | 56.1 | 52.0 | 38.4 |
| Severe (3rd degree) | 25.8 | 15.1 | 9.6 | 4.3 |

*Mild=75-90 % weight for age of the reference category; Moderate =61-74 % weight for age of the reference category; Severe = <60 % weight for age of the reference categories.
*Sources*: Cleland et al. 1994; BBS 1997

However, a positive picture emerges from the nutritional surveys conducted during this period (Table 4.6). The nutritional level among the children improved. The level of severe, moderate and mild malnutrition was reported to be 26, 53 and 18 percent in the first nutritional survey in 1975-76. The 1985-86 surveys found that the level of severe malnutrition had declined substantially to moderate and mild levels, but the percentage of healthy children (equal to reference median weight for age) still remained very small. Further improvements were noted in 1994-95. The 1995-96-nutrition survey reported that the level of severe malnutrition had declined to 4.3 percent. The proportion of normally nourished and mildly malnourished children had increased from an earlier position of 6 and 33 percent to 10 and 47 percent respectively indicating a better nutritional status among the young children.

### 4.3.5 Urbanization, Development in Infrastructure and Urban-rural Linkage

Linkages between the urban and rural populations are crucial factors for any social change. Seasonal and repeated migration exposed rural people to urban life and lifestyles. In addition, the development of economic infrastructure brought enormous potential for human mobilization as well as commodities and commercials. This rapid increase in human and commodity movements between the rural and urban areas may have generated a change on reproductive behaviour. A brief discussion of urbanization, therefore, becomes important. By all definitions, Bangladesh is a rural agricultural society and the Matlab population is totally rural. Rural males and females migrated at an increasing rate to urban areas for work but maintain a connection with their natal home. The urban population is now growing at a faster rate than it has in the past.

This increased rate of migration has been possible, in part because of the development of the rural and national economic infrastructure. Over the last 30 years, economic infrastructures have developed rapidly and the rural infrastructure has been linked with the national grid. Bridges and culverts have been erected over canals and rivers. National highways to connect Chittagong (the port city) and the Eastern zone with the capital, Dhaka, and the rest of the country have been improved. In the past, three wide rivers had handicapped this route. Buses and trucks had to cross on ferryboats. Bridges now replace them. One such bridge is 4-kilometres long. Road communication between the eastern zone and the capital city started in the early 1970s, but the road developments in the western part of the country started in the late 1970s. However, the former dependency on railroad communication has declined and has been replaced by road communication, which is much faster. In 1947, at the time of partition from India, the total paved road in Bangladesh was 247 miles, it increased to 2398 miles in 1970, 6217 miles in 1985 and 7962 miles in 1990 with an additional 5000 thousand miles of unpaved road. The number of passenger vehicles reported as 12 thousand in 1980; this number had increased to 44 thousand in 1990, and 51 thousand in 1995. Water transportation, mostly carried out by motor launches, increased substantially. Cargo vessels, which were mostly the traditional country rowboats in the 1960-1970s, were replaced by steam engine boat. This development in the road and other economic infrastructures between cities and towns, rural and urban areas increases the mass movement not only in human terms but also in the amount of consumer materials and perishable items from the remotest corners of the country.

In the rural area, expansion of the rural electrification programme helped to establish small business enterprises like rice, flour, and oil threshing machines in the local market. This development, although took away the work typically done by the poor rural women, especially the job of thrashing rice[7], did however create jobs for both men and women (Adnan 1993). The government food for work programmes gave opportunities for the landless to work in the construction of roads and canals. Lastly, the micro-credit rural development programmes aimed at addressing rural poverty by providing small loans created jobs for both men and women[8]. In addition, recent developments in the garment industrial sector in the urban areas, which makes to 76 percent of the total export earnings are employing large numbers of girls and provision for employing only female teachers in the primary school has raised prospects for the rural girls to have economically gainful employment (Kabeer 1994; Caldwell et al. 1999). These two macro level development policies may result in female migration from the rural areas and are coming up as emerging issues towards raising the status of women and generating rapid social change. Considering the importance of these two new developments, a separate chapter will be devoted to explore the development of garment sectors and NGO activities before developing the analytical framework.

However, another important factor of reproductive change is the level of education. The general education level of the population and the education of women will be discussed next.

[7] Traditionally husking paddy was done by the rural poor women for their livelihood.
[8] Although the loan of the major NGO is targeted towards the women, it virtually provides work for the whole family

### 4.3.6 Education

Most of the fertility decline theories recognize the role of education in fertility decline. Education is believed to exert influence mainly in two ways. The education level of the society, particularly the education of reproducing couples, affect the fertility through conscious decision making for children through fertility control. The education of women may have more importance, as it is the women who bear the burden of reproduction. The education policy in a poor society affects fertility through parental aspiration for quality children. Couples may decide to replace their reproductive strategy of a large number of children with a smaller number of "quality-children". Baker refers to this as the "quality- quantity tradeoff" (Baker 1982).

The level of education at the time of independence in 1970 was low and the progress in the level of education was modest. An interesting factor revealed from the national (Table 4.9) and Matlab statistics is the rise of female education level. A comparative analysis of the education of males and females in successive censuses indicates that the literacy rate of women has been rising while the male literacy rate has stagnated or has even declined. Between 1961 to 1991 in the population of ages 7 years and older, male literacy rate changed from 31.4 to 39,

**Table 4.9: Literacy level of male and female in Bangladesh, 1961-1998.**

| Literacy rate | 1960 | 1981 | 1991 | 1998 |
|---|---|---|---|---|
| Male | 31.4 | 33.8 | 38.9 | 54.6 |
| Female | 10.7 | 16.4 | 25.5 | 42.5 |

Sources: BBS internet, 2002

while the corresponding female literacy rate during that period increased from 11 to 26. However, there is a substantial increase in the literacy rate of both males and females with greater increase among females. The same is also true in the enrolment level, primary as well as in the high school level (BBS 1994). Matlab area statistics and BBS (2002) showed that the gap between males and females literacy rates had narrowed during the 1981 to 1991 period and the gap is constant since 1991 (Razzaque et al. 1998; BBS internet edition 2002). One crucial feature revealed from both the 1991 national census and the 1996 Matlab socio-economic census was that the proportion literate among young girls and boys up to age 24 is equal both in primary and secondary education, and that the difference in education level between males and females is mainly due to the education level of the previous generation. This might reflect ideational change in the rural population regarding the education of girls since the liberation of Bangladesh in 1971.

However, the culture of a society is the least sensitive factor to any social change. Similar to other South and South East Asian societies, cultural barriers are dominant forces against any change in Bangladesh. Thus the next section will focus on the culture and cultural change in the society of Bangladesh.

### 4.4 Cultural Change

The universal assertion of the transition theory is that high fertility is the functional adjustment to high mortality (Davis 1955, Freedman 1961-1962, Caldwell 1978 1982; Lorrimer 1954). Familial and kinship ties create strong cultural motives and norms to sustain high fertility to protect society from high mortality. Cohesive groups, like extended families, try to enforce these social norms. It is also argued that corporate kinship groups and extended families tend to break down with economic development. This leads to a weakening of the societal constraints on individual decision-making. This rising individualism leads to fertility decline in a society. Thus kinship and other related institutions in Bangladesh and its evolution will be discussed in the light of this assumption in order to examine the culture and cultural change in Bangladesh and its relationship with change in reproductive behaviour. The discussion is presented in three sections: i. Patriarchy Gender ii. Family and family structure iii. Other institutions.

#### 4.4.1 Patriarchy and Gender

Society in Bangladesh is patriarchal. The natural outcome of such society is male domination sustained in two ways: by imposing restrictions on freedom of movement, and by gender stratification. Landed aristocracy and the gender domination regulate women's status and freedom to move through the patriarchal system. Religious culture perpetuates the patriarchal system and restricts women's free movement (Cain 1979; Aziz and Maloney 1985). According to the UN (1993), the status of women in Bangladesh is one of the lowest in the world. Such a structure of patriarchal system creates a strong preference for sons among men and women in the society, which has an enormous effect on the reproductive behaviour of population.

Patrilocal marriage in Bangladesh gives men the role of carrying the lineage. Women migrate to the husband's house to have the offspring who will bear the name of the husband's family, thus cutting off the lineage of her own family. These patrilocal and exogamous marriages isolate the women from their natal kin (Cain et al. 1979). The physical separation makes the women vulnerable and dependent on both her husband and her natal kin. In addition, the age difference between the husband and wife is usually quite large (UN 1981). This age difference between the spouses means there is a high risk of early widowhood among women though women inherited a right to get a small amount of property. Women therefore, are entirely dependent first on her parents then her husband and later on her sons (Jahan 1975). Most women do not want to claim her property from the natal kin or separate property from the children because it is an insurance against any adversities. Most literature on patriarchy and gender domination concludes that this situation of patriarchy and gender domination over women contributes to high fertility in two ways: Firstly, it limits women's non-reproductive roles, and fosters complete dependency of women upon men for protection and economic support, thereby enhancing the value of a son to the family especially for women. Secondly, by ignoring women in the decision-making process, patriarchy limits their autonomy and to make decisions about whether to adopt new ideas or innovations, particularly adoption of any fertility control measures (Cain 1979; Mason 1984; Koenig and Foo 1985).

In addition, deeply rooted cultural and religious sanctions on women, their complete economic dependency on men (father, husband, son), the shifting dependency on the parents or brothers if marital dissolution occur, encourages women to be more submissive and compliant to their husbands. Decision is made on the basis of husband's way of thinking. However, with the changing dynamics in the last 20 years, rural women are becoming more open and are able to discuss with their husbands about family formation and other family matters. They are also becoming more aware of their husbands' attitudes towards these matters (Mitra et al. 1997). This relationship may improve further with the introduction of a number of the development programmes aimed at women. The effect of these programmes may bring the couple closer. It may also reduce the preference for a son in the society. This does seem to be happening. Studies in the early 1980s documented a strong societal preference for son (D'souza & Chen 1980; Chen et al. 1981; Bairagi and Langston 1986) and these were also revealed in almost all vital statistics. However, several recent studies have found that while couples definitely want sons they also want at least one daughter (Rahman and De Vanzo 1993). But these studies did not take into account the impact of spousal communication factors in their analysis. In addition, analyses were also restricted to the Matlab area.

### 4.4.2 Family or Household Structure

In Bangladesh almost all newly married couples begin their life in a joint or extended family (Amin 1999). However, major economic and demographic shifts, discussed above, affect the household composition in two contrasting ways. While the improvement of the rate of survival of both generations has increased the possibilities of remaining in the extended household for a longer time, the economic pressures arising from smaller landholdings and the resultant migration, has tended to break the extended families down into smaller units. Whatever, the proportional shift due to these factors, the research literature on household reveals that 60 percent of the households in Bangladesh are nuclear. Most of the parents want to live with one son, even when they have more than one son alive (Cain et al. 1986; Adnan 1978; Foster 1993; Amin 1998b). The proportion of nuclear families is greater among the landless (Adnan 1978, 1986). The large proportion of the rural population (women and men) living in the nuclear families are free of the hierarchal authority of parents or parents-in-law and can enjoy a certain degree of autonomy in the household decision-making process. As noted earlier, the proportion of extended households in Bangladesh is not large. But these extended families are also nucleated, at least in the field of reproductive decision-making (Jones 1982, Caldwell 1988; Unpublished KAP-1984 data; Caldwell B. 2000).

### 4.4.3 Other Institutions

Various informal social institutions in the community coordinate the activities of individual households besides extended family and kinships. The interactions of individuals through these social institutions create a group culture which influences the decision making process of the individual. The important social institution that mediates such activities and interactions is *Shomaaj or ponchayaut*[9] (Aziz 1979; Bertocci 1969; Islam 1974; Adnan 1993). Each household belongs to a particular *Shomaaj* and has *mutual* rights and obligations within the community. There are interactions of individuals within the village as well as between villages.

However, most crucial social groups that influence the rural community in Bangladesh, especially the women, is the bari. A detail of bari feature is discussed in chapter two. Empirical studies and the individual observations of some authors have suggested that contraceptive use is often initiated as a result of support from members of the *bari*; when one women of a *bari* accepts contraceptives, several others from the same *bari* were likely to accept it. However, discontinuations of contraceptives due to side effects might have negative affect on contraceptive use of the *bari* as well (Rahman et al. 1982)

However, social norms related with economic role of bari are increasing coming under pressure The obligation of the patriarch to look after the kinsmen can not be sustained with dwindling resources (Cain et al. 1979). The female members of destitute families, especially female-headed household and the household with disabled heads are forced to work outside the homestead for their survival. Some of the studies dealing with Food For Work programmes show that (Chen and Gaznabi 1978) that the women participating in the Food For Work programme in the mid 1970s were mostly widowed, or deserted, or the wife of a disabled man. The economic pressure on couples means that women are accepting jobs outside

[9] It is also known as biradri, samiti, mallot or reyai etc. in different parts of the country.

the protective realms of her home. The availability and employment of young female family planning workers from respectable families in the mid 1970s at Matlab is an example of changes in attitude of the rural population towards women engage in gainful employment (Aziz & Mosley 1994). Thus the strict adherence to local social institution has been eroded because of the changes in the traditional economic structure.

Having discussed the economic and socio-cultural changes, and the possible factors for changes in demand for additional children, the next section will focus on the family planning programme and its strategic policy to mitigate that demand.

### 4.5 Fertility and Family Planning Programme

This section will offer an evaluation of the fertility control programme performance in the post independent period and role of ICDDR, B and other NGOs in relation to fertility decline.

#### 4.5.1 National Family Planning Programme and Fertility.

Beginning from the Pakistan period, the fertility control programme in Bangladesh has adopted several strategies and been reviewed and restructured. Despite all these efforts, the programme's performance and its impact on population was minimal. An analysis of programme performance revealed that efforts were confined to a very limited segment of population. In its first six years work was limited to the cities and large towns and the proportion of the national population covered under this programme was less than 2 percent.

Programme never reached the grassroots level. It was weak, and incapable of reaching at the periphery due to the internal inconsistency of the bureaucratic system. The vast expansion of development programmes after independence transformed the bureaucracy into a mass organization. But, lacking proper reorientation, the bureaucracy retained its past legacy and organized programmes so that they seemed to have been an imposition of the will of bureaucracy over the population. The inherent message of the programme was missed and whatever strategies or changes to the programme were made, the result was the alienation of the rural population because of mistrust in bureaucracy. In addition, whatever vigorous the official commitment was, the actual expansion of the programme in the rural area was in actual fact very small (Cleland et al. 1994; Adil 1968).

In 1975 a commitment was made to a multi-sectoral and broad-based population control and family planning programme with a priority of delivering family planning services to the rural mass under the Ministry of Health and population control (MOHPC). The structure of the Ministry is hierarchal. At the bottom of the hierarchy are the local level family planning workers. The primary health services are the responsibility of male organizers known as Family Planning Assistants (FPA). These male workers were surplus workers from different public health campaigns. Due to their earlier training and orientation, and the cultural constraints on men interacting with rural women, these male workers could not provide maternal and child health services except mass immunization. The family planning service was staffed with women designated Family Welfare Assistants

**Table 4. 10: Number of thana health complex (THC), family welfare centre (FWC), Family welfare visitors (FWV), family planning assistants (FPA), family welfare assistant (FWA), national family planning programme, 1975-1990.**

| Year | THC | FWC | FWV | FPA | FWA |
|---|---|---|---|---|---|
| 1975 | 147 | ___ | 425 | 122 | 122 |
| 1979-1980 | 275 | 278 | 1300 | 3948 | 12185 |
| 1983-1984 | 344 | 1083 | 3404 | 3892 | 11963 |
| 1985-1986 | 352 | 1648 | 3948 | 3875 | 11925 |
| 1989-90 | 364 | 2354 | 4046 | 3875 | 21155 |

Source: Cleland et al. 1994. Pp, 112.

(FWA). The FWA at the grass roots level were supervised FPA's. The FWA primarily provided family planning services and supplies of contraceptives and spent 20 percent of their time on health-related activities.

Table 4.10 provides evidence of the miniscule level of grassroots family planning programme workers available before 1975. Despite changes during the pre-1975 period in the overall bureaucratic setting, visible changes at the grass root level workers were not apparent. The link between prospective users and clinical services was rarely adequate. Only 30 percent of the Thana Health Complex (THC) was covered under family planning services with 425 Family Welfare Visitors. So even if the demand for fertility control existed as is suggested in the demographic literatures, this demand for fertility control could not be fulfilled due to poor management and planning of family planning programme. In late 1975, family planning facilities were introduced in the thana rural health complexes and the family planning workers at the grass roots level begun to increase gradually. Successive governments' firm commitment to population control, and a related allocation of large funds evident in Table 4.10 is a demonstration of their strong desire to curb the population growth through their action.

After 1975, eight ministries were entrusted with specific responsibilities to educate the rural population on population growth and its association with resources, the effect of early marriage and other matters related with population growth, which might be addressed through education and development. The list of responsibilities of each ministry is provided in Table 4.11. However, each

**Table 4.11: List of ministries and their responsibilities**

| Name of the ministry | Responsibilities |
|---|---|
| Information | Communication |
| Education and cultural affairs | Training and orientation to teachers |
| Agriculture and livestock | Training to farmers on effect of population on resources and living standard. |
| Labour and Man power | Establishment of clinics in industrial settings and education and motivation of industrial workers on family planning. |
| Social Welfare and Women's Affairs | Funding national women NGOs and small women NGOs for family planning and reproductive health activities. |
| Local Government and Rural Development | Fostering the economic role of women and educating in family planning and population education through Women Co-operative Societies, rural para-militia groups |
| Youth and Sports | Provide training on population and the benefit of late marriage to members of youth club. |
| Religious Affairs | Training programme, workshops and seminars to educate religious leaders like Imam, Marriage registers, Madrasha teachers. |

Sources: extracted from Cleland et al. 1994.

ministry performed its responsibility independent of the others. Despite a firm commitment from the government and a large flow of funds and engagement of a huge work force after 1975, the overall Contraceptive Prevalence Rate (CPR) only rose from 7.7 in 1975 to 19 in 1983 and the gain was even smaller than expected in the rural areas only 12.1. Literature described this results as management weakness in the programme (Phillips et al. 1994).

### 4.5.2 ICDDR,B's MCH-FP Intervention, Fertility Decline and Relevance for National Family Planning Programme

Chapter 2 discussed the Contraceptive Distribution Project (CDP), a pilot project launched by the International centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) based on a demand hypothesis and its impact on contraceptive use. This section will discuss an experimental fertility control programme based on the research findings of CDP with emphasis on the demand for children and supply of contraceptive methods.

After a careful analysis of the CDP, ICDDR, B's experts concluded that the initial rise in use prevalence supported the idea that demand had been generated among the population. However, the subsequent decline in CPR, and return to pre-project levels within 24 months suggested that demand is fragile and that simple supply could not sustain lasting behavioural changes. What was needed was a complex science of interfacing the service system with social circumstances (Rahman et al. 1980; Stinson et al. 1982; Phillips et al. 1982, 1988; Simmons et al. 1987). In the experts' view, the programme needed broad-based family planning services, and a health service to establish workers creditability. ICDDR, B therefore, launched a comprehensive family planning and limited health services (FPHSP) in half of its research area in Matlab in October 1977. The family planning services were based on a cafeteria approach, distributed at home by the Community Health Worker (CHW) along with distributions of drugs for minor ailments. The CHW visited their assigned areas once in every 15 days to enquire about the health and family planning needs of the community and in particular about the side effects of the contraceptives and child health. To provide credibility, young, married women who used contraception and were from respected families in the local community were recruited for the programme. After intensive training, these CHWs were posted to their respective villages. The programme area was divided into four blocks, A, B, C, D and each block had one sub-centre where clinical health services were available. The physical facility, that is, a room, for these sub-centres was provided by the community. A trained female paramedic was posted there to deal with minor maternal, child health, and family planning related problems. A female physician visited each sub-centre every fortnight to deal with any serious problems. Besides these technical staff, there was a male supervisor in each block who in turn had two supervisors for general research work. These supervisors counselled the local elites and provided administrative and moral support to the CHWs in the execution of the socially challenging task of introducing reproductive behavioural change among the population. A field manager coordinated both the service and the research work. Later, the programme area was divided into two parts to test whether incremental health and family planning intervention could improve the programme's performance. The clinics in blocks A and C provided measles immunization to children, tetanus immunization to all pregnant women, training in antenatal care, home insertion of IUD, and distribution of oral dehydration packets. In 1986, however, differential interventions were stopped and equal services were offered in all the blocks.

The family planning programme with limited health services launched in 1977 turned out to be one of the most successful in reducing mortality, increasing the CPR thereby reducing fertility (figures 2.1a to 2.1c, chapter 2) though not influencing the desire for children (Chen et al. 1983; Rahman 1986; Rahman et al. 1982; Phillips et al. 1984, 1988; Koenig et al. 1987, 1994).

Most researchers have attributed this massive achievement to the successful strategy of adopting an appropriate services delivery system to social conditions in rural Bangladesh (Simmons et al. 1987; Phillips et al. 1988). Phillips et al. (1994) concluded that four elements contributed to the success of the Matlab programme. These were client-oriented services, internal cohesion, task accountability and community relations. Among the four elements, client-oriented services delivered by the young married and literate village women as primary service providers was the critical one. Each CHW visited all women in her area (village) twice in a month, discussed the demand for children and contraceptive preferences, provided methods, and referred women and their children to nearby clinics for basic health or family planning needs. The Matlab system entrusted special status to the CHWs. Recruiting the CHW from the respected families showed recognition of the social status of the rural society and its importance in all aspects of life. As the CHW were educated, they provided a model for rural women. Their status was enhanced by their supervisors treating them as health referral and community liaison personnel. Their work area was divided by socially acceptable boundaries, a strategy that reduced social opposition to routine household visitation.

As they had received the basic training in household communication and service techniques and had the field support from the supervisors, CHWs were equipped to interact effectively with their village clients. In addition, CHWs were equipped with a wide range of contraceptive options and basic health care services which meant that women encountering side effects from their method of contraception could switch to a more suitable method and could receive counselling and care from the CHWs. The programme also builds up an effect peer network between grassroots level worker (CHW) and their superior. On the other hand, CHW's accountability to their work was ensured through different techniques. Community relationship between programme staff and local community was maintained whilst carefully avoiding village fractionalism.

In summary, the success of CDP cited in chapter 2 demonstrated that the demand for fertility control existed prior to the introduction of CDP project and that demand might be generated from the past mortality decline or other changes discussed in chapter two. The second project discussed in this chapter demonstrated that a socially appropriate services strategy that mitigates the social constraints could increase the use of contraceptives.

The Matlab project thus provided a services model that had potential importance for the Bangladesh population policy. The Bangladesh Government had adopted some of its findings in the national programme, which may have had substantial impact on the recent rise of contraceptive use.

***The extension project: a joint collaboration of government and ICDDR, B***

Until 1981, the findings of the Matlab project were rejected by the senior Government officials as irrelevant to policy because of the project's operational design. Government officials considered it non-replicable because of the projects highly trained staff, sophisticated supervisory system, coordinated organizational structure and high resource involvement. However, in 1982, a joint project known as MCH-FP extension was launched in two government sub-districts on a donor's request. The aim of the project was to examine whether the Matlab design could be replicated into the national programme, while keeping the government's organizational structure intact. A joint coordinating committee comprising of the ICDDR, B and the Bangladesh government was constituted to direct the work and monitor progress. At the national level, the committee consisted of senior officials from the ministry and relevant research organizations. As the Matlab project had demonstrated that demand for family planning existed, the ICDDR, B's role was to examine how much of the successful Matlab strategy could be transferred to the extension area and to develop an appropriate supply strategy in the extension area, assuming that the demand existed. In the initial phase (1983-1986), the transfer process was deliberately constrained, special operations were disallowed, but the pattern of supervision, staffing and supplies were unchanged. Programme activities were designed to retain the government's organizational structure so that this pilot project did not lose relevancy to national programme. This pilot project stood between Matlab and government system where operation findings and changes could be the focus of work with the Matlab as operation model.

The first phase analysis demonstrated the difficulty in transferring an innovative project to a large-scale bureaucracy[10]. The dialogue between the two parties led to key operational changes in the national programme, and decisions were made to pre-test those changes in the extension areas. In the second phase, incremental Matlab features were added to pre-test the related changes in the national programme. These included: doubling the density of the existing female village

[10] The key barrier to transferring the Matlab model was the staff composition of government operations. In contrast to Matlab the staff composition ratio at the grassroot level and supervisors in each union was 3:4 while it was 20:2 for each union in the Matlab Project.

workers, training the female village workers to provide injectables in the home, and upgrading the field management and ancillary health services to improve the programme's technical and operational support for the village workers. Community participation was sought to improve community relations. As a result, a cohesive, client-oriented system management was developed which ensured accountability and established community relations.

When these operational changes were undertaken in the extension area, the national programme replicated the most critical element of the Matlab without obstructing operations with non-replicable costs. In the subsequent period following the operational change, CPR in the extension area increased. The most dramatic increase was found in Serajgonj, an area regarded as conservative, traditional and non-contracting.

In response to the success of the programme in the extension area, the government ordered that the female work force be expanded by another 10,000. In 1984, a decision was made to develop personnel hiring process, training, supervision and other aspects of the fields operations. The coordinating committee received reports, reviewed findings received from the sub-district and field level of the extension project, reviewed the progress and assisted in overcoming the barriers to project implementation. Through this process, the extension projects were, communicated to key decision-makers who subsequently used the project findings for large-scale policy planning. Finally, a change was made in third five-year plan on the basis of the findings from the extension project. The findings suggested that replication of the Matlab was possible even in the context of the existing government public health structure. Currently, government staff working in the extension project was distributed throughout the country to monitor project implementation and to assist senior officials with linking problems in the larger system back to the decision-making resources.

### 4.5.3 Family Planning Intervention by NGOs

The NGO programmes launched by the Ford Foundation, Asia Foundation and PathFinder International and several other donor-driven programmes followed almost the same strategy that ICDDR, B had followed based on the assumption that the women in rural area are culturally constrained and the best option of overcoming these cultural restraints would be to reach the women in their home. Most analysis, including the extension project demonstrated that an outreach into the home significantly increased the contraceptive prevalence rate and choice of methods (Sufian 1986; Phillips & Koblinsky 1984; Koenig et al. 1992; Phillips et al. 1988, 1996; Arends-Kuenning et al. 1999)

### 4.5.5 Current State of Bangladesh Family Planning Programme[11]

Several structural and strategic changes have transformed the population control programme from its initial focus on clinical services to a complex multi-sectoral approach. But the major drawbacks of the programme were its greatest resources: a high level of commitment and action without proper testing of the strategic design by field trials. In addition, the disjointed function of different ministries has made the programme less cohesive. However, despite these anomalies, contraceptive prevalence rate has been rising since 1982. Summarizing the fertility trends and population programme activities in Bangladesh, Cleland et al.. divided the programme activities into four types. These are as follows

***Type 1: Strategies to Improve Converge and Quality Of Static Services.***

*Family planning activities:* Since the 1981 regulatory change, most of the village women have come came under the network of a system of clinics spread over the country. Most couples live within five miles of a service point where free long acting contraceptives, like IUDs and injectables, are available, and where trained paramedics treat any side- effects. Every Thana Health Complex offers surgical

[11] Cleland et al. (1994) provide a most elaborate and authentic narration of the Bangladesh Family planning programme. In the present thesis most of the information related with national family planning are extracted from their book .

contraceptives. In addition, nearly all-pharmaceutical outlets all over the country are supplied with subsidized contraceptives.

*Health services:* Child immunization is extended to rural households and is linked to family planning outreach activities. Paramedics who provide maternal child health services also offer clinical services for family planning.

***Type II: Strategies to Improve Awareness and Motivation.***

*Mass media communication:* Extensive publicity, programme outreach, and studes show a mass media campaign have made contraceptive knowledge universal and that currently, 99 percent of the population is aware of more than two methods of contraception. Family planning is openly discussed in the public media and this may be helping to reduce the traditional conservatism and improve interpersonal communication. A recent MDHS report demonstrated that most rural women support the family planning advertisements in the media (unpublished Matlab DHS, 94 data).

*Awareness and consciousness building:* Sectoral ministries have been involved in communication and consciousness building programmes. The most important of these were the efforts to orient religious leaders and promote understanding and exchange between the programme and Islamic organizations.

**Type III. Strategies to Foster Village-Based and Household Services**

Outreach by government workers: A large cadre of female workers has been hired, trained and equipped to deliver family planning services to couples in their home. These strategies mitigate the cultural constraints facing contraceptive distribution. At the beginning period of fertility decline, i.e. in 1983, 30 percent of all married women under age fifty were visited by the field workers during the previous six months. This rate were very much similar during the later periods. But at the time of writing this thesis, 40 percent of women were visited by female village workers within three months of the earlier visit and nearly all women have been reached at least once in their homes.

*Outreach by non-government service agencies*: Until 1981, NGO activities were restricted to cities and large towns. With the new policy and minimization of government control on external resources, NGO activities have proliferated. Presently, 22 percent of contraceptives are supplied by NGOs. It is generally believed that NGO expansion has had a major impact on the availability and quality of family planning services.

*Type IV. Strategies to Foster Community Development and to generate Demand*

Programmes that foster community development improve the social and economic conditions and generate demand for fertility control are well developed in Bangladesh. The *Swanirvar* (self reliance) Project is a long-standing and large-scale effort to distribute credit to rural household. It has had substantial success, but this success has been achieved through demand fulfilment rather than demand generation. However, the programmes targeting women's development can have pronounced impact on fertility if family planning services are integrated with development activities. These community development projects have largely been developed in the non-government sectors and have huge potential to influence fertility control through demand generation, but most of the large NGOs have not added a fertility control agenda into the programme. Activities of these NGOs will be discussed in the next chapter.

### 4.6 Summary

Summarising the economic and socio-cultural changes that may have generated the changes in the reproductive behaviour of the Bangladeshi rural women, we can say that the polarization of landholding strata, shift of occupational structure, and rural development programmes raises two situations in the village community leading to a stress for the maintenance of family. The division of landholding reduced average landholding size per household and made the landholding unit incapable of supporting the household. The job opportunities created through the developmental programme and shifting of job pattern from agriculture to non-agriculture sectors increased the cash flow in the rural areas especially among the poor but these incomes were inadequate to their total need and so they were in constant stress in the maintenance of household (Osmani 1990a and 1990b). However, shifting occupation structure invoked migration. Migration not only provides economic support but also brings new ideas and beliefs through exposure to new environments outside the village, which has its own effect on the reproductive behaviour of women in rural Bangladesh.

On the other hand, increasing education among girls, food for the work programme, and rural micro-credit programmes for the poor, and the prospect of getting jobs for girls in the garment industries and education sector, the so-called rigid social institutions became even less cohesive and weak and could not hold the traditional values any more. In addition, due to an increased use of fertilizers, irrigation and crops diversification programmes, villages attained self-sufficiency in food production in the late 1980s and that poverty levels in the rural population had reduced (Sen 2002). This increased food production expanded the local market and increased transactions due to improvement in the roads and communication. The penetration and expansion of local markets may have given villagers the taste of new products and commercials. Thus, the rural population was going through a two opposite forces. On the one side, high proportion of landless and limited prospect of rural job created a bleak and uncertain future for the old age and for children, on the other side, the attraction towards modern life. Unlike European industrial development and consequential employment opportunities for women, and security to the old and unemployed, Bangladesh social change did not provide any such qualitative changes for the rural life. Women in rural area were mostly unemployed (the garment workers live in urban areas) and there was no programme to support the old and unemployed other than depending on the children. This is still the case today. That might be the dynamics of changing demand for additional children

However, family planning support at the national level was poor to mitigate those demand while ICDDR,B in the intervention area has had efficient management programme. Logistics of National family planning programme, however, started improving since late 1970s.

# Chapter 5: Recent Macro economic and Community Development Leading to Analytical framework.

## 5.1 Introduction

The details of macro economic and social development have been discussed in the country setting and changes in the Bangladeshi society in Chapters Two and Four. Two macro development aspects have emerged in recent times, which might have brought enormous prospects of social change at the community level during the study period and beyond. These are the development of apparel industries in the urban areas especially Dhaka and Chittagong, and community level development especially NGO programme development. Both of those macro level efforts for rural development may have contributed to the rapid change in the reproductive behaviour of the society. This chapter thus explores the level and development of apparel industries and community development programmes initiated through Government and Non Government Organizations (NGOs).

## 5.2 Apparel Industrial Sectors and Women Employment

The export oriented apparel industry started in the late 1970s and developed rapidly. In 1988, total export earnings from this sector exceeded the country's usual leading jute export earning. In 1981, total earning from the apparel sector was only 6 millions US dollar which had risen to US$ 2628 million in 1996 contributing 64 percent to the total export earning. In 1998-1999 earnings from the export oriented apparel industrial sector reached to US$ 4020, which constituted a 76 percent of the total export earning of the country.

The significance of the rise of this sector in terms of the focus of this study lies not in the earnings but in the nature of employment and distribution of wealth as these have strong links to social change. These apparel industries from its starts, provided wage employment opportunities for young women. The level of employment and socio-demographic characteristics of the apparel industrial worker are presented in Table 5.1. Table shows that a high proportion of women are working in the apparel industries compared to any other industry. In the apparel industries 66 percent of the workers are women. These garment workers are very young and more than half of them are unmarried and three fourths of them are migrated from the rural areas.

**Table 5.1: Proportion of workers in different industrial sectors by sex and socio demographic characteristics of the workers at the apparel industries 1993-1997.**

| Information | Male | Female |
|---|---|---|
| Apparel Industry | 33.8 | 66.2 |
| Other export industry | 85.3 | 14.7 |
| Non export industry | 93.3 | 6.7 |
| **Apparel industries** | | |
| Mean age | 25 | 20.4 |
| Mean education | 8.8 | 6.3 |
| Marital status, unmarried | 58.9 | 52.1 |
| Migrants | 76.3 | 73.0 |

Source: Paul-Mazumder and Begum, Internet edition 2002.

These unmarried young workers came from the rural areas with a very little education. For many years, this young age structure of the garment workers did not change because of the employers' preferences for unmarried workers (Paul Mazumder and Begum 2002). Most of the women did not want to continue for a long time due to occupational hazard and workplace stress. They either got married or returned to the rural areas. As a result, there has been a continuous flow of migrants in and out of the cities, which might have enormous prospect of social change. In addition, literature suggests that at the early stage of this industrial development, female worker mostly from a very poor family involved in this sectors but trends gradually changed. Latest data suggested that only 15 percent of the garment workers came from households with the head characterised as poor in terms of level of education, income and employment. Analysing the BIDS survey data, Paul Majumder and Begum (2002) found that migration of rural young to the garment works is linked with four factors of poverty nexus in the rural area. These are income, ownership of land or other assets, living environments and access to institutional supports. Two other qualitative studies support these findings. Studies report that at least three out of five garment workers are either landless or functionally landless (Afsar 1998; Paul-Majumder and Begum 2002)

In general, rural young males and females enter the urban industrial labour market through the garment sectors. Statistics show that 93 percent of the female 70 percent of the male garment workers started working in the industry without any previous work experience. These young workers contribute a substantial amount of support to their family in the rural area. Bangladesh Institute of Development Studies (BIDS) survey in 1997 reported that the female garment workers contribute 46 percent of their family income. Interestingly, 23 percent of the unmarried female workers are the main sources of earnings of their family. In addition, eighty percent of the family live below the poverty line without their female members earning in the garment sectors (Paul-Majumder and Zohir 1996). In recent times this dependency on women earning has encouraged poor parents in both rural and urban areas to educate their daughters (Afsar 1998). Female garment workers on their own initiative are taking education for better performance of their job. The development of the garment industries and the appointment of rural poor especially women be continuing would bringing about a revolutionary social change in both urban and rural areas.

Besides social change, the employment of women affects the biosocial and demographic aspects of the society as well. Zohir and Paul-Majumder (1996) reported that 37 percent of the female garments workers have taken employment against the wishes of the family members (empowerment). Work in the garment industries delays marriage and first birth affecting the total fertility rate (Naved et al. 1997; Afsar 1995) which is also evident in Table 5.1. Studies also reported five years differences in age at marriage between those who married before joining in the garment industries and those who married after (BIDS survey 1997).

The development of apparel industries and the creation of job opportunities for the rural young especially women provided new prospect of better life for the rural community as a whole. Recent studies have found that not only the rural poor but the more skilled and educated rural youth are also increasingly joining the garment sectors. This level of migration from and to the urban areas would have the effect of reducing the restriction on women movement, and improve the status of women. The rural communities are continuously balancing the economic gain through this new prospect of employment especially women employment and the social norms and this could be a mechanism of social change.

## 5.3 Community Development Programme

Much has been discussed about macro level development in Bangladesh. The central theme of development is alleviation of poverty if not eradication. In Bangladesh, similar to any developing country, poverty alleviation means alleviation of rural poverty. In the 1950s and 1960s, development was pursued through macro economic policy with an assumption that sustained economic growth eventually would penetrate down to the rural poor. The slower growth of the economy compared to population growth failed to provide a sustainable effect on the overall poverty alleviation. Even, in the 1970s and 1980s since independence, grass root level development was seen in the context of national economic growth accompanied by sectoral development programmes.

In Bangladesh, Non Government Organization (NGO) programme and activities in its present form started shortly after independence in 1971. They originated from the need for humanitarian assistance and rehabilitation of a war ravaged economy created out of struggle for independence and unprecedented floods and famines in the post war period of 1974-1975. But the failure of the macro economy to alleviate poverty moved the international bodies especially the World Bank to put emphasis on a newer concept of redistribution of wealth, readdressing the rural poverty directly and through macro economic policies as well. This policy was behind the present proliferation of NGOs in the developing country especially in Bangladesh. In the early 1980s the above two track policies were integrated into a single concept of structural poverty alleviation with an assumption that both the macro economy and targeted intervention are essential to mitigate rural poverty.

In Bangladesh the structural rural poverty alleviation was launched through two channels. One through government own initiative and the other through NGO intervention programmes with a multi dimension approach. The major objectives of the NGOs broadly fall in the line of structural poverty alleviation, involvement of women in the development process, and provision of safety net in time of emergency (Riddell et al. 1995; IOB evaluation 2002). Success on these fronts, especially, in poverty alleviation and involvement of the women in the development process are assumed to be bringing change in the rural power structure through social empowerment, and in gender relationships through empowering women. These changes offer a prospect of overall change at the grass roots levels leading to change in the reproductive behaviour of women in the society.

The relationship between rural development (rural community development) and social and women empowerment and its impact on reproductive behaviour of women seems obvious. But empirical research produced conflicting evidence (Rahman 1986; Pit and Khandker 1995; Schuler et al. 1996). Though several studies have found a positive relationship between women empowerment and reproductive behaviour (Hashemi et al.1996), in the present analysis, only one variable has been used to assess the impact of rural development programme on reproductive behaviour, the membership of women in an NGO organisation.

Bangladesh has played a pioneering role in social change through rural development by NGO programme intervention particularly through the micro credit programme. More than 75 countries have adopted the micro-credit policy of Bangladesh for poverty alleviation of their countries. Thus a discussion is warranted on the activities of NGOs in the context of current change in the demographic behaviour of the community, as it is not possible to capture the whole aspect of change through this present study.

### 5.3.1 Government rural development programme

The government of Bangladesh has attempted to address poverty through both macro economic policies and targeted programmes. The largest government organization dealing with rural development is the Bangladesh Rural Development Board (BRDB), which organized formal cooperatives, and informal groups through supervised credit programmes, to cover 350,000 families by 1996. Another government supported rural development organization is the *Polli Karma Shahayak* Foundation (PKSF), which provides credit for lending by a variety of partner organizations in generating self-employment. The number of borrowers from this organization in 1996 was 217,000.

In addition to these major rural development projects, the Bangladesh Government has an extensive set of 'safety nets' for those families who are living in extreme poverty either temporarily or permanently. The largest provider of this support, the Local Government Engineering Department implemented 17 major rural infrastructure projects during 1993-94, which created 11 million person days work. The Government Food for Work Programme provided about 72 million person days of manual work on infrastructure schemes in 1991-92. In addition, the Vulnerable Group Development Programme, a relief programme for destitute women identified by each union council covered nearly 6 million women. Finally and more importantly, Government of Bangladesh allows and admits NGOs as development partner.

### 5.3.2 NGOs in Bangladesh

The increasing emphasis of the international bodies on targeted approaches for the alleviation of poverty through rural development by Non Government Organizations (NGO) and the government's acceptance of NGOs working in the field of development has led to a rapid increase in the number of NGOs and their volume of work in Bangladesh. In general, the great majority of indigenous NGOs in Bangladesh are engaged in activities under the 'welfare' category and are registered under the Voluntary Social Welfare Agencies Act, (as described, for example, in 'An Assessment of the Role and Impact of NGOs in Bangladesh', Asian Development Bank December 1992). It is estimated that the number of such organizations are over 13,000, but of these organisations few of these are believed to be currently active (IOB 2002). Main areas of operation of this organization are related with health and family planning, while other organizations were in response to natural calamities of the country. IOB reported that about 200 indigenous bodies registered under the same Act are using foreign funding sources and more than 90 overseas bodies also have registered under the same Act, even though many of these organizations focus on development. NGOs engaged in development registered with ADAB. The NGO coordinating body ADAB (Association for Development Agencies in Bangladesh) reported 986 registered NGO in 1994/95, who were eligible to receive foreign grants (World Bank 1996). In addition, there are around 7,000 small non-registered NGO sustained by local funds or indirect funding from NGOs or official sources PKSF. Other NGOs not under the Bureau are registered with the Ministry of Social Services, Department of Education, Department of Youth Affairs, Ministry of Forests and the Environment or the Women's Affairs Ministry and receive overseas project funding directly through the respective line Ministries.

The NGO Bureau that approved the foreign funding for 2,598 projects between 1990-95 dispersed about US$ 1.1 billion (World Bank 1996). In 1994, the disbursement of funds to NGOs was 170 million, which is 11 percent of the total aid disbursement and 24 percent of all grant aid to Bangladesh. NGOs work throughout Bangladesh but membership is not evenly distributed all over the country for two reasons. Firstly, the NGOs target special disadvantaged groups and establish programmes where it is more relevant and secondly, the NGO linked with church are more located in the Christian populated area. Detailed statistics of all the NGOs especially the smaller one are difficult to obtain (Riddell et al. 1995)

The NGO's rural development activities are followed in the two broad routes. The first is rural development through micro-credit lending. The best examples of this approach are the Grameen Bank and recently the Association of Social Advancement (ASA). The second one is a holistic approach based on a broad definition of poverty including element of social structure. Skills training is offered in combination with credit in their other programme for rural development. It is believed that the provision of both human and financial resources to the members will help people to find their way out of poverty. This will change the social relationship leading to women and social empowerment. The example of this approach is Bangladesh Rural Advancement Committee

(BRAC), and *Proshika*. Another strand of highly successful NGOs working in rural areas are critical about the emphasis on micro-credit lending, and concentrate exclusively on raising consciousness and empowerment in a highly specialized concentrated programme. But membership of those NGOs is very limited. One of the leading NGOs with that kind of approach is *Nijera Kori*. However, detailed data for most of these NGOs have not been available. In the next section, the two leading organizations, Grameen Bank and BRAC, representing the two major approaches, will be examined to explore NGO proliferation in rural Bangladesh.

### *Development of two Leading NGOs: Bangladesh Rural Advancement Committee (BRAC) and Grameen Bank*

Available literature shows that the Bangladesh Rural Advancement Committee started in 1972 as a relief measure following the war of liberation and was engaged in community development programmes to a very limited area and section of people. It started expanding its programme gradually. By 1986, BRAC had established rural development programmes in 45 areas only. By 1989, it had expanded to 81 areas covering 3307 villages of 45 sub-districts. The total population covered in those villages was 333,675 of which 93 percent were women. The Grameen Bank was started in one village 1976 by a professor of Economics at the University of Chittagong as an action research project of micro credit leading to the rural poor. In 1978, after a three-year experimental period,

**Table 5.2: Number of village covered and number of village organization increase in Grameen Bank and BRAC during 1985-1994**

| Year | # of village covered | | # of village based Organization* | |
|---|---|---|---|---|
| | Grameen Bank | BRAC | Grameen Bank | BRAC |
| 1989 | 15,073 | 3,307 | 26,976 | 6,434 |
| 1990 | 19,536 | 4,238 | 34,206 | 8,263 |
| 1991 | 25,248 | 5,337 | 42,751 | 11,391 |
| 1992 | 30,619 | 6,878 | 51,367 | 13,967 |
| 1993 | 33,667 | 10,379 | 57,649 | 20,141 |
| 1994 | 34,913 | 13,224 | 59,921 | 24,859 |

*Small group of women within the village.
*Sources*: Rahman 1998.

the programme was expanded to five districts. By 1987, the Grameen Bank had opened 298 branches covering six percent of the villages in the country.

Table 5.2 shows the rapid expansion of these two leading NGOs. The latest BRAC report (internet 2002) shows that 90 percent of the village has come under the network of BRAC programme and of the total BRAC members, 98 percent are female. The annual report of Grameen Bank 2000 (internet 2002) shows that it covers 60 percent of the village and of the total Grameen Bank members, 95 percent of them are females.

**Table 5.3: Member and Borrowers of Grameen Bank and BRAC, 1989-1994.**

| Year | # of Borrowers in thousand | | | | # of Borrowers as % of members | | | |
|---|---|---|---|---|---|---|---|---|
| | Grameen Bank | % women | BRAC | % women | Grameen bank | % women | BRAC | % women |
| 1989 | 662.3 | 88.9 | 352.3 | 61.2 | 97.9 | 88.7 | 52.5 | 57.6 |
| 1990 | 869.5 | 91.0 | 460.8 | 64.4 | 98.1 | 91.0 | 53.5 | 55.1 |
| 1991 | 1066.4 | 92.5 | 598.1 | 67.9 | 97.7 | 97.7 | 69.3 | 67.1 |
| 1992 | 1424.4 | 93.7 | 649.3 | 74.2 | 97.3 | 97.3 | 66.4 | 65.5 |
| 1993 | 1814.9 | 94.1 | 825.8 | 82.2 | 92.7 | 92.7 | 64.2 | 64.2 |
| 1994 | 2015.1 | 93.9 | 1036.3 | 87.7 | 92.4 | 92.4 | 71.4 | 71.4 |

*Sources*: Rahman 1998.

### 5.3.3 Role of NGOs

The major activities of these NGOs are to empower the poor and the women. In doing so, NGOs have followed two broad strategies; providing financial support in the form of loans and training on different aspects of empowerment, health and nutrition as well as skill training. Developmental NGOs, initially emphasise empowering the poor instead of the privileged of the society, for example, landowners, money lenders and local politicians, who were treated as local elite and deprived the poor and monopolizing access to resources provided by Government were left out. They also emphasize women empowerment. The basic ideological focus has been on the process of 'conscientization' through a cycle of action, reflection and improved action, often in parallel with educational and training activities. At present, most NGOs emphasise provision of services, and most particularly credit, with conscientization remaining as a relatively minor component of activities in the field. The major fields through which NGOs work to empower the poor and women are poverty alleviation, education, health and family planning.

*Poverty alleviation*

Poverty alleviation strategies of NGOs have focused on possibilities for income generation through self-employment. The Grameen Bank concentrated its efforts on raising capacity in animal husbandry and trading activities. Many NGOs commenced with a broad range of potential activities, supported through training programmes for members. In raising the capacity of the poor to participate in income-generating activities, virtually all NGOs have relied on a process of group building, similar to Grameen Bank and BRAC, beginning with groups which can be as small as 5 to 10 people, and affiliating these to higher-level bodies who are expected to contribute towards empowerment of the poor at progressive social levels. The groups are usually of one sex and intended to contain members of similar economic and social standing in the community. Over time, groups are strengthened through various types of training programmes. In recent years, savings and credit programmes have come to form the backbone of most NGO programmes for poverty alleviation.

*Education*

Most NGOs treat education as essential to long-term poverty reduction, a vital component in raising the capacity of poor households to operate in their social environment. Some NGOs have launched adult literacy programmes but others emphasise functional literacy as they regard the achievement of formal literacy as too time consuming for the poor adult

However, there has been growing emphasis on improving the access of poor children to primary education. This is mainly being tackled through the rapid build up of Non-Formal Primary Education programmes, which run largely in parallel to the government system, and are intended to adjust with the mainstream education at a later stage. These programmes have the approval and support of Government, which has, recognized the deficiencies in its own primary education provision.

*Health and family planning*

A leading group of developmental NGOs have concentrated on specialized health and family planning programmes, although many have included elements of these sectors in their broader activities. Even organizations, which began with health and family planning, have tended to broaden out to include income generation elements to enable the poor to access health care services and products.

In contrast to the education sector, NGOs have rarely set up parallel programmes to those of the Government. The focus has been on informing the poor, so that they can participate in the aspects of government service perceived to be effective, such as immunization and family planning. This has often resulted in demonstrably higher participation among NGO group members and in villages where NGOs are active. In family planning, the NGOs have played a substantial role in raising awareness and acceptability and in provision of products and services. NGOs specializing in family planning have, however, so far operated mostly in urban areas.

*Focus on women*

Ideologically, most NGOs have focused on women involvement in development, on the grounds of persistent suffering of women from multiple forms of deprivation and exploitation. In addition to the general emphasis on women's participation in development, many NGOs attempt to strengthen the social position of women with regard to dowry, registration of marriages, violence against women and access to legal redress. Besides their involvement in the programmes of broad spectrum of NGOs, women have also become the focus of a number of specialist organizations, concentrating particularly on their, social, legal and democratic rights.

### 5.3.3 Empirical evidence of the success of NGO programme

Over the last 20 years, NGO activities have expanded very rapidly all over the country especially, the two NGOs discussed above (Grameen Bank and BRAC) have extended to all police station. The effect of these NGO activities is assumed to have had a significant impact on the overall development of the rural community. A critical analysis was carried out on the basis of the major objectives upon which NGO activities were expanded in Bangladesh. However, critical analysis of the impact of the NGO activities provided some conflicting evidence. The critical analysis will be discussed in two separate headings: structural poverty alleviation and women empowerment.

***Poverty alleviation***

Structural poverty alleviation implies a sustainable improvement in the position of poor individuals and groups. At an early stage in the Bangladeshi NGO movement, the philosophy of the NGOs was to build up the poor class to such a level that they would be both socially and economically self-sustaining. However, in the course of time the philosophy has been broadened. Most leading NGOs pursue the development of self-sustaining village groups but others treat the poor individually. Micro credit programmes are the major activity of the NGOs for alleviating poverty. But the Impact Assessment Study carried out by BRAC and IOB (2002) reported that an improvement in household living standards can only be attained after a minimum length of membership of 2.5 years, with a cumulative credit of Tk 7,500. IOB also add that small amounts of credit, such as the Tk 1000 are not enough to invest in activities which generate an additional income for reinvestment and there fore make no contribution to sustainable poverty alleviation. In addition reports also indicate that emphasising the repayment of instalments virtually excludes the 'hard core poor' who have insufficient productive investment facilities to generate high loan repayments, but that can help the moderate poor who have high repayment efficiency to get out of poverty.

Poverty alleviation through NGO programmes related with health and nutrition may, in a broader sense, improve the nutrition level of the rural community. As discussed in chapter four the nutrition level of the children has been improving over the last 20 years and the immunization coverage of preventable disease of the young children has risen. It is noted that the NGOs are providing training in small-scale vegetable gardening, and livestock production, implementing preventive health measures through access to and use of clean water raising awareness and use of health services and encouraging greater use of various government services and programmes. The BRAC literacy programme has graduated 2.10 million of the population and enrolled another 1.10 million population (BRAC report 2002). This Basic literacy programmes and the provision of non-formal primary education may in the long run contribute to poverty alleviation.

However, as would be expected, this micro-credit lending does not significantly improve the basic asset base of the poor especially, in relation to landholding for homestead or farming. NGO assessment carried out by Netherlands reports that some successful micro credit users have improved the physical quality of their homestead, such as construction of a pit latrine, house improvement, planting of trees and creating a cleaner environment.

An area into which few NGOs have ventured, but which is commonly cited as the real need of many of the poor, is the creation of non-farm employment opportunities.

***Social empowerment,***

The final outcome of the NGO's structural poverty alleviation programme was not as dramatic as was envisaged by many of the NGOs at the early stage of operation. NGO assessment carried out by Netherlands (internet 2002) reported that although millions were joined in the NGOs, social empowerment programmes that can change the social order was minimal. The fundamental factors of the rural social order, the report identifies, is the unequal distribution of land. Many NGO members have been trained to change their local social order and understand the underlying causes of their poverty. But initiate of major social movements against the existing power structure was failed. Interestingly, NGO clients generally express a preference to have less training concerning these immovable forces, in the face of which they feel helpless.

However, empowerment has occurred on a relatively limited scale in connection with gaining access to government resources such as khas (Government-owned) land and water bodies, for which the poor are, at least in principle intended to be the prime category of beneficiaries. In this field, *Nijera Kori* has been a successful NGO in motivating its members to access government resources.

Legal awareness training especially, provided by BRAC and some other NGOs has had does show some benefits, particularly in matters, such as, misuse of police power and judgments of local self appointed courts related to religious restrictions on women behaviour. These are the two fields especially the later one where NGOs can hit the social structure.

***Empowerment of Women***

While the assessment of poverty alleviation by the NGOs is relatively scant, there are several in depth studies on NGO programmes and women empowerment. Women are the major direct recipients of credit supplied by most NGOs (BRAC, ASA a substantial number in other leading NGO). The majority of studies reported a positive impact of NGO programme on women empowerment (Kabeer 2001; Pitt and Khandker 1996; Schuler et al. 1996) but several noted the negative impacts reported in several others (Goetz & Sen Gupta, 1994; Ackerly 1995 cited in Kabeer 2001) Studies that found positive impacts reported that women who used the loan actively had a role in the household decision making process either on their own or jointly with their husband. Studies also reported that the likelihood of an increase in asset holding in their name, an increase in the women's purchasing power and political and legal awareness.

The mechanism of access to credit and related training element embedded the freedom of movement of the women. Participation in group meetings and activities increased a degree of self-confidence over time. Societies now accept the right of women to move about and even to visit offices of NGOs or Government to access services. Several successful national conference were held of the all grass root level members of *Proshika* at the capital city, Dhaka. This is a clear sign of the freedom of movement that NGOs achieved through out the years. Many women reported improved self-confidence and willingness to appear in public as a result of their participation in group meetings, other activities and training provided by NGO. A significant increase of women participation in the three successive national elections is a further reflection of women's gradual entry into public life. The BRAC loanees reported to having higher mobility and a higher level of political participation and Grameen loanees as having a higher involvement in the major decision making. Separating the economic contribution and access to credit, Pitt and Khandker (1995) found that access to credit empowered women through their enhanced contribution to the family income. The NGOs have, thus, to some extent been successful in reducing the degree of isolation imposed on women and increased their status in the family and in the community.

Several studies also reported that access to credit significantly related to overall reduction of the incidence of violence against women (Schuler et al. 1996). Explaining this fact, authors concluded that women's participation ensures an expanded social relationship embodied in the membership of the credit organization and it is this relationship and not their economic productivity that explains the reduction in domestic violence.

However, critic of the NGO movement also pointed out some of the negative forces of the activities. They pointed out that micro-credit often give added burden of work to the already burdened women. Studies conducted by Goetz and Sen Gupta (1994) found that majority of the married women had little or no control over their loan; the male family members were using the loans which negated the development objective of lending to the women. In addition, many men were unwilling to pay the loan back. So this placed an extra burden on the women and had led to violence against some women. This type of responsibility without control over the loan worsens the position of women. Further more, Montgomery et al. (1996) reported that 87 percent of the loanee women describe their role in term of family partnership. This joint management is nothing but disguised male dominance in decision making. However, they concluded that though micro credit programmes did not empower women, they did increase the social status of the poor women in their household and in the wider community.

## 5. 4 Summary

It is evident that over the last 20 years after 1980, the apparel industrial sector and the community development programmes especially NGO activities have expanded rapidly. These two programmes provide women with opportunities for a better life. Women can financially contribute to their families, which is a new concept in the society. Societies are adjusting to the modified situation.

The question arises as to what effect these changes have had on the reproductive behaviour of the women? Theories related with empowerment assume that strengthening women's economic role gives them more autonomy and control over important decision affecting them and their family and helps them plan a better future. The two sectors have empowered the women by strengthening their economic role in the family. This empowerment may lead to an efficient planning of their reproductive activities and help to reshape the demand for children, which ultimately leads to the use of contraceptives. In addition, the overall poverty alleviation programme would improve the life style of the rural community; they will understand the better living and therefore, react positively towards smaller family size. In the present study, membership in an NGO will be use to explore the overall impact of the NGO programme on reproductive behaviour, that is, demand for additional children and current contraceptive use. However, one aspect needs to mention here is that though the NGO movement started in the early 1970, most of those NGOs were localize and short live. Some of the present leading NGO though started their activities in the 1970s had a very limited activities at that time. Thus, the rise of demand for no additional children in the past (1960s and 1970s) might not be related with NGO programme activities but may be related with the recent decline in demand for additional children leading to the rise of current contraceptive use.

Now before formulating a conceptual framework, it is imperative to explore the existing literature related to this reproductive changes

## 5.5 Existing Literature on the Causes of Fertility Decline

Analyses of the recent changes in reproductive behaviour of the rural women of Bangladesh come out from two broad perspectives. In an in-depth study analyzing reproductive changes in Bangladesh, Cleland et al.(1994) phrase it as an "anomaly" in the area of demographic transition theory. However, describing the chronology of the fertility decline, these authors pointed out various underlying social and economic forces leading to fertility decline. These forces include the mortality declines in the past, deteriorating economic conditions, and of several types of macro level social changes. This said, however, they then gave entire credit for the fertility decline to the national family planning programme not to any structural changes. Prior to Cleland et al. (1994), a number of other articles had the same conclusion that: the causes of reproductive changes in Bangladesh were due to sustained political commitment and the active support for the government to an effective family planning programme. In contrast, the roles of macro level factors such as urbanization, the employment of women in remunerated jobs, or their education that most demographers and sociologists think to be crucial, were seen as minimal (Carty et al. 1993; Larson and Mitra 1992;).

Caldwell and several others regarded this as a narrow explanation of reproductive change dependent on argument derived from diffusion theory (Caldwell et al. (1992, 1998, 1999); Caldwell B. (2001); Khuda et al. (2001). That is that, value relating to family planning and population programme could be effectively diffused to population at a mass level. Caldwell et al. (1998) had treated the above analysis as important but not conclusive and thus suggested a comprehensive investigation into the recent changes in the reproductive behaviour of rural women before coming to any definitive position. In a more recent publications Caldwell et al. (1999) documented major macro and micro level social changes both positive and negative in Bangladesh during the period of 1970 to 1980 that might play a role in this regards. They saw the positive changes more significant than negative ones among rural people.

But we have to go further than this to look for latent forces. We are helped here by a recent series of studies that have given a new and exciting dimension to the analysis. They argue for the importance of historical and cultural roots that would favour the onset of fertility decline or at least the absence of major barriers to the acceptance of Family planning. For example, insightful study of the determinants of reproductive behaviour by Khuda et al. (2001) has been published recently. They cited several underlying socio-economic forces in Bengal and link these forces with the global economy and the development related worldview. Another underlying forces they argue, is the form of homogeneity of culture in the region from India to Indonesia, a form that is different from that between Pakistan and West Africa. Regional homogeneity was, thus, treated as underlying forces for reproductive change.

Searching for the historical roots of the changes in reproductive behaviour, These same authors took a Malthusian position in its relation to change in Bengal. Tomas Malthus spent his long life teaching economic and population theory at the East India Company's school for the English who went out to rule India created a gloomy picture among young Britons ruling India about the high population growth of Indian population. As the Indian civil servants and literate society had an English educational background were deeply conscious of the growing population pressures on resources and on land, and were greatly influenced by the Malthusian doctrine through their interaction with the English civil servants. Thus the forces behind the changing reproductive behaviour according to these authors, lies in the early acceptance of family planning programme by the national elites of newly independent states who understood the importance of reducing fertility, high population densities and its effects on land-people ratios, unemployment and under-employment. To add to this, their native culture of an absence of religious or cultural tradition strongly opposed to birth control or artificial contraceptives. This would differ than from their co-religionists in South West Asian countries.

The roles of education, culture and the erosion of traditionalism and their impacts in shaping the reproductive behaviour of rural population have also been highlighted in the literature (Khuda et al. 2001, Basu and Amin 2000). These authors have pointed out that the traditional society of Bengal has been under assault for a long time as a result of an incredible growth in nineteenth century of tertiary[1] level English medium school in Bengal, almost half of the total of these for the whole of India at that time. With this large number of tertiary and secondary level schools Bengal greatly reduced traditionalism and religious conservatism. Against this several authors treated religious conservatism as a barrier to reproductive change (Amin et al.1996)[2]. Refuting Amin et al.'s earlier claims, Khuda and others have suggested that there were no aggressive leaders nor any strong religious institutions in Bangladesh which could make national moral prescriptions. Instead linguistic nationalism was stronger and have decisive force than religion among Bangladeshi people, a fact reflected in the language movement[3],

Arguing for the stronger impact of language and culture, Basu and Amin (2000) note that historically greater Bengal was the oldest presidency of the East India Company and Calcutta[4] was the centre of administration until 1911 and also centre of all socio-cultural activities of Bengal. As such Bengali elites had historically been experience of early and intense exposure to modern worldview. After political division[5] in 1947, the two Bengals were exposed to two different political systems. Bengalis in the west Bengal exposed to a rather long particular communist regime. Bengalis in East Pakistan fought against Pakistan for the protection of their language. During this period and the period of the independence war Bengalis in both parts had greater interaction with wider religious and political worlds then do Muslim populations in other part of

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[1] The term tertiary level education was cited in the Khuda et al. 2001. Tertiary level education consist of higher secondary and lower tertiary level education together.

[2] But between 1995 and 2000, Amin's view had apparently changed.

[3] During the Pakistani period, East Pakistan (East Bengal) had a massive language movement against the Pakistan government's decision of treating Bangla at a level inferior to that of Urdu. The result of that language movement finally lead to the separation of East Pakistan from Pakistan with the new name Bangladesh.

[4] Dhaka was a small city in East Bengal

[5] In 1947 when India was divided into Pakistan and India, Bengal was divided into two parts the Hindu majority area was with India forming the state of West Bengal and the Muslim majority area was with Pakistan forming East Bengal and known as East Pakistan.

Islamic world or Hindu population in other parts of India. Their greater intellectual and ideological progressiveness has occasionally been communicated between the two Bengals through a common language.

Citing rural reproductive changes, Basu and Amin (2000) pointed out that the elite in the undivided Bengal had strong link with rural populations. The urban elite had virtually originated from the British imposed land tenancy system thus their main sources of living were from the land. As a result, still today urban elite treated rural houses as their home *(Bari)* and urban houses as their temporary residence *(Basa[6])*. After liberation, the connection between rural and urban areas did not reduce, instead a new identity was created among Bengali populations in both Bengals based on the language often used by the Bengali middle class and this middle class also has a strong connection with the rural area. Thus rural areas have always had an exposure to a new worldview through the elites. For this whole combination of historical cultural and political reason, Bengalis[7] in both Bengals have a willingness to change that often runs counter to their socio-economic circumstances and supersedes religious differences.

For this thesis it is difficult to demonstrate the effect of historical underpinning with empirical data. Independent studies incorporating the demand for additional children and supply of contraception (family planning) have found that the role of family planning programmes is significant and strong in achieving the desired family size but not have a decisive role in shaping these views. Studies conclude that the individual determinants of contraceptive use are women's age, sex composition of the family (i.e. the sex distribution of the children), level of high education and desired family size plus the frequency of family planning workers' visits (Koenig et al. 1987, 1992; Rahman et al. 1992, 1993; Islam et al. 1997). Age, number of surviving children and child mortality experience of a couple shape their fertility preference (Phillips et al. 1996; Arends-Kuenning et al. 1999, 2002).

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[6] Literal meaning of *basa,* bird's nest.

[7] Fertility level among Bengali elite in West Bengal is lower than the fertility level of any state of India including Kerala. Though the fertility level of Kerala is lowest in India , fertility level among elite in Kerala was not as low as the fertility level of elite in West Bengal (Mari Bhat 1996)

## 5.6 Analytical Framework

Having discussed the overall development and social changes and the implications of those developments and changes on the population, and the existing literature that tried to find out the causes of fertility decline in Bangladesh, this study will attempt to build a conceptual framework to analyse the data.

### 5.6.1 Social Trends: a Summary of the Previous Two Chapters.

In the mid-1970s, a period when family planning programme was poorly set up, most researchers analysing the socio-economic and cultural environment of rural society, concluded that a fertility decline in Bangladesh was unlikely because of parental cultural and economic dependency on the living son. Fertility restrictions might result in not having a son (Cain et al. 1979, 1981, 1986). A living son is more important for woman who is socially restricted through the institution of *purdah* to go outside the home for work (Cain 1977; Khuda 1977, 1978). Caldwell et al.'s 1984 child labour hypothesis argues that children cost little and begin to contribute to the household income at a relatively early age in Bangladesh and while children may be a burden in the early years of childhood, they have benefits in their parent's old age. While this assumption is true for Bangladesh, what was missing in the argument is, how many sons or children did a couple regard necessary for the fulfilment of cultural and economic needs in the society. The second question is considering their socio-economic condition, is it a little cost to rear a large family?

ICDDR, B's research had demonstrated that a latent demand for fertility control existed in Matlab in the mid-1970s. The ICDDR, B's extension project also produced supporting evidence of ICDDR, B's earlier findings. In a recent study, Cleland et al. (1994) argued that couples in Bangladesh probably did not want a large family. The latent demand, suggested by ICDDR, B research, generated primarily from the decline in mortality during the 1950s and 1960s, and the corresponding increase in the number of surviving children, even in the absence of slow social change. Most researchers had argued that this latent demand was a critical characteristic of Bangladesh society that explained the success of family planning programme both in Matlab and National level (Phillips et al. 1988; Koenig et al. 1987; Cleland et al. 1994). However, Caldwell (1999) who visited Bangladesh in the 1970s and 1990s held a different opinion about social change. He argued that there had been a considerable economic and social change in Bangladesh between 1970-1990.

Over the last 30 years, multifaceted development has occurred and pushed Bangladesh society towards change. The reduction of mortality has created surplus children and created resource constraints. The inability of the agricultural sector to absorb the surplus population may have encouraged the rural population for alternative options. The pressures have changed the rural occupation structure and resulted in migration and government policies aimed at improving economic infrastructure have facilitated in and out migration. The development of roads and highways has facilitated more commuting between the rural and urban areas. Now that the country has efficient roads and communication networks, rural parents are exposed to all the changes created through development programmes but on the other hand, they have scarce resources. To optimise their need to utilise scarce resources, they may consider an alternative to the traditional survival strategy of having a large number of children and instead opt for quality children (Becker 1981 cited in Cleland et al. 1994). In addition, the extensive network of leading NGOs in the rural area provide the means for the rural poor to better plan their lives.

The government programme and policy on education has reduced the sex differential in education, and the young in the rural areas are equally educated now. The traditional patriarchy faces challenges from such changes. The traditional restriction on the movement of women, that is, strict observance of *purdah* has faded considerably. Most women use a scarf over their body when travelling instead of the old *burkha*[8]. In addition, joint and extended families are not the norm in Bangladesh any longer. Most importantly the cultural restriction preventing young couples from conversing during the daytime or in front of their

[8] A specially made garment to spread over women body from head to feet to cover her body and shape.

parents has "mellowed". Young couples now spend more time with each other than before, and parents do not look upon this practice as inappropriate. Spouses have more opportunities to find out each other's views on family building and family formation.

Thus, there have been positive and negative changes in the society. The negative changes include increased population and its impact economy, farmland and occupation. The population increase along with land inheritance law converted the rich peasant into landless within one or two generations. These landless populations face resource constraints. Migration has also increased due to resource constraints or from the desire aspiration of parents to give their children a better education and thus a better quality life. This trend breaks the traditional occupation structure in the rural areas. These changes mean that the rural population has more cash flow than permanent assets, and urban migration or migration to other villages while helps them to earn that cash money it also exposes them to new and different ideas. On the other hand, the positive changes include macro-level development programmes such as development of economic infrastructure, level of education; NGO activities help the rural population to adjust to these changing needs. These positive changes may have also improved the spousal communication. Thus, while the negative changes set a constraint on couples and reduced the desire for more children, positive changes helped them to decide on the number of children and subsequent fertility control that they require.

The demand for fertility control has been evident since the mid 1970s when socio-economic and cultural barriers were paramount. One example of these barriers is that despite an extensive development of road communication compared to the past, most of the villages were still inaccessible by any motorway. Reaching the service points was difficult. In most cases the rural population walk through crop fields to reach services points five miles away and it was not known what rural women would do if the communication would be like an urban setup or a set up like in the West. Thus, while there is a change in the desired sex composition of children, women seclusion and other aspects, communication adversity sets barriers for women, even if the intention for fertility control is strong.

The Government multi-sectoral strategies since 1975 have aimed to mitigate all these barriers. This multi-sectoral programme was not a family planning programmes but a comprehensive programme for social and cultural change. In addition to its regular outreach services by a trained army of 28,000 female outreach workers, it has adopted a number of activities to reduce the social barriers to fertility control, which Notestein (1966) thought a normal education would have achieved. One such activity was to improve the sporadic and unsystematic outreach directed towards men and addressing the social cost of contraception (improvement of knowledge). The communication focused on themes and issues intended to legitimize family planning and to counteract any constraints on its use. To reiterate and strengthen these messages at the societal level, key elites of the society like religious leaders, agricultural extension officers, and teachers of primary schools and *Madrashas (religious school)* were brought into the training programme. Thus, the whole society was brought into the programme's activities. These efforts legitimised family planning activities in the society, and made some sensitive subjects like, reproduction and reproductive activities open to discussion between the couple, in the family and society which earlier were thought of as a very private matter between individual couples.

Finally, the health of women and children were directly covered by integrating maternal child health activities in the programme and by providing distribution of MCH support through female village workers to credit their work. The whole range of immunization programmes has increased the survival rates of infant and young children. The government (in collaboration with World Bank) in their third and fourth population and health programme has focused on improving the quality and intensity of the maternal and child health services and improving the link between health and family planning services. In addition, Rural Health Complexes are now equipped with surgical contraceptives, IUD services and contraceptive counselling to mitigate the psychic cost of clients (Easterlin 1985). Efforts are also being made to increase the number of female physicians and paramedics. Thus extensive efforts have been made to mitigate the social, cultural and health constraints on the contraceptive use by the Bangladeshi women.

What is most important is the link between demand-driven women and the service provision. ICDDR, B's research findings clearly articulated that latent demand had been generated much earlier than when the family planning programme was established at the grass root level and because of social barriers the rural population could not achieve their desired family size. This latent demand was generated due to both positive and negative developments of the earlier period. But this demand was what most analysts considered 'fragile'. In the subsequent periods, development activities helped in a gradual break down of the patriarchal culture, and strengthened the demand for fertility control but the cultural constraints were still formidable. It was family planning services which delivered fertility control methods to the couples in their home or *bari* or hamlet in a culturally acceptable way that made the family planning programme a success. These findings have been to a large extent introduced in the national programme in a more reasonable way since 1983. The contraceptive use at the national level started rising with its impact on fertility.

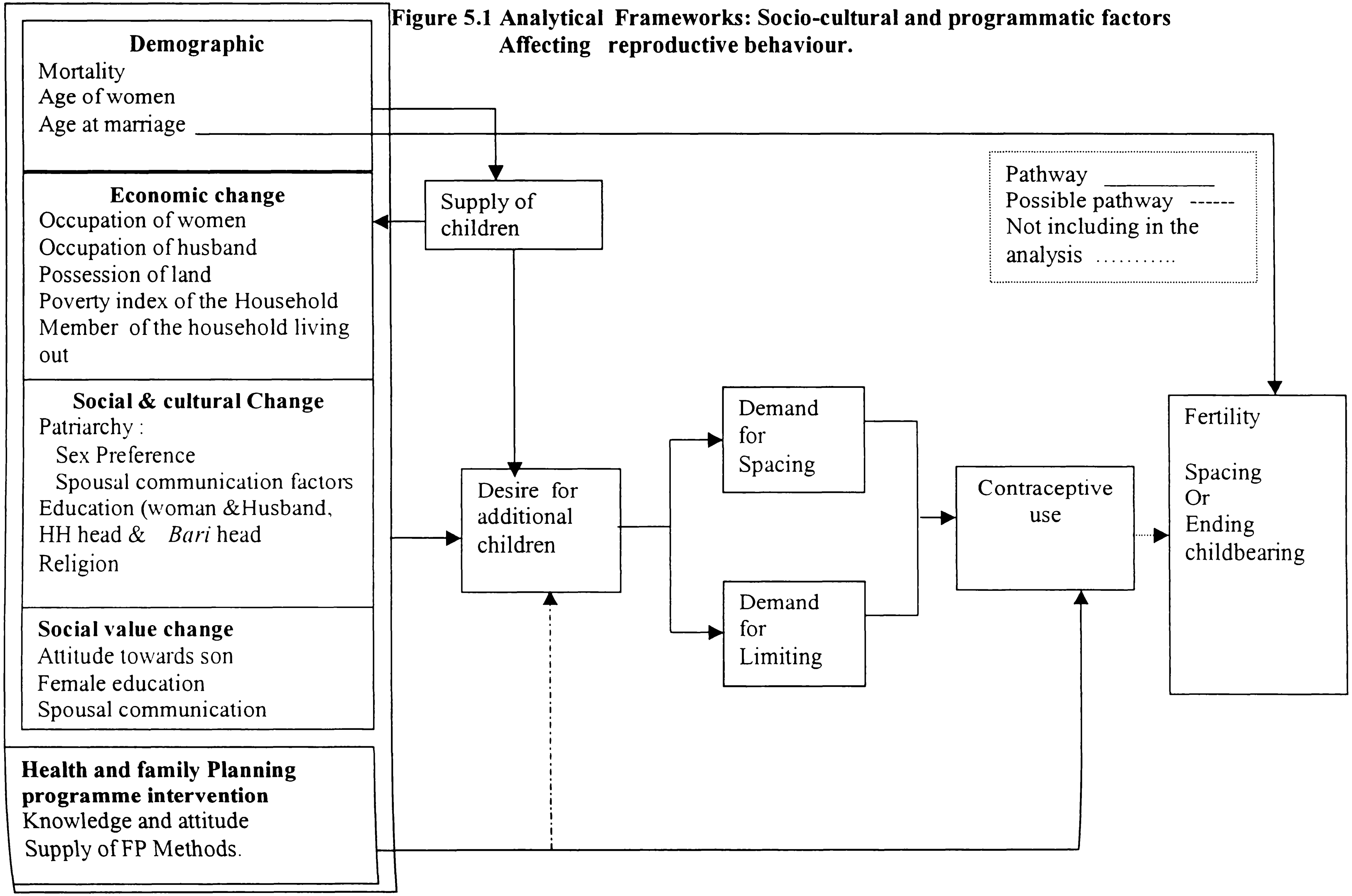
### 5.6.2 Analytical Framework

The present chapter builds an analytical framework on the basis of the theoretical framework outlined in Chapter 3 and socio-economic changes outlined in the previous chapters and presented in Figure 5.1. The analytical framework has been developed to investigate the effect of socio-economic and programmatic factors on demand for children and the use of contraceptives to achieve the desired number of children with a comparative analysis of the three area, National rural as a whole, Matlab intervention and Matlab control areas. This framework has tried to incorporate a wide range of socio-economic cultural and programmatic variables. However, as the analysis is on social change, its association with demand for children and contraceptive use behaviour, two data sets have been selected from two populations, National rural and Matlab. Each data set has been constructed on the basis of two surveys at two different times and has been treated as repeated cross section surveys (Brook 1999; Firebaugh 1997). Making a common data set from two surveys of different times in most cases has limited the selection of variables. The variable selection for both data sets was, thus, constrained by the creation of common variables from the two surveys. The analysis was restricted to those variables, which were collected in both surveys in both data sets. However, a plan has also been made to analyse each survey data separately especially of the recent one.

In the analytical model, demographic variables chosen for the analysis are age, age at marriage, and mortality experience of the women. Economic variables chosen for this analysis are occupation of women and husband, possession of land, and poverty index of the household, and a cumulative index of the economic items owned by the household. The government education and other development programmes may change the social environment. Education may change the perception of gender difference and increase spousal communication as well. Thus, while the economic and socio-cultural factors have had a direct effect on the demand for children and contraceptive use, they may also have indirect effects through the mediating variables like sex composition and spousal communication. On the other hand, while the variables used in the frame work are at micro-level and thus would capture the micro level changes, they also capture changes of these factors over time as the data is dealing with two points of time.

The findings of the survey research suggested that demand for contraception markedly increased over the past two decades from 1980 due to a pronounced decline in the desire for additional children, increase awareness of contraceptive. It is also argued that the last two decades were the periods of enormous social changes. These social changes may be the dynamics in shaping the desired family size among couples. Individual couples achieve their desired family size in two ways, by delaying the childbearing process or by limiting it. Usually it is assumed that those who are young and are at the stage of family formation process control their fertility through delaying their first child while those who are at the end of child bearing, control the fertility through limiting childbearing. These two groups may also have different characteristics as well. The family

**Figure 5.1 Analytical Frameworks: Socio-cultural and programmatic factors Affecting reproductive behaviour.**




Developed by the author

planning programme acts as a catalyst to achieve such goals through distribution of contraceptive technology. However, the family planning programme may also change the attitude of couples about family size or composition and other family building aspects by its education and communication programme in the media. Thus while the family planning programme plays an intervening role, it may also influence the reproductive preferences of couples. In the initial stage, when supplies equal demand, couples may not use contraceptives to control their reproduction. But the rapid social changes may sharpen their fertility goal more clearly, and information about family planning programmes may strengthen these goals so couples will accept contraceptives to achieve their desired fertility size. At this stage, if the couples are young, and are at the family building stages, contraceptives will be used to delay birth, and for spacing, but once they have fulfilled their desired number of children, couples will use contraceptives to limit birth. Thus, social change leads to ideational change about desired family size and mobilizes the demand for contraceptives. The family planning programme sustains the process of reproductive change over time and finishes the fertility transition within a shorter time than did the European fertility transition without a family planning programme.

The next chapter will present the data and methodology and the definition of variables.

# Chapter 6: Data and Methodology

## 6.1 Introduction

Chapter six describes the data used in the study and methodology employed to analyse the data. The chapter comprises two major sections, the data, and the methodology. In the data section, the data sources and the procedure for data extraction and the creation of the data used in the present analysis is discussed. In the methodology section, study design, definition of the variables that are used in the analysis, and the analytic technique of the thesis will be discussed.

## 6.2 Data

Two data sources comprising four data sets have been used to create the research datasets. The first source is the national surveys conducted by Mitra and Associates comprising the data sets, Contraceptive Prevalence Survey-1983 (CPS-1983) and Bangladesh Demographic and Health Survey-1996-1997 (BDHS-1996). The second source is the Matlab Health and Demographic Surveillance System (HDSS) of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR, B) comprising of the special surveys in the Matlab area. These surveys are: Knowledge Attitude and Practice survey-1984 (KAP-1984), Matlab Demographic and Health Survey-1994 (MDHS-1994), which is a validation study of the national DHS Survey at Matlab. These two Matlab survey data sets are supplemented by data from the ongoing vital registration system, known as HDSS, which has been running in Matlab for the last 30 years.

The two data sets, one national and one from Matlab, created, from these four surveys based on the concept of repeated cross section surveys, recently advocated in the writing of Firebaugh (1997). The basic concept of the repeated cross section survey is to create a single dataset out of two or more surveys collecting similar information conducted in the same area but in different time periods. Thus, the two datasets, one for national and the other for Matlab have been created from their respective data sources. The period covered in the present analysis is 1983-1996. These newly created datasets represent three populations.

The national dataset represents the national rural population, and the Matlab dataset represents the Matlab intervention area and the Matlab comparison area. However in the present analysis the Matlab comparison area will be referred to as the Matlab control area.

The data collection procedures for the national and Matlab data were different. The national data collection system was cross sectional, and all socio-economic and demographic information was collected simultaneously at the time of the surveys. However, the Matlab data, except for the special surveys, are longitudinal and are collected continuously. Therefore, Matlab data sets are taken from two special surveys and supplementary information has been extracted from the relevant databases by setting up a date of extraction. Because of these distinct differences between Matlab and national data collection system, a separate description of each of the data collection procedures and data processing will be provided. However, before discussing these individuals data sets, the data quality will be briefly discussed.

### 6.2.1 National Data

#### 6.2.1.1 Data Quality

To examine the long-term trends of fertility decline and its association with demographic, socio-economic, and cultural characteristics of the population, data from different published and unpublished sources has been used in this thesis. The CPS-1983 survey and BDHS-1996-97 are used to analyse the individual level data. However, like all other developing countries, Bangladesh has encountered problems with obtaining quality data.

Despite a long history of census enumeration and record keeping systems, the quality of data was considered as flawed. The major inconsistencies cited in the literature related to the Indian population's mistrust of the colonial administration in the early years of colonial rule, political manoeuvring by the major religious groups to gain numerical superiority over others during the movement for independence in India, and the unsettled political situation after liberation in 1947.

Above all, the devastating floods, famines[1], epidemics, and natural calamities over the last two centuries produced intractable biases in the estimation of fertility trends of the country in the past (Arthur and McNicoll 1978; UN 1981; D'Souza et al. 1982; Cleland et al. 1994).

Bangladesh conducted five regular censuses from 1951 to 1991 with a 10-year interval, except for the 1974 census[2]. A number of prospective and retrospective surveys were made to estimate the level of fertility and mortality in the country. The most frequently cited surveys in the country were the Population Growth Experiment (PGE) 1964-65, National Impact Surveys NIS 1968, Bangladesh Fertility Surveys 1975, 1989, CPS 1981-1989, BDHS-1992-1996, and Sample Registration System of the Bangladesh Bureau of Statistics (BBS).

There are conflicting opinions about the quality of specialized survey data collected after 1947. There was controversy about the data collected during the Pakistan period and the early Bangladesh period regarding the under enumeration of recent fertility and the fertility among older age women (Cleland et al. 1994; Khan & Ruzicka 1981; Rahman 1986). These survey statistics are to examine the past fertility trends, these factors have to be kept in mind when interpreting the historical data published in different journals and reports, in the chapters, eight and twelve.

However, since 1983, the quality of data at the national level seems to be less controversial, especially data collected by Mitra and Associates. Mitra and Associates, a private research organization under contract to USAID has been collecting data on contraceptive prevalence and Health and Demographic Surveys data since 1983 using a group of highly trained fieldworkers with high standard field supervision. In analysing fertility decline reported by several surveys, Cleland et al. (1994) used several standard indirect estimates like P/F ratio, and the Brass indirect technique and concluded that the data collected by Mitra and associates since 1983 seemed a reliable source for examining fertility trends. In

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[1] A vivid description was found in Arthur and McNicall, 1978, Notestein, 1945

[2] Delayed because of liberation war in 1971.

addition in CPS, dates of births of the children were collected directly in the survey instead of age, which would have helped to reduce the reporting bias. To ensure minimum bias, Contraceptive Prevalence Surveys, 1983 (CPS-1983) and Bangladesh Demographic and Health Surveys 1996-97 (BDHS-1996-97) collected by Mitra and Associates were selected for the present study. The next few sections of this chapter will discuss the data collection procedures of CPS-1983 and BDHS-1996-97, the type of information collected in these surveys.

#### 6.2.1.2 Contraceptive Prevalence Survey (CPS)-1983

Contraceptive Prevalence Surveys, popularly known as CPS worldwide, were designed to prepare rapid feedback information of contraceptive use behaviour to improve the performance of family planning programme. Usually, CPS collects information to measure knowledge, use and preference for family planning methods, to identify women needing the services, to find out obstacles to the use of the services and to uncover opportunities to make the services available (Mitra et al. 1985). CPS has been acknowledged as an important monitoring tool for family planning programme performances all over the world (Kamnuansilpa and Charmatrithirong 1982).

CPS-1983, a third of its kind undertaken in Bangladesh was conducted by Mitra and Associates. The major objectives of CPS-1983 were to ascertain level and trends of family planning knowledge and use; to examine the differentials of user and non users and the intention of future use; to identify the knowledge of contraceptive availability and awareness of the services and to ascertain the sources of supplies for current users of modern methods.

***Data and Sample population***

CPS-1983 was conducted on a sample of women eligible for family planning services, that is, a sample of ever-married women of reproductive age. In the CPS–1983 survey, three nationally representative samples were selected for data collection. These were the eligible women sample, the husband sample, and the couple sample. To make a comparative dataset with the Matlab data, the rural women from the women sample of CPS-1983 was selected for the present study.

The eligible women sample was drawn in terms of household, by a two stage stratified cluster sample technique. These two strata were the rural and urban stratums. The design specifications were ensured to collect 7500 women from 120 rural stratum spread all over rural Bangladesh. The first stage sample was to select the sample areas and the second stage sample was to select the households from where reproductive women were interviewed.

A rural stratum was treated as a Primary sampling Unit (PSU) and was in most cases equivalent to a census village of 1981. The 120 rural stratums were selected with probability proportional to estimated size basis (Kish 1965). After selecting the PSU, 63 households from each stratum were selected to collect information from the women of those households on a basis of probability inversely proportional to the number of households contained in the area. Fieldwork was carried out in the entire 120 rural stratum containing 7599 households. The number of women interviewed in the surveys was 10116. Detailed information on sampling technique can be found in the final report of CPS-1983 (Mitra et al. 1985).

The data file for the present study has been created from incorporated information from the CPS-1983 survey with relevant information. All currently married women of reproductive age 10-49 years living in the rural area are included in the data file. As a result, the number of women included in the analysis reduced to 6907 women. 1042 women other then currently married and 2167 of the women of urban area were excluded from the analysis. The CPS-1983 data file, thus, contained 6907 married women from the rural area. The information included in the file are the age of the women, their reproductive information, the number of living (surviving) children, living (surviving) sons, living (surviving) daughters, number of dead children; socio-economic information, the possession of agricultural land, socio-cultural information, education of women and husband, sex composition, religion and finally, their knowledge and programmatic information, demand for children, current use of contraceptives, type of contraceptive method used, reason for using and not using contraception, expected number of children, and the number of contraceptive sources of supply known to the women.

### 6.2.1.3 Bangladesh Demographic and Health Survey 1996-97 (BDHS)

Bangladesh Demographic and Health Surveys known as BDHS were started in 1993. Mitra and Associates conducted the data collection of all BDHS surveys. In order to conduct comparative study of the long-term changes in socio-economic and demographic behaviour and its association with demand for children and contraceptive use, the present thesis will combine the BDHS-1996 with CPS-1983 to prepare a single data set on the concept of repeated surveys to examine the changes in reproductive behaviour over time during the 1983-1996 period.

***Data and Sample Population***

The BDHS 1996-97 was a nationally representative cluster sample. Eligible women were drawn in terms of household; by an Integrated Multipurpose Master Sample stratified cluster sample technique. The country was divided into stratums on the basis of urbanization. These stratums were the statistical metropolitan area, Municipalities (other urban areas), and rural areas. The 316 Primary Sampling Units (PSU) were selected to represent sufficiently the six administrative divisions with 64 districts. Out of these 316 PSU, 244 were selected from the rural area. Similar to the CPS the first stage sample was done to select the sample areas and the second stage sample was done to select the household for the interviews with the reproductive women. A total of 9099 households were selected from the 316 PSU of which 8682 were successfully interviewed. Of these 8682 households, about 9335 women were identified as eligible for interview. Eligibility was decided on the basis of marital and reproductive status, that is, all ever-married women of age 10-50 years. Interviews were completed with 9127 women. In the present study, 8450 currently married women of age 10-50 year have been selected from the data. Excluded are 1271 urban women and 422 women with menopause and infertility. The final data set contained only 6757 rural currently married reproductive women.

In general, BDHS-1996-97 had collected a wider range of demographic socio-economic and community and attitudinal information than CPS 1983. This information includes; the biosocial factors, like: age and age at marriage, number of living children, living sons and living daughters, number of dead children; the socio-economic factors like: occupation of both husband and wife, household socio-economic information like, possession of household consumer durables, agricultural land, construction materials used for dwelling; the socio-cultural factors: sex composition, spousal communication about children and family planning, women movement and autonomy and religion; Knowledge and the programmatic factors like: demand for children, current contraceptive use, type of contraceptive methods used, ideal family size, knowledge and availability of contraceptive methods, and reason for use and non use of contraceptives.

#### 6.2.1.4 Creation of thesis data by Integrating CPS-1983 and BDHS-1996.

The final national data file for the present study is created by integrating from the above mentioned two survey files: CPS-1983 and BDHS1996-97, on the concept of repeated surveys as suggested by Firebaugh (1997) in his recent publication. The analysis of repeated surveys, according to Firebaugh, can be done in three ways. The simplest one is analysing the surveys separately. The problem with this process is that the same analysis procedure needs to be repeated several times. The second method, is the use of cumulative surveys to analyse aggregate change that is, macro-level change. However, if the objective of the study is to examine changes in relation to time and to test the statistical significance of those changes or to examine social change, Firebaugh suggests cumulating or pooling the selected surveys into a single data set for analysis. As the objective of the present study is to analyse the effect of socio-cultural and programmatic changes on the recent decline in demand for children and rise of contraceptive use among the rural women of Bangladesh, the third option was chosen.

Thus, CPS-1983 and BDHS 1996-97 have been cumulated into a single data set. But creating one data set by cumulating two data sets also creates problems if there is a long interval between the surveys. The recent surveys have a wider range of information than past surveys. The CPS-1983 had less information than BDHS, but the creation of a single dataset from two surveys required common information. This limitation in the CPS-83 restricted the selection of variables in this present research. Thus the national data has limited variables. In addition, within these common variables, the patterns of asking questions were not always the same in the two surveys. Therefore, care has been taken whilst integrating the datasets by examining the frequencies of each of the variables before incorporating them into one integrated file.

This cumulated national data file prepared from the two surveys cited above contained 13664 currently married rural women of ages 10-50. It contained several sets of demographic, socio-economic and cultural variables, and programme factors. There are two dependent variables, demand for additional children and current contraceptive use. The variables that are included in the integrated file are presented in Table 6.1.

### 6.2.2 Matlab Data

For the present study, two special surveys, Knowledge Attitude and Practice survey of Matlab ( KAP-84), and Matlab Demographic, and Health Surveys-1994 (MDHS) have been taken from Health and Demographic Surveillance System, Matlab (HDSS) of International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). HDSS consists of two major data collection systems: the Demographic Surveillance system (DSS) and the Record Keeping System (RKS) of the MCH-FP programme. The two Matlab surveys were conducted in the HDSS area as special studies and subsequently socio-economic and other information was taken from the on going data collection system of HDSS. In order to understand the Matlab data collection systems a brief description of the Matlab HDSS data collection system is given in the next section. This section will be followed by descriptions of the two special surveys and the creation of the present study's data file.

**Table 6.1: List of variables included in the national data sets.**

| CPS-1983 National data | **1996-97 BDHS National Data** |
|---|---|
| **Biosocial** | **Biosocial** |
| Age, | Age, |
| Number of Living Children, | Number of Living Children, |
| Sex Composition | Sex Composition |
| Number of Sons, | Number of Sons, |
| Number of Daughters, | Number of Daughters, |
| Child Mortality experience, women | Child Mortality experience, women |
| Expected family size. | Expected family size. |
| **Social & economic** | **Social & economic** |
| Education of women, | Education of women, |
| Education of Husband | Education of Husband |
| Occupation of wife | Occupation of wife |
| Possession of Land, | Possession of Land, |
| Religion | Religion |
| **Programme factors** | **Programme factors** |
| Demand for children (pregnant women) | Demand for children (pregnant women) |
| Demand for children (Non pregnant women) | Demand for children (Non pregnant women) |
| Current contraceptive use status | Current contraceptive use status |
| Type of method using | Type of method using |
| Knowledge FP methods | Knowledge FP methods |
| Knowledge of availability of FP methods | Knowledge of availability of FP methods |
| **Female Field Worker's visit.** | **Female Field Worker's visit.** |
| Reason for not using FP | Reason for not using FP |
| Reason for using | Reason for using |

#### 6.2.2.1 The Health and Demographic Surveillance System (HDSS).

The Health and Demographic Surveillance System (HDSS), Matlab, usually referred to as 'DSS' is a longitudinal vital registration system in which all vital events, that is. births, deaths, migrations, since 1966 and marriages since 1975 have been continuously collected for a population over 200 thousand (Ruzicka et al. 1978; Chowdhury et al. 1981, for detail information). A major reorganization was undertaken in 1977 to reduce the population size and to use Matlab for wider research potential. Eighty-four villages were excluded from the study area. The remaining 149 villages were divided into Family Planning and Health Services (FP-HSP) intervention with 70 villages, a population of 89,350, and a setup known as comparison area[3], with 79 villages, of a population of 85,596 where only the usual government health and family planning services were provided.

[3] In the present analysis this area will be termed as control area for clarity

Since 1977, the study area has remained unchanged, except for the loss of 7 villages due to erosion by the Meghna and Dhonagoda rivers.

Family planning activities were first started in October 1975 through the Contraceptive Distribution Project (CDP) in half of the population of the Matlab area. Health and family planning interventions were introduced in the intervention area in October, 1977 on the basis of the findings of the CDP. In the initial phase, between 1977-1982, a basic maternal and child health with comprehensive family planning scheme was implemented. Details of this project have been provided in Chapter 2 and Chapter 4. The comprehensive family planning interventions included visits every 15 days to the household by a Community Health Worker (CHW) to give advice and provide pills, condoms, foam tablets and injectable contraceptives (Dot-Merely-Progesterone Acetate DMPA) to women. Intra uterine device (IUD) insertion and tubectomies were performed in the Matlab treatment centre. During the first three months of 1978, ambulatory paramedical services were established in makeshift rural clinics to give the area a limited paramedical support. This support included treatment of the children for minor ailments that did not require direct medical supervision, referral of children in cases of severe illness and immunization of pregnant women. In 1983, a doorstep delivery system of IUD insertion by CHWs began. In order to test the impact of MCH on contraceptives, the treatment area was again divided into four blocks, A, B, C, D, in 1982. Measles immunization to the children, and tetanus immunization to all reproductive women were started in Block A and C (Phillips et al. 984). In 1985, the broad based MCH programme was introduced in all blocks.

In 1992, Bangladesh Rural Advancement Committee (BRAC) in collaboration with ICDDR,B expanded some of their specific interventions in the Matlab areas to improve the economic conditions and to empower the rural women Matlab.

***Data collection system of HDSS***

Registration of vital events popularly known as Demographic Surveillance System (DSS), started after the 1966 census. The field assistants initially carried out the registration of vital events (births and deaths), and also in and out migration. Later in 1975, Matlab DSS integrated the registration of marital union and dissolution. In the initial stage, in the 1960s when vital registration started, the cultural restriction on men, especially unknown men, talking directly with women in their home placed a constraint on the normal data collection process. In order to bridge this gap in communication between male Field Assistants and village women, an old illiterate woman beyond childbearing age or an older widow of low socio-economic status, who had greater freedom of movement in the village, was appointed in each village. These women were known as *Dai*. These women escorted field assistants and played a mediatory role between field assistants and women.

However, the characteristics, age and illiteracy meant they were not incapable of performing certain specialized new tasks assigned to them, especially the tasks related with later FP-HSP activities. This created a need for younger, literate women of higher socio-economic status. But in the 1960s, it was difficult to find literate women from better socio-economic strata who would consider it appropriate to work outside the *bari*. However, political and economic changes including the civil war, large-scale migration and famine in the preceding decade, initiated a social transformation in the 1970s. This social transformation helped educated rural, young married women to take up the job previously done by the widows and the old in the preceding decade, which was considered improper for the women of higher social status at that time (Aziz and Mosley 1994). In 1977, before the introduction of FP-HSP, young married women from 'respectable' families, with at least a seventh grade education, replaced the illiterate Dai. These women were designated as Community Health Workers (CHW).

The recording of vital events was one of the primary responsibilities of the (CHW). They visited 100 households in the treatment area and 250 households in the comparison area in a week, enquired about births, deaths, migrations, and marital unions, dissolutions and recorded these events in a book. They also collected information for the Record Keeping System (RKS) information for the FPHSP programme. The RKS information included reproductive status and contraceptive use, breastfeeding, immunization of women and children, health care information of women and children and distributed all forms of contraception except sterilisations.

The male field assistants visited 100 households a day, registered all the vital events in a registered volume, household visiting cards, and a standard form. They each covered about 3000 households in 4 to 6 weeks. The supervisory staff independently verified all these demographic events. The registered volumes were kept with Field Assistants, household visiting cards were preserved in the *bari*, and the vital registration forms are used for data entry purposes and were sent to the Dhaka office. This type of record keeping and supervision has made DSS one of the most reliable sources of health and demographic data in a developing country (Ginneken et al. 1998).

In addition to vital registration, periodic census and socio-economic surveys are conducted to update the socio-economic information of the area. There were three successive censuses conducted in 1974, 1982 and 1996.

Despite the changes over the years, DSS has retained two important features: accuracy of data, and the use of unique identification numbers, allowing the data collected on a particular individual for different purposes to be linked (D' Souza et al. 1985; Ginneken et al. 1998). In the present analysis, supplementary information has been taken from two censuses (census 1982 and census 1996) using these unique identification numbers.

All this demographic and FPHSP information is continuously updated and preserved in the Personal Computers. Two data base management systems, one for DSS and another for intervention area, have been created in the PC. The DSS database management system, which keeps all the demographic events, was created in the PC, treating the 1982 census as base population. In the data base system the socio-economic history of the individual, pregnancy history of the women, migration and marriage history of the individual, and other information is preserved and updated continuously. The intervention area known as RKS database management, which keeps all the MCH-FP information of the intervention area, was created in the PC treating 1977 as a base population. In the

RKS database system, information on contraceptive use, side effects, reasons for drop, health and morbidity information about women of reproductive age, fertility intention of the women, childhood illness, immunization and nutritional status are recorded and preserved.

A third data collection system is the geographical Information System (GIS) which is a set of data containing information for both DSS and FPHSP. GIS information on health and demographic events is stored by village for a period of 1993-1996. Together these data collection systems constitute the Matlab Health and Demographic surveillance System (HDSS).

#### 6.2.2.2 Matlab Special Surveys

In addition to the routine data collection and maintenance, there were numerous special surveys, projects and pilot projects conducted in this area using Matlab as base population. Two of these special surveys selected for the present study, are the Knowledge Attitude and Practices Surveys 1984 (KAP-84), and the Matlab Demographic and Health Survey 1994 (MDHS-94). These data sets have been supplemented with other related information from databases (discussed in the previous section) that are continuously collected and updated. The following databases and projects of HDSS were matched with these two surveys to add more information i.) DSS database system; ii) RKS databases system: the special projects: i) Matlab Socio-economic census, 1982; ii) Areal variation survey-1982; iii) socio-economic surveys-1996. The next section will discuss the special surveys used for the present analysis.

#### 6.2.2.3 Knowledge Attitude and Practices Surveys 1984 (KAP-1984)

Matlab KAP-1984 survey was conducted during May-December 1984 on groups of married reproductive women aged 10-49. The survey consisted of a random cluster sample of the women spread over 37 villages of the comparison area and 40 villages of the MCH-FP area. The information collected in the survey was detailed birth history, extensive information on knowledge, attitudes and practices of family planning and some socio-economic variables. Initially, data for this was created based on the women of reproductive age selected in the KAP-1984, and all the information collected in that survey. These women are then matched with the Matlab socio-economic census of 1982 to add individual and household level socio-economic characteristics. *Bari* level variables have been calculated from the Matlab socio-economic census 1982. The areal variation survey-1982 has been matched with the KAP-1984 data to add in the community level variables.

The matched data file contains information on the cohort of selected women aged 10-49 in 1984, their biosocial, economic, social and cultural characteristics at the individual, household, *bari* and community level, level of contraceptive knowledge and practice.

#### 6.2.2.4 Matlab Demographic and Health Survey 1994 (MDHS-1994)

The Matlab DHS-94 was conducted during April-May 1994 on a group of reproductive women age 10-49. The aim of the survey was to validate the results of the national Demographic and Health Survey 1993-94 data, which some demographers considered implausible (Bairagi et al. 1997). This study followed the same sample procedures as national DHS, treating the DSS villages as primary sampling units or stratum. The sampling fraction in the DSS surveillance area was 22/number of household in a village. The number of selected households was 3225, including 250 households of 12 villages outside the DSS area. However, households out of the DSS area were excluded from the present analysis. The eligibility of the women for inclusion in the study was based on the same criteria as the national DHS. An eligible woman was any ever-married woman between the ages of 10-49 years. The survey covered both the MCH-FP and comparison areas and the total number of women selected in the survey was 3466. 536 cases were excluded due to incomplete information collected in the survey, and 315 cases were ineligible due to marital and reproductive status. These women were widows, divorced or at menopause 139 cases were not matched with other census and socio-economic data set, either for in and out migration or for other reasons. Finally, the MDHS-94 had 2476 valid cases for the analysis The information collected in the survey was detailed birth history, extensive information on Knowledge Attitude and Practices of family planning, and socio-demographic and cultural information similar to BDHS-96-97. The second data set from Matlab was created based on the women of reproductive age interviewed in the MDHS-1994 and the information collected in that survey. These women have been matched with the Matlab socio-economic census of 1996 to add individual and household level socio-economic characteristics. *Bari* level variables have been calculated from the Matlab socio-economic census 1996. All these data have been then added into the main MDHS-1994 data set.

The matched data file contains information on the cohort of selected women of age 10-49 in 1994, their level of contraceptive knowledge and practice, socio-economic, demographic and cultural characteristics at the individual, household, *bari* and community level.

#### 6.2.2.5 Creation of final dataset by Integrating KAP-1984 and MDHS-1994

The integrated Matlab data for the study has been created from Matlab KAP-84 and MDHS-1994. The same procedure of national data integration has been followed to create the integrated Matlab data. In creating the integrated Matlab dataset, Matlab KAP-84 and Matlab-94 have been cumulated into a single dataset with year '84 as dummy. The same problem in variables selection has encountered when cumulating two Matlab datasets. Care has been taken with these factors and the dataset has been prepared by taking frequencies of each of the variables before taking them into the pooled file. However, data collected in the two Matlab surveys had a wider range of variables than the national data.

This accumulated data file contained several sets of independent variables: demographic variables, socio-economic variables, cultural variables, and programme factors and two dependant variables. A list of variables that were added into the integrated file is given in Table 6.2.

**Table 6.2: List of variables available in Two Matlab data sets.**

| **Matlab KAP-1984** | **Matlab DHS-1994** |
|---|---|
| **Biosocial** | **Biosocial** |
| Age, | Age. |
| Age at marriage | Age at marriage |
| Number of Living Children. | Number of Living Children. |
| Number of Sons. | Number of Sons. |
| Number of Daughters, | Number of Daughters, |
| Child mortality experience of women | Child Mortality experience. women |
| Ideal family size and Sex Composition | Expected family size and sex Composition |
| **Economic factors** | **Economic factors** |
| Individual | Individual |
| Occupation of wife | Occupation of wife |
| Occupation Husband | Occupation Husband |
| ***Household*** | ***Household*** |
| Possession of Land. | Possession of Land, |
| Construction Materials used | Construction Materials used |
| ___Roof. | ___Roof. |
| ___Wall | ___Wall |
| Possession of Household Articles | Possession of Household Articles |
| ___ Watch, | ___ Watch, |
| ___ Radio, | ___ Radio, |
| ___Bicycle | ___Bicycle |
| ___Remittance From Outside | ___Remittance From Outside |
| # person living outside HDSS area | # person living outside HD\|SS area |
| ***Bari*** | ***Bari*** |
| Proportion of households land, | Proportion of households land. |
| Proportion of households owned large number of household articles. | Proportion of households owned large number of household articles. |
| Proportion of households with radio | Proportion of households with radio. |
| Proportion of households with better dwelling structure. | Proportion of households with better dwelling structure. |
| **Socio-cultural factors** | Socio-cultural Factors |
| ***Individual*** | ***Individual*** |
| Education of women. | Education of women, |
| Spousal communication about family planning | Spousal communication about family planning. |
| Wife's information about husband's attitude Towards family planning | Wife's information about husband's attitude Towards family planning |
| ___Desire Family Size | ___Desire Family Size |
| ___ Sex Preference | ___ Sex Preference |
| ***Household*** | ***Household*** |
| Education household head | Education household head |
| Household structure, | Household structure, |
| Family size | Family size |
| Religion | Religion |
| ***Bari*** | ***Bari*** |
| Proportion of heads literate with 6 years of education in a bari | Proportion of heads literate with 6 years of education in a bari |
| **Knowledge & Programme Factors** | **Knowledge & Programme Factors** |
| Current or ever contraceptive use | Current or ever contraceptive use |
| Type of contraceptives used. | Type of contraceptives used |
| Demand for additional children | Demand for additional children |
| Demand for additional boys | Demand for additional boys |
| Demand for addition girls | Demand for addition girls |
| Reason for not using contraceptives. | Reason for not using contraceptives |
| Field Worker's visiting round. | Field Worker's visiting round. |
| Knowledge of contraceptives | Knowledge of contraceptives. |
| Knowledge about the availability of methods | Knowledge about the availability of methods |

## 6.3 Methods of Analysis

In the present analysis, a 2x3 cell design, that is, two periods and three areas, are followed to examine both the social change and its effect on demand for children and current contraceptive use. Selection criteria for each of the cells were time and level of change in socio-demographic and family planning interventions. The two time points are the 1983-1984 and 1994-1996, and three areas are the national, Matlab intervention and Matlab control. The social change indicates the changes that occurred between these two periods in the three areas. For Matlab areas, KAP survey conducted in 1984 and MDHS conducted in 1994 represented the two times, and the social changes are those in the socio-economic situation between 1984-1994. For the national data, the CPS conducted in 1983 and the BDHS conducted in 1996 are the two time points and the social changes are the changes in socio-economic situation between 1983-1996. The analytical cell design is presented in Figure 6.1.

**Figure 6.1: Analytical design, study area, period and the data used for analysis .**

| Year(Time) | National data | Matlab | |
|---|---|---|---|
| 1983/84 | CPS-1983 | KAP-1984<br>Intervention area | KAP-1984<br>Control area |
| 1994/1996 | BDHS-1996 | MDHS-1994<br>Intervention area | MDHS-1994<br>Control area |

In order to examine the respective positions of the two data sources, two maps, Bangladesh as a whole and Matlab area identifying the MCH-FP and comparison areas, are produced in Figures 6.2 and 6.3. The national map shows the four old divisions[4] with density of population. Matlab is located in the highest density area of the country. Another feature of the map is a sharp division of the country into two parts by a major river, the Bramahputra. All statistics show that the western bank of the river has a lower density of population and a lower fertility than the eastern part. Research on fertility, however, reported a conservative environment in the extreme eastern zone, specially the Chittagong division where Matlab was located.

[4] Bangladesh is now administratively divided into 6 divisions.

Fig. 6.1. Map of Bangladesh showing HDSS study area, Matlab

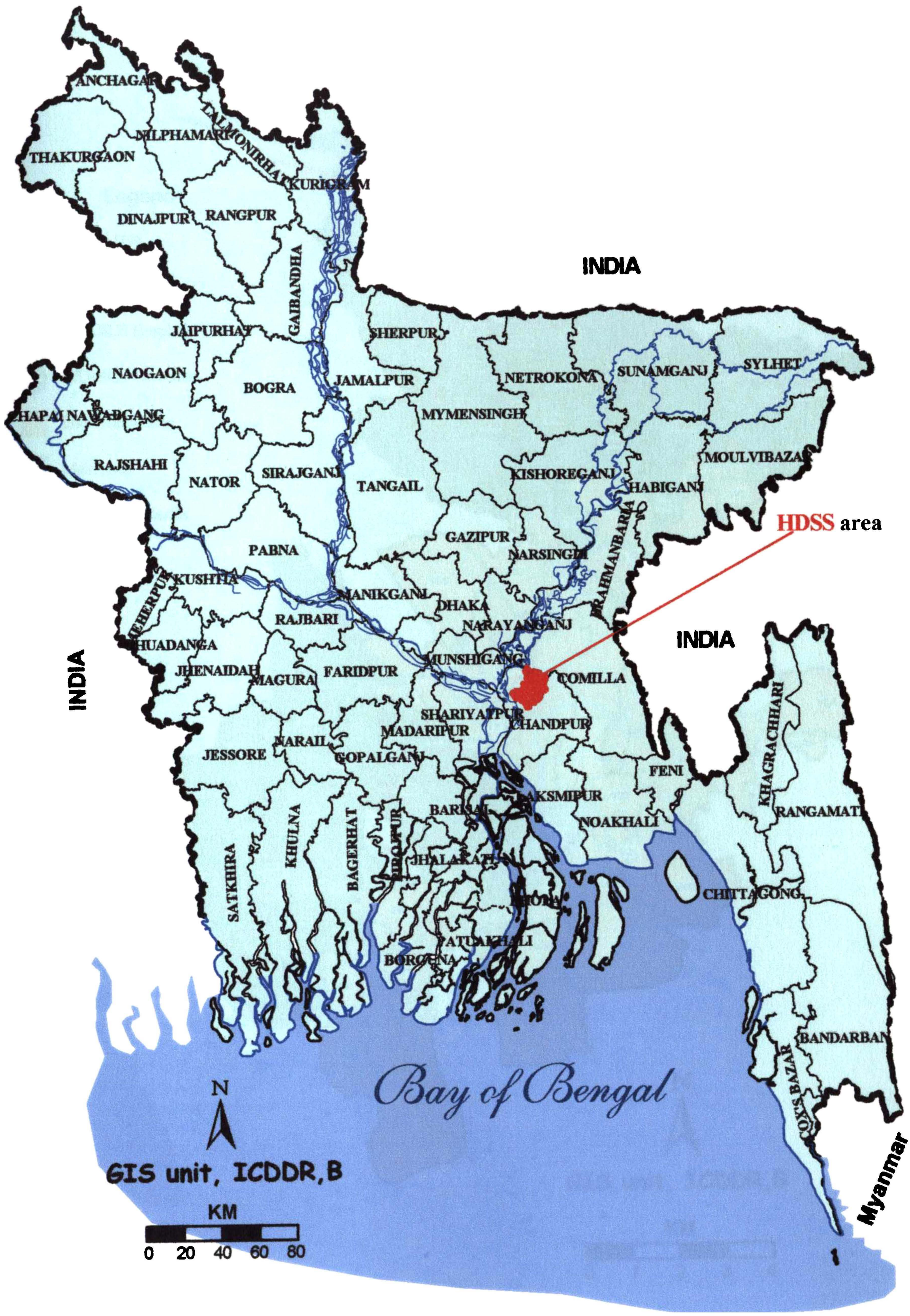
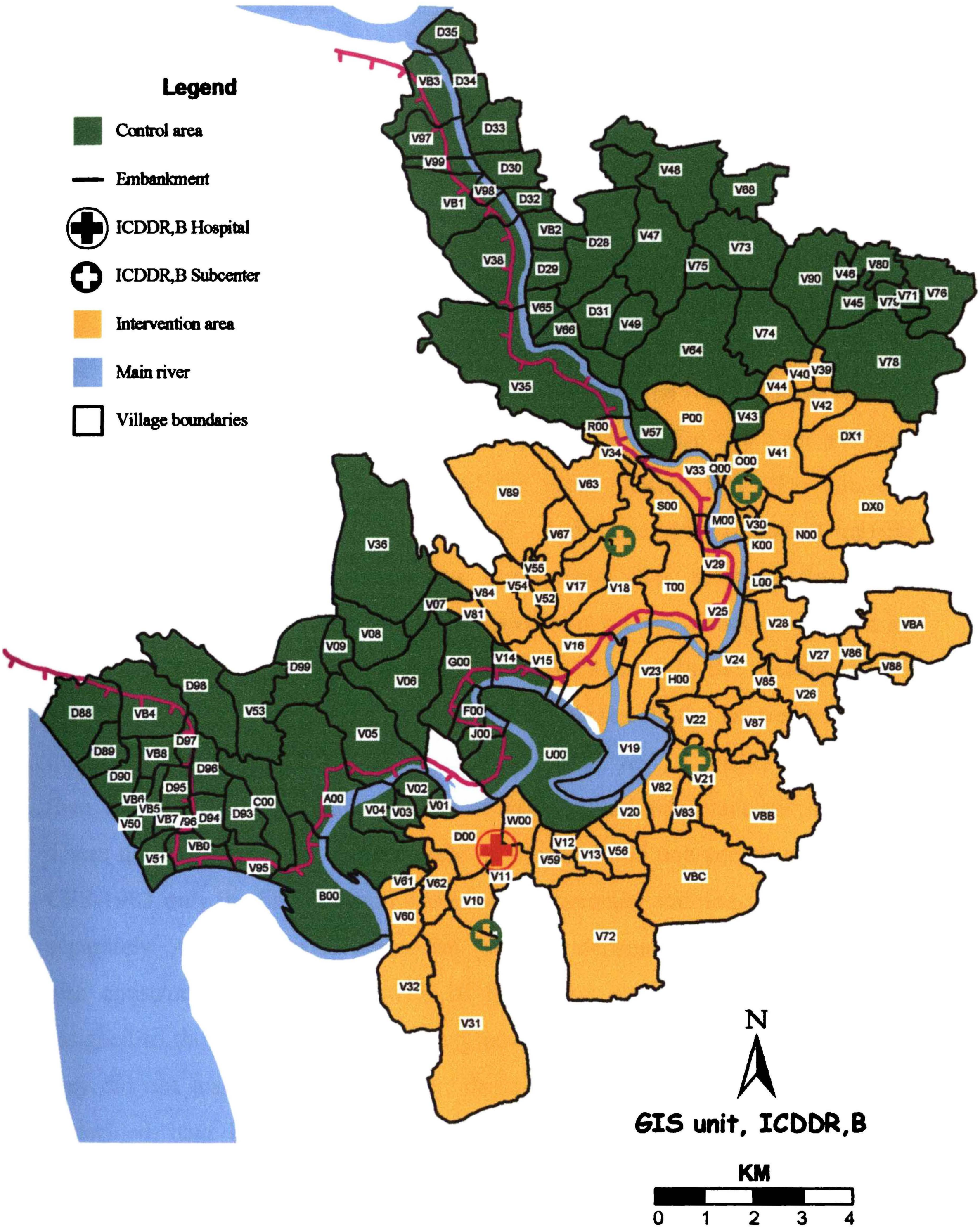


Fig. 6.2. Map showing the villages of intervention and control area of HDSS, Matlab



### 6.3.1 Definition of Variables

Two sets of dependent, and several sets of independent, variables are included in the analysis. To measure the reproductive changes, two dependent variables, the demand for additional children and the current contraceptive use, have been examined. While some independent variables have standard definitions, several of them have been computed using a group of variables. The definition and the categorization of the variables are given in the next section.

***Dependent Variables***

Reproductive changes are measured by two variables: reproductive preference in the form of the demand for additional children, and the current contraceptive use. The first dependent variable, demand for additional children was taken directly from a set of survey questions in three different ways. The first question was "Do you want additional children?" The second question was, "Do you want additional children if it were to be a boy?" And the third question was, "Do you want additional children if it were to be a girl?" A dichotomous dependent variable, demand for additional children, was constructed after verifying these three answers and assigned a value of 1 for women who wanted additional children and 0 to those women who did not want any more children. In the national data, in BDHS-1996-97, questions were asked in two phases. If the answer to the first question, "Do you want additional children?" was "yes", a further question was then asked "After how many months or years would you want another baby?" These questions were asked separately of pregnant and non-pregnant women. In CPS-1983 only the first question was asked, of pregnant and non-pregnant women separately. A dichotomous dependent variable, demand for additional children, was constructed from the answers of these two questions. The value 1 was assigned to those women who said they wanted children, and 0 to those who said they did not wanted them. However, those who answered, "It's up to God" or undecided, have been excluded from the analysis under the assumption that they did not have a clear wish either to stop, or to continue childbearing. Sterilized women and women with no living children have been also excluded from the demand for additional children analysis. The second dependent variable "current contraceptive use" is taken from the question "Do you use any method now?" with a confirmation from the question asking about the specific method used. It is a dichotomous variable with current contraceptive use, yes as 1, and no as 0. In the second model, that is, current contraceptive use, sterilized women have been included but pregnant women have been excluded from the analysis.

***Independent Variables***

Several groups of independent variables have been used in the analysis. These include demographic variables, women age, age at first marriage, number of living sons, number of living daughters, number of children died. Socio-economic variables at the individual level include, occupation of wife and husband; household levels: possession of land, household consumer durables, materials used in the roof and walls of the dwelling; *bari* level, proportion of household heads engaged in different occupations in a *bari,* and proportion of households with big landholding, proportion of households which owned large a number of household durable goods, proportion of households with radio, proportion of households with better dwelling structure. The socio-cultural variables include; education of women and husband, sex composition of the family , spousal communication about family planning, wife's perception about husband's desired number of children and support of family planning programme, *bari* level, proportion of heads educated in a *bari*. The programme factors include; area of intervention, visiting round of the family planning workers, knowledge about modern contraceptive methods, knowledge about traditional contraceptive methods, and knowledge of the sources of supply of contraceptive methods.

Most of the individual and household level variables are available in both national rural and Matlab files, and limited community level variables are also available in both data files. But *bari* variables are available only in the Matlab data file. In addition, data from the national files has limited socio-economic and cultural factors due to limited information in the CPS- 1983. Thus, the household wealth index computed from household consumer durables, construction materials used for roof and walls of the dwelling, and possession of land are only used in the pooled data of Matlab. The cultural variables; spousal communication about family planning, wife's perception about husband's desire number of children and support of family planning programme are also excluded from the integrated national rural file due to lack of information in the CPS-1983 survey. However, a separate analysis of the BDHS-1996-97 incorporating these variables has been performed to see the independent effect of these variables on the demand for additional children and the current contraceptive use. The definition and the categorization of the independent variables used in the analysis are discussed below.

*Age of the women:* Unlike the national data, the credibility of the Matlab data is that the age of women is exact for a large number of women as the information were taken from birth registration records. However, age was stated for a group of women who had moved into the area later, either by migration or marriage, but the process of ascertaining age followed standard techniques. As a result, biases are lower in the Matlab than in the national surveys. In addition, CPS and BDHS surveys were conducted by highly trained personnel and so, fewer biases occurred in the age reporting of the national data too. The linkage between women age and fertility decline is well documented in the literature. Empirical research showed that older women had lower demand for children and started using contraceptives first, and that the younger women followed that model pursuit (Knodel et al. 1987; Koenig et al. 1987; Cleland et al. 1994; Phillips et al. 1996). Studies also documented that younger women had less liberty than the older women in the reproductive decision-making process (Aziz 1979; Jones 1982; Caldwell 1985; White 1991), and that among the young women demand for additional children is high and current contraceptive use is low. Most literature used standard categories of age in the fertility analysis and found that fertility started declining decisively after age 30 (Sirageldin et al. 1975; Schultz 1972; Phillips et al. 1996). Examining the trends of demand for additional children and current contraceptive use, age of women was divided into five major groups. Women of age less than <20, 20-24 years, 25-29 years, 30-39 years and 40 years and above.

*Age at marriage:* The impact of age at marriage on fertility is clear and robust. The role of age at marriage and marital status played a decisive role in the European fertility decline. The effect of the age at marriage is far less clear in a traditional society where marriage is almost universal and age at marriage is low. Women's age at marriage was dichotomous with age at marriage <15 years as one group and age at marriage 15 + years as another.

*Household Wealth Index:* The serious problem of collecting direct income data in the developing countries is well documented in the literature (Caldwell et al. 1988). In most of the surveys in Bangladesh, both Matlab and national, a direct question on income was absent. Researchers encountering this problem used alternative variables in their analysis. Several single variables, and a composite index of the household wealth have been used to examine the interaction between household wealth and the demand for additional children and current contraceptive use in this research. Finally, possession of land and two composite codes of household wealth indices were retained in the data for the analysis. The data on possession of land is straightforward and was collected in terms of acres of cultivable land possessed by each household. It was later recoded into three groups for the analysis of Matlab data. In the national data, possession of land was collected by a nominal question on whether they have any cultivable land or not and thus the variable is dichotomous. The composite code of household wealth of Matlab data comes from a group of variables collected in both surveys and was from the 1982 and 1996 censuses. The composite code of household wealth index was not computed for national data due to the lack of relevant data in CPS-1983. However, it has been used in the separate analysis for BDHS-1996.

These composite codes have been computed from various information collected on the permanent assets of the households, and the availability of certain household's modern consumer durables, which reflect the cash flow of the household. The items included in the computation are possession of land, construction materials used in dwelling and possession watch or radio. The calculation of household wealth index is adopted from Bhat and Zaviers (1999) and (IIPS 1995) who developed a similar index in their analysis of National Family Health Surveys (NFHS) data 1992-93 and 1994-95.

The present study, however has used fewer variables than those former studies, because Matlab KAP-84 collected information on fewer consumer durables than did MDHS-1994. In the present analysis, the household wealth index was computed on common variables collected in both surveys. As a result, some of the consumer durables collected in the recent survey (MDHS-1994) have been excluded from the computation. These variables were chair/tables, bed-base, electricity and television. One consumer variable collected in both surveys, but not included in the Household wealth index, was the bicycle. A frequency distribution of the possession of bicycle in Matlab areas showed that less than one percent of the households had a bicycle. The percentage is reasonable because Matlab has inaccessible road communication. This low rate of possession of a bicycle gave an unreasonable weight to the possession of bicycle and was, thus, excluded from the computation.

The data on several permanent household assets, for example, possession of land, and construction materials used in dwelling, and ownership of consumer durables like, watch and radio have been used to construct the index. This index has helped to assess the wealth status of a household or the standard of living of the members of the household. The weight of each of the items is inversely proportional to the population owning the assets. However, variables have been assigned weight 0 to 2 roughly in confirmation with their inverse possession ratios. The total asset index ranges from 0 to 8. This index of household wealth assets score was divided into four groups with score 0 as None, score 1-2 as low, 3-4 as medium and above 4 as high wealth status of the household.

*Education:* The interactions between education and, demand for additional children, and current contraceptive use is the universally agreed variable used in the fertility analysis in both developed and developing countries. Both theoretical and empirical research emphasizes the role of education on fertility decline in developing countries. However, controversy arises about the causal mechanism of education because of contradictory evidence of this relationship from different countries (see chapters 3 and 4). The theory of education claims that education changes an individual's basic forms of thought and affects the demand for children and contraceptive use behaviour. In the context of women in a developing country, it gives women the capacity to distinguish between opinion and truth on the basis of critical evaluation of any change. It also helps women to decide for an autonomous course of action, instead of accepting existing social norms or adhering to any traditional authority (Caldwell 1980; Levine and White 1986; Bledsoe et al. 1999). In a traditional patriarchal society where the husband or patriarch's authority is strong and the wife plays a subordinate role to the husband, education of the wife can help to bring about an equitable position for women in the family by changing the family norms (Caldwell et al. 1985). Using the same logic, Caldwell (1980) argued that education of men and women strengthened the conjugal bond which would then have reduced the authority of the traditional family structure, where the more educated women now having both the ability for independent thoughts, and the awareness of her right to assert her independent thoughts would realize the inconvenience related to repeated pregnancy and so adopt different methods to control individual fertility. Therefore, education fosters individualism and helps to break the kinship structure (Caldwell 1976).

In elaboration, Caldwell (1980) cited two other mechanisms of fertility decline, education of children and the education level of society. He argued that education of children reduces the utility of children, and increases the cost of quality children. This reduces the demand for children and increases the use of contraceptives among rural women. Mass education has a subtle and pervasive influence on the population in a society. The cultural environment of an educated population, affects the attitude of the population. This education, Caldwell points out, is the education of all, irrespective of sex, class or status. This type of cultural change (westernisation), he argued, would change the extended family morality. He concluded that " the first generation of mass schooling is enough to initiate fertility decline. If it does not, the second generation should prove conclusive" Caldwell 1980 Pp: 229)

Two types of education data have been used in the present analysis. Education of women and their husband, represent the individual level, while education of household head, and the literacy level of the household head in a *bari* represent the mass education environment. However, data on the education of husband and wife are available in the national dataset and all categories, except husband education are available in Matlab data. Data on education were ascertained from two questions, first, "do you know how to read and write?" if the answer was "yes", the question following would be, "if you can, how many years of schooling have you completed?" The individual level education was taken directly from the respective files. The literacy level of the *bari is* represented by percent of household head literate in a *bari* and has been calculated by accumulating the number of literate household heads in a *bari* by total household heads in that *bari*. However, the education level of women, as noted earlier in chapter 2, was very low and the number of women with higher education of 10 or more years was literally negligible in the rural area. As a result, women's education has been recorded into three groups; illiterate, primary, and secondary and above. The education of husband and household heads has been divided into four categories; illiterate, primary, secondary, and above secondary, that is, ten or more years of schooling. Several literacy levels of the bari head have been calculated, for example, percentage of heads with any level education, and percentage of heads with primary education, and percentage of heads with six years or more schooling in a *bari*. To discover the impact of higher education, and the percentage of heads with six or more years of education have been used in the analysis. The categories of this variable were three: less than 40 percent of the household heads being literate, and more than 40 percent of the household heads being literate, in a *bari*.

*Spousal Communication:* Communication between spouses is an important step towards a rational fertility decision-making process. The communication is even more important in a patriarchal society where women are largely dependent on the men for every important decision. The importance of this communication has been clearly recognized in the ICPD-94 in its integration of men in the reproductive health behaviour agenda. Research on spousal communication and the reproductive behaviour has long been absent in the demographic and health literature. Some recent papers, mostly from Africa and central Asia, based on Demographic and Health Survey (DHS) data, provide useful insights. Research on fertility and family planning based on DHS data showed that the spousal communication is very low in the West African countries, with 23 percent in Niger and Senegal, to 43 percent in Mali. In the East African countries, however, men more likely to discuss family planning with their wives ranges from 49 in Burundi to 68 percent in Kenya. The highest communication between spouses is found in Bangladesh, Egypt and Morocco, and the lowest was found in Niger, Pakistan and Senegal (Population Reports 1998). Several studies report that the spousal communication about family planning is very uncommon and starts after the birth of one or two children. Qualitative studies in the Central Asian Republics (Kazakhstan, Kyrgyzstan, Turkmenistan and Uzbekistan) show that married couples rarely discuss matters related to sex or reproductive health and felt embarrassed talking about such subjects. Most men said that they leave family planning decisions to their wives, and expect their wives to ask for approval to use contraception. On rare occasions, however, they do reject their wives' choice of method (Storey et al. 1997).

The clear manifestation of the above studies is that the spousal communication is a crucial step towards making responsible, healthy reproductive decision-making. A number of studies, conducted in Latin America and Africa demonstrated that the couples discussing family planning are more likely to use contraception, were more likely to use it effectively and so have fewer children (Beckman 1983; Hill, et al. 1959; Stycos 1996). Recent studies on Kenyan and Ghanaian women (Lasee and Becker 1997) found that the wife's perception of her husband's attitude a significant predictor of contraceptive use. DHS surveys showed that the spousal communication is one of the highest in Kenya and Morocco (Population Reports 1998). In a recent analysis of the Kenyan DHS data on the relationship between spousal communication and current contraceptive use, it was found that neither approval nor communication between husband and wife in the Kenyan society played a significant role in contraceptive use, rather it was the wife's perception of her partner's approval that was significant after controlling all other factors (Lasee & Becker 1997). DHS-1996-97 (1998) showed that the spousal communication is high in Bangladesh. Despite known social structure and recent fertility decline, no study, either from Matlab or at the national level, integrated spousal communication in their analysis.

In addition, because of the data scarcity, or some other reasons, most studies have focused on only one dimension of communication, that is, discussion between couples about family size or family planning. A recent study, however, analysing couples, includes two other possible communications, agreement between spouses regarding fertility preferences and family planning, and each spouse's perception of the attitude of his or her partner (Lasee and Becker 1997). The present analysis deals with women only and inclusion of both spouses information about communication is outside the scope of the study. Spousal communication variables are used on the basis of the women's statements, which include her communication with partner as well as her perception of her partner's attitude towards family planning. Three spousal communication variables have been used in the analysis; discussion between spouses about family planning, wife's perception of the husband's attitude about family planning and her perception of the agreement on the number of expected children. These three variables are dichotomous.

*Gender Preference:* A general agreement of the studies of reproductive preferences in Asian societies is the strong preference of sons over daughters (Williamson 1976; Cleland 1983; Ahmed 1981; Bairagi and Langsten 1986; Khan and Sirageldin 1977; Coombs and Sun 1978). Gender preference in Bangladesh is exposed from two types of empirical research: firstly, directly from the studies of reproductive preference and contraceptive use behaviour (Ahmed 1981; Bairagi and Langsten 1986; Rahman et al. 1992; 1993; Bairagi 2001); and secondly, indirectly from mortality and health research (D'Souza & Chen 1980; Chen et al. 1981; Brown et al. 1982; Bairagi and Langsten 1986; Bhuiya et al. 1986; Koenig & D'Souza 1986). In the past, an enormous amount of research has documented a complex interaction of social, cultural, economic, and psychological determinants of son preferences (Cain et al. 1979; Aziz 1979). All these studies concluded that the preference for son dictated the demand for additional children and contraceptive use. The implication of son preferences for fertility regulation has been a subject of concern in this region. However, despite a strong preference for son studies conducted in Bangladesh, India, Jordan, Nepal and Pakistan found that the gender composition of surviving children did not systematically influence fertility behaviour (Cleland et al. 1983; De Tray 1984; Mukherji 1977). A weak relationship between surviving son and contraceptive use was documented in several studies of Bangladesh (Amin & Mariam 1987; Bairagi and Langsten 1986; Chowdhury and Bairagi 1991). However, analysing DHS data, Arnold, (1991) observed an evidence of a preference for a balanced composition of sons and daughters. The same result manifested in a recent study in Matlab (Rahman et al. 1992).

The son preference hypothesis claims that the family bases fertility decisions on preference for one sex for economic reasons associated with the children. In traditional societies, sons were the sources of economic gain to the family while daughters were perceived as a financial burden. Families with sons perceived less pressure to limit their family size than families with a high proportion of daughters. This situation may lead to positive association between fertility and the number of sons (Repetto 1972; McClelland 1979). A counter hypothesis, expressed in the writing of De Tray (1984) and Cleland et al. (1983) was that the strong preference for son might not translate couples fertility intentions into behaviour. The above hypothesis may be true, they argued, in the absence of fertility control programme. Finally, research findings across the Asian societies, on the interpretation of son preference and its effect on fertility, though not always consistent, implicitly revealed that couples regulate fertility in response to their gender preference. Studies also implied that the past, couples' strong preference for a large number of sons has now been replaced by a preference for a smaller number of sons with at least one daughter (Amin 1998b). However, the preference for daughter is still much weaker than the preference for son (Rahman et al. 1992).

Most of the studies conducted on sex preference in Bangladesh used data from Matlab. None of the studies, however, has examined the changes in the preference of sex composition of the family and its association with demand for children and contraceptive use. The present analysis hypothesizes that couples want sons but they also want a daughter that among those couples who achieve their desired sex composition, the demand for children will be lower and the use of contraception will be higher. It will also examine whether the demand for preferred sex composition has changed and whether it has had differential effects on the demand for additional children and on contraceptive use. The variable sex composition of family was recoded from the number of living sons and the number of living daughters stated by the women in the interview and recorded into 5 categories. The number of living children or living sons and daughters were excluded from the multivariate analysis to avoid multicolinerity of these variables.

*Women autonomy and movement:* Women autonomy, more appropriately, the restriction on woman's freedom of movement is nurtured in this society through deeply rooted social, economic and cultural system of the region. Some sociologists argue that restriction on women movement generates from patriarchal culture and its strong material base in the society (Cain et al. 1979; Aziz et al. 1985). The evolution of the kinship structure in Bangladesh, like North Indian societies, might be related with war and invasion, religion, and modes of production (Basu 1992; Jefrey 1979 Mencher 1978 ). Detail of the women restriction and movement are discussed in chapter 4. It is believed that greater women autonomy lessens the demand for more children and promotes fertility decline. In most of the societies, women autonomy affect reproductive behaviour directly or as an intervening variable (Dyson and More 1983; Knodel et al. 1987; Dharmalingam and Morgan 1996). Reviewing a large number of literature on women autonomy, Mason (1984, cited in Dharmalingam and Morgan 1996) listed three possible mechanisms through which women autonomy could influences women's reproductive behaviour. These are late marriage and motivation for fewer children and by reduction in patriarchal control over her choice of number and gender preference. The third is through access to modern knowledge and modes of actions that encourages innovative behaviour. Women autonomy, deserves a special attention but undertaking a full scale analysis is also a complex and diverse one (Bulk 1994). In the present analysis, women autonomy is used as one of the covariates. Data on women autonomy was collected only in the latest surveys. There are three categories for the Matlab data and four categories for the national data. In both data sets, women being able to move alone is graded as high autonomy, women who could move only with children and relatives as medium, women who could move only with her husbands as low and not allowed to move outside as very low.

*Knowledge of contraceptives and Family planning programme:* Two factors related with knowledge and two related with programme variables have been used in the present study. These are: knowledge of family planning and the source of supply of contraceptives. Area of intervention (only for Matlab), visits of family planning workers.

Knowledge of family planning and sources of supply: These two variables were collected in all the four surveys. In the present analysis, knowledge of four major family planning methods was used to compute the knowledge of family planning methods and the knowledge of the sources of supply. The selection of methods was based on the distribution of all methods at the national level as well as in Matlab. The four major methods used at the national level were pill, sterilization, injectables and condom; and at Matlab they were injectables, pill, sterilization and condom. Statistics also showed, that by 1996, most of the women (90 percent) had knowledge of all four methods. Either spontaneous or probed knowledge of any modern method was treated as the individual's knowledge. To obtain knowledge of the availability of family planning methods, interviewers asked each person if they knew places where they could obtain the family planning method if they wanted to use it. The knowledge of these four methods was then added together to create the variable knowledge of family planning methods and the knowledge of the sources of supply. The two knowledge variables each have two categories: knowledge of three or less methods and knowledge of all four.

*Area of intervention:* As discussed, the successive MCH-FP programme interventions introduced into the intervention area made it different from the comparison area. These differences were expressed in the fertility and mortality statistics of successive years (DSS-annual reports 1987-1997). Thus, in the Matlab data, the area is divided into two: intervention area and control area. However, in the national data, the intervention of family planning is measured by using two surveys from different points in time, and by family planning worker visits.

*Family Planning worker/ community health worker visit:* The CHW of the MCH-FP area visited each household twice a month to distribute contraceptive methods and performed other ancillary work related to health and family planning, and the CHW of the Comparison area visited each household twice a month to collect demographic information. The government family planning workers provided the family planning information and supplied at the national level and in the comparison area. Thus, variables, family planning workers visits was created from these two groups of workers. The variable was then recoded into three groups: Visit with in a month; within six months; and before six months or never.

## 6.5 Analytic Technique

Both bivariate and multivariate analyses were performed to assess the association between a number of independent variables and the two dependent variables. In the following two chapters, published data from different sources and data from the two data sets are used to examine the trends of demand for children and contraceptive use, especially the interaction between mortality and fertility level, rising infant and child survival and their relation with demand for children and contraceptive use.

The micro-level analysis presented in Part IV explores the interaction between two dependent variables and a set of independent variables at a multivariate environment. Two data sets, the national rural area and the Matlab have the same dependant variables.

Multivariate logistic regression was chosen because of the dichotomous division among the dependent variables. The dependent variables are the log of the odds of demand for children and log of the odds of the use of contraceptives. Logit (y) of the two dependent variables of the two data sets are: coded demand for children equal 1, and no demand 0; and the current contraceptive use as 1 with no use as 0. The general form of the logistic model can be expressed using the following notations:

$$\text{Logit } (y)=\alpha+\gamma Dyr+X\beta+(X'Dyr)\delta$$

where Dyr is a dummy variable for year. X is the vector of covariates other than Dyr. $\beta$ and $\delta$ are vectors of parameters. $\alpha$ is the y intercept for 1984 and $\alpha+\gamma$ is the intercept for 1994. $X\beta$ is the vector of variables assumed to have the same effect during the entire period and $(X'Dyr)\delta$ represents the subset of variables, the effects of which are changed during the period. While the $\beta$ represents the effect of $X_1$........Xn in 1984, vector $\delta$ represents the 1984-96 change in the effect of

$X_1$.......Xn. In the absence of interaction, the effect of Xs is assumed to be same in 1984 and 1994 (Firebaugh, 1997).

The selection of the model was based on the nested model approach. Initially a simple model with only time (year of surveys) as the independent variable was carried out, and later each of the groups of variables were added into the model. The interaction between Time 2, that is, year of interview 1994 and a set of independent variables were gradually added to find out the best model fits. Selection of the best models fits was based on –2 log likelihood statistic and Raftery's (1995) Bayesian Information Criterion (BIC). BIC was calculated for each logistic regression models as D - (d.f) In (N) where *D* was the residual deviance, that is, *-LL* for the model under consideration, *d.f* was the degrees of freedom, *In* was the natural logarithm and *N* was the sample size. The reason for using two statistics, -2 Loglikelihood and BIC, to select the preferred model was that the selection of complex model resulted in a significant improvement in fit over the simpler model on the basis of only –2 log likelihood usually believed to be a necessary but insufficient condition on accepting that model (Brooks and Manza 1997). By taking into account the sample size and degrees of freedom BIC minimizes the residual deviance. Sole reliance on –2LL can lead to unparsimonious models and according to Wang (1994) and Raftery (1995) It can lead to type I error for large samples.

A regression decomposition method has been used to differentiate the relative causal importance of the various covariates used in the analysis. The simple mean and model's coefficients have used to convert this product into a percentage of the total predicted logit, which can help to compare the respective contribution of each explanatory variable. The decomposition of particular variables, for example, is calculated by using the mean of that variable at $time_1$ multiplied by the coefficient of the variable from the preferred model to obtain a product. The same variable is then computed by the mean of $Time_2$ and coefficient of the preferred model to get the second product. Subtracting the second product from the first product provides the estimated change of a particular variable (Firebaugh 1997; Brooks and Manza 1997; Brooks 2000). Thus the percentage of change each variable contributes to the preferred model, is, ($\chi$ of $X_1$ (1984)* $\beta$ of $X_1$)- ($\chi$ of $X_1$

(1994)* $\beta$ of $X_1$). Details of mean, coefficients and models selection will be discussed further in the relevant chapters.

## 6.6 Methodological Issues:

The methodological issues regarding the unit of analysis or defining the variables are always complex. Lack of consistent definition of variables in the research makes comparison across different regions or with in regions with two sets of research difficult. In this study I have use women as the unit of analysis. Their individual level characteristics are presented first followed by husband's characteristics. The household level information will be added later. A household in the survey is defined as a group of men and women living and eating from the same cooking pot. Both DHS Bangladesh and Matlab use the same definition. As discussed earlier, b*ari,* a distinct feature of Bangladesh village is virtually an extended family beyond the household living on raised land separated from other *bari* by low agricultural land. This was a special significance from the point of women's mobility and work. The women are virtually confined within the household and household courtyard, and the maximum boundary for the women is *bari*. Women can meet and talk with other women in the *bari*. In terms of fertility behaviour, this unit can be a point of diffusion. Women can learn through the other members of the *bari* or those who have greater access outside about a better way of life, including fertility and family planning services. A community might have several definitions. It can be a village, a township, a province or a whole nation state. In this study, the village will be treated as a community. A village in Bangladesh is a fixed geographical area with distinct name. Census authority and the civil administration in most cases accept this boundary, although there are exceptions (Mukerjee 1971; Mitra et al.1997). A village provides a common socio-cultural environment, communication, and interaction for its residents in a less cohesive manner. The *Shomaaj* in rural Bangladesh was created mostly on the basis of village boundary.

Having described the data and the methodology, the next chapter will be discussed the analysis of the sample statistics of the thesis data.

# Chapter 7: Analysis of Sample Statistics.

## 7.1 Introduction

Analyses of sample statistics help to examine the compatibility of the data used in the study. This is important when different sets of data have been accumulated to examine the pertinent questions. In the present chapter, the sample characteristics of the two data sets described in the previous chapter, are explored to highlight their features. These features will explain the degree of compatibility of the datasets. The datasets are national and Matlab. The Matlab data generates two populations; Matlab intervention and Matlab control. A comparison will be made, of the three populations: national, Matlab intervention and Matlab control. The characteristics of these populations will be examined in three ways; within the same period across three populations horizontally; between two periods within the dataset, for example, national samples between 1983 and 1996 through CPS-1983 and BDHS-1996; Matlab intervention and control samples between 1984 and 1994 through KAP-1984 and MDHS-1994. For the present study, CPS-1983 will be referred to as national –1983 and BDHS-1996 as National-1996. Similarly, KAP-1984 will be referred as Matlab-1984 and MDHS-1994 as Matlab-1994. Lastly, comparisons will also made horizontally within the same population and across three populations between 1984, and 1996.

## 7.2 Selection Criteria for the Present data.

As discussed in the previous chapter, each data set, national, Matlab intervention and Matlab control comprises two subsets. The national dataset is a accumulation of CPS-1983 and BDHS-1996, and the Matlab intervention and Matlab control data are the accumulation of KAP-1984 and MDHS-1994. Several considerations were made when selecting the population for the analysis. Currently married fecund women of reproductive age (10-49) were selected for the present analysis. Women giving no birth in the past five years were treated as infecund and are excluded from the analysis. However, two different sets of consideration have followed to select the population for analysis of the demand for additional children and the current contraceptive use. For the demand for additional children data, sterilized women and women with no living children have been excluded. For the current contraceptive use analysis, pregnant women have been excluded from analysis. Lastly, the mean of each variable has been used to convert the regression coefficient into a percentage in the final analysis. In order to remove biases in the computation, all data with missing values have been excluded. Thus all the sample datasets contain complete data of the selected women.

This chapter presents the distribution of biosocial, economic, social and cultural characteristics of the valid women. The national rural and Matlab data are presented in two separate tables because of some differences in the collected information. Although all empirical research demonstrates that these three populations are socially, economically and culturally homogeneous, the Matlab intervention area differed from rest of the country including the control area because of its high quality MCH-FP programme.

## 7.3 Sample Characteristics of National and Matlab Datasets

### 7.3.1 Demand for Children and the Current Contraceptive Use

Table 7.1a and Table 7.1b present the demand for children and the current contraceptive use in these three areas. The distribution of the national rural data is presented in Table 7.1a and for the Matlab data in Table 7.1b. The national rural data have a few missing values, so only one rate for each of the dependent variables is calculated and presented in Table 7.1a. Two types of rates are computed for Matlab Data and these are presented in Table 7.1b. The first one is with missing values and the second one is without missing values for Matlab.

**Table 7.1a: Demand for additional children and current contraceptive use among currently married women of reproductive age at the national level (rural), two samples, the CPS-1983 and the BDHS-1996.**

| Characteristics | National-1983 | National-1996 |
|---|---|---|
| **Demand for additional children** | | |
| No | 52.2 | 56.3 |
| Yes | 47.8 | 43.7 |
| N | 5374 | 6083 |
| **Current contraceptive use** | | |
| No | 80 | 50.8 |
| Yes | 20 | 49.2 |
| N | 6003 | 6757 |

Table 7.1a shows that 52 percent of the women in the rural area did not want children during 1983 and it had increased to 56 percent in 1996. The rate of increase over this 13 year period was 8 percent. The contraceptive use during 1983 was 20 percent at the national level and this had increased to 49 percent in 1996. Despite the exclusion of missing data in the present dataset, the level of contraceptive use was found identical with BDHS-1996 report.

**Table 7.1b: Demand for additional children and current contraceptive use among currently married women of reproductive age in the two areas of Matlab, two samples, the KAP-1984 and the MDHS-1994.**

| Characteristics | Matlab 1984 | | | Matlab 1994 | | |
|---|---|---|---|---|---|---|
| | Intervention | Control | Both areas | Intervention | Control | Both areas |
| **Demand for additional children including missing values** | | | | | | |
| No demand | 48.5 | 53.2 | 50.3 | 54.9 | 57.1 | 55.9 |
| Demand | 51.5 | 46.8 | 49.7 | 45.1 | 42.9 | 44.1 |
| Total | 2795 | 1787 | 4582 | 1209 | 1040 | 2249 |
| **Demand for additional children excluding missing values** | | | | | | |
| No demand | 49.9 | 54.5 | 51.7 | 55.3 | 57.4 | 56.3 |
| Demand | 50.1 | 45.5 | 48.3 | 44.7 | 42.6 | 43.7 |
| Total | 2679 | 1693 | 4372 | 1200 | 1034 | 2234 |
| **Current contraceptive use including missing values** | | | | | | |
| No | 58.3 | 82.1 | 67.3 | 35.6 | 59.7 | 46.8 |
| Yes | 41.7 | 17.9 | 32.7 | 64.4 | 40.3 | 53.2 |
| Total | 2894 | 1764 | 4658 | 1271 | 1095 | 2366 |
| **Current contraceptive use excluding missing values** | | | | | | |
| No | 58.0 | 81.9 | 67.0 | 35.8 | 60.0 | 47.0 |
| Yes | 42.0 | 18.1 | 33.0 | 64.2 | 40.0 | 53.0 |
| Total | 2797 | 1688 | 4485 | 1261 | 1086 | 2347 |

The Matlab statistics on demand for additional children and current contraceptive use are presented in Table 7.1b. In each of the variables one and the other without missing values, two sets of rates were calculated. The Table shows that the difference in rate between the data with missing values and the rate without missing values is minimal. The present study will deal only with all non-missing data. Any data with missing values in any variable has been excluded from the regression analysis.

Table (7.1b) shows that 48 percent of the women in the Matlab intervention area and 53 percent in the control area in 1983 did not want children and that these percentages had increased to 55 and 57 percent respectively by 1994. The rate of increase over this 10-year period was similar to the rate at the national level. The demand for additional children increased 14 percent in the intervention area and 7 percent in the control area. The Table also shows that the current contraceptive use in these two areas in 1984 was 42 and 18 percent in the intervention and control areas respectively. In 1994, contraceptive use in these areas had increased to 64 and 40 in the intervention and control areas respectively.

### 7.3.2 Biosocial Characteristics

Table 7.2a presents the demographic characteristics of the sample women in the 1983 and 1996 national data (rural). The Table shows that the two groups of women have the same age structure and most women had married at a very young age. The table showed that 95 percent of the women were married before reaching their twentieth birthday. Also apparent is a downward trend in the distribution of the number of living children. However, major shifts are observed in the distribution of the women's child mortality experience and expected number of children.

The child mortality experience of women shows that women experienced a higher child mortality incidence prior to or during 1983. Half of the women had experienced at least one child death and 12 percent had experienced of 2 or more child deaths. The trend changed dramatically between 1983-1996. Table 7.2a reveals that women interviewed in 1996 had experienced much lower child mortality than the women interviewed in 1983 survey. Thirty three percent of the women from 1996 survey had experienced at least one but only 4 percent of the women had experienced had more than one. The second outstanding change emerging from these two data sets is a decline in the expected number of children. The Table reveals that only 15 percent of women in 1983 stated less than 3 as the number of expected children with 27 percent of the women expressing a desire for more than 4 expected children with another 27 percent undecided. In 1996, these percentages changed radically. The statistics of the expected children collected in 1996 reveal that 60 percent of the women wanted less than 2 children, very few (1.5 percent) wanted more than 4 children, and that uncertainty or confusion about expected children had largely reduced with only 6 percent expressing indecision on the desired number of children.

**Table 7.2a: Biosocial characteristics of currently married women of reproductive age at the National level (rural), two samples, the CPS-1983 and the BDHS-1996.**

| Characteristics | National-1983 N=6907 | National-1996 N=6757 |
|---|---|---|
| **Age of woman** | | |
| <19 | 22.4 | 17.6 |
| 20-24 | 20.9 | 20.8 |
| 25-29 | 19.2 | 22.1 |
| 30-39 | 23.2 | 28.1 |
| 40-49 | 14.2 | 11.5 |
| **Age at marriage** | | |
| <=15 | | 77 |
| 16+ | | 23 |
| **# of Living children** | | |
| Nonc | 14.0 | 12.2 |
| 1 | 17.0 | 19.8 |
| 2 | 16.2 | 21.7 |
| 3 | 14.6 | 16.7 |
| 4 | 11.8 | 12.6 |
| 5 or more | 26.4 | 17.0 |
| **# of Living sons** | | |
| None | 28.7 | 28.9 |
| 1 | 27.0 | 33.5 |
| 2 | 20.7 | 21.0 |
| 3 | 12.6 | 10.0 |
| 4 | 6.1 | 4.5 |
| 5 or more | 4.9 | 2.0 |
| **# of Living daughters** | | |
| None | 30.7 | 30.6 |
| 1 | 27.7 | 33.5 |
| 2 | 19.9 | 19.4 |
| 3 | 11.4 | 10.0 |
| 4 | 6.4 | 4.2 |
| 5 or more | 3.9 | 2.2 |
| **# of dead children** | | |
| None | 51.9 | 66.6 |
| 1 | 24.2 | 20.9 |
| 2 | 11.9 | 8.1 |
| 3 or more | 12.0 | 4.4 |
| **# of Expected children** | | |
| 0-2 | 15.0 | 60.9 |
| 3 | 15.8 | 21.2 |
| 4 | 15.3 | 10.6 |
| 5 or more | 27.2 | 1.5 |
| Undecided | 26.7 | 5.8 |

These two factors, that is, change in child mortality experience and expected number of children indicates a change in quality of life and a crystallization of reproductive goals among the women of Bangladesh. These changes are not likely to be artifact of the data because both data sets used the same sampling frame by the same organization. Even if there is a bias due to sampling, it is true for both datasets as already noticed. In adding a detailed analysis of the Bangladesh data conducted by Cleland et al. (1994) suggested that the data collected by Mitra and Associates has better quality. Statistics from other studies also documented a similar decline in both mortality and the number of expected number of children. Although the question about expected number of children was asked differently in the two surveys, this reason alone could not account for such a dramatic change in the expected number of children.

The demographic characteristics of the other two areas, that is, Matlab intervention and control are presented in Table 7.2b. An examination of the national and Matlab data demonstrates that the women selected for the national survey-1983 survey were relatively younger than the women of the Matlab areas interviewed in 1984. The differences in age distribution between these three populations are also reflected in the distribution of the number of children, sons and daughters. The percent of women with no children was lower in the Matlab intervention and control areas than found at the national rural area during 1983 and 1984 surveys. However, the age distributions of the later populations, that is, BDHS-1996 for national, and MDHS-94 for Matlab intervention and control have similar age distribution.

The child mortality experiences of the two Matlab areas during 1984 survey demonstrate rather a similar pattern to that the national rural area during CPS-1983. Half of the women in the intervention area had experienced at least one child death and 9 percent of them had experienced more than one child death. The child mortality was slightly worse in the control area. Table 7.2b shows that 55 percent of women in the control area had had a child mortality experience and 12 percent of them had experienced the deaths of more than 2 children. The study indicates a clear improvement in the child mortality in Matlab during this ten-year period. A similar improvement is evident in the intervention area. In relation to expected children, both Matlab intervention and control areas in 1984 showed that

**Table 7.2b: Biosocial characteristics of currently married women of reproductive age in the two areas of Matlab, two samples, KAP-1984 and MDHS-1994.**

| Characteristics | Matlab-1984 | | | Matlab- 1994 | | |
|---|---|---|---|---|---|---|
| | Intervention | Control | Both areas | Intervention | Control | Both areas |
| | N=3000 | N=1858 | N=4858 | N=1351 | N=1125 | N=2476 |
| **Age of woman** | | | | | | |
| <19 | 3.9 | 4.6 | 4.2 | 13.0 | 14.4 | 13.6 |
| 20-24 | 24.2 | 22.1 | 23.4 | 19.1 | 22.2 | 20.5 |
| 25-29 | 19.7 | 20.8 | 20.1 | 22.6 | 21.1 | 21.9 |
| 30-39 | 34.0 | 35.2 | 34.5 | 30.6 | 28.9 | 29.8 |
| 40-49 | 18.2 | 17.3 | 17.9 | 14.7 | 13.4 | 14.1 |
| **Age at marriage** | | | | | | |
| <=15 | 59.1 | 60.5 | 59.6 | 58.8 | 58.8 | 58.8 |
| 16+ | 40.9 | 39.5 | 40.4 | 41.2 | 41.2 | 41.2 |
| **# of Living children** | | | | | | |
| None | 3.8 | 3.6 | 3.7 | 11.0 | 13.0 | 11.9 |
| 1 | 14.7 | 15.2 | 14.9 | 17.5 | 15.7 | 16.7 |
| 2 | 16.8 | 15.3 | 16.3 | 17.9 | 14.1 | 16.2 |
| 3 | 16.9 | 15.6 | 16.4 | 18.9 | 16.7 | 17.9 |
| 4 | 17.3 | 14.8 | 16.3 | 16.4 | 14.2 | 15.4 |
| 5 or more | 30.5 | 35.5 | 32.4 | 18.2 | 26.2 | 21.8 |
| **# of Living sons** | | | | | | |
| None | 17.2 | 17.2 | 17.2 | 25.6 | 27.2 | 26.3 |
| 1 | 28.0 | 27.3 | 27.8 | 29.5 | 26.0 | 27.9 |
| 2 | 26.3 | 24.2 | 25.5 | 28.1 | 22.3 | 25.5 |
| 3 | 15.4 | 16.3 | 15.7 | 10.1 | 13.2 | 11.6 |
| 4 | 8.3 | 9.1 | 8.6 | 4.6 | 7.0 | 5.7 |
| 5 or more | 4.9 | 5.8 | 5.2 | 2.0 | 4.3 | 3.0 |
| **# of Living daughters** | | | | | | |
| None | 20.7 | 19.4 | 20.2 | 28.6 | 29.2 | 28.9 |
| 1 | 31.6 | 30.2 | 31.0 | 34.3 | 29.1 | 31.9 |
| 2 | 23.1 | 24.1 | 23.5 | 19.7 | 20.5 | 20.1 |
| 3 | 13.6 | 14.9 | 14.1 | 10.6 | 12.7 | 11.6 |
| 4 | 7.4 | 6.9 | 7.2 | 4.3 | 6.1 | 5.1 |
| 5 or more | 3.7 | 4.5 | 4.0 | 2.4 | 2.4 | 2.4 |
| **# of dead children** | | | | | | |
| None | 52.1 | 44.9 | 49.4 | 70.8 | 64.6 | 68.0 |
| 1 | 26.8 | 28.5 | 27.4 | 20.1 | 21.6 | 20.8 |
| 2 | 12.1 | 14.0 | 12.9 | 6.2 | 8.6 | 7.3 |
| 3 | 9.0 | 12.5 | 10.3 | 3.0 | 5.2 | 4.0 |
| **# of Expected children** | | | | | | |
| 0-2 | 9.5 | 9.7 | 9.6 | 49.0 | 47.4 | 48.3 |
| 3 | 20.7 | 18.6 | 19.9 | 36.7 | 36.2 | 36.5 |
| 4 | 27.8 | 24.9 | 26.7 | 11.4 | 11.7 | 11.6 |
| 5 or more | 38.5 | 42.1 | 39.9 | 0.3 | 0.8 | 0.5 |
| Undecided | 3.5 | 4.7 | 4.0 | 2.6 | 3.9 | 3.2 |

areas is low in 1983. Although the proportion of women employed had doubled in both areas of Matlab by 1994, it was still only equal to the 1983 national women employment level. The Table reveals that the husband's occupations in both intervention and control areas have a similar distribution in

**Table 7.3b: Economic characteristics of currently married women of reproductive age in The two areas of Matlab, two samples, the KAP-1984 and the MDHS-1994**

| Characteristics | Matlab-1984 | | | Matlab-1994 | | |
|---|---|---|---|---|---|---|
| | Intervention | Control | Both areas | Intervention | Control | Both areas |
| | N=3000 | N=1858 | N=4858 | N=1351 | N=1125 | N=2476 |
| **Employment status of women** | | | | | | |
| Paid work | 3.9 | 3.9 | 3.9 | 8.1 | 7.1 | 7.6 |
| House works | 96.1 | 96.1 | 96.1 | 91.9 | 92.9 | 92.4 |
| **Occupation of husband** | | | | | | |
| Farmer | 33.8 | 37.1 | 35.1 | 27.4 | 32.2 | 29.6 |
| Labour skilled & unskilled | 29.7 | 35.8 | 32.1 | 62.9 | 60.2 | 61.7 |
| Business & professional | 29.1 | 22.9 | 26.7 | 6.4 | 5.1 | 5.8 |
| Fisherman | 7.4 | 4.2 | 6.2 | 3.3 | 2.6 | 2.9 |
| **Possession of farmland, Households (acres)** | | | | | | |
| No land | 23.8 | 20.7 | 22.6 | 33.8 | 33.6 | 33.6 |
| <.50 | 21.7 | 22.9 | 22.2 | 27.2 | 27.3 | 27.2 |
| 50-2.99 | 44.6 | 45.2 | 44.8 | 34.3 | 33.0 | 33.7 |
| 3+ | 9.9 | 11.2 | 10.4 | 4.7 | 6.1 | 5.4 |
| **Materials used for dwellings** | | | | | | |
| Lower quality than iron sheets | 88.8 | 90.3 | 89.4 | 61.4 | 63.2 | 62.2 |
| Iron sheets or Bricks | 11.2 | 9.7 | 10.6 | 38.6 | 36.8 | 37.8 |
| **Member living outside HDSS area** | | | | | | |
| No one | 91.3 | 93.6 | 92.2 | 68.6 | 64.8 | 66.9 |
| At least one | 8.7 | 6.4 | 7.8 | 31.4 | 35.2 | 33.1 |
| **Occupation of the majority* HH head in a bari** | | | | | | |
| Agriculture | 57.3 | 54.9 | 56.4 | 21.7 | 27.3 | 24.2 |
| Business | 3.1 | 1.2 | 2.4 | 5.9 | 3.6 | 4.8 |
| Service | 2.2 | 2.0 | 2.1 | 1.9 | 2.0 | 2.0 |
| Fisherman | 7.5 | 2.4 | 5.5 | 5.2 | 5.5 | 5.3 |
| Others mostly labour | 7.4 | 8.4 | 7.8 | 24.5 | 20.4 | 22.7 |
| Mixed of all occupation | 22.5 | 31.1 | 25.8 | 40.8 | 41.2 | 41.0 |
| **% of households in a bari with radio** | | | | | | |
| None | 33.4 | 37.6 | 35.0 | 10.9 | 13.6 | 12.1 |
| 1—40 | 55.7 | 53.0 | 54.7 | 32.0 | 37.3 | 34.4 |
| 40+ | 10.9 | 9.4 | 10.3 | 57.1 | 49.1 | 53.5 |

*If more than 50% of the household head in a bari engaged in the same type of work

1983 and 1996. However, in both areas, there is a change in the husband employment structure from 1983 to 1994. These changes are in the business, professional and fisherman groups. For example, 29 percent of husbands in the intervention area and 23 percent of husbands in the control area were engaged in business or services in 1984, but in 1994, the figures had reduced to 6 and 5 percent respectively. The same trend is evident with fishermen. It is difficult to decide whether the change in these occupations is due to real change or an artifact of the recoding of employment data. The problem with this variable is that the two surveys used different recoding systems of the employment data. The 1984 survey used a larger categories than the 1994 survey . Although efforts have been made to categorize the husband employment variable consistently there is still some doubt whether there is an artifact of categorization of employment coding or a real change. However, the comparative statistics of 1996 national survey (Table 7.3a) and 1994[1] Matlab survey (Table 7.3b) showed the proportion engaged in agriculture was similar in the three populations but that a large proportion of husbands in the two areas of Matlab were engaged in skilled and unskilled daily labour.

The distribution of land ownership in the two Matlab populations in 1984 shows that 45 percent of Matlab households had less than 0.50 acres of land, and that another 45 percent had 0.50-2.99 acres of land. Only 10 percent of households had more than 3 acres of land. The possession of land in two Matlab areas, however, decreased in the following 10 years. Table 7.3b shows that 61 percent of households in Matlab had less than 0.50 acres of land. The big landholdings, that is, land more than 3 acres, had also declined from 10 to 5 percent. The proportion of landless or virtual landless is similar in both areas of Matlab and in the national rural area. In relation to housing, again, both areas were homogeneous. Table 7.3b shows that in 1984, about 90 percent of the housing was made of corrugated iron sheets roof with temporary walls while 10 percent of housing was made of all corrugated iron sheets or *pacca*[2] or semi pacca structures. By 1994, this situation had greatly improved in both areas of Matlab. Matlab data 1994 showed that proportion with poor quality housing had decreased from 90 to 62 percent. In 1994, 38 percent of the housing in both areas of Matlab was made of high quality materials and the improvement in housing conditions was found 4 times larger in 1994. Although the national dwelling condition was not collected in 1983, 1996 national data demonstrates that 22 percent of the housing in rural areas were made of high quality materials. However, there are three more variables used in the analysis of Matlab data.

[1] Both BDHS-1996 Matlab MDHS-1994 uses same recoding keys.
[2] Made of brick and cement

a higher proportion of women wanted a large number of children compared to the national rural area. Only about 9 percent of women in these two areas wanted less than two children. This is in contrast to 15 percent at the national rural area. However, the proportion of undecided women in 1984 was smaller in both areas of Matlab than the proportion in national rural area. It was 4 vs 27. In the last 10 years between 1984 to 1994, a change in the expected number of children occurred in both the intervention and control areas. The change occurred among those women who wanted a large number of children. This is true both in intervention and control areas. In 1994, both intervention and control areas showed that a small proportion of women still wanted more than 4 children but this proportion was lower than the national rural area. Table 7.2b shows that 84 percent of women in Matlab reported less than 4 expected children during the survey, and a similar result was found in the national rural area reported in 1996 in Table 7.2a. However, the proportion of women wanting less than 3 children is lower in both areas of Matlab in 1994, than the national rural area during the same period.

To reiterate Bangladesh is a homogeneous society and in terms of demographic characteristics these three populations are similar and any changes that occurred affected all these populations equally during the period of 1983-1996.

### 7.3.3 Economic Characteristics

The economic characteristics of the three populations are presented in four tables. The first two Tables 7.3a and 7.3b documented the economic characteristics of the three populations during 1983 to 1996. The later two Tables, 7.4a and 7.4b, documented the consumer durables and a composite index of wealth of the family created from those durables.

Table 7.3a presents national statistics for 1983 and 1996. A clear change in the occupation structure of women is demonstrated. Traditionally women in Bangladesh are engaged in domestic work or work confined in the *bari* premises. This picture is evident in the 1983 survey. Only 9 percent of rural women at that time were engaged in any paid employment, the 1996 statistics reveal a change had taken place between 1983-1996. Table 7.3a demonstrates that more than one third of the women in rural Bangladesh were engaged in paid employment.

**Table 7.3a: Economic characteristics of currently married women of reproductive age at the national level (rural), two samples, the CPS-1983 and the BDHS-1996 Surveys.**

| Characteristics | National-1983 N=6907 | National-1996 N=6757 |
|---|---|---|
| **Employment status of woman** | | |
| Paid work | 8.7 | 36.5 |
| Housework | 91.3 | 63.5 |
| **Occupation of husband** | | |
| Farmers | -- | 30.3 |
| Labourers | -- | 46.7 |
| Professional and businessman | -- | 23 |
| **Possession of farmland, Households** | | |
| Yes | 30.4 | 39.1 |
| No | 69.6 | 60.9 |
| **Construction materials used for dwelling** | | |
| Lower quality than iron sheet | -- | 77.7 |
| Iron sheet or brick | -- | 22.3 |

The other economic information collected in both national surveys is possession of land. Table 7.3a reveals that 70 percent of households reported no land in 1983 but this had reduced to 61 percent in 1996. This apparent improvement in possession of land is not consistent with other related information discussed in chapter four. However, the question asked in the surveys was nominal and thus could not give an in-depth condition of the rural society in term of possession of land. The substantial increase of women's employment at the national rural level, in contrast to Matlab, in 1996 is to some extent confusing. The society in the Matlab field research area is conservative (Cleland et al. 1994). But the substantial difference between Matlab and national level in relation to women's employment may be due to the definition of paid works and the way the survey questionnaire was structured in these two areas. The other economic statistics that were collected in 1996 survey but not in 1983 will be compared with the 1994 Matlab data.

Table 7.3b demonstrates the economic characteristics of the remaining two areas, that is, Matlab intervention and Matlab control during 1984 to 1994. The Matlab surveys have a larger number of socio-economic variables in terms of individual, household and *bari* levels. The Table shows that women employment in these two areas is low in 1983. Although the proportion of women employed had doubled in both areas of Matlab by 1994, it was still only equal to the 1983 national women employment level. The Table reveals that the husband's occupations in both intervention and control areas have a similar distribution in

**Table 7.3b: Economic characteristics of currently married women of reproductive age in The two areas of Matlab, two samples, the KAP-1984 and the MDHS-1994**

| Characteristics | Matlab-1984 | | | Matlab-1994 | | |
|---|---|---|---|---|---|---|
| | Intervention | Control | Both areas | Intervention | Control | Both areas |
| | N=3000 | N=1858 | N=4858 | N=1351 | N=1125 | N=2476 |
| **Employment status of women** | | | | | | |
| Paid work | 3.9 | 3.9 | 3.9 | 8.1 | 7.1 | 7.6 |
| House works | 96.1 | 96.1 | 96.1 | 91.9 | 92.9 | 92.4 |
| **Occupation of husband** | | | | | | |
| Farmer | 33.8 | 37.1 | 35.1 | 27.4 | 32.2 | 29.6 |
| Labour skilled & unskilled | 29.7 | 35.8 | 32.1 | 62.9 | 60.2 | 61.7 |
| Business & professional | 29.1 | 22.9 | 26.7 | 6.4 | 5.1 | 5.8 |
| Fisherman | 7.4 | 4.2 | 6.2 | 3.3 | 2.6 | 2.9 |
| **Possession of farmland, Households (acres)** | | | | | | |
| No land | 23.8 | 20.7 | 22.6 | 33.8 | 33.6 | 33.6 |
| <.50 | 21.7 | 22.9 | 22.2 | 27.2 | 27.3 | 27.2 |
| 50-2.99 | 44.6 | 45.2 | 44.8 | 34.3 | 33.0 | 33.7 |
| 3+ | 9.9 | 11.2 | 10.4 | 4.7 | 6.1 | 5.4 |
| **Materials used for dwellings** | | | | | | |
| Lower quality than iron sheets | 88.8 | 90.3 | 89.4 | 61.4 | 63.2 | 62.2 |
| Iron sheets or Bricks | 11.2 | 9.7 | 10.6 | 38.6 | 36.8 | 37.8 |
| **Member living outside HDSS area** | | | | | | |
| No one | 91.3 | 93.6 | 92.2 | 68.6 | 64.8 | 66.9 |
| At least one | 8.7 | 6.4 | 7.8 | 31.4 | 35.2 | 33.1 |
| **Occupation of the majority* HH head in a bari** | | | | | | |
| Agriculture | 57.3 | 54.9 | 56.4 | 21.7 | 27.3 | 24.2 |
| Business | 3.1 | 1.2 | 2.4 | 5.9 | 3.6 | 4.8 |
| Service | 2.2 | 2.0 | 2.1 | 1.9 | 2.0 | 2.0 |
| Fisherman | 7.5 | 2.4 | 5.5 | 5.2 | 5.5 | 5.3 |
| Others mostly labour | 7.4 | 8.4 | 7.8 | 24.5 | 20.4 | 22.7 |
| Mixed of all occupation | 22.5 | 31.1 | 25.8 | 40.8 | 41.2 | 41.0 |
| **% of households in a bari with radio** | | | | | | |
| None | 33.4 | 37.6 | 35.0 | 10.9 | 13.6 | 12.1 |
| 1—40 | 55.7 | 53.0 | 54.7 | 32.0 | 37.3 | 34.4 |
| 40+ | 10.9 | 9.4 | 10.3 | 57.1 | 49.1 | 53.5 |

*If more than 50% of the household head in a bari engaged in the same type of work

1983 and 1996. However, in both areas, there is a change in the husband employment structure from 1983 to 1994. These changes are in the business, professional and fisherman groups. For example, 29 percent of husbands in the intervention area and 23 percent of husbands in the control area were engaged in business or services in 1984, but in 1994, the figures had reduced to 6 and 5 percent respectively. The same trend is evident with fishermen. It is difficult to decide whether the change in these occupations is due to real change or an artifact of the recoding of employment data. The problem with this variable is that the two surveys used different recoding systems of the employment data. The 1984 survey used a larger categories than the 1994 survey . Although efforts have been made to categorize the husband employment variable consistently there is still some doubt whether there is an artifact of categorization of employment coding or a real change. However, the comparative statistics of 1996 national survey (Table 7.3a) and 1994[1] Matlab survey (Table 7.3b) showed the proportion engaged in agriculture was similar in the three populations but that a large proportion of husbands in the two areas of Matlab were engaged in skilled and unskilled daily labour.

The distribution of land ownership in the two Matlab populations in 1984 shows that 45 percent of Matlab households had less than 0.50 acres of land, and that another 45 percent had 0.50-2.99 acres of land. Only 10 percent of households had more than 3 acres of land. The possession of land in two Matlab areas, however, decreased in the following 10 years. Table 7.3b shows that 61 percent of households in Matlab had less than 0.50 acres of land. The big landholdings, that is, land more than 3 acres, had also declined from 10 to 5 percent. The proportion of landless or virtual landless is similar in both areas of Matlab and in the national rural area. In relation to housing, again, both areas were homogeneous. Table 7.3b shows that in 1984, about 90 percent of the housing was made of corrugated iron sheets roof with temporary walls while 10 percent of housing was made of all corrugated iron sheets or *pacca*[2] or semi pacca structures. By 1994, this situation had greatly improved in both areas of Matlab. Matlab data 1994 showed that proportion with poor quality housing had decreased from 90 to 62 percent. In 1994, 38 percent of the housing in both areas of Matlab was made of high quality materials and the improvement in housing conditions was found 4 times larger in 1994. Although the national dwelling condition was not collected in 1983, 1996 national data demonstrates that 22 percent of the housing in rural areas were made of high quality materials. However, there are three more variables used in the analysis of Matlab data.

[1] Both BDHS-1996 Matlab MDHS-1994 uses same recoding keys.
[2] Made of brick and cement

These variables are number of national and international migration each household has experienced, represented by the members living out, occupation of the majority of household heads in a *bari,* and the number of households in a *bari* owning a radio, an indicator of cash flow in that *bari.*

The migration pattern in the Matlab data showed a substantial increase in both areas. Households experiencing out-migration increased from 8 to 33 percent in the whole Matlab area during 1984-1994. This degree of out migration increase may bring substantial wealth and different ideas into the area. The changes in occupation of majority households' head in a *bari* reflect a change in the traditional rural bari environment. In 1983, 56 percent of *bari* had a majority of households heads engaged in agriculture followed by unspecified occupations.

**Table 7.4a: Consumer durables of the households at the in national level (rural), two samples, the CPS-1983 and the BDHS-1996 Surveys.**

| Characteristics | National-1983 N=6907 | National-1996 N=6757 |
|---|---|---|
| **Possession of watch or clock, household** | | |
| No | -- | 54.3 |
| Yes | -- | 45.7 |
| **Possession of radio, household** | | |
| No | -- | 67.7 |
| Yes | -- | 32.3 |
| **Possession of farmland, household** | | |
| No | -- | 39.1 |
| Yes | -- | 60.9 |
| **Construction materials used for dwelling** | | |
| Lower quality than iron sheets | -- | 77.7 |
| Iron sheets or bricks | -- | 22.3 |
| **Wealth Index, household** | | |
| None | -- | 22 |
| Low | -- | 26 |
| Medium | -- | 18.9 |
| High | -- | 33.1 |

"__" Indicates data not collected.

These unspecified occupations are unemployed, beggars, physically disadvantaged and others. In 1994, the majority of the *bari* heads were concentrated in these unspecified occupations. Half of the *baris* treated as traditional agricultural in 1983 were transformed to other forms. The percentage of *baris* rose from eight percent to 23 percent in 1994 with the majority of the household heads engaged in daily labour had increased to 23 percent in 1994.

Thus a shift of occupation was evident among the *bari* heads during this period. But there was a positive change in the *bari* environment in terms of media exposure. Media exposure was represented by the exposure of the *baris* to media like radio. Computation of the media exposure shows that about 33-37 percent of *bari* in both areas had no radio in 1983 but that in 1994 only 11-13 percent of *bari* had no radios. Radio had reached to most of the *bari* (88 percent) in both areas of Matlab.

The household status in terms of consumer durables and the household wealth index for the national rural area and Matlab areas are presented in Table 7.4a and 7.4b respectively. Table 7.4a shows the national level of consumer durables in the rural area of Bangladesh. These variables were used to compute the wealth index of the households. Some of the variables, that is, materials used in the dwellings and the possession of land, have been discussed in the previous section. Data on consumer durables were not collected in 1983. Thus, only 1996 consumer durables at the national level will be discussed. Table 7.4a shows that 45 percent of households have a watch or clock and 32 percent of the households have radios at the national level. In addition, table shows that 22 percent of the populations living in good houses and 40 percent population having some land. A combination of the two durables watches and radios shows that 46 percent of the population had one or other of the items at the national level (rural). The household wealth index computed for national rural data based on 1996 survey information shows that 50 percent of the women had accrued none to low level household wealth index and 50 percent had medium to high level of household wealth index. The results did not change when use of electricity was considered in the computation and thus household wealth index computed by adding electricity has been excluded.

Table 7.4b presents consumer durables of two Matlab areas for 1984 to 1994. The Table shows a substantial improvement in the consumer durable level in both areas of Matlab. Table 7.4b shows that about 27 percent of the households had a watch and 19 percent of the households had a radio in 1984 and these figures had increased to 56 and 48 percent respectively by 1994. The possession of these items was similar in both areas of Matlab in 1984. The increase during the study period was more or less the same in both intervention and control areas. The combination of two durables, that is, watch and radio reveals that 33 percent of the households had at least one of those durables in 1984 and this figure had increased to 66 percent with a slight difference between the two areas of Matlab. The household wealth index computed from variables described in Table 7.4b shows that 66 percent of the households fall in the lower strata and only 15 percent were in the higher strata when the household wealth index was considered

**Table 7.4b: Consumer durables of the households in the two areas of Matlab, two samples, the KAP-1984 and the MDHS-1994**

| Characteristics | Matlab- 1984 | | | Matlab-1994 | | |
|---|---|---|---|---|---|---|
| | Intervention | Control | Both areas | Intervention | Control | Both areas |
| | N=3000 | N=1858 | N=4858 | N=1351 | N=1125 | N=2476 |
| **Possession of watch, Households** | | | | | | |
| No | 72.1 | 74.7 | 73.1 | 43.5 | 44.8 | 44.1 |
| Yes | 27.9 | 25.3 | 26.9 | 56.5 | 55.2 | 55.9 |
| **Possession of radio, household** | | | | | | |
| No | 81.1 | 81.3 | 81.2 | 50.0 | 54.1 | 51.9 |
| Yes | 18.9 | 18.7 | 18.8 | 50.0 | 45.9 | 48.1 |
| **Possession of farmland, Households** | | | | | | |
| No | 23.7 | 20.7 | 22.6 | 33.6 | 33.6 | 33.6 |
| Yes | 76.3 | 79.3 | 77.4 | 66.4 | 66.4 | 66.4 |
| **Materials used for dwellings** | | | | | | |
| Lower quality than iron sheets | 88.8 | 90.3 | 89.4 | 61.4 | 63.2 | 62.2 |
| Iron sheets or bricks | 11.2 | 9.7 | 10.6 | 38.6 | 36.8 | 37.8 |
| **Watch & Radio, household** | | | | | | |
| None | 66.3 | 68.1 | 67.0 | 34.0 | 36.8 | 35.3 |
| At least one | 33.7 | 31.9 | 33.0 | 66.0 | 63.2 | 64.7 |
| **Wealth Index, household** | | | | | | |
| None | 18.5 | 17.5 | 18.1 | 15.7 | 17.6 | 16.6 |
| Low | 47.2 | 49.0 | 47.9 | 21.1 | 18.7 | 20.0 |
| Medium | 19.0 | 19.3 | 19.1 | 19.3 | 22.3 | 20.7 |
| High | 15.3 | 14.2 | 14.9 | 43.9 | 41.4 | 42.8 |

for the 1983 period in the Matlab areas. But in 1996, there was a marked improvement in the composite household wealth index level in both areas of Matlab. The Table shows that 38 percent of the households were in the lower categories in terms of wealth index while 62 percent of households have medium to high status in the household wealth index. There were no differences between the two areas of Matlab in terms of wealth index but both areas of Matlab had better wealth status than national rural area. Thirty-eight percent of the women had none to low level wealth index in both areas of Matlab, compared to 50 percent at the national level (rural).

### 7.3.4 Social Characteristics

The social characteristics of these three populations were measured by the education of couples or household head. The education level of the *bari* was measured by the percent of educated household heads. The data has been presented in Tables 7.5a and 7.5b. As noted earlier, the data of the national rural area have fewer common variables. Thus the education of the women and that of their husbands have been used in the analysis and are presented in Table 7.5a. However, in Matlab, husband education was not collected in the survey but household heads education was available, thus household head's education was used in the Matlab data.

**Table 7.5a: Social characteristics of currently married women of reproductive age at the national level (rural), two samples, the CPS-1983 and the BDHS-1996 Surveys.**

| Characteristics | National-1983 N=6907 | National 1996 N=6757 |
|---|---|---|
| **Education of women** | | |
| illiterate | 70.8 | 54.6 |
| 1—5 years | 23.9 | 29.5 |
| 5+ years | 5.3 | 16.0 |
| **Education of husband** | | |
| Illiterate or madrasha* | 60.6 | 46.4 |
| 1—5 years | 17.6 | 27.1 |
| 6—9 years | 12.5 | 14.5 |
| 9+ years | 9.3 | 12.0 |

*Islamic educational institution

Table 7.5a presents the education of women and husband for the national rural population. The results presented in Table 7.5a show that 70 percent of the rural women of Bangladesh were illiterate and only 5 percent had more than 5 years of education in 1983. However, there was a marked improvement in the level of women education, especially, above 5 years or more during the period of 1983 to 1996 at the national rural area. Overall, 45 percent of the women were reported to have some form of formal education with 16 percent of them having more than 5 years of schooling in 1996. In terms of the education among husbands, Table 7.5a shows that in 1983, 60 percent of the husbands in the national sample were found to be illiterate, 17 percent had primary education and 22 percent of them had higher education in 1983. In 1996, 54 percent of the husbands in the national sample were reported as literate, a considerable improvement from previous years.

Among them, 27 percent of husband had less than or 5 years of education and 26 percent had more than primary education.

The education statistics of Matlab are presented in Table 7.5b. The Table provides the level of women education, education of household head, education level of *bari* and the presence of any household heads with madrasha education in a *bari*. Education levels of women and household heads remain virtually unchanged during 1984 to 1994 in the intervention area. In the control area, however, the literacy rate of women improved during the study period. For example, Table 7.5b shows that 63 percent of the women in the control area were found illiterate in 1983 but it had reduced to 51 percent in 1994. Changes are evident in higher education among women in both areas of Matlab in 1994. The table demonstrates that higher-level education, that is, schooling of more than 5 years had increased from 7 percent in 1984 to 16 percent in 1994. All other education indicators seemed unchanged. The percentage of *bari* with religiously educated household head was also low. Only 5 percent of *bari* had a

**Table 7.5b: Social characteristics of currently married women of reproductive age, household heads in the two areas of Matlab, two samples, the KAP-1984 and the MDHS-1994**

| Characteristics | Matlab-1984 | | | Matlab-1994 | | |
|---|---|---|---|---|---|---|
| | Intervention N=3000 | Control N=1858 | Both areas N=4858 | Intervention N=1351 | Control N=1125 | Both areas N=2476 |
| **Education of woman** | | | | | | |
| No education | 53.4 | 63.2 | 57.1 | 49.6 | 50.8 | 50.1 |
| 1-5 years | 39.1 | 31.8 | 36.3 | 33.9 | 33.7 | 33.8 |
| 5+ years | 7.5 | 5.1 | 6.6 | 16.5 | 15.6 | 16.1 |
| **Education of household head** | | | | | | |
| No education | 50.9 | 53.9 | 52.1 | 46.6 | 48.3 | 47.4 |
| 1-5 years | 31.5 | 31.0 | 31.3 | 30.3 | 32.8 | 31.4 |
| 6-9 years | 11.6 | 10.1 | 11.1 | 13.2 | 12.0 | 12.6 |
| 9+ years | 5.9 | 5.0 | 5.6 | 9.9 | 6.9 | 8.6 |
| **% of HH head with at least 6 years education in a bari** | | | | | | |
| None | 43.2 | 47.8 | 44.9 | 32.9 | 38.2 | 35.3 |
| 1--40 | 41.9 | 40.2 | 41.3 | 46.4 | 46.6 | 46.5 |
| 40+ | 14.9 | 12.0 | 13.8 | 20.7 | 15.2 | 18.2 |
| **Bari head with Madrasha* education** | | | | | | |
| None | 95.0 | 95.0 | 95.0 | 93.3 | 93.7 | 93.5 |
| At least one | 5.0 | 5.0 | 5.0 | 6.7 | 6.3 | 6.5 |

*Islamic educational institution

household head with religious education and the level of religious education did not change over time.

A comparative analysis of the data on education at the national level (rural) and Matlab presented in Table 7.5a and 7.5b shows that a higher proportion of women were literate in Matlab areas than national rural area in 1983. However, literacy levels increased faster in the national rural area than in the Matlab areas during the study period. Women in the Matlab intervention area had the same degree of literacy in 1984, and 1994 while in the control areas it had improved slightly. However, improvement was evident only in the higher grades in all the three areas.

### 7.3.5 Cultural Characteristics

The cultural characteristics of these three populations are measured by gender preferences of children, especially, the son; spousal communication, and religious beliefs of the community. These characteristics are presented in Table 7.6a and Table 7.6b. Table 7.6a presents the cultural characteristics of the national data. It shows that distribution of women by sex composition of the family in the national sample were fairly similar between the two periods. There was a slightly higher proportion of women with one child of each sex, and a lower proportion of women who had more sons than daughters among the women in the national rural area in 1996 (BDHS-1996) but the changes were minimal from the previous results. There was also a slightly lower proportion of women having no children in the in the national rural area in 1996. The proportion of Muslims and Hindus in the population remained unchanged during the study period.

Spousal communication is measured by three variables. These are, spousal communication about family planning, women's perception of her spouse's agreed number of children, and women's perception of her spouse's opinion about family planning support. Information on spousal communication was not collected for national rural area in 1983 survey but was collected in 1996 survey. Table 7.6a shows that 87 percent of the wives in the national sample thought that their husbands wanted the same or less children, seven percent thought their husbands wanted more children than them and six percent did not know their husband's preferences. In terms of spousal discussion about family planning, 57 percent of women in the same survey reported that they discussed family planning with their husband at least once, 84 percent of women reported that their husband approved of family planning while 11 percent reported disapproval. Only 5 percent reported that they did not know whether their husbands approved or disapproved of family planning or not.

**Table 7.6a: Cultural characteristics of currently married women of reproductive age at the National level (rural), two samples, the CPS-1983 and the BDHS-1996 Surveys.**

| Characteristics | National-1983 N=6907 | National-1996 N=6757 |
|---|---|---|
| Sex composition of family | | |
| One son and one daughter | 7.8 | 12.1 |
| 1-2 son only | 13.3 | 15.5 |
| 1-2 daughter only | 12.0 | 13.8 |
| Total>2 and son>=daughter | 31.5 | 26.7 |
| Total>2 and daughter>son | 21.2 | 19.6 |
| No children | 14.0 | 12.2 |
| **Husband wants same # of child as wife wants** | | |
| Same or less | -- | 86.6 |
| More | -- | 7 |
| Unknown | -- | 6.4 |
| **Discussed family planning with husband** | | |
| Yes | -- | 56.6 |
| No | -- | 43.4 |
| **Husband approves of family planning** | | |
| Approved | -- | 84.2 |
| Disapproved | -- | 11.1 |
| Unknown | -- | 4.7 |
| **Woman's freedom of movement** | | |
| Alone | -- | 19.7 |
| With children or other people | -- | 42.3 |
| With Husband | -- | 13.6 |
| Not allowed to go out. | -- | 24.3 |
| **Membership, NGO** | | |
| No | -- | 77.5 |
| Yes | -- | 22.5 |
| **Religion** | | |
| Islam | 88.5 | 88.9 |
| Hindu | 11.5 | 11.1 |
| **Times pray per day*** | | |
| Hindus | -- | 11.1 |
| 0-1 | -- | 24.4(24.4) |
| 2--5 | -- | 64.5(75.6) |

*Figures in the parenthesis indicates % excluding Hindus.
"__"Indicates data not collected.

The cultural features of the two areas of Matlab are presented in Table 7.6b. It shows that distribution of women by sex composition of the family in both areas of Matlab was similar in 1984 and in 1994. The lower proportion of women having more than two children and the higher proportion of women having no children were evident in both areas of Matlab in 1994 surveys. In terms of religious composition, a slightly higher proportion of Hindus were living in the Matlab intervention area than in the control area or in the national area. About 84-85 percent of women sampled in 1984 survey or 1994 survey from the intervention areas were Muslims, and 14-15 percent of them were Hindus. However, distribution of women by religion in the control area was similar to the distribution of the national sample in both surveys.

All spousal communication information was collected in both Matlab surveys. These factors are presented in Table 7.6b. In terms of spousal agreement about number of children, 59 percent of women thought that their husband wanted the same number or fewer children. A large number of women reported ignorance about an agreed number of children. Thirty nine percent of women reported that they did not know the husband's desired number of children. This finding was the same in both areas of Matlab. However, doubt about the consensus to the number of children had reduced considerably by 1994.

Table 7.6b show that more than 90 percent of women in the intervention and 85 percent of women in the control areas reported that they knew whether they had a consensus number of desired children. Seventy five percent of women in the intervention and 73 percent of women in the control areas thought their husbands wanted the same number or fewer children, while 17 percent of women in the intervention and 14 percent in the control area thought their husbands wanted more children than them.

The percentages of women who discussed family planning with their spouse in both areas of Matlab in 1984 and 1994 are also presented in Table 7.6b. It shows that in the early eighties, 89 percent of the women in the intervention area and 72 percent in the control area discussed family planning with their husbands, but that in the 1990s fewer women discussed family planning with their spouses in both areas of Matlab. In terms of approval of family planning by the husband, 60 percent of women in the intervention and 63 percent women in the control areas during 1984 thought that their husbands approved of family planning, and these figures had by 1996 increased to 86 and 83 percent in the intervention and control areas respectively.

**Table 7.6b: Cultural characteristics of currently married women of reproductive age in the two areas of Matlab, the samples, the KAP-1984 and the MDHS-1994**

| Characteristics | Matlab- 1984 | | | Matlab- 1994 | | |
|---|---|---|---|---|---|---|
| | Interven-tion | Control | Both areas | Interven-tion | Control | Both areas |
| | N=3000 | N=1858 | N=4858 | N=1351 | N=1125 | N=2476 |
| **Sex composition of family** | | | | | | |
| One son & one daughter | 8.5 | 7.7 | 8.2 | 9.7 | 6.9 | 8.4 |
| 1-2 son only | 12.7 | 11.7 | 12.3 | 13.9 | 12.1 | 13.1 |
| 1-2 daughter only | 10.3 | 11.2 | 10.7 | 11.8 | 10.8 | 11.4 |
| Total child >2 but son=>daughter | 40.1 | 40.4 | 40.2 | 33.1 | 35.7 | 34.3 |
| Total child >2 but daughter>son | 24.6 | 25.5 | 24.9 | 20.5 | 21.4 | 20.9 |
| No children | 3.8 | 3.6 | 3.7 | 11.0 | 13.0 | 11.9 |
| **Husband wants same # of child as wife wants** | | | | | | |
| Same or less | 60.0 | 57.9 | 59.2 | 74.8 | 71.7 | 73.4 |
| More | 1.6 | 1.6 | 1.6 | 16.7 | 13.6 | 15.3 |
| Unknown | 38.4 | 40.5 | 39.2 | 8.5 | 14.7 | 11.3 |
| **Discussed FP with Husband** | | | | | | |
| Yes | 88.8 | 72.1 | 82.4 | 74.4 | 67.7 | 71.4 |
| No | 11.2 | 27.9 | 17.6 | 25.6 | 32.3 | 28.6 |
| **Husband Approves of FP** | | | | | | |
| Approved | 59.7 | 63.1 | 61.0 | 85.8 | 82.6 | 84.3 |
| Disapproved | 40.3 | 36.9 | 39.0 | 14.2 | 17.4 | 15.7 |
| **Woman's freedom of movement** | | | | | | |
| Alone | -- | -- | -- | 45.2 | 47.3 | 46.1 |
| With children or other people | -- | -- | -- | 36.3 | 35.6 | 36.0 |
| With Husband | -- | -- | -- | | | |
| Not allowed to go out. | -- | -- | -- | 18.6 | 17.1 | 17.9 |
| **NGO membership** | | | | | | |
| No | -- | -- | -- | 84.7 | 88.5 | 86.4 |
| Yes | -- | -- | -- | 15.3 | 11.5 | 13.6 |
| **Religion** | | | | | | |
| Islam | 84.6 | 88.8 | 86.2 | 84.2 | 89.7 | 86.7 |
| Hindu | 15.4 | 11.2 | 13.8 | 15.8 | 10.3 | 13.3 |
| **Support family planning advertisement in the Media** | | | | | | |
| No | -- | -- | -- | 1.6 | 2.4 | 2.0 |
| 1--4 methods | -- | -- | -- | 6.4 | 8.8 | 7.5 |
| 5 | -- | -- | -- | 91.9 | 88.8 | 90.5 |

"__" Indicates data not collected

National data, 1996 and Matlab data, 1994 show a qualitative change in the spousal communication in term of reproductive and family planning programme. Both national and Matlab data show that most of the women were aware of their husband's attitude about the number of children and also about the family planning programme. They also realized that their desired number of children was in fact similar to that of their husbands and that their husband supported the family planning programme. This obvious understanding of the attitude of their spouses about additional children and family planning may have been the reason for the recent decline in spousal communication in both areas of Matlab.

Another factor included in the recent national and Matlab surveys was the question on women autonomy and empowerment. This question was not asked in the national survey-1983 or in Matlab surveys-1984. Thus Tables 7.6a and 7.6b present only the national population, 1996 and two areas of Matlab in 1994. National data 1996 in Table 7.6a shows that a large number of women in Bangladesh can travel with their children or other relatives and that one-fifth women can travel alone. Nonetheless, the 1996 survey reveals that one fourth of the women in the national sample were not allowed to travel outside their house/*bari*. In 1994 the Matlab survey reveals that about half of the women in both areas of Matlab were allowed to travel alone. The proportion of women not allowed to travel outside their home alone was somewhat lower in both areas of Matlab than the figure in the national sample also. Other information that is believed to improve women's empowerment is the involvement of women in NGO's poverty eradication programmes. Table shows that 22 percent of women in the national sample were involved in NGO's poverty eradication programme. Table 7.6b shows that women involved in NGO programme from both areas of Matlab were lower than that at the national level. For example, 15 percent women in the intervention and 11 percent women in the control area had NGO membership but NGO membership at the national level was 22 percent.

A comparative analysis of these three areas reveals that the two areas of Matlab enjoyed more autonomy and freedom of movement than their counterpart in the national level. For example, 20 percent of women in the national population reported freedom of movement; the corresponding data for the two Matlab areas was 45 percent in the intervention and 47 percent in the control areas. However, NGO activities all over the country were slightly higher than in the Matlab areas.

The national data also shows that general population of Bangladesh is strongly religious and out of total 89 percent of Muslim, 72 percent prayed at least twice a day. However, despite this strong adherence to religious practices in the society, Matlab data-1994 shows that 90 percent of the women in two areas of Matlab support all types of family planning advertisement in mass media.

### 7.3.6 Knowledge of contraceptives and Programme Factors

Knowledge of family planning and distribution of family planning services for the three areas are presented in Tables 7.7a and 7.7b. 1983 (CPS-1983) survey presented in Table 7.7a found that 27 percent of the women at the national rural area had very little knowledge of contraceptive; only 43 percent knew the four major methods of contraception. However, BDHS-1996 statistics in Table 7.7a show that during this 13-year period, 90 percent of the women in the national rural area gained knowledge about major family planning methods As noted earlier, because of the recoding difficulty, knowledge of the sources of contraception for national data was recoded as a dicotonomous. This variable

**Table 7.7a: Knowledge and programmatic characteristics of currently married women of reproductive age at the National level (rural), two samples, the CPS-1983 and the BDHS-1996 Surveys.**

| Characteristics | National-1983 N=6907 | National 1996 N=6757 |
|---|---|---|
| **# of Contraceptive methods known** | | |
| 0-2 | 26.9 | 1.2 |
| 3 | 30.4 | 8.6 |
| 4 | 42.7 | 90.2 |
| **# of traditional contraceptive methods known** | | |
| 0-1 | 67.2 | 32.3 |
| 2 | 16.8 | 28.1 |
| 2+ | 16.0 | 39.6 |
| **No. of contraceptives sources known** | | |
| None | 18.1 | 6.9 |
| At least one | 81.9 | 93.1 |
| **FWA visit.** | | |
| Once in a month | 13.8 | 4.8 |
| Once in last six months | 13.2 | 31.2 |
| Before 6 months/never | 73.0 | 64.1 |

shows that at least 18 percent of the women in the national rural area in 1983 did not know any source of contraceptive supply. However, by 1996 knowledge of the source of supply of family planning method in the national rural area was almost universal with 93 percent of the population knowing at least one source of supply of contraceptives. The knowledge of traditional methods also expanded in the thirteen years. In terms of coverage by family planning workers, the national survey, 1996 in Table 7.7a shows that though short interval visitations (visit within 4 weeks) by the family planning workers (FPW) declined, the overall coverage of the national rural area by the FPW increased from 27 to 36 percent.

**Table 7.7b: Knowledge and programme factors of currently married women of reproductive age in the two areas of Matlab, two samples, the KAP-1984 and the MDHS-1994**

| Characteristics | Matlab-1984 | | | Matlab-1994 | | |
|---|---|---|---|---|---|---|
| | Intervention | Control | Both areas | Intervention | Control | Both areas |
| | N=3000 | N=1858 | N=4858 | N=1351 | N=1125 | N=2476 |
| **# of Contraceptive methods known** | | | | | | |
| 1--2 | 0.9 | 7.6 | 3.5 | 9.3 | 10.8 | 9.9 |
| 3 | 13.6 | 22.6 | 17.0 | 0.1 | 0.8 | 0.4 |
| 4 | 85.5 | 69.8 | 79.5 | 90.7 | 88.4 | 89.7 |
| **# of traditional contraceptive methods known** | | | | | | |
| None | 28.1 | 32.8 | 29.9 | 16.1 | 17.8 | 16.8 |
| One | 34.9 | 37.2 | 35.8 | 29.6 | 34.2 | 31.7 |
| Two | 26.5 | 20.9 | 24.4 | 41.1 | 38.2 | 39.8 |
| Three | 10.5 | 9.0 | 10.0 | 13.2 | 9.8 | 11.7 |
| **No. of contraceptives sources known** | | | | | | |
| 0-1 Methods | 4.4 | 27.3 | 13.2 | 0.4 | 0.4 | 0.0 |
| 2 | 6.7 | 18.8 | 11.3 | 1.1 | 1.5 | 1.3 |
| 3 | 16.8 | 27.1 | 20.7 | 13.2 | 14.6 | 13.9 |
| 4 | 72.0 | 26.9 | 54.7 | 85.3 | 83.5 | 84.5 |
| **CHW/FWA visits** | | | | | | |
| In month | 84.3 | 9.0 | 55.5 | 41.6 | 6.0 | 25.4 |
| At least once in six months | 10.2 | 12.4 | 11.0 | 29.0 | 22.1 | 25.9 |
| Before 6 months/never | 5.5 | 78.6 | 33.4 | 29.4 | 71.8 | 48.7 |

Knowledge of family planning and distribution of family planning services for the two Matlab populations are presented in Table 7.7b. The table shows that 99 percent of the women in the intervention area knew at least 3 contraceptive methods. Knowledge of at least 3 contraceptive methods in the control area was 92 percent. Matlab survey 1994 shows that about 90 percent of the women in both areas had knowledge of four contraceptive methods. However, 10 percent of the women reported that they knew only 1 or two methods. The apparent increase in the first groups is confusing and may be related with sampling selection. Both groups of data show that there was a substantial improvement in the knowledge of family planning methods and sources of family planning supply and family planning workers visitation. In terms of workers visitation, the intervention area had much higher coverage in 1983 and 1994 than the control area or the rest of the country.

This finding is consistent with the existence of a strong management MCH-FP programme in the intervention area. However, family planning workers visitation was found to be slightly lower in the control area than in the national rural area in both surveys.

**Table 7.8: Cultural characteristics of the women of Matlab and Bangladesh used in recent two surveys, the BDHS-1996 and the MDHS-1994**

| | National 19-96 | Matlab-1994 | | |
|---|---|---|---|---|
| | | Intervention | Control | Both Areas |
| Characteristics | N=6757 | N=1351 | N=1125 | N=2476 |
| **Woman's freedom of movement** | | | | |
| Alone | 19.7 | 45.2 | 47.3 | 46.1 |
| With children or other people | 42.3 | 36.3 | 35.6 | 36.0 |
| With Husband | 13.6 | | | |
| Not allowed to go out. | 24.3 | 18.6 | 17.1 | 17.9 |
| **NGO membership** | | | | |
| No | 77.5 | 84.7 | 88.5 | 86.4 |
| Yes | 22.5 | 15.3 | 11.5 | 13.6 |
| **Media Exposure: Radio/TV** | | | | |
| Yes | 41.3 | 48.0 | 45.3 | 46.8 |
| No | 58.7 | 52.0 | 54.7 | 53.2 |
| **Times pray per day** | | | | |
| 0-1 | 24.4 | -- | -- | -- |
| 2--5 | 64.5 | -- | -- | -- |
| Other faith | 11.1 | -- | -- | -- |
| **Support of the # of family planning methods advertisement in the media** | | | | |
| 0 | | 1.6 | 2.4 | 2.0 |
| 1--4 | | 6.4 | 8.8 | 7.5 |
| 5 | | 91.9 | 88.8 | 90.5 |

"__" Indicates data not collected.

## 7.4 Conclusion

Analysis of the sampling data of the two populations demonstrated a relatively homogeneous socio-economic and cultural environment among the three areas selected for study. Substantial economic and social changes were evident in the data between 1983-1996 and the changes occurred more or less equally all over the country. However, it seems that Matlab is a little better off in terms of education since 1984 but the level of higher education of women changes equally to all three areas. As expected, the Matlab intervention area has much higher coverage and knowledge of contraceptive methods was much greater than all the other areas.

# PART II: DEMAND FOR ADDITIONAL CHILDREN

# Chapter 8: Trends in Fertility and Demand for Additional Children

## 8.1 Introduction

A sizeable fertility decline has been evident in Bangladesh since the late 1970s or early 1980s. Macro level statistics published in most past studies having found evidence of fertility decline were reluctant to draw a definite conclusion because of the flaws in the data collected by census and vital registration system. The lack of confidence in preceding surveys and uncritical analysis of the survey data, in the past failed to capture the timing and extent of fertility decline precisely. In 1994, Cleland et al. (1994) did an extensive analysis of Bangladesh fertility data taking into data flaws into consideration through different indirect techniques and concluded that fertility decline had probably begun in the late 1970s or early 1980s.

Recent studies have documented ample evidence of a steep fertility decline in Bangladesh. Previous fertility surveys conducted in the late 1970s or early 1980s documented that the total fertility rates in the mid 1970s were 6 to 6.5, which sharply declined to 3.3 within 20 years. On the other hand, in the Matlab areas, total fertility rates were somewhat lower than the national rural areas during the same period being 5.3 to 5.8. The average total fertility rate was 5.3 for the period of 1974-1976. The Matlab MCH-FP intervention was introduced in October 1977. The fertility in the intervention area declined to 4.2 in 1977 and has continued to decline. In 1994, total fertility rate was 3.0 in the intervention area. The total fertility rates in two Matlab areas were fairly similar in the pre-intervention period but were much higher in the control area after MCH-FP programme started in the intervention area. Total fertility rates in the control area started declining from 1981 but the decline was much slower than it was in the intervention area and in 1994 total fertility rate in the control area was reported as 3.8.

The focus of the present chapter is thus on fertility trends and their possible underlying causes during the mid 1980s to mid 1990s in rural Bangladesh and the two Matlab areas. This chapter will appraise the fertility trends documented in different publications and reports in order to ascertain a continuity of past and present.

## 8.2 Fertility Trends

### 8.2.1 National trends

Fertility trends during the pre-transition period, that is, in 1950s and 1960s and transition period, that is, the 1980s and the mid 1990s at the national level and two areas of Matlab are presented in Table 8.1. The Table shows that the Total Fertility Rate (TFR) in the 1950s reported by Demographic Surveys in East

**Table 8.1: Fertility trends, national level (rural), Matlab intervention and Matlab control, Bangladesh.**

| Year | Level of fertility (TFR) | | | |
|---|---|---|---|---|
| | National | | Matlab | |
| | Name of study[1] | | Intervention | Control |
| 1953 | DSEP | 7.4 | -- | -- |
| 1957 | DSEP | 6.2 | -- | -- |
| 1962 | NIS | 7.6 | -- | -- |
| 1966 | NIS | 6.0 | 6.7 | 6.7 |
| 1971-75 | BFS | 6.7 | 5.8 | 5.8 |
| 1974-76 | BFS | 6.3 | 5.9 | 5.6 |
| 1976 | ---- | -- | 6.6 | 7.0 |
| 1977 | -- | -- | 5.3 | 5.8 |
| 1978 | -- | -- | 4.2 | 5.8 |
| 1979 | CPS-79 | 6.2 | 4.6 | 6.4 |
| 1981 | CPS,83 | 5.6 | 5.0 | 6.3 |
| 1984 | BFS,89 | 5.9 | 4.3 | 5.2 |
| 1988 | BFS,89 | 4.9 | 3.8 | 5.4 |
| 1990 | CPS, 91 | 4.2 | 3.4 | 5.0 |
| 1994 | BDHS-94 | 3.4 | 3.0 | 3.8 |
| 1996 | BDHS-96 | 3.3 | 2.7 | 3.5 |
| 1998 | | -- | 3.0 | 3.6 |
| 1999 | | -- | 2.9 | 3.3 |
| **Average** | | | | |
| 1953-1961 | DSEP | 7.1 | -- | -- |
| 1962-1968[2] | PGE NIS | 6.2 | 6.6 | 6.6 |
| 1971-1979[3] | BFS, CPS | 6.3 | 6.1 | 6.1 |
| 1977-1980 | --- | ---- | 4.7 | 6.0 |
| 1981-1988 | CPS | 5.3 | 4.5 | 5.7 |
| 1991-1996 | BDHS | 3.6 | 2.9 | 3.8 |

Notes: [1] for Matlab all data from Health and Demographic Surveillance System (HDSS). [2] Matlab average is 1966-1969 [3] Matlab average is 1971-76. DSEP, Demographic Survey in East Pakistan, PGE, Population Growth Experiment, NIS, National Impact Survey, BFS, Bangladesh Fertility Survey, CPS Contraceptive Prevalence Survey, BDHS Bangladesh Health and Demographic Survey.
"—" indicates data not available
Sources: BBS 1994; UN 1981; Curlin, et al. 1976; Phillips et.al. 1982; HDSS reports 1994 2001;

Pakistan (DSEP) was 7.4. The TFR computed by the National Academy of Science (NAS) for Bangladesh also found the same level during this period. The

TFR in the late 1950s reported by DSEP was one child lower than the previous period being 6.2 child per woman. An average of total fertility rates computed from available published report during 1953-1961 provides a TFR of 7.1, which is within the range of NAS estimates. The TFR in the 1960s reported by the National Impact Surveys (NIS) was 7.6 in 1962 and 6.0 in 1966. The total fertility rate published during the 1962-68 period by NIS and PGE produced an average fertility of 6.2 birth per woman. The average fertility decline in the 1960s is, thus, one child per woman. This TFR is somewhat lower in a natural fertility population and much lower than the Hutterites population (Eaton 1953; Becker and Hiltabidle 1981). The rate of decline during 1960s, in the absence of any contraceptive practice is surprising and demonstrates that the fertility and mortality thresholds may work differently among the Bangladeshi population. The fertility rate in the earlier 1970s reported by BFS-1975 was 6.7. Both BFS-1979 and CPS-1979 reported that the TFR dropped to 6.2 during the 1974-76 period. All fertility surveys, BFS and CPS and BDHS, reported a consistent fertility decline from 1979. In 1983, the TFR was reported by CPS-1983 as 5.6 births per woman. The latest BDHS survey (BDHS-1996) reported that total fertility rate had further declined to 3.3 in the rural areas of Bangladesh. However, fertility decline was slowed down since 1994 in all the three areas

### 8.2.2 Matlab Trends

Fertility trends in both areas of Matlab are also presented in Table 8.1[1]. The Table shows that in Matlab, the TFR was 6.7 in 1966 and the average TFR between 1966-69 was 6.6. Between 1971 and 1975 the TFR was 5.8, that is, lower than the TFR of the national rural population. The TFR in the Matlab areas was also lower than the national figure during 1974-76. The average fertility rate between 1971-75[2] was 5.8. An average TFR during the preceding three years of MCH-FP programme, that is, 1974-1976 was 5.3 in the MCH-FP area and 5.8 in the control area. Since the introduction of MCH-FP interventions, fertility in the intervention

[1] Registration of vital events started in 1966 and separate TFRs for the intervention and control areas were not available before 1975. As the two areas are homogeneous, and that the differential family planning and child health intervention has started in October, 1977 in half of the Matlab areas known as intervention area, we assume that the fertility was similar in both areas before 1976.
[2] MCH-FP programme started in the intervention area in October 1977.

area declined rapidly from 6.6 in 1976 to 4.2 in one year (36 % percent) and continued to decline. However, some caution should be exercised when explaining such a sizable reduction. The total fertility rate in the immediate preceding year, 1976, was higher than any single year in the 1971-1975 periods, and high fertility in 1976 may be related to the stable social conditions after long continuous instability due to geo-political[3] and social reasons. The high fertility in 1976 may have influenced the estimates of fertility reduction between 1976 and 1977. From 1977, the geo-political situations of Bangladesh as well as in the Matlab areas were fairly stable and free from any major disaster. Fertility reduction in MCH-FP area during 1977 and 1978 was 28 percent (4.2 vs 5.8). In 1984, the TFR in the intervention area was 4.3 reduced to 3.0 in 1994. The TFR in the control area during the pre intervention period was somewhat higher but close to the rates of the intervention area but after MCH-FP programme was introduced in the intervention area TFR in the control area was higher. From 1981, TFR started showing a consistent decline in the control area. Nevertheless the decline was much slower in the control area than in the intervention area. In 1994, the TFR in the control areas had reduced to 3.8.

In summary, a comparative analysis of Table 8.1 showed that fertility was similar in the three areas in the 1960s but lower in both the areas of Matlab than areas in the national level in the early 1970s before the introduction of the MCH-FP programme in the intervention area. After the inception of the MCH-FP programme in the intervention area a substantial fertility decline was evident within the first three years providing supporting evidence for the hypothesis that demand for fertility control predated the MCH-FP intervention in Matlab. Although, fertility began to decline in the control area in 1981, the decline was faster and greater in the intervention area. The overall trends of the three areas reveal that fertility at national level was stable and high until the early 1960s. From 1966, it fluctuated but a consistent decline is evident since 1979. This decline was faster than that of the control area but slower than that of the intervention area.

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[3] 1971 year was marked as a turbulent period due to 9 months arms struggle for liberation of Bangladesh from Pakistani Occupations and 1972, a year of war torn economy and reorganization. 1974 and 1975 period was marked as a flood and subsequent famine year.

## 8.3 Age Specific Fertility Level

The fertility trends of the three areas by age for some selected years are presented in Table 8.2a and Table 8.2b. The age specific fertility rates (ASFR), national and pre intervention Matlab and the intervention area after MCH-FP programme intervention are presented in Table8.2a. The age specific fertility rates (ASFR) for Matlab intervention and control areas are presented in Table 8.2b.

### 8.3.1 National Trends

The Age Specific Fertility Rates (ASFR) at the national level reported by different surveys between 1966-1996 are presented in Table 8.2a. It shows that, in general, the fertility was high among the age group 20-24 followed by the other two young groups, 15-19 and 25-29. The Table also reveals that the ASFRs have an inverse relationship with age and this is true at all fertility levels. The 1966-1968 PGE survey showed that fertility was highest among the women of age group 20-24, and began to decline with increasing age. The BFS estimates for 1975 presented in the Table show that the ASFRs in all groups in 1975 was higher than in the 1966-1968 period except for women of age 15-19 years. But a reverse trend was apparent in ASFR in 1979. The CPS-1979 shows that the ASFR had declined from its previous level except for the women of age group 15-19 years but that the TFR was still higher in 1979 than 1966-1968 rates. From 1979, a bimodal trend was apparent in the ASFR. Fertility started to increase among women of age less 30 years but there was a continuous decline among the older age groups of 30 years and above. The CPS surveys show a marked decline in ASFR irrespective of age in 1991. The highest decline had occurred among the age groups 30-34 and 35-39. This declining trend in ASFR is evident in all groups in 1996 reported by BDHS. The Table also reveals the ASFRs have always been low among the old age, that is, 40 and above and that by 1996 fertility among this group was negligible. Higher fertility is concentrated among the women of age groups 15-29 years.

### 8.3.2 Matlab Trends

The ASFRs for Matlab as whole before the introduction of MCH-FP programme and the ASFR in the intervention and control areas separately after the introduction of the MCH-FP programme reported for Matlab between 1967-1994 are presented in Table 8.2b. It shows that, in general, fertility was high among the age group 20-24 followed by other two younger age groups, 15-19 and 25-29. The Table also reveals that the ASFRs have an inverse relationship with age and that this is true for all fertility age groups. In 1967-1968 in the Matlab areas, fertility was the highest among the women of age group 20-24 and began to decline with increasing age. In both areas of Matlab, ASFRs were found to be higher in all groups in 1976 than in the 1966-1968 period. In 1978, a marked decline in ASFR in all age groups was evident in the intervention area. The highest decline was evident among the old and younger age groups between age 40-44 and 15-24 respectively. But a plateau was observed between 1978-1984. The declining trends in ASFR accelerated in 1990 and were evident among the women of youngest age groups, 15-19 and the older age groups from age 35 and up. This accelerated rate of fertility decline among the older age groups continued until 1994.

In the control area, ASFR increased in all age groups in 1976. The ASFR also declined in the control area in 1976 but to a lesser degree than in the intervention area. While the TFR decline between 1976 and 1978 was 88 percent in the intervention area, it was only 21 percent in the control area in the same period. From 1978, ASFR in the control area began to decline among all age groups except age 25-29 years but at a slower speed than in the intervention area. The ASFR was persistently high until 1990 among the women of age 25-29 years when ASFR was declining in all other age groups until 1990. The ASFR decline in all age groups in the control area was evident between 1990-1994. The Table also reveals that the ASFR were always low among the old age, that is, 40 and above. By 1996 fertility among this group was negligible in both the areas. The reproductive activities were concentrated in the age groups 20-29 with a higher rate in the control area than in the intervention area.

***Table 8.2a*** **Age specific fertility rates, selected years and the percent of change between years, national level, 1966-1996.**

| Age groups | National | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | PGE-1966-1968 | BFS-1975 | % change between 1966-1975 | CPS-1979 | % change between 1975-1979 | CPS-1983 | % change between 1979-1983 | CPS-1991 | % change between 1983-1991 | BDHS-96 | % change between 1991-1996 |
| 10-14 | 36 | - | - | 85 | - | 27 | - | - | - | - | - |
| 15-19 | 252 | 168 | -50.0 | 221 | 24.0 | 256 | 13.7 | 178 | -43.8 | 155 | -14.8 |
| 20-24 | 301 | 320 | 5.9 | 252 | -27.0 | 283 | 11.0 | 234 | -20.9 | 200 | -17.0 |
| 25-29 | 250 | 316 | 20.9 | 239 | -32.2 | 250 | 4.4 | 180 | -38.9 | 158 | -13.9 |
| 30-34 | 198 | 276 | 28.3 | 203 | -36.0 | 202 | -0.5 | 123 | -64.2 | 102 | -20.6 |
| 35-39 | 126 | 219 | 42.5 | 153 | -43.1 | 125 | -22.4 | 72 | -73.6 | 46 | -56.5 |
| 40-44 | 37 | 136 | 72.8 | 68 | -100.0 | 63 | -7.9 | 32 | -26.9 | 19 | -68.4 |
| 45-49 | 3 | 49 | 93.9 | 17 | -188.2 | 9 | -88.9 | 14 | 35.7 | 7 | -100.0 |
| TFR | 6.02 | 7.4 | 18.7 | 6.20 | -19.4 | 6.10 | 1.64 | 4.20 | -45.24 | 3.40 | -23.53 |

Sources: Computed from ASFR, UN 1981; CPS 1979; BDHS 1996.

**Table8.2b. Age specific fertility rates, selected years and the percent of change between years, Matlab intervention area, 1967-1994.**

| Age groups | Matlab Intervention Area | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Matlab 1967-1968 | Matlab-1976 | % change between 1967 -1976 | Matlab INT 1978 | % change between 1976-1978 | Matlab INT 1984 | % change between 1978-1984 | Matlab INT 1990 | % change between 1984-1990 | Matlab INT 1994 | % change between 1990-1994 |
| 10-14 | 9 | 139 | 93.5 | - | - | - | - | - | - | - | - |
| 15-19 | 232 | 277 | 16.2 | 125.5 | -120.7 | 80 | -56.9 | 64 | -25.0 | 64 | 0.0 |
| 20-24 | 334 | 378 | 11.6 | 216.1 | -74.9 | 220 | 1.8 | 206 | -6.8 | 180 | -14.4 |
| 25-29 | 297 | 302 | 1.7 | 185.3 | -63.0 | 199 | 6.9 | 177 | -12.4 | 181 | 2.2 |
| 30-34 | 204 | 283 | 27.9 | 184.5 | -53.4 | 161 | -14.6 | 126 | -27.8 | 123 | -2.4 |
| 35-39 | 128 | 143 | 10.5 | 95.6 | -49.6 | 94 | -1.7 | 70 | -34.3 | 39 | -79.5 |
| 40-44 | 44 | 50 | 12.0 | 29.4 | -70.1 | 39 | 24.6 | 23 | -69.6 | 13 | -76.9 |
| 45-49 | 19 | 11 | -72.7 | - | - | 5 | 100.0 | 7 | +28.6 | 3 | -133.3 |
| TFR | 6.3 | 7.9 | 20.3 | 4.2 | -88.1 | 4.0 | -5.0 | 3.4 | -17.6 | 3 | -13.3 |
| Age groups | Matlab Control area | | | | | | | | | | |
| | Matlab 1967-1968 | CON-1976 | % change between 1967- 1976 | CON-1978 | % change between 1976- 1978 | CON 1984 | % change between 1978-1984 | COMN1990 | % change between 1984- 1990 | CON -1994 | % change between 1990-1994 |
| 10-14 | 9 | - | - | - | - | - | - | - | - | - | - |
| 15-19 | 232 | 181 | -28.2 | 146 | -24.0 | 100 | -46.0 | 76 | -31.6 | 73 | -4.1 |
| 20-24 | 334 | 338 | 1.2 | 269 | -25.7 | 248 | -8.5 | 267 | 7.1 | 224 | -19.2 |
| 25-29 | 297 | 332 | 10.5 | 236 | 40.7 | 261 | 9.6 | 271 | 3.7 | 211 | -28.4 |
| 30-34 | 204 | 328 | 37.8 | 254 | -29.1 | 215 | -18.1 | 203 | -5.9 | 148 | -37.2 |
| 35-39 | 128 | 157 | 18.5 | 186 | 15.6 | 139 | -33.8 | 133 | -4.5 | 65 | -104.6 |
| 40-44 | 44 | 73 | 39.7 | 66 | -10.6 | 56 | -17.9 | 50 | -12.0 | 30 | -66.7 |
| 45-49 | 19 | - | - | - | - | 8 | - | 7 | -14.3 | 5 | -40.0 |
| TFR | 6.3 | 7 | 10.00 | 5.80 | -20.7 | 5.10 | -13.7 | 5.00 | -2.0 | 3.80 | -31.6 |

"—" indicates no data. There were few women in this age group. As a result, those few cases were included in the following age groups (notes from original sources)

INT=Intervention, CON=Control.

Sources : computed from the ASFR, Curlin et al. 1976; Phillips et al. 1982; DSS Annual report 1984-1994;

A comparative analysis of Table 8.3a demonstrates that in 1967-1968, fertility was higher in the Matlab areas than in the national population in all age groups except for the young age group (15-19 age group). In 1975-1976, in the Matlab areas the ASFR for all age groups including the younger age (age group 15-19) showed an increase from the previous period (1967-1968). But a comparison of the national and Matlab data[4] in 1976 shows that the ASFR was higher in the younger age groups but lower the higher age groups in Matlab than at the national level. The TFR was higher in the Matlab area than national level TFR too. In 1978, a year after the introduction MCH-FP programme, the ASFR reduced in all age groups in the Matlab intervention area from its previous level in 1976. In some of the age groups, trends were even reversed. The ASFR in age groups 15-19 and 20-24, for example, was substantially higher in the Matlab areas than the national in 1976. The ASFRs in the Matlab area were 65.0 and 18.0 percent higher than national level. But with the introduction of the MCH-FP programme, fertility reduction in these age groups in the intervention area reduced substantially by 1979. The fertility in these age groups in the intervention area were 43 percent and 14 percent lower than the national level.. Overall fertility reduction in the intervention area was 32 percent in the same year. From 1979-1991, fertility was significantly lower in the intervention area than at the national level. The 1994 Matlab and national data show that the gap between Matlab intervention and the national had narrowed and was only 12 percent. The same trend was evident between the intervention and control area (Table 8.3b).

This quick and substantial fertility decline in the intervention area within a year of the introduction of the Family Planning and Health Service Project (FPHSP) signify that demand for fertility control had been generated and existed in the area before the introduction of the MCH-FP programme. The simple introduction of a family planning programme could not exert such a substantial decline within so short time as was revealed in Table 8.1a for 1976. Most of the Matlab research analysts concluded from the experience of the CDP, (discussed in chapter six), that demand for no additional children existed even before the introduction of the.

[4] If the reference period is before 1977, rates are assumed to be the same as the MCH-FP intervention started in October, 1977.

**Table8.3a: A comparative age specific fertility rates, National level and Matlab intervention area during pre intervention and post intervention period, 1967-1976 and 1977-1996.**

| Age groups | Pre-Intervention | | | | | | Post- Intervention | | |
|---|---|---|---|---|---|---|---|---|---|
| | Matlab 19 67-1968 | PGE 1966-1968 | % Diff | Matlab-1976 | BFS-1975 | % Diff | Matlab I-1978 | CPS-1979 | % Diff |
| 10-14 | 9 | 36 | 75.0 | 139 | - | - | - | 85 | - |
| 15-19 | 232 | 252 | 7.9 | 277 | 168 | -64.9 | 125.5 | 221 | 43.2 |
| 20-24 | 334 | 301 | -11.0 | 378 | 320 | -18.1 | 216.1 | 252 | 14.2 |
| 25-29 | 297 | 250 | -18.8 | 302 | 316 | 4.4 | 185.3 | 239 | 22.5 |
| 30-34 | 204 | 198 | -3.0 | 283 | 276 | -2.5 | 184.5 | 203 | 9.1 |
| 35-39 | 128 | 126 | -1.6 | 143 | 219 | 34.7 | 95.6 | 153 | 37.5 |
| 40-44 | 44 | 37 | -18.9 | 50 | 136 | 63.2 | 29.4 | 68 | 56.8 |
| 45-49 | 19 | 3 | 533.3 | 11 | 49 | - | - | 17 | - |
| TFR | 6.3 | 6.02 | -4.7 | 7.9 | 7.4 | -6.8 | 4.2 | 6.2 | 32.3 |

| Age groups | Post Intervention | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Matlab -I-1984 | CPS-1983 | % Diff | Matlab –I-1990 | CPS-1991 | % Diff | Matlab –I-1994 | BDHS-1996 | % Diff |
| 10-14 | - | 27 | - | - | - | - | - | - | - |
| 15-19 | 80 | 256 | 68.8 | 64 | 178 | 64.0 | 64 | 155 | 58.7 |
| 20-24 | 220 | 283 | 22.3 | 206 | 234 | 12.0 | 180 | 200 | 10.0 |
| 25-29 | 199 | 250 | 20.4 | 177 | 180 | 1.7 | 181 | 158 | -14.6 |
| 30-34 | 161 | 202 | 20.3 | 126 | 123 | -2.4 | 123 | 102 | -20.6 |
| 35-39 | 94 | 125 | 24.8 | 70 | 72 | 2.8 | 39 | 46 | 15.2 |
| 40-44 | 39 | 63 | 38.1 | 23 | 32 | 28.1 | 13 | 19 | 31.6 |
| 45-49 | 5 | 9 | 44.4 | 7 | 14 | 50.0 | 3 | 7 | 57.1 |
| TFR | 4.0 | 6.1 | 34.4 | 3.4 | 4.2 | 19.0 | 3.0 | 3.4 | 11.8 |

I=Intervention

Sources : computed from the ASFR, Curlin et al. 1976; Phillips et al. 1982; DSS Annual report 1984-1994; UN 1981; CPS 1979; BDHS 1996.

***Table 8.3b:*** **A comparative age specific fertility rates, selected years in Matlab intervention and control areas , pre intervention and post intervention period, 1974-76 and 1977-94.**

| Age groups | Pre-intervention | | | | | | Post-Intervention | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1974 | | | 1976 | | | 1978 | | |
| | INT | CON | % Diff | INT | CON | % Diff | INT | CON | % Diff |
| 10-14 | - | - | - | - | - | - | - | - | - |
| 15-19 | 152 | 155 | 1.9 | 172 | 181 | 5.0 | 126 | 146 | 13.7 |
| 20-24 | 260 | 260 | 0.0 | 303 | 338 | 10.4 | 216 | 269 | 19.7 |
| 25-29 | 275 | 266 | -3.4 | 295 | 332 | 11.1 | 185 | 236 | 21.6 |
| 30-34 | 214 | 231 | 7.4 | 316 | 328 | +3.7 | 185 | 254 | 27.2 |
| 35-39 | 122 | 122 | 0.0 | 170 | 157 | -8.3 | 96 | 186 | 48.4 |
| 40-44 | 46 | 54 | 14.8 | 65 | 73 | 11.0 | 29 | 66 | 56.1 |
| 45-49 | - | - | - | - | - | - | - | - | - |
| TFR | 5.4 | 5.5 | 1.8 | 6.6 | 7 | 5.7 | 4.2 | 5.8 | +27.6 |
| Age groups | Post-Intervention | | | | | | | | |
| | 1984 | | | 1990 | | | 1994 | | |
| | INT | CON | % Diff | INT | CON | % Diff | INT | CON | % Diff |
| 10-14 | - | - | - | - | - | - | - | - | - |
| 15-19 | 80 | 100 | 20.0 | 64 | 76 | 20.0 | 64 | 73 | 12.3 |
| 20-24 | 220 | 248 | 11.3 | 206 | 267 | 11.3 | 180 | 224 | 19.6 |
| 25-29 | 199 | 261 | 23.8 | 177 | 271 | 23.8 | 181 | 211 | 14.2 |
| 30-34 | 161 | 215 | 25.1 | 126 | 203 | 25.1 | 123 | 148 | 16.9 |
| 35-39 | 94 | 139 | 32.4 | 70 | 133 | 32.4 | 39 | 65 | 40.0 |
| 40-44 | 39 | 56 | 30.4 | 23 | 50 | 30.4 | 13 | 30 | 56.7 |
| 45-49 | 5 | 8 | 37.5 | 7 | 7 | 37.5 | 3 | 5 | 40.0 |
| TFR | 4.0 | 5.1 | 21.6 | 3.4 | 5.0 | 21.6 | 3.4 | 3.8 | 10.5 |

INT=Intervention, CON=Control,

Sources : Computed from the ASFR, Curlin et al. 1976; Phillips et al. 1982; DSS Annual report 1984-1994;

CDP project and treated it as a latent and 'fragile' demand for fertility control reason being the barriers related to the cultural environment and inaccessible transport and communication. However, a question arises about fertility decline in the 1960s from 7 to 6 when fertility control programme though started was very limited. This decline might be related to the fertility and mortality relationship, in particular the improvement of survival of infants and children during that period. It has been postulated that with the improvement of survival in the post World War II era, fertility would have increased due to a longer period of exposure to reproduction by surviving couples, a decline in breastfeeding and other changes (Dyson and Murphy 1985). While this was true for most developing countries of Asia, Africa and Latin America, the mechanism may have worked differently in the case of Bangladesh. In Bangladesh, the mechanism through which mortality especially infant and child exerts an influence on fertility might be reversed due to the unusually long duration of breastfeeding (Sirageldin et at. 1975; Chen et al. 1974; Huffman et al. 1980). The interrelationship between breastfeeding and postpartum infecundity is described in the fertility literature (Huffman et al. 1978). The improvement in survival of infant and young children increased the duration of breastfeeding in Bangladesh. Breastfeeding inhibits fecundity and delays resumption of menstruation, and thereby delay the conception. The longer a women breastfeeds the longer the birth interval is. And despite changes in other aspects, duration of breastfeeding is still very long. Thus in most developing countries, while the improvement in adult survival and decline in duration of breastfeeding increased fertility, the long duration of breastfeeding pattern in Bangladesh might have counter balanced the impact of adult survival and thus fertility was ranging between 6 and 6.5 even without any deliberate fertility control practices. The next section will highlight the trends in fertility and demand for additional children and the changes in demand for additional children within the last 20 years.

## 8.4 Demand for additional children and Fertility Preference

Measurement of demand for additional children and fertility preference is a controversial issue in reproductive health analysis. Concern arises out of the questions asked as well as conceptualization of the concept by the population who responded to the questions. Fertility transition research believed that fertility is within the 'calculus of conscious choice'. The household economic and demographic theories endorse the view that demand for additional children is like a consumer choice. A large group of demographic literature attributes change in reproductive behaviour to reproductive performance and lack of choice. Due to host of barriers, the attitudes of actors do not convert into actual behaviour. Thus a large volume of demographic literature emerged on the idea of unmet needs for family planning that has persuaded governments and donors to support contraceptive services as the central focus of population control policy. However, a question has arisen about the validity of this huge unmet need found in the literature. There are two schools of thought on the unmet need. The former school of thought believed that individual testimony is of little significance and tried to explain reproductive desire on the basis of behaviour. The later school of thought believed that reproductive desire obtained through direct or indirect questions has a considerable interpretive value and is an important component in understanding reproductive change. In agreeing with the later school, Cleland et al. (1994) argued that individual testimonies on family size are of value even though they may not be amenable to straightforward interpretation. Later school of thought seems more plausible for Bangladesh. In the rural society of Bangladesh, women are confined to their courtyards and are engaged in caring for and rearing of children, so their hopes and aspirations evolve around children. Their responses to questions about number of desire children would have seem to have value. In addition, although rural women may be illiterate but they are not incapable of thought. They might not have fully aware of what allowances have to be made for mortality and gender preferences but is capable of responding to a question about her number of children. Nevertheless, there might be a possibility of post rationalization of the number of children in the responses.

Attempts to measure demand or desire for children have been used in many surveys in developing countries. Most information have been ascertained from a relatively simple question asking, "would you like to have another child or do you prefer no more?" or in case of desired family size, the question asked was the number of children the women would like to have. In the later surveys, the question was phrased as, "how many children would you like to have if you started your married life again?" In Bangladesh, both at the national level and Matlab areas, questions on desired or expected children were asked in most surveys. Problem in interpretation arises due to the phrasing of the question in the different surveys. This difference makes comparison difficult. The next section will examine the demand or desire for additional children for the national level and both areas of Matlab.

### 8.4.1 National Trends

In the 1960s, before the CPS surveys, NIS-1969 found that 44 percent of the women of reproductive age did not want additional children. Similar trends were found from a large survey in Comilla in 1968. Citing the report, Cleland documented that the mean desired family size found in those surveys was 4.0 children, a little below the number of surviving children (4.6) that an average woman could expect by age 50. This means family size was modest in a situation when 22 percent of women's age 40 or over had 2 or fewer children, and 33 percent had more than 6 living children.

**Table 8.4: Family size preference, selected years at the national level and two areas of Matlab, 1975-1996.**

| Variables | Year of Surveys | | | | |
|---|---|---|---|---|---|
| | 1975 | 1977 | 1983/19984 | 1990/91 | 1994/96 |
| **National level[1]** | | | | | |
| **Want no more children (%)** | -- | -- | 48.4 | 39.5 | 49.1 |
| Ideal family size | | | | | |
| **a. # of children** | 4.1 | -- | | -- | 2.5 |
| **b. # of sons** | -- | -- | | -- | -- |
| **c. family size undecided (%)** | -- | -- | 4.6 | 3.6 | 5.8 |
| Matlab intervention | | | | | |
| Want no more children (%) | -- | 43 | 55.4 | 54.3 | 55.3 |
| **Ideal family size** | | | | | |
| **a. # of children** | 4.4 | -- | -- | 3.1 | 2.6 |
| **b. # of sons** | 2.7 | -- | -- | 1.8 | 1.4 |
| **c. family size undecided (%)** | 17.1 | -- | -- | 1.3 | 00 |
| Matlab control | | | | | |
| Want no more children (%) | -- | -- | 60.0 | 55.6 | 57.4 |
| Ideal family size | | | | | |
| **a. # of children** | 4.1 | -- | -- | 3.2 | 2.6 |
| **b. # of sons** | 2.6 | -- | -- | 1.9 | 1.4 |
| **c. family size undecided (%)** | 27.1 | -- | -- | 2.6 | 00 |

Sources:[1] final report,CPS-83 19 91 & BDHS-96
[2]Koenig et at. 1987, 1992; MDHS-1994

Of course, there might be some post rationalization factors at work here. In the Comilla-68 Survey, 45 percent of the women expressed a desired family size equal to or less than their actual size, and in NIS-1969 it was 31 percent.

More detailed information about the demand or desired number of additional children since 1975 is presented in Table 8.4. During the 1969-1983 period, questions on this issue were omitted and thus comparison is difficult. In 1975, the question on demand for additional children was asked differently. However, in BFS-1975, a question on desired family size was asked and the mean desired family size was found to be 4.1 child per woman a figure close to that of earlier surveys. In the BDHS-96, mean ideal family size was asked in the survey. The mean ideal family size in Bangladesh was found to be 2.5 children in 1996 (Mitra et al. 1997). During the intervening period, however, the question on demand for additional children was asked. The CPS-1983 survey found that 48 percent women of reproductive age reported no demand for additional children, but the reported demand for no additional children had increased to 56 percent in 1996.

### 8.4.2 Matlab Trends

Table 8.4 also presents the similar statistics for both areas of Matlab. As noted earlier, the MCH-FP programme started in 1977 but a contraceptive distribution programme (CDP) had been launched in 1975. In the CDP baseline survey, a question on ideal family size was asked. It was found that the ideal family size in the intervention and control areas was 4.4 and 4.5 children with 2.7 and 2.6 sons respectively. Like the national surveys (CPS), a question on demand for additional children was omitted in 1977 and in 1984; however, a question on demand for additional children was asked in the intervention area in the baseline survey in 1977. This baseline survey in the intervention area found that, 43 percent women reported no demand for additional children, a similar to NIS-1969. In 1984, demand for no additional children had increased to 55 percent. In the control area, it was a little higher than the intervention area in the same year. In 1990, a question on both demand for additional children and desired family size was asked. The Table demonstrates that a similar pattern of demand for additional children, desired family size, and sons existed in both areas of Matlab (Koenig et al. 1992). A change in willingness to respond to the question on demand for additional children among the women was evident. In the earlier survey, that is, CDP baseline surveys, Matlab in 1975, 17 percent of the women in the intervention area and 27 percent women in the control area did not answer the question directly. They answered it as undecided or depending upon God. This trend had reduced to 1 and 3 percent in 1990 in the intervention and control areas respectively, but in MDHS-94 it was slightly higher.

## 8.5 Demand or Desire for Additional Children by Age.

Table 8.5 has been computed to examine trends in desire family size, actual family and completed family size, mean number of desired and expected children as well as actual living children by age. Distribution by different age segments is intended to explore the differentials between the young who started their family building process and the old who have completed their reproductive life in 1983/84 and 1994/96 in two areas of Matlab and in the national rural area.

### *8.5.1 National Trends*

Table 8.5 shows that mean expected children at the national level in 1983 was 4.2, which is closed to ideal family size as stated in the BFS-1975 survey but higher than mean living children. This mean expected children among the young groups (<30 years) in 1983 was one child lower than mean expected children of all age groups. The total expected mean number of children was lower than the mean expected children of the two older age groups. It was one child lower than the mean expected children of women, age 30-44 years and even lower than the mean of expected children of older women who had completed their fertility, that is, age group 44 and above. The Mean expected children in this age group equals the mean number of living children. There is a significant difference between the mean expected number of children among the younger age groups and the older age groups. The mean expected children of the younger age groups was 3.3 and the corresponding figure for the older age group was 5.9. The distribution of expected children in 1983 in Table 8.5 shows a similar pattern. Forty percent of younger age group wanted 3 or less children in contrast to 56 percent of the middle aged women and 70 percent of the older age group who had wanted more than 4 children. However, among the

**Table 8.5: Expected, ideal and Mean number of living children at the national level and Two areas of Matlab, 1983-1996 .**

| Variables | National -1983 | | | | Matlab Intervention-1984 | | | | Matlab Control-1984 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Age | | | | Age | | | | Age | | | |
| | <30 | 30-44 | 44+ | Total | <30 | 30-44 | 44+ | Total | <30 | 30-44 | 44+ | Total |
| **Expected children** | | | | | | | | | | | | |
| 0-2 | 20.3 | 5.8 | 6.8 | 15.0 | 16.3 | 3.3 | 1.9 | 9.5 | 17.3 | 3.0 | 0.0 | 9.7 |
| 3 | 19.6 | 10.0 | 6.6 | 15.8 | 32.2 | 10.8 | 5.1 | 20.7 | 27.9 | 10.5 | 5.3 | 18.6 |
| 4 | 15.7 | 15.4 | 11.4 | 15.3 | 32.3 | 25.2 | 10.2 | 27.8 | 31.9 | 19.5 | 8.0 | 24.9 |
| 4+ | 9.8 | 53.5 | 69.8 | 27.2 | 13.8 | 58.8 | 81.5 | 38.5 | 16.1 | 63.8 | 86.7 | 42.1 |
| Undecided | 34.5 | 15.4 | 5.5 | 26.7 | 5.4 | 1.8 | 1.3 | 3.5 | 6.8 | 3.1 | 0.0 | 4.7 |
| **Mean Expected*** | 3.3 | 5.2 | 5.9 | 4.2 | 3.5 | 5.0 | 6.1 | 4.4 | 3.6 | 5.2 | 5.9 | 4.5 |
| **Mean living children** | 1.9 | 4.9 | 5.8 | 3.1 | 2.0 | 4.7 | 6.1 | 3.5 | 2.1 | 5.0 | 5.9 | 3.7 |
| N | 4322 | 2128 | 457 | 6907 | 1432 | 1411 | 157 | 3000 | 882 | 901 | 75 | 1858 |

| Variables | National -1996 | | | | Matlab Intervention-1994 | | | | Matlab Control-1994 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Age | | | | Age | | | | Age | | | |
| | <30 | 30-44 | 44+ | Total | <30 | 30-44 | 44+ | Total | <30 | 30-44 | 44+ | Total |
| **Ideal family size** | | | | | | | | | | | | |
| 0-2 | 67.0 | 53.0 | 39.1 | 60.9 | 55.7 | 40.9 | 41.4 | 49.0 | 55.9 | 37.3 | 23.6 | 47.4 |
| 3 | 19.2 | 24.2 | 24.0 | 21.2 | 34.0 | 40.2 | 37.9 | 36.7 | 32.2 | 41.6 | 41.8 | 36.2 |
| 4 | 8.2 | 14.1 | 17.8 | 10.6 | 8.1 | 14.8 | 20.7 | 11.4 | 8.8 | 15.0 | 21.8 | 11.7 |
| 4+ | 1.1 | 1.9 | 4.3 | 1.5 | 0.3 | 0.4 | 0.0 | 0.3 | 0.5 | 0.2 | 9.1 | 0.8 |
| Undecided | 4.6 | 6.8 | 14.7 | 5.8 | 1.9 | 3.8 | 0.0 | 2.6 | 2.6 | 5.9 | 3.6 | 3.9 |
| **Mean Ideal*** | 2.4 | 2.6 | 2.9 | 2.5 | 2.5 | 2.7 | 2.8 | 2.6 | 2.5 | 2.8 | 3.2 | 2.6 |
| **Mean living children** | 1.7 | 4.0 | 5.3 | 2.7 | 1.9 | 4.1 | 4.9 | 2.8 | 1.8 | 4.7 | 6.2 | 3.1 |
| N | 4085 | 2414 | 258 | 6757 | 738 | 555 | 58 | 1351 | 649 | 421 | 55 | 1125 |

Sources: present data *Excluding missing values.

young age group, a large proportion of women were still undecided about the expected number of children.

The outstanding difference between 1983 and 1996 in the national data was the elimination of uncertainty about family size among the young age group. In 1983, 34 percent of young women reported as undecided about expected family size, but in 1996 this figure had reduced to 5 percent. Distribution of ideal family size at the national rural area in 1996 demonstrated that a major shift in attitude towards desired family size took place. Sixty seven percent of the young women reported ideal family size of 2 or less. There was a substantial change in attitude among the older women also. In 1996, fifty three percent of the middle aged and 39 percent of the older women expressed their desire to have 2 or less children against 1983 figures of 6 percent and 7 percent respectively. Overall, 93 percent of all women wanted less than 5 children. The mean ideal family size in the national rural population in 1996 was 2.5, and overall means living children was close to the mean ideal family size. It is interesting to note that the ideal family size changed almost equally in all age groups. The difference between mean ideal number of children of the young age group with older is only half a child. The difference between ideal family size of the young and old, and actual living children of the old is large. This indicates that there were large unmet needs in the past or this change in attitude might have been brought about due to successful reproductive performance in the past. With this change in attitude and the present MCH-FP programme, the unmet needs of the young women can be mitigated and fertility may decline further in the future.

### 8.5.2 Matlab Trends

In Matlab, on the other hand, mean expected family size in 1983 was 4.4 and 4.5 in the intervention and control areas respectively and reflected the same trends as those at the national rural area. In the intervention area, mean living children was lower than mean expected children in 1984 but mean living children was the same as the mean expected children of the young women in both areas. Among the middle aged women it was one and half a child higher in the age groups 30-44, but more than two and a half children higher among women who had completed their reproductive stage, that is, age group 44+ in both areas. The mean expected children in these age groups were equal to mean living children in both areas. These trends signified that change in attitude among young age group has occurred but that within the older age group a favourable view about large family size still exists though both groups expressed a preference for moderate family size as did the other societies undergoing transition (Freedman 1995). The distribution of expected children in Matlab in 1984 shows that 48 percent of young women in the intervention area and 45 percent of young women in the control area wanted less than 4 children. In contrast, in the intervention area, 59 percent of the middle age women and 82 percent of the women having completed their reproductive life wanted more than 4 children. The corresponding figures in the control area were slightly higher at 64 and 87 percent respectively.

In 1994, there was a change in the percentage of women wanting fewer children in Matlab but not as pronounced as it was in the national statistics. Fifty six percent of the young women in the intervention and control areas reported an ideal family size of less than three. However, there was a substantial change among the middle and older age women between 1984 and 1994 in the Matlab areas. Forty one percent of the middle age women and the same percentage of older age women in the intervention area expressed a desire to have less than three children in 1996, against 3 percent and 2 percent in 1983 respectively. In the control area, the proportions wanting less than three children of the same groups were much lower than at the national level and the Matlab intervention area, though there were changes in proportion desiring a family size of less than 3 between 1983 to 1994. Thirty seven percent of the middle age women and 24 percent of older age women in the control area expressed a desire to have less than three children in 1996, against 3 percent and 0 percent in 1983 respectively. The overall picture of Matlab shows, however, that 97 percent of all women in the intervention area and 96 percent of women in the control area wanted less than 5 children. The mean living children is closed to mean ideal family size in the intervention area. But in the control area the mean, ideal number of children was half a child lower than the mean living children. In the intervention area, the mean desired children changed almost equally in all age groups, however, in the control area mean desired children was slightly higher among the old age groups.

A comparative analysis of the 1983-84 and 1994-96 and between national and Matlab areas clearly demonstrates a radical change in the demand or desire for children all over the country in the 1983-1996, irrespective of age and MCH-FP intervention. This is demonstrated both in the national and Matlab data. However, the mean expected and the ideal number of children in 1984 is slightly higher in the Matlab area as a whole. The mean expected and the ideal number of children in the control area was slightly higher than that for the intervention area in Matlab. The mean desired family size and living children computed for 1996 for both data also demonstrates the same trends. These trends, however, was consistent with other studies conducted at the national and Matlab level data that the change are slower in the region where Matlab was situated.

## 8.6 Conclusion

An analysis of the Tables presented earlier and the discussion of pre independent surveys demonstrates that the demand and desire for children was modest among the rural population of Bangladesh including the Matlab areas. National fertility surveys conducted since 1968 consistently reported that nearly 50 percent of the reproductive women did not want additional children, and that the expected or desired family size remained constant at four over a fairly long period when TFR was around 6.5 to 7 births per woman and contraceptive technology and knowledge were not available in the rural areas. Unlike in Taiwan, Korea and Thailand, where increases in contraceptive prevalence and decreases in fertility arises in the absence of any appreciable concomitant change in the desired family size (Freedman et al. 1974; Ross and Koh 1977; Hawley and Prachuabmoh 1971; Knodel et al. 1987), reproductive change in Bangladesh both national and Matlab (desired family size and contraceptive use) rather changes simultaneously during the period of 1975 to 1996 after a relatively moderate constant desired family size for some time in the pre-decline period. Both national (CPS-1983) and Matlab (KAP-1984) data also documented that fertility preference in 1983-1984 was the same as completed family size of the women at the end of their reproductive age when contraceptive use began to rise. We cannot, however, ignore the post rationalization factor during this period. However, during the 1983-96 period, demand for additional children reduced very quickly after a pause at 4 children. In the national and in the Matlab areas during 1994/96 periods, gap between desired family and actual living children is 2-3 children among the women who have finished their reproductive age. This situation may indicate a further improvement in infant and child survival during the recent past. Knodel (1987) argued that in Thailand, potential demand for family limitation may have arisen due to improved child survival leading to an increase in the number of surviving children above what was traditionally accepted as optimal. This may be true for Bangladesh. Or there may be some other socio economic and cultural changes, which have helped to change the attitude of couples in their family building process. Thus the next two chapters will concentrate on the socio-economic and cultural changes that have occurred in the past especially between 1983-1996 both in the Matlab areas and in the national rural area and their relation with demand and desire for children.

# Chapter 9: Bivariate Distribution of Biosocial, Economic Factors and Demand for Additional Children

## 9.1 Introduction

The influence of micro level characteristics on reproductive behaviour, that is, demand for additional children are linked with the overall macro and community level environment of a society. The Macro level socio-economic, demographic and cultural environment and the development of the community level institutions in Bangladesh through Government and NGO have been discussed in the previous few chapters. In the present chapter, demand for additional children and its association with micro level biosocial and economic factors will be discussed using the two data sets from the national rural area and another two data sets for both areas of Matlab. The eligible women for the analysis of demand for additional children are currently married women of reproductive age (10-49 years) who are not sterilized, have at least one living children during the last five years. The National rural data sets will be referred to National-1983 and National-1996 and the Matlab datasets will be referred to Matlab-1984 and Matlab-1994 and for year of survey, the national sample will refer to years 1983 and 1996 and the Matlab sample will refer to years 1984 and 1994. When both national and Matlab data of the earlier year are referred to, it would be 1983/1984 and for later data it would be 1994/1996.

## 9.2 Biosocial Factors and the Demand for no Additional Children

### *Woman's age and number of living children*

Tables 9.1 to 9.4b present the biosocial characteristics of the three populations: national rural, Matlab intervention and Matlab control by demand for no additional children.

Table 9.1 presents the demand for additional children by women's age for 1983 to 1996. It shows a consistent strong inverse relationship between woman's age and demand for additional children in all three areas. Demand for additional children is high among young women and decreases with increasing age. After age 30, more than 75 percent of the women of all the three areas do not want additional children. The demand for additional children among the older women (40 years or

**Table 9.1: Percent of woman wanting no additional children by woman's age, national level (rural) and two areas of Matlab, 1983-1996.**

| | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National | | Matlab | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Age of woman** | | | **1983/1984** | | | |
| <20 | 10.9 | 745 | 3.4 | 89 | 7.8 | 64 |
| 20-24 | 30.5 | 1153 | 14.4 | 651 | 17.4 | 368 |
| 25-29 | 50.6 | 1067 | 37.7 | 551 | 42.9 | 347 |
| 30-39 | 76.2 | 1318 | 73.9 | 840 | 77.8 | 573 |
| 40-49 | 94.5 | 871 | 94.2 | 434 | 94.5 | 274 |
| **Age of woman** | | | **1994/1996** | | | |
| <20 | 16.2 | 648 | 2.2 | 90 | 10.3 | 68 |
| 20-24 | 42.5 | 1164 | 27.5 | 207 | 29.7 | 202 |
| 25-29 | 67.9 | 1313 | 59.6 | 275 | 63.5 | 211 |
| 30-39 | 86.5 | 1582 | 85.3 | 347 | 91.9 | 260 |
| 40-49 | 95.4 | 566 | 99.3 | 141 | 98.3 | 115 |

more) is virtually small. However, the Table shows that women of the two areas of Matlab have a higher demand for additional children than national rural. In 1994/96, demand for additional children had decreased further in all the three areas but a difference between national rural and Matlab areas is evident. The demand for additional children among the younger women aged <30 years seems higher in both areas of Matlab than in the national rural area.

Table 9.2a presents the demand for no additional children by woman's age and number of living children for the three populations for the years 1983/1984 and Table 9.2b presents the demand for no additional children by woman's age and number of living children for three populations for the year 1994/1996.

At the national rural area, the biosocial characteristics presented in Table 9.2a for the year 1983/1984, shows that the age of women and the number of living children have positive relationships with demand for no additional children. Demand for no additional children is low among young women and high among older women, irrespective of the number of living children. Among the other age groups, demand for no additional children has a strong positive relationship with the number of living children. It appears from the table that the demand for no additional children was low among women, aged less than 30 with two or less children, but that with three living children, about 50 percent of the women, aged less than 40 do not have a demand for additional children. This demand for no additional children increases rapidly with more than three living children irrespective of the woman's age. On the other hand, overall demand for no additional children is high among the women aged 30-39 and the highest among the women of age 39 and above, irrespective of the number of living children.

**Table 9.2a: Percent of woman wanting no additional children by number of living children and woman's age, national level (rural) and two areas of Matlab, 1983/1984.**

| Variables | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **# of Living children** | | | **Women aged <20** | | | |
| 1 | 4.7 | 572 | 1.3 | 76 | 3.5 | 57 |
| 2 | 29.9 | 147 | 10.0 | 10 | 33.3 | 6 |
| 3 | 30.4 | 23 | 33.3 | 3 | 0.0 | 0 |
| 4 | 100.0 | 2 | 0.0 | 0 | 100.0 | 1 |
| 5 or more | 100.0 | 1 | 0.0 | 0 | 0.0 | 0 |
| **# of Living children** | | | **Women aged 20-24** | | | |
| 1 | 10.2 | 343 | 3.2 | 285 | 4.3 | 163 |
| 2 | 30.1 | 469 | 15.7 | 267 | 21.7 | 152 |
| 3 | 45.5 | 255 | 39.3 | 84 | 43.8 | 48 |
| 4 | 70.4 | 71 | 66.7 | 15 | 60.0 | 5 |
| 5 or more | 66.7 | 15 | | | | |
| **# of Living children** | | | **Women aged 25-29** | | | |
| 1 | 15.0 | 100 | 14.5 | 62 | 8.3 | 48 |
| 2 | 33.6 | 214 | 27.6 | 156 | 20.3 | 79 |
| 3 | 49.2 | 321 | 38.7 | 199 | 45.4 | 119 |
| 4 | 64.8 | 227 | 58.8 | 102 | 68.1 | 72 |
| 5 or more | 72.2 | 205 | 59.4 | 32 | 89.7 | 29 |
| **# of Living children** | | | **Women aged 30-39** | | | |
| 1 | 39.1 | 46 | 21.4 | 14 | 0.0 | 10 |
| 2 | 50.5 | 95 | 41.2 | 51 | 35.9 | 39 |
| 3 | 65.9 | 185 | 56.7 | 141 | 65.3 | 75 |
| 4 | 71.7 | 258 | 73.6 | 258 | 75.6 | 135 |
| 5 or more | 86.0 | 734 | 87.0 | 376 | 89.5 | 314 |
| **# of Living children** | | | **Women aged 40-49** | | | |
| 1 | 73.7 | 19 | 50.0 | 2 | 0.0 | 3 |
| 2 | 81.8 | 44 | 63.6 | 11 | 60.0 | 5 |
| 3 | 93.1 | 58 | 86.2 | 29 | 92.0 | 25 |
| 4 | 92.6 | 121 | 86.8 | 53 | 92.3 | 26 |
| 5 or more | 96.5 | 629 | 97.3 | 339 | 97.2 | 215 |

The biosocial characteristics and demand for no additional children of the two areas of Matlab for year 1984 are also presented in the same Table (Table 9.2a). The Table shows that there is a similar positive relationship between demand for no additional children with woman's age and number of living children in both areas of Matlab. The Table also demonstrates that the demand for no additional children is slightly lower in the intervention area than the control area. It increases with increasing number of living children irrespective of age in both areas of Matlab. Among the young women of age less than 30 years with two or less living children, demand for no additional children is low in both areas but lower in the intervention area than in the control area or in the national rural area. Similar to the national rural area, demand for no additional children increases with three or more living children, although it is lower than national trend for this group. In contrast to the national trend, table shows that demand for no additional children is also low among the women of age 30-39 years having one or two living children. But from three or more living children, demand for no additional children increases irrespective of the woman's age. However, similar to national trends, demand for no additional children is high among the women of age 40 years or more, in both intervention and control areas irrespective of the number of living children. But the number of women in the extreme old age group having less than three children is small in both areas.

The trends in demand for additional children by women's age and living children for year 1994/1996 for the three areas are presented in Table 9.2b. The Table demonstrates that 65 percent of women at the national level do not want additional children. Demand for no additional children radically increased in all groups irrespective of women's age and number of living children in the national rural area. It has been evident during the study period that the demand for no additional children is low only among women, aged less than 30 years with one living child, it increases with two living children and increases more with increasing number of living children during the study period. For example, seventy percent of the women, aged 20 years and above, having 3 or more children do not want additional children and more than 85 percent of women having 4 or more living children irrespective of their age do not want additional children in 1996. Similar to 1983, most of the older women of age 40 years and above do not want additional children irrespective of their number of living children.

The same variable in both areas of Matlab for the year 1994 is presented in Table 9.2b. The Table demonstrates that 62 percent of women in the intervention area

**Table 9.2b: Percent of woman wanting no additional children by number of living children and woman's age, national level (rural) and two areas of Matlab, 1994/1996.**

| Variables | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab -1994 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **# of Living children** | | | **Women aged <20** | | | |
| 1 | 8.8 | 537 | 2.3 | 87 | 6.6 | 61 |
| 2 | 51.9 | 108 | 0.0 | 3 | 42.9 | 7 |
| 3 | 66.7 | 3 | 0.0 | 0 | 0.0 | 0 |
| **# of Living children** | | | **Women aged 20-24** | | | |
| 1 | 12.5 | 464 | 9.9 | 101 | 10.1 | 89 |
| 2 | 57.6 | 476 | 36.3 | 80 | 36.7 | 79 |
| 3 | 70.1 | 184 | 72.0 | 25 | 58.6 | 29 |
| 4 | 85.3 | 34 | 0.0 | 1 | 100.0 | 4 |
| 5 or more | 83.3 | 6 | 0.0 | 0 | 100.0 | 1 |
| **# of Living children** | | | **Women aged 25-29** | | | |
| 1 | 17.4 | 201 | 17.1 | 35 | 5.9 | 17 |
| 2 | 67.0 | 440 | 51.0 | 96 | 42.6 | 47 |
| 3 | 79.9 | 374 | 67.8 | 90 | 64.9 | 77 |
| 4 | 87.2 | 195 | 90.5 | 42 | 86.3 | 51 |
| 5 or more | 89.3 | 103 | 83.3 | 12 | 100.0 | 19 |
| **# of Living children** | | | **Women aged 30-39** | | | |
| 1 | 30.9 | 81 | 18.2 | 11 | 40.0 | 5 |
| 2 | 74.4 | 246 | 64.4 | 45 | 75.0 | 12 |
| 3 | 86.2 | 341 | 83.2 | 95 | 87.2 | 47 |
| 4 | 93.4 | 395 | 94.4 | 107 | 91.5 | 59 |
| 5 or more | 95.8 | 519 | 95.5 | 89 | 97.1 | 137 |
| **# of Living children** | | | **Women aged 40-49** | | | |
| 1 | 81.3 | 16 | 100.0 | 1 | | |
| 2 | 64.5 | 31 | 100.0 | 4 | 75.0 | 4 |
| 3 | 95.2 | 62 | 100.0 | 14 | 100.0 | 8 |
| 4 | 98.8 | 84 | 100.0 | 23 | 91.7 | 12 |
| 5 or more | 97.9 | 373 | 99.0 | 99 | 100.0 | 91 |

and 65 percent of the women in the control area do not want additional children. The Table shows that similar to the national rural area, the demand for additional children by women's age and living children has changed in both areas. Within Matlab, the Table shows that the demand for no additional children is low among women, aged less than 30 years who have two children and increases among them having three or more children in both areas of Matlab. Demand for no additional children is also low among women, aged 30-39 years having one child only but increases, considerably with two or more living children. All women in the higher age group (40+) irrespective of the number of living children do not want any more children although number of women in this age group is small. This pattern applies to both areas of Matlab.

**Table 9.3a: Percent of women wanting no additional children by number of living sons and woman's age, national level (rural) and two areas of Matlab, 1983/1984.**

| Variables | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **# of Living sons** | | | **Women aged <20** | | | |
| None | 5.9 | 323 | 0.0 | | 3.4 | 29 |
| 1 | 11.8 | 364 | 4.8 | | 9.7 | 31 |
| 2 | 32.1 | 53 | 33.3 | | 25.0 | 4 |
| 3 | 40.0 | 5 | 0.0 | | 0 | 0 |
| 4 | 0 | 0 | 3.4 | | 0 | 0 |
| **# of Living sons** | | | **Women aged 20-24** | | | |
| None | 11.0 | 299 | 2.3 | 214 | 0.8 | 118 |
| 1 | 29.3 | 509 | 16.1 | 311 | 20.6 | 189 |
| 2 | 47.5 | 284 | 27.9 | 104 | 39.3 | 56 |
| 3 | 55.6 | 54 | 47.6 | 21 | 40.0 | 5 |
| 4 | 71.4 | 7 | 0.0 | 1 | 0 | 0 |
| **# of Living sons** | | | **Women aged 25-29** | | | |
| None | 13.5 | 178 | 10.0 | 90 | 4.9 | 61 |
| 1 | 42.2 | 358 | 26.1 | 211 | 32.8 | 125 |
| 2 | 65.0 | 323 | 61.1 | 175 | 63.7 | 102 |
| 3 | 70.9 | 141 | 50.8 | 63 | 63.0 | 46 |
| 4 | 87.0 | 54 | 45.5 | 11 | 88.9 | 9 |
| 5 or more | 61.5 | 13 | 0.0 | 1 | 75.0 | 4 |
| **# of Living sons** | | | **Women aged 30-39** | | | |
| None | 40.2 | 92 | 18.6 | 43 | 14.3 | 35 |
| 1 | 67.7 | 260 | 50.6 | 180 | 60.4 | 111 |
| 2 | 76.4 | 360 | 79.4 | 257 | 86.6 | 172 |
| 3 | 83.5 | 315 | 91.3 | 196 | 86.9 | 137 |
| 4 | 86.4 | 176 | 81.8 | 110 | 89.6 | 77 |
| 5 or more | 87.8 | 115 | 90.7 | 54 | 90.2 | 41 |
| **# of Living sons** | | | **Women aged 40-49** | | | |
| None | 64.4 | 45 | 44.4 | 9 | 44.4 | 9 |
| 1 | 91.6 | 131 | 80.7 | 57 | 83.9 | 31 |
| 2 | 95.0 | 179 | 98.2 | 112 | 97.0 | 67 |
| 3 | 97.3 | 219 | 95.0 | 101 | 100.0 | 61 |
| 4 | 97.0 | 132 | 97.5 | 80 | 98.2 | 56 |
| 5 or more | 98.8 | 165 | 100.0 | 75 | 96.0 | 50 |

### *Woman's Age and the Number of Living Sons*

Demand for no additional children by woman's age and the number of living sons for 1983/1984 and 1994/1996 for national level and two areas of Matlab are presented in Table 9.3a and Table 9.3b. The Tables demonstrate that demand for additional children is more pronounced when living sons and women's age are considered. At the national level, in 1983, Table 9.3a shows that similar to the number of living children, demand for additional children is high among women aged less than 30 years who have no living son. A considerable number of women aged less than 30 years who have only one living son want additional children.

However, demand for no additional children in this age group increases with two living sons. Above age 29 years, demand for no additional children is comparatively higher even if women do not have a living son and increases substantially if they have one living son. Most of the women aged 30 years and above do not want additional children if they have one living son only. In general, at the national rural area, the table reveals that similar to the living children, demand for no additional children substantially increases with increasing number of living son irrespective of women age.

In Matlab, the Table 9.3a shows that demand for son was strong in both areas of Matlab in 1984. In both areas, there is a strong demand for additional children among women irrespective of age who have no living sons. Most of the women aged less than 25 years having one or no living sons have a demand for additional children. Even among the women, aged 25-29, only 26 percent in the intervention area and 33 percent in the control area do not want additional children if they have one living son. In general, overall demand for no additional children is low in both areas among the women aged less than 30 years irrespective of living sons with a slightly higher demand in for additional children in the intervention area. But the demand for no additional children among the women, aged 30 years or above is substantially high except those who have no living son in both areas of Matlab.

In 1996, at the national level, Table 9.3b shows that the demand for additional children is further decreased. In the previous period, that is, in 1983, women in the age group less than 30 years who have no living son have a higher demand for additional children, but later in 1996, a larger number of women in the same age group who have no living son do not want additional children. A substantially high proportion of women, aged more than 24 years, having only one son, have no demand for additional children. The demand for no additional children is substantially high among the women who have three living sons irrespective of age. In Matlab, in 1994, Table 9.3b shows that demand for no additional children is low among young women of age less than 20 years in both areas. Although the proportion of women who do not want additional children increases among the women of age 20-24 years, it is lower than national level for the same year. But among the women of age 25-29 years, demand for no additional children increases further. In this age group, demand for no additional children has increased substantially among women who have two or more living sons. But from age 30 years and above, demand for no additional children is high irrespective of the number of living sons. This is evident in both areas of Matlab.

**Table 9.3b: Percent of women wanting no additional children by number of living sons and woman's age, national level (rural) and two areas of Matlab, 1994/1996.**

| | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab –1994 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **# of Living sons** | | | **Women aged <20** | | | |
| None | 7.3 | 313 | 2.6 | 38 | 8.8 | 34 |
| 1 | 23.5 | 310 | 1.9 | 52 | 9.4 | 32 |
| 2 | 36.0 | 25 | | | 50.0 | 2 |
| **# of Living sons** | | | **Women aged 20-24** | | | |
| None | 23.3 | 348 | 15.8 | 76 | 12.3 | 65 |
| 1 | 45.0 | 584 | 29.5 | 95 | 29.0 | 93 |
| 2 | 62.6 | 195 | 50.0 | 30 | 52.8 | 36 |
| 3 | 80.6 | 36 | 40.0 | 5 | 75.0 | 8 |
| 4 | 0.0 | 1 | 0.0 | 1 | | |
| **# of Living sons** | | | **Women aged 25-29** | | | |
| None | 33.1 | 242 | 31.4 | 51 | 25.7 | 35 |
| 1 | 67.3 | 565 | 55.5 | 110 | 57.1 | 84 |
| 2 | 84.2 | 361 | 73.8 | 84 | 85.9 | 64 |
| 3 | 87.5 | 120 | 84.6 | 26 | 77.3 | 22 |
| 4 | 85.7 | 21 | 66.7 | 3 | 83.3 | 6 |
| 5 or more | 100.0 | 4 | 100.0 | 1 | | |
| **# of Living sons** | | | **Women aged 30-39** | | | |
| None | 46.9 | 143 | 44.0 | 25 | 52.9 | 17 |
| 1 | 83.6 | 500 | 77.3 | 97 | 88.7 | 53 |
| 2 | 93.0 | 474 | 92.6 | 149 | 94.7 | 75 |
| 3 | 95.5 | 266 | 95.7 | 46 | 95.1 | 61 |
| 4 | 94.1 | 153 | 100.0 | 23 | 100.0 | 35 |
| 5 or more | 95.7 | 46 | 71.4 | 7 | 100.0 | 19 |
| **# of Living sons** | | | **Women aged 40-49** | | | |
| None | 78.9 | 19 | 100.0 | 1 | 66.7 | 6 |
| 1 | 88.5 | 96 | 100.0 | 17 | 100.0 | 10 |
| 2 | 95.8 | 144 | 100.0 | 46 | 100.0 | 27 |
| 3 | 98.6 | 144 | 100.0 | 33 | 100.0 | 25 |
| 4 | 100.0 | 94 | 100.0 | 28 | 100.0 | 24 |
| 5 or more | 95.7 | 69 | 93.8 | 16 | 100.0 | 23 |

### *Woman's Age and Number of Dead Children*

Table 9.4a and Table 9.4b have been computed to examine the effects of dead children on women's demand for no additional children, controlling for age. No pattern of relationship with age and number of dead children is evident in 1984 in any of the three areas, nor is there any pattern of relationship between demand for no additional children by women's age and number of dead children in any of the three areas in 1994/1996. A separate analysis of the demand for additional children and the number of dead children after controlling for age for the national rural and the Matlab areas is produced here. But the Table has not revealed any change in the said variables after controlling for age.

**Table 9.4a: Percent of women wanting no additional children by number of dead children and woman's age, national level rural and two areas of Matlab, 1983/1984.**

| | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National –1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **# of dead children** | | | **Women aged <20** | | | |
| None | 11.0 | 626 | 3.8 | 80 | 7.0 | 57 |
| 1 | 9.6 | 104 | 0.0 | 9 | 16.7 | 6 |
| 2 | 13.3 | 15 | 0.0 | 0.0 | 0.0 | 0.0 |
| 3 or more | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1 |
| **# of dead children** | | | **Women aged 20-24** | | | |
| None | 31.5 | 727 | 13.7 | 518 | 17.7 | 266 |
| 1 | 28.5 | 323 | 17.8 | 118 | 17.4 | 86 |
| 2 | 30.3 | 76 | 15.4 | 13 | 16.7 | 12 |
| 3 or more | 29.6 | 27 | 0.0 | 2 | 0.0 | 4 |
| **# of dead children** | | | **Women aged 25-29** | | | |
| None | 53.0 | 500 | 39.5 | 329 | 43.9 | 189 |
| 1 | 49.3 | 341 | 38.7 | 155 | 47.7 | 107 |
| 2 | 49.2 | 128 | 23.6 | 55 | 29.5 | 44 |
| 3 or more | 44.9 | 98 | 41.7 | 12 | 28.6 | 7 |
| **# of dead children** | | | **Women aged 30-39** | | | |
| None | 73.4 | 380 | 72.4 | 348 | 77.5 | 178 |
| 1 | 77.2 | 373 | 73.3 | 255 | 82.2 | 174 |
| 2 | 82.1 | 273 | 75.9 | 137 | 69.2 | 107 |
| 3 or more | 72.9 | 292 | 78.0 | 100 | 79.8 | 114 |
| **# of dead children** | | | **Women aged 40-49** | | | |
| None | 93.9 | 165 | 96.0 | 101 | 93.3 | 45 |
| 1 | 97.2 | 213 | 93.8 | 128 | 95.1 | 82 |
| 2 | 92.0 | 187 | 92.6 | 94 | 93.8 | 65 |
| 3 or more | 94.4 | 306 | 94.6 | 111 | 95.1 | 82 |

### 9.2.1 Summary on Demand for Additional Children and Biosocial Factors

The comparative analysis of the relationship between demand for no additional children and biosocial factors for all the three areas, presented in Table 9.1 to Table 9.4b, demonstrate that the age of women, living children and living sons had a positive relationship with the demand for no additional children in the three areas in the 1983/84 period but that this positive relationship is more pronounced in 1994/1996. The demand for no additional children reduced in all areas irrespective of the woman's age between 1983-1996. In terms of living children,

**Table 9.4b: Percent of women wanting no additional children by number of dead children and woman's age national level (rural) and two areas of Matlab,1994/1996.**

| Variables | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab -1994 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **# of dead children** | | | **Women aged <20** | | | |
| None | 16.1 | 596 | 2.3 | 86 | 10.8 | 65 |
| 1 | 18.0 | 50 | 0.0 | 4 | 0.0 | 3 |
| 2 | 0.0 | 2 | 0.0 | 0.0 | 0.0 | 0.0 |
| **# of dead children** | | | **Women aged 20-24** | | | |
| None | 43.6 | 927 | 26.8 | 179 | 31.1 | 161 |
| 1 | 40.3 | 196 | 33.3 | 24 | 27.0 | 37 |
| 2 | 29.7 | 37 | 25.0 | 4 | 0.0 | 2 |
| 3 or more | 25.0 | 4 | 0.0 | 0.0 | 0.0 | 2 |
| **# of dead children** | | | **Women aged 25-29** | | | |
| None | 68.9 | 907 | 59.8 | 209 | 62.3 | 151 |
| 1 | 64.2 | 274 | 63.2 | 57 | 66.7 | 42 |
| 2 | 74.5 | 94 | 33.3 | 9 | 60.0 | 15 |
| 3 or more | 52.6 | 38 | 0.0 | 0 | 100.0 | 3 |
| **# of dead children** | | | **Women aged 30-39** | | | |
| None | 86.2 | 778 | 82.9 | 210 | 89.7 | 126 |
| 1 | 89.1 | 485 | 90.1 | 91 | 95.8 | 71 |
| 2 | 84.0 | 200 | 88.6 | 35 | 94.7 | 38 |
| 3 or more | 81.5 | 119 | 81.8 | 11 | 88.0 | 25 |
| **# of dead children** | | | **Women aged 40-49** | | | |
| None | 94.3 | 174 | 100.0 | 62 | 100.0 | 33 |
| 1 | 95.4 | 173 | 97.4 | 39 | 100.0 | 40 |
| 2 | 97.5 | 120 | 100.0 | 22 | 90.9 | 22 |
| 3 or more | 94.9 | 99 | 100.0 | 18 | 100.0 | 20 |

it appears that in the 1983/1984 period, there was a reduction in demand for additional children among women having at least three children, irrespective of the woman's age. During the study period, it appears that a sizable number of women who have two living children do not want additional children, and that most of the women, irrespective of age and area, who have three or more children do not want additional children. On the other hand, in all the three areas, demand for no additional children is the highest among older women, aged 40 and above, irrespective of the number of living children. This trend is further expanded down to age 30 years in the later period. In 1994/1996, most women, aged 30 years and above do not want additional children irrespective of number of living children in all the three areas.

In terms of living son, demand for additional children is more evident. Similar to the number of living children, demand for no additional children is high among the older women (aged 40+ years) irrespective of the number of living sons. The demand for no additional children was low in the 1983/1984 periods. Most of the young women, aged less than 25 years, wanted additional children irrespective of number of living sons. But this trend has changed among the later age groups. In all the three areas, more than 60 percent of women, aged between 25-39 years having two living sons do not want additional children. In 1994/1996, demand for additional children, though reduced compared to 1983/1984 is still high among the young women of aged less than 25 years irrespective of number of living sons in all the three areas. But the demand for no additional children among women of age 25-39 years seems higher in the national rural area than for the two areas of Matlab. No clear pattern has emerged in terms of demand for additional children and number of dead children.

Within the same year between variables, (i.e.1983/1984 or 1994/1996) when relationship between demand for no additional children, women age, two other variables, number of living children and living sons is considered, it illustrates that the demand for no additional children was much higher among women having two living sons than among those with two living children. The national and Matlab data demonstrate that during 1983/84 and 1994/96 demand for no additional children were substantially higher among women having two sons than among those with two children. The general pattern of change during the whole study period in all three areas reveals that demand for additional children began to decline first among the older women who had a larger number of living children or living sons and then gradually demand began to decline among the less old with a lesser number of living children or living sons. In fact, the Tables reveal that though the changes appeared in all age groups, it began among the old women and it followed by the younger women with fewer children.

In comparing the three areas, the demand for additional children is slightly higher in both areas of Matlab than national rural area in 1983/1984 when the relationship between demand for no additional children by women age, number of living children and living sons is considered, it also seems that demand for living sons is also stronger in Matlab than in the national rural area Within Matlab, between two areas, demand for no additional children as well as living sons is slightly lower in the intervention area. This is more apparent among the young women. In 1996, demand for no additional children has increased in both areas of Matlab too, yet the younger women in both areas of Matlab seem to a have higher demand for additional children than those at national rural level. During the study period, demand for no additional children increases in all the three areas but a slightly higher demand for no additional children in the Matlab areas is evident

## 9.3 Economic Factors and Demand for No Additional Children

The economics of child bearing is the fundamental driving force of fertility decline in any population. Fertility transition theorists, irrespective of their diversity of opinions about the mechanism of fertility decline, unanimously agree that economic circumstances stimulate fertility decline in any population. This section discusses the bivariate relationship between demand for no additional children and the economic forces, and the changes in the economic forces and their impact to the relative change of demand for additional children in the three areas, national rural, Matlab intervention, and Matlab control.

The economic conditions of the three areas, national rural, Matlab intervention, and Matlab control, and the demand for no additional children are presented in Table 9.5a and Table 9.5b. Table 9.5a presents the economic conditions of three areas in 1983/1984. As mentioned in chapter 6, the national data has a few socio-economic information. On the other hand, Matlab has a wide range of economic information collected during 1984 surveys. In addition, some information for Matlab data has been from the Matlab longitudinal database. But this situation changed in 1994/1996 period. Both National survey,1996 and Matlab,1994 surveys had collected a wide range of economic information. The national data have been collected cross sectionally on an individual and household level, Matlab data are both cross sectional and longitudinal. The longitudinal data helps to compute some variables at the *bari* level. These two tables present, demand for no additional children and its relationship with bari level characteristics.

The national data for the rural area for the year 1983 in Table 9.5a shows two important items of economic information collected for the national rural area. One is women occupation and other is the possession of land by household. As noted earlier, Bangladesh is an agricultural country and 80 percent of the population directly or indirectly depends on agriculture and thus possession of land is an important variable that needs to be considered in the analysis. Both variables, occupation of women and possession of land collected in National survey, 1983 shows no difference in demand for additional children between women engaged and in paid work and housework or any difference in demand for no additional children between landowner and landless.

In Matlab, different levels of economic information have been examined to explore the relationship between demand for additional children and economic situation of the Matlab areas. At the individual level it is women occupation; at the household level it is occupation of husband, household wealth, that is, possession of land and the quality of housing, consumer durables, household wealth index and the exposure the family member to outside world and economic social benefit from it; and at the *bari* level, it is occupation of the majority of household heads and proportion of household owning a radio.

The bivariate distribution of these economic factors for the Matlab intervention and control areas for 1984 is also presented in Table 9.5a. The Matlab data shows no relationship between occupation of women and possession of land, and demand for additional children. The demand for no additional children by husband occupation has been computed for both areas of Matlab. In both the areas, the Table shows that the demand for no additional children is lower among women whose is husband working in the labour force, or in fishing, than for women, whose husband is engaged in business, or professional job, or owned the land where he works. In fact, in both areas, demand for no additional children is high among the women whose husbands are farmers and working on their own farms, but the demand for no additional children among the women of farming families is higher in the control area than in the intervention area.

In terms of other household level factors like quality of housing, members living outside HDSS area, possession consumer durables, watch and radio, or the possession of household wealth index computed from a number of consumer

**Table 9.5a:Percent of women wanting no additional children and economic factors, national level (rural) and two areas of Matlab, 1983/1984.**

| Variables | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1983 | | Matlab –1984 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **All women** | 54.3 | 5154 | 52.0 | 2565 | 56.8 | 1626 |
| **Employment status of women** | | | | | | |
| Paid works | 56.2 | 418 | 51.5 | 101 | 50.0 | 58 |
| House work | 54.2 | 4736 | 52.1 | 2464 | 57.0 | 1568 |
| **Occupation of husband** | | | | | | |
| Farmer | -- | -- | 55.5 | 872 | 62.0 | 608 |
| Labourer | -- | -- | 48.7 | 772 | 53.4 | 590 |
| Business & professional | -- | -- | 54.0 | 756 | 55.1 | 363 |
| Fisherman | -- | -- | 40.6 | 165 | 47.7 | 65 |
| **Possession of land, households (acres)*** | | | | | | |
| No land | 49.5 | 1503 | 44.6 | 587 | 54.4 | 333 |
| <0.50 | 56.3 | 3651 | 53.4 | 556 | 56.3 | 371 |
| 0.50+ | | | 54.6 | 1422 | 57.8 | 922 |
| **Constructional Materials used for Housing** | | | | | | |
| Mixed | -- | -- | 51.1 | 2282 | 55.8 | 1467 |
| All tin | -- | -- | 59.4 | 283 | 65.4 | 159 |
| **Member living outside HDSS** | | | | | | |
| None | -- | -- | 51.9 | 2337 | 56.5 | 1519 |
| At least one | -- | -- | 53.9 | 228 | 60.7 | 107 |
| **Possession of watch and Radio, Households** | | | | | | |
| None | -- | -- | 54.3 | 1695 | 59.5 | 1109 |
| At least one | -- | -- | 47.7 | 870 | 50.9 | 517 |
| **Wealth Index of Households** | | | | | | |
| None | -- | -- | 45.0 | 458 | 53.6 | 280 |
| Low | -- | -- | 56.4 | 1217 | 60.2 | 802 |
| Medium | -- | -- | 49.2 | 496 | 54.0 | 313 |
| High | -- | -- | 50.5 | 394 | 52.4 | 231 |
| **Occupation of Majority HH Head** | | | | | | |
| Agriculture | -- | -- | 52.4 | 1493 | 56.4 | 899 |
| Business | -- | -- | 46.2 | 65 | 42.1 | 19 |
| Service | -- | -- | 65.5 | 58 | 70.6 | 34 |
| Fisherman | -- | -- | 43.2 | 162 | 51.2 | 41 |
| Others mostly labourer | -- | -- | 48.7 | 199 | 53.0 | 134 |
| Non classified occupation | -- | -- | 53.9 | 588 | 58.5 | 499 |
| **% of Households with radio in Bari** | | | | | | |
| None | -- | -- | 52.8 | 851 | 55.6 | 619 |
| <40 | -- | -- | 50.5 | 1429 | 56.9 | 851 |
| 40+ | -- | -- | 57.5 | 285 | 60.9 | 156 |

- For CPS-1983 possession of land was coded as No and Yes land .

"—" indicates data not collected

durables and economic assets show expected trends with demand for additional children but difference in demand for no additional children between most sub categories are not substantial except for wealth index, and possession of land and quality of housing in the intervention area. The Table shows that demand for no additional children is higher among women in a household who do not have any farmland or have no wealth in the household and who are living in a inferior quality house. In the control area, a similar pattern also appears in the relationship between demands for no additional children and household economic factors.

In order to examine the impact of occupational environment of a *bari* on demand for additional children, the occupation of the majority household head in a *bari has been* computed for both the intervention and the control area and presented in Table 9.3a. The Table shows that for both areas demand for no additional children is high among women in a *bari* where the *bari* heads are largely working in government or other organizations. The demand is lower among women, where a large number of the *bari* heads are engaged in business or fishing. For example, 66 percent of women in the intervention area and 71 percent of women in the control area have no demand for additional children where more than 40 percent of household heads are engaged in services. On the other hand, 46 percent of women in the intervention areas and 42 percent of women in the control area, reported to have no demand for additional children where more than 40 percent of household heads are engaged in business.

Another *bari* level variable used in the analysis is the level of mass media exposure of the women in a *bari* expressed in the form of percent of households who have radios. The results show that the existence of radio in a *bari* did not play a very significant role in shaping the demand for additional children either in the intervention or in the control areas in 1984.

The economic conditions of the three areas in 1994/96 are presented in Table 9.5b. At the national level, the Table reveals a substantial decline of demand for additional children during the 1983-1996 period and that the decline is evident in all strata of life irrespective of socio-economic class factors except women employment. Women employment, has an positive relationship with demand for no additional children. This is a change from 1983, when the national rural data shows virtually no difference in demand for no additional children between women in paid employment and those engaged in housework. In 1996, women in paid employment have a slightly higher demand for no additional children. Sixty

**Table 9.5b: Percent of women wanting no additional children and economic factors, national level (rural) and two areas of Matlab, 1994/1996.**

| Variables | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab -1994 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **All women** | 64.5 | 5273 | 62.2 | 1060 | 64.6 | 856 |
| **Employment status of women** | | | | | | |
| Paid works | 69.2 | 1990 | 69.0 | 87 | 67.2 | 58 |
| House work | 61.6 | 3283 | 61.6 | 973 | 64.4 | 798 |
| **Occupation of husband** | | | | | | |
| Farmer | 67.9 | 1626 | 65.9 | 293 | 67.8 | 286 |
| Labourer | 61.6 | 2417 | 60.0 | 667 | 63.7 | 502 |
| Business & professional | 65.4 | 1230 | 70.0 | 70 | 59.2 | 49 |
| Fisherman | 64.5 | 5273 | 56.7 | 30 | 52.6 | 19 |
| **Possession of land, household (acres)** | | | | | | |
| <0.50 | 63.6 | 2052 | 58.5 | 337 | 65.2 | 287 |
| 0.50-2.99 | 65.0 | 3221 | 60.0 | 15 | 50.0 | 2 |
| 3+ | | | 64.0 | 708 | 64.4 | 567 |
| **Construction Materials used for Housing** | | | | | | |
| Mixed | 64.4 | 4092 | 58.9 | 655 | 64.4 | 548 |
| All tin | 64.6 | 1181 | 67.4 | 405 | 64.9 | 308 |
| **Member living outside HDSS** | | | | | | |
| None | -- | -- | 62.2 | 736 | 66.5 | 561 |
| At least one | -- | -- | 62.0 | 324 | 61.0 | 295 |
| **Possession of watch and Radio** | | | | | | |
| None | 63.7 | 2497 | 57.5 | 362 | 65.7 | 318 |
| At least one | 65.1 | 2776 | 64.6 | 698 | 63.9 | 538 |
| **Wealth Index of household** | | | | | | |
| None | 62.2 | 1160 | 56.0 | 159 | 64.9 | 154 |
| Low | 65.2 | 1369 | 55.3 | 226 | 65.7 | 166 |
| Medium | 66.3 | 993 | 62.4 | 210 | 64.5 | 183 |
| High | 64.4 | 1751 | 67.5 | 465 | 64.0 | 353 |
| **Occupation, Majority HH Heads in a bari** | | | | | | |
| Agriculture | -- | -- | 64.8 | 236 | 66.0 | 247 |
| Business | -- | -- | 63.5 | 63 | 69.0 | 29 |
| Service | -- | -- | 85.7 | 21 | 68.8 | 16 |
| Fisherman | -- | -- | 55.1 | 49 | 63.8 | 47 |
| Others mostly labourer | -- | -- | 58.1 | 258 | 71.2 | 163 |
| Non classified occupation | -- | -- | 62.6 | 433 | 60.2 | 354 |
| **% of House hold with radio in Bari** | | | | | | |
| None | -- | -- | 57.0 | 121 | 66.1 | 112 |
| <40 | -- | -- | 57.5 | 334 | 63.5 | 326 |
| 40+ | -- | -- | 65.8 | 605 | 65.1 | 418 |

"__" Indicates data not collected

nine percent of the women in paid employment, for example, reported to have no demand for additional children, compared to 62 percent who are engaged in housework. In addition, there is a slightly higher demand for no additional children among those women whose husbands are farmers or engaged in business or services other than labourer. All other household economic factors did not show any differentials in demand between the sub categories.

The Matlab data shown in Table 9.5b shows the same trends, as the 1996 national rural data in terms of women's work. Women in paid employment have a slightly higher demand for no additional children in both areas of Matlab. In terms of husband occupation, the intervention area shows similar trends those illustrated by the national data in that the demand for no additional children is lower among the women whose husbands are engaged in labour. The demand for no additional children is high among those women whose husbands are farmers or engaged in business or services.

In the control area, demand for no additional children is high among those women whose husbands are farmers or labourers and low among women whose husbands are fishermen. Possession of land by the household shows an inverse relationship with demand for additional children. The Table shows that women from landless households have a lower demand for additional children. All other economic variables did not show any difference in demand for additional children according to the sub categories. The impact of occupational environment of a bari in 1994 shows that the demand for no additional children increased among all categories in both areas of Matlab, but that demand for no additional children is highest among women where the occupation of the majority of household heads were services and labour, in the intervention and control areas respectively.

### 9.3.1 Summary on Economic Factors

The examination of the relationship between demand for additional children and most of the economic characteristics of the population, except women employment and some categories of husband's work, seems weak in all three areas during the whole period, 1983-1996. Women paid employment in both areas of Matlab and at the national level showed a higher demand for no additional children in the 1994/1996 periods. In terms of husband occupation, the intervention area data shows the same trends as the national data. The demand for additional children is high among the women whose husbands are engaged in the labour force. The demand for additional children is low among those women whose husbands are farmers or engaged in business or services. In the control area in 1984, however, demand for no additional children is higher among those women whose husbands are farmers, but during the study period demand for additional children decreased among the women whose husbands are labourers. Another change appears in the control area related with possession of land. In 1984, demand for no additional children was similar between women of different landholding groups; in 1994, demand for no additional children increased among all groups but the demand was larger among the landless group.

## 9.4 Conclusion

An examination of the biosocial factors and their association with demand for additional children in the present chapter reveals similar trends in Bangladesh to those for other developing countries. Demand for additional children is high among very young women and low among the very old irrespective of number of living children or living sons. Among the middle age groups, demand for additional children decreases with increasing number of living children.

In the early period (1983/1984), demand for no additional children started rising with three living children or two living sons and most women with four or more children did not want any more children. During the study period, there was a radical increase in demand for no additional children, though the woman's age and number of children were still important factors in determining the demand for additional children. In 1994/1996, most women wanted fewer children than in 1983/1984. The demand for no additional children started rising with two children and one son. Most of the women with three or more children do not want any more.

Although the trends are similar in all the three areas, it seems that demand for children as well as sons is stronger in the Matlab areas than in the national rural area. During the study period, though, the demand for additional children reduced substantially in all the three areas but a difference between Matlab areas and national rural area still exists.

The present analysis manifests that the relationship between demand for additional children and economic factors is weak at the beginning and did not strengthen later. This weak relationship between demand for no additional children and the economic characteristics found in the present analysis is not different from other studies. Cleland et al. (1994) found that fertility was the same among the farmers and agricultural labour in rural Bangladesh. Rural society in Bangladesh was socially stratified and structured, but the ongoing pressure on land due to population increase and the land inheritance system minimized the difference between different landed occupancy classes. As noted in chapter four by 1996, more than 60 percent of the household in Bangladesh, including Matlab, were landless and 30 percent of them had land but that the average landholding of the households who have land was also small. This level of land holding was not enough to ensure subsistence for the household as well as fund for better quality children. Thus the landed peasants were not, in a better position than the landless, indeed, they were in a more stringent position because of their social status and scarce resources. It appears that the economic factors are a not major differential of the demand for no additional children. Whatever the differences between different economic strata and the changes occurred in those factors during 1983-1996, the change in demand for no additional children is overwhelming across the country irrespective of economic strata. In terms of comparative demand for additional children, it seems that there is no major differential in demand for additional children among the three areas in terms of economic factors.

Finally, demographic characteristics discussed in this chapter show a pattern of decline in demand for additional children in the usual direction, but the pattern showing through the economic characteristics is rather vague. There are no major differentials in demand for additional children among the three areas by in terms economic factors.

In a traditional society, the socio-cultural environment may play a more important role than economic factors. The next chapter will, therefore, examine the relationship between demand for additional children and socio-cultural factors.

# Chapter 10: Social and Cultural Change and Demand for Children-I

## 10.1 Introduction

Each society has its own distinct social values and cultural norms. The influences of economic changes .on reproductive behaviour, that is, demand for additional children and contraceptive use, are mediated through the social and cultural values of a particular society. The social values and cultural settings of a society do change with economic changes. However, most fertility researchers have pointed out that socio-cultural features are usually resistant to any quick change and can remain constant for a considerable period of time in the midst of rapid economic change. Bangladesh has experienced in the last 25 years, a rapid social development, especially in several social and economic fields of female education, community and women development. Most research regarded education as a proxy for economic and social development, acting as a change agent between culture and reproductive behaviour. The influence of education is therefore an important consideration.

The details of the socio-cultural constraints and the changes occurring to the Bangladesh over the period being examined in this study have been discussed in chapter two, four and five. This chapter will explore the unusual rapid change in reproductive behaviour in terms of its association with socio-cultural aspects of the society. The chapter will begin with social development represented by education at several levels: education of women, husband and household head and the education environment of the women, represented by percent of household head educated in a *bari,* and the presence of religious educated household head in the *bari*. This analysis will be followed by an examination of cultural factors like preference for male children and influence of religion and spousal communication.

Although the gender of the child is biologically determined, preference for a special gender, especially male or a special sex composition of family in the South East and West Asian couples originates from the cultural beliefs prevalent in the country. Son preference in this region, in the Middle East, Pakistan, India, China, and Taiwan, and to a lesser extent in Thailand, immensely influences the reproductive behaviour of couples. Preferential attitude towards a certain sex in children originates in the patriarchal social structure in this region. Despite its biological determinants, it is more appropriate to discuss gender preference in terms of cultural context. The patriarchal culture and related root of gender preferences in Bangladesh and in Matlab have been discussed in chapters two, four. In this chapter, the role of gender preference in reproductive behaviour, that is, demand for no additional children, will be examined for 1983-1996, using national rural and Matlab data.

## 10.2 Social Development

Education is the most widely used variable in fertility analysis and has been treated as a proxy to other social development. The education of women has been treated as a mechanism through which an individual's ideas about family and reproductive behaviour can be transformed (Caldwell 1980). Education provides access to information and creates a sense of maturity for rational thought among women. In a closed patriarchal society, while individual literacy helps to transform ideas, the educational environment in the society is equally important for the spread of education. It is therefore important to examine education of husband, household head or *bari*, as these fosters an enlightened environment in the household or society for any reasonable positive decision including demand for children.

### 10.2.1 Education of Women

Table 10.1a and Table 10.2b present a three ways table to examine the demand for no additional children by women's education and age in 1983/1984 and 1994/96 at the national rural level and the two areas of Matlab. At the national level, Table 10.1a reveals an overall unexpected pattern of relationship between women's education and demand for no additional children. The Table reveals that in 1983 high educated (5+ years) women at the national rural level have a slightly lower demand for no additional children and that the illiterate women. The relationship between demand for no additional children by women education and age shows that demand for no additional children is low among the young women aged <20 years irrespective of level of education. From age 20 years and above, the education of women has a positive relationship with demand for no additional children. In most age groups higher than 20 years, demand for no additional children is closely similar among women of primary and secondary education, and demand for additional children decreases with increasing education and age.

**Table 10.1a: Percent of women wanting no additional children by Woman's education, and age, national level (rural) and two areas of Matlab, 1983/1984**

| Variables | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National --1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **Education of woman** | | | **Women aged<20 years** | | | |
| Illiterate | 10.8 | 489 | 2.6 | 39 | 5.1 | 39 |
| 1-5 years | 10.8 | 195 | 4.7 | 43 | 15.0 | 20 |
| 6 or more years | 11.5 | 61 | 0.0 | 7 | 0.0 | 5 |
| **Education of woman** | | | **Women aged 20-24** | | | |
| Illiterate | 27.4 | 745 | 13.5 | 289 | 15.4 | 195 |
| 1-5 years | 36.4 | 327 | 15.1 | 285 | 21.3 | 141 |
| 6 or more years | 35.8 | 81 | 15.6 | 77 | 12.5 | 32 |
| **Education of woman** | | | **Women aged <25-29** | | | |
| Illiterate | 46.5 | 722 | 37.2 | 282 | 42.2 | 218 |
| 1-5 years | 57.1 | 268 | 36.2 | 218 | 45.0 | 109 |
| 6 or more years | 66.2 | 77 | 47.1 | 51 | 40.0 | 20 |
| **Education of woman** | | | **Women aged 30-39** | | | |
| Illiterate | 74.7 | 970 | 71.7 | 445 | 76.6 | 372 |
| 1-5 years | 80.2 | 308 | 76.6 | 342 | 80.3 | 183 |
| 6 or more years | 80.0 | 40 | 75.5 | 53 | 77.8 | 18 |
| **Education of woman** | | | **Women aged 40-49** | | | |
| Illiterate | 95.0 | 701 | 93.6 | 282 | 95.6 | 203 |
| 1-5 years | 91.6 | 155 | 95.0 | 140 | 91.0 | 67 |
| 6 or more years | 100.0 | 15 | 100.0 | 12 | 100.0 | 4 |
| **Education of woman** | | | **ALL** | | | |
| None | 54.7 | 3627 | 54.5 | 1337 | 58.7 | 1027 |
| 1—5 years | 54.4 | 1253 | 50.5 | 1028 | 55.8 | 520 |
| 6 or more years | 48.9 | 274 | 44.0 | 200 | 38.0 | 79 |

The same table presents, demand for no additional children in two areas of Matlab in 1984. Table 10.1a shows an inverse relationship between women education and demand for no additional children in both areas of Matlab. The overall desire for fertility control[1], that is, demand for no additional children, is low among higher educated women and high among illiterate women in the intervention area. A stronger inverse relationship between women education and desire for fertility control appears in the control area.

[1] This term will also be used for demand for no additional children.

In the intervention area in 1984, the relationship between demand for no additional children by women's education and age shows that very few women of age <20 years have no demand for additional children. The demand for no additional children is similar among the women of age 20-24 years, irrespective of level of education. From age 25, the relationship between women education and demand for fertility control varied with each age groups. Among the women of age 25-29, the demand for no additional children is similar while it is high among women of secondary education. But among the women of age 30-39 years, desire for fertility control is similar among the women having primary and secondary education and low among illiterate women. Despite all these facts, the difference in demand for no additional children by education irrespective of age is not large, but the impact of age is very clear.

**Table 10.1b: Percent of women wanting no additional children by woman's education, and age, national level (rural) and two areas of Matlab, 1994/1996**

| | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab -1994 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Education of woman** | | | **Women aged <20 years** | | | |
| Illiterate | 17.4 | 299 | 2.3 | 43 | 14.8 | 27 |
| 1-5 years | 15.8 | 234 | 0.0 | 31 | 11.5 | 26 |
| 6 or more years | 13.9 | 115 | 6.3 | 16 | 0.0 | 15 |
| **Education of woman** | | | **Women aged 20-24** | | | |
| Illiterate | 45.2 | 602 | 33.7 | 89 | 31.3 | 80 |
| 1-5 years | 44.3 | 359 | 22.9 | 70 | 30.7 | 75 |
| 6 or more years | 31.5 | 203 | 22.9 | 48 | 25.5 | 47 |
| **Education of woman** | | | **Women aged 25-29** | | | |
| Illiterate | 72.0 | 735 | 56.7 | 127 | 69.1 | 110 |
| 1-5 years | 64.6 | 373 | 60.2 | 108 | 63.4 | 71 |
| 6 or more years | 59.0 | 205 | 67.5 | 40 | 43.3 | 30 |
| **Education of woman** | | | **Women aged 30-39** | | | |
| Illiterate | 86.7 | 890 | 82.5 | 183 | 91.7 | 156 |
| 1-5 years | 87.1 | 458 | 88.2 | 110 | 91.4 | 81 |
| 6 or more years | 84.2 | 234 | 88.9 | 54 | 95.7 | 23 |
| **Education of woman** | | | **Women aged 40-49** | | | |
| Illiterate | 94.8 | 383 | 98.8 | 84 | 98.7 | 76 |
| 1-5 years | 97.2 | 141 | 100.0 | 47 | 97.3 | 37 |
| 6 or more years | 95.2 | 42 | 100.0 | 10 | 100.0 | 2 |
| **Education of woman** | | | **ALL women** | | | |
| None | 68.3 | 2909 | 64.1 | 526 | 71.9 | 449 |
| 1—5 years | 62.2 | 1565 | 61.5 | 366 | 62.4 | 290 |
| 6 or more years | 54.8 | 799 | 57.7 | 168 | 41.9 | 117 |

In the control area, in 1984, there is an inverted U relationship between desire for fertility control and women education irrespective of age. This indicates demand for fertility control is higher among women who have primary education than the other two education groups. The table also indicates that higher educated women have a higher demand for children until the age of 40 years. Similar to the other two areas, the impact of age on demand for no additional children in the control area is also evident.

Table 10.1b presents a three ways table to examine the demand for no additional children by women's education and age in 1994/96 at the national rural level and the two areas of Matlab. At the national level, the results of the table show that the overall inverse relationship between desire for fertility control and women education is stronger in 1996. The desire for fertility control is similar among the youngest age group irrespective of education. From age 20, there is an inverse relationship between demand for fertility control and education irrespective of age although in the higher age groups, 30 and above, the difference is small.

Table 10.1b for intervention area in 1994 shows that similar to 1984, demand for additional children is very high among young women of age <20 years. Among the women aged 20-24, desire for fertility control is low among the women having primary and secondary education, but high among the illiterate women. Among women aged 25 to 39 years, demand for no additional children has a positive relationship with education though the demand for additional children is similar among women of age 30-39 having primary and secondary education. By age forty, however, very few women want additional children.

In the control area in 1994, the same inverse relationship between desire for fertility control and education is apparent among the women aged less than 30 years. It changes direction among women of age 30 and above but the relationship is weak.

***Woman's Education and Number of Living children***

A three ways table of demand for no additional children by women's education and number of living children for national rural and both areas of Matlab for the years 1983/1984 and 1994/1996 is presented in Tables 10.2a and 10.2b. Table 10.2a shows that at the national level in 1983, demand for no additional children has a consistent positive relationship with education irrespective of number of living children. In the intervention area, during the same period, demand for no additional children is low among women of having one living child irrespective of education, but it is high among the women having secondary education and two living children. In the other living children groups there is no relationship between demand for no additional children and education. The demand for no additional children is very close to similar among the different education groups having three or more children.

**Table 10.2a: Percent of women wanting no additional children by woman's education, and number of living children, national level (rural) and two areas of Matlab, 1983/1984**

| Variables | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National --1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **Education of woman** | **No. of living children: One** | | | | | |
| Illiterate | 9.1 | 714 | 3.8 | 212 | 3.8 | 156 |
| 1-5 years | 11.2 | 267 | 7.5 | 187 | 7.4 | 95 |
| 6 or more years | 14.1 | 99 | 2.5 | 40 | 0.0 | 30 |
| **Education of woman** | **No. of living children: Two** | | | | | |
| Illiterate | 34.6 | 650 | 23.8 | 223 | 21.0 | 181 |
| 1-5 years | 35.2 | 250 | 20.8 | 212 | 29.4 | 85 |
| 6 or more years | 40.6 | 69 | 28.3 | 60 | 33.3 | 15 |
| **Education of woman** | **No. of living children: Three** | | | | | |
| Illiterate | 52.3 | 589 | 49.4 | 251 | 61.7 | 154 |
| 1-5 years | 54.0 | 213 | 44.7 | 170 | 46.5 | 99 |
| 6 or more years | 85.0 | 40 | 45.7 | 35 | 42.9 | 14 |
| **Education of woman** | **No. of living children: Four** | | | | | |
| Illiterate | 71.2 | 510 | 70.6 | 238 | 74.3 | 167 |
| 1-5 years | 78.3 | 143 | 72.7 | 161 | 75.4 | 65 |
| 6 or more years | 80.8 | 26 | 72.4 | 29 | 85.7 | 7 |
| **Education of woman** | **No. of living children: Five or more** | | | | | |
| Illiterate | 87.9 | 1164 | 90.8 | 413 | 92.1 | 369 |
| 1-5 years | 88.7 | 380 | 89.9 | 298 | 92.6 | 176 |
| 6 or more years | 92.5 | 40 | 91.7 | 36 | 100.0 | 13 |

The Results of the Table 10.2a for the control area, in 1984 show that the demand for no additional children is low among women who have only one living child lowest demand for no additional children is apparent among those who have secondary education. This trend has changed among the women who have two living children. Demand for no additional children has a positive relationship with education among the women of having two living children. But again the pattern shows a similar trend to that of women who have only one living child, that means, demand for no additional children is low among women with secondary education and high among illiterate women. From four living children, demand for no additional children is high among all living children groups. Overall, the table reveals that for up to three living children, demand for no additional children does not show any consistent pattern of relationship between demand for no additional children and education. After four children, number of living children, demand for no additional children has a consistent positive relationship with education. However, in general, demand for no additional children increases with increasing number of living children irrespective of education.

**Table 10.2b: Percent of women wanting no additional children by woman's education, and number of living children, national level (rural) and two areas of Matlab, 1994/1996.**

| | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab –1994 | | | |
| | | | Intervention | | Control | |
| **Variables** | % | N | % | N | % | N |
| **Education of woman** | **No. of living children: One** | | | | | |
| Illiterate | 15.0 | 580 | 10.4 | 96 | 10.2 | 59 |
| 1-5 years | 12.1 | 412 | 2.7 | 74 | 8.3 | 60 |
| 6 or more years | 13.4 | 307 | 13.8 | 65 | 9.4 | 53 |
| **Education of woman** | **No. of living children: Two** | | | | | |
| Illiterate | 64.3 | 664 | 42.5 | 106 | 42.2 | 64 |
| 1-5 years | 59.7 | 402 | 41.8 | 79 | 41.5 | 53 |
| 6 or more years | 68.5 | 235 | 76.7 | 43 | 46.9 | 32 |
| **Education of woman** | **No. of living children: Three** | | | | | |
| Illiterate | 79.4 | 583 | 72.8 | 114 | 69.4 | 85 |
| 1-5 years | 82.5 | 257 | 76.8 | 82 | 73.3 | 60 |
| 6 or more years | 87.1 | 124 | 92.9 | 28 | 81.3 | 16 |
| **Education of woman** | **No. of living children: Four** | | | | | |
| Illiterate | 90.6 | 416 | 92.2 | 90 | 90.1 | 71 |
| 1-5 years | 93.0 | 214 | 97.0 | 67 | 87.8 | 49 |
| 6 or more years | 96.2 | 78 | 87.5 | 16 | 100.0 | 6 |
| **Education of woman** | **No. of living children: Five or more** | | | | | |
| Illiterate | 95.2 | 666 | 96.7 | 120 | 98.2 | 170 |
| 1-5 years | 97.1 | 280 | 96.9 | 64 | 98.5 | 68 |
| 6 or more years | 96.4 | 55 | 93.8 | 16 | 100.0 | 10 |

The three ways table of demand for no additional children by women education and number of living children for 1994/1996 for national rural and two areas of Matlab is presented in Table 10.2b. The Table shows at the national level that the consistent positive relationship between demand for no additional children and women education by number of living children though exists is weak. Despite these differences, demand for no additional children increases with increasing number of living children and becomes marginalized at five or more living children.

In the intervention area, in 1994, demand for no additional children has a strong positive relationship with education up to three living children, except for those who have only one living child, where the relationship is a U. For four or more living children, the relationship between demand for no additional children and education turns into inverted U, although the difference between illiterate women and women with primary education is not large.

In the control area, in 1994, demand for no additional children varied with the number of living children. Demand for no additional children is low among women having only one living child irrespective of education. Among the women who have two or three living children, demand for no additional children is loosely positive with education. From five or more living children, very few want any more children irrespective of education level.

***Women Education and Number of Living Sons***

A three ways table of demand for no additional children by women's education and number of living sons for national rural and both areas of Matlab for the year 1983/1984 and 1994/1996 is presented in Tables 10.3a and 10.3b. Table 10.3a shows that at the national rural area in 1983, there is no relationship between demand for no additional children education among women having less than four living sons. Among the women who have four living sons, demand for no additional children is the same among illiterate and higher education women, while it is low among women with primary education. By living sons five or more, very few wanted any more children.

In the intervention area in 1984, demand for no additional children has an inverse relationship with education among women who have less than three sons but is similar among women of all education groups having three living sons. There is a positive relationship with education among women having four living sons and flattens among women who have more than four living sons.

In the control area, in 1984, a similar trend as in the intervention area is apparent among women who have one or two living sons. But the inverse relationship between demand for no additional children and son, however not obvious with increasing numbers of sons in the control areas appears to have reduced in 1994. Demand for no additional children is similar among women of all education groups having two living sons. The number of higher educated women with three or more living sons is very few, and among the other two education groups, demand for no additional children is similar.

**Table 10.3a: Percent of women wanting no additional children by woman's education, and number of living sons, national level (rural) and two areas of Matlab, 1983/1984**

| | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National --1983 | | Matlab –1984 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Education of woman** | | | **No. of living sons: None** | | | |
| Illiterate | 14.7 | 640 | 5.7 | 193 | 6.8 | 147 |
| 1-5 years | 15.7 | 230 | 8.2 | 159 | 3.7 | 81 |
| 6 or more years | 17.9 | 67 | 4.3 | 47 | 4.2 | 24 |
| **Education of woman** | | | **No. of living sons: One** | | | |
| Illiterate | 38.7 | 1085 | 32.9 | 410 | 35.0 | 283 |
| 1-5 years | 40.8 | 426 | 27.4 | 328 | 39.5 | 172 |
| 6 or more years | 40.5 | 111 | 30.2 | 63 | 28.1 | 32 |
| **Education of woman** | | | **No. of living sons: Two** | | | |
| Illiterate | 66.0 | 859 | 71.9 | 327 | 75.1 | 269 |
| 1-5 years | 70.6 | 282 | 67.4 | 273 | 75.8 | 120 |
| 6 or more years | 70.7 | 58 | 62.7 | 51 | 75.0 | 12 |
| **Education of woman** | | | **No. of living sons: Three** | | | |
| Illiterate | 82.0 | 549 | 83.2 | 220 | 85.9 | 170 |
| 1-5 years | 84.5 | 168 | 82.6 | 144 | 81.3 | 75 |
| 6 or more years | 94.1 | 17 | 83.3 | 18 | 100.0 | 4 |
| **Education of woman** | | | **No. of living sons: Four** | | | |
| Illiterate | 91.0 | 277 | 82.0 | 111 | 92.6 | 95 |
| 1-5 years | 86.1 | 79 | 88.5 | 78 | 93.3 | 45 |
| 6 or more years | 92.3 | 13 | 100.0 | 13 | 100.0 | 2 |
| **Education of woman** | | | **No. of living sons: Five or more** | | | |
| Illiterate | 92.6 | 217 | 96.1 | 76 | 92.1 | 63 |
| 1-5 years | 92.6 | 68 | 95.7 | 46 | 92.6 | 27 |
| 6 or more years | 100.0 | 8 | 87.5 | 8 | 100.0 | 5 |

The three ways table for the year 1994/1996 for national rural and two areas of Matlab is presented in Table 10.3b. The table shows that at the national rural area, demand for no additional children and education among the women having zero or one living son changed into an inverse relationship in 1996. From two living sons, there is a trends of inverse relationship between demand for no additional children and education though it is small. In the intervention area in 1994, demand for no additional children shows a U shape relationship with education among the women having less than two sons. This suggests that the demand for additional children is higher among women with primary education. From two or more living sons demand for no additional children has a positive relationship with education although the number of women in the higher educated group in these living son groups is small.

In the control area in 1994, demand for no additional children has an inverse relationship with education among women having zero or one living sons. In the remaining living son groups, the number of women in the higher education groups is small, and the relationship between demand for no additional children and other two education groups is either neutral or positive.

**Table 10.3b: Percent of women wanting no additional children by woman's education, and number of living sons, national level (rural) and two areas of Matlab, 1994/1996.**

| Variables | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab -1994 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **Education of woman** | **No. of living sons: None** | | | | | |
| Illiterate | 27.9 | 519 | 26.2 | 84 | 23.3 | 60 |
| 1-5 years | 22.8 | 337 | 13.3 | 60 | 25.5 | 51 |
| 6 or more years | 21.1 | 209 | 23.4 | 47 | 13.0 | 46 |
| **Education of woman** | **No. of living sons: One** | | | | | |
| Illiterate | 62.9 | 1071 | 49.2 | 177 | 55.7 | 122 |
| 1-5 years | 56.8 | 611 | 46.0 | 126 | 46.7 | 107 |
| 6 or more years | 53.1 | 373 | 54.4 | 68 | 39.5 | 43 |
| **Education of woman** | **No. of living sons: Two** | | | | | |
| Illiterate | 84.3 | 682 | 83.4 | 157 | 84.9 | 119 |
| 1-5 years | 83.8 | 365 | 83.6 | 110 | 83.6 | 67 |
| 6 or more years | 87.5 | 152 | 90.5 | 42 | 88.9 | 18 |
| **Education of woman** | **No. of living sons: Three** | | | | | |
| Illiterate | 92.6 | 377 | 89.5 | 57 | 91.0 | 78 |
| 1-5 years | 96.0 | 151 | 93.0 | 43 | 90.9 | 33 |
| 6 or more years | 94.7 | 38 | 100.0 | 10 | 100.0 | 5 |
| **Education of woman** | **No. of living sons: Four** | | | | | |
| Illiterate | 94.5 | 183 | 94.3 | 35 | 97.5 | 40 |
| 1-5 years | 95.7 | 69 | 100.0 | 19 | 100.0 | 21 |
| 6 or more years | 100.0 | 17 | 100.0 | 1 | 100.0 | 4 |
| **Education of woman** | **No. of living sons: Five or more** | | | | | |
| Illiterate | 93.5 | 77 | 81.3 | 16 | 100.0 | 30 |
| 1-5 years | 100.0 | 32 | 100.0 | 8 | 100.0 | 11 |
| 6 or more years | 100.0 | 10 | | | 100.0 | 1 |

### *Women Education and Number of dead children*

The demand for no additional children by education of women and number of dead children for the national rural and two areas of Matlab for the period 1983/1984 and 1994/1996 is presented in Tables 10.4a and 10.4b. Contrary to expectation, the Tables show that in all three areas, demand for no additional children is low among women who have not had a child die. The national data shows despite experiencing child death, demand for no additional children is greater among higher educated women. In 1996, the same trend has appears in the relationship between demand for no additional children and education by number of dead children. The impact of education in each successive group of women having had child die, was evident in 1983/1984 was reduced in 1996.

**Table 10.4a: Percent of women wanting no additional children by woman's education, and number of dead children, national level (rural) and two areas of Matlab, 1983/1984**

| | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Education of woman** | No. of dead children: None | | | | | |
| Illiterate | 40.9 | 1552 | 41.6 | 634 | 43.6 | 422 |
| 1-5 years | 43.0 | 640 | 40.0 | 593 | 43.7 | 254 |
| 6 or more years | 42.2 | 206 | 34.9 | 149 | 32.2 | 59 |
| **Education of woman** | No. of dead children: One | | | | | |
| Illiterate | 55.0 | 980 | 57.7 | 364 | 63.1 | 290 |
| 1-5 years | 59.9 | 327 | 58.6 | 263 | 65.8 | 149 |
| 6 or more years | 63.8 | 47 | 63.2 | 38 | 43.8 | 16 |
| **Education of woman** | No. of dead children: Two | | | | | |
| Illiterate | 71.7 | 515 | 69.6 | 181 | 64.7 | 156 |
| 1-5 years | 70.1 | 154 | 67.3 | 113 | 67.1 | 70 |
| 6 or more years | 70.0 | 10 | 80.0 | 5 | 100.0 | 2 |
| **Education of woman** | No. of dead children: Three or more | | | | | |
| Illiterate | 76.0 | 580 | 81.0 | 158 | 84.9 | 159 |
| 1-5 years | 78.0 | 132 | 88.1 | 59 | 72.3 | 47 |
| 6 or more years | 90.9 | 11 | 100.0 | 8 | 100.0 | 2 |

In the intervention area, in 1984, demand for no additional children is similar among the illiterate women and women with primary education and zero dead children, it is lower among women who have higher, that is, secondary education. In rest of the three child mortality groups, demand for no additional children among the high educated women is greater though the number of cases with high education in these groups is small

In the control area, in 1984, demand for no additional children is similar among illiterate women and women with primary education with none or one child dead. It is lower among women who have secondary education. In the last two children dead groups, the number of cases with higher education is very small. The relationship between other two education groups and demand for no additional children among women with two or more children dead is positive among those women who have two children dead. There is an inverse relationship between education and demand for no additional children among women who have more than two children dead.

**Table 10.4b: Percent of women wanting no additional children by woman's education, and number of dead children, national level (rural) and two areas of Matlab, 1994/1996**

| | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab -1994 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Education of woman** | No. of dead children: None | | | | | |
| Illiterate | 61.2 | 1654 | 57.3 | 344 | 64.3 | 241 |
| 1-5 years | 57.1 | 1089 | 52.9 | 261 | 52.7 | 205 |
| 6 or more years | 50.9 | 639 | 53.9 | 141 | 37.8 | 90 |
| **Education of woman** | No. of dead children: One | | | | | |
| Illiterate | 75.0 | 741 | 74.8 | 115 | 75.2 | 113 |
| 1-5 years | 70.3 | 313 | 78.2 | 78 | 85.7 | 56 |
| 6 or more years | 68.5 | 124 | 77.3 | 22 | 54.2 | 24 |
| **Education of woman** | No. of dead children: Two | | | | | |
| Illiterate | 81.2 | 314 | 78.0 | 50 | 86.7 | 60 |
| 1-5 years | 80.2 | 111 | 93.8 | 16 | 80.0 | 15 |
| 6 or more years | 78.6 | 28 | 75.0 | 4 | 50.0 | 2 |
| **Education of woman** | No. of dead children: Three or more | | | | | |
| Illiterate | 82.0 | 200 | 88.2 | 17 | 88.6 | 35 |
| 1-5 years | 80.8 | 52 | 100.0 | 11 | 92.9 | 14 |
| 6 or more years | 75.0 | 8 | 100.0 | 1 | 100.0 | 1 |

In 1994, in the intervention area, demand for no additional children shows an inverse relationship with education among women with no dead children. In other groups of number of dead children, demand for no additional children shows a positive relationship with primary education. The number of women in the higher education groups is small in those groups.

In the control area in 1994, demand for no additional children among the higher educated women with none or one child died is low. Similar to the intervention area, the number of cases with higher education among the groups who have had more than one child died is small. The relationship between demands for no additional children and women with primary education was weak among the women who have two children died and strong among those who have three children died.

### 10.2.2 Household and Bari level Education

Table 10.5a and Table 10.5b present the demand for no additional children by education of husband, couples, household heads and percent of household heads educated in a *bari* in 1983/1984 and 1994/96 at the national level and the two areas of Matlab. The demand for no additional children by religious education of the *bari* head in the Matlab areas is also presented in the Table. The national data in Table 10.5a reveals the education of the husband has no relationship with women's demand for no additional children. In the national data, education of husband and wife are used to create the couple's education profile. The table shows that couples with a literate husband have a slightly lower demand for additional children compared to couples groups.

**Table 10.5a: Percent of women wanting no additional children by education of husband, head of household, bari head and religious educated head, national level (rural) and two areas of Matlab, 1983/1984.**

| | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Education of husband** | | | | | | |
| Illiterate or madrasha* | 52.6 | 3084 | -- | -- | -- | -- |
| 1—5 years | 57.1 | 923 | -- | -- | -- | -- |
| 6—9 years | 56.8 | 643 | -- | -- | -- | -- |
| 9+ years | 56.5 | 504 | -- | -- | -- | -- |
| **Education of household head** | | | | | | |
| Illiterate or madrasha* | -- | -- | 49.9 | 1301 | 55.6 | 868 |
| 1—5 years | -- | -- | 53.2 | 803 | 57.7 | 506 |
| 6—9 years | -- | -- | 54.1 | 305 | 56.7 | 171 |
| 9+ years | -- | -- | 60.3 | 156 | 63.0 | 81 |
| **Education of couple** | | | | | | |
| Both illiterate | 53.2 | 2672 | -- | -- | -- | -- |
| Husband literate | 59.0 | 955 | -- | -- | -- | -- |
| Wife literate | 49.0 | 412 | -- | -- | -- | -- |
| Both literate | 55.1 | 1115 | -- | -- | -- | -- |
| **% of HH Head educated in Bari** | | | | | | |
| None | -- | -- | 50.6 | 1101 | 55.3 | 779 |
| <40 | -- | -- | 50.9 | 1084 | 55.8 | 651 |
| 40+ | -- | -- | 59.5 | 380 | 65.8 | 196 |
| **HH Head with religious education in Bari** | | | | | | |
| None | -- | -- | 51.9 | 2433 | 56.8 | 1542 |
| At least one | -- | -- | 55.3 | 132 | 56.0 | 84 |

-- indicates data not available
*Religious educational institution

In Matlab, demand for no additional children and different level of education in 1984 are presented in Table 10.5a. For both areas of Matlab, husband's education was not available but education of household heads was available. In a patriarchal society, where household heads have social and economic control over their members, education of the household head is equally important in reproductive decision-making as is for the couple involved. Table 10.5a shows that in both the intervention and the control areas, education of household head has a consistent pattern of relationship between household head's education and women's demand for no additional children but here also difference are small.

Two more education features presented in the Table 10.5a have been computed from Matlab longitudinal data. These are, percent of household heads educated in a *bari* and the influence of religious education in a *bari*. A greater number of literate household heads in a *bari* provides women a secular environment, helps women to acquire education, reduces restriction on their movement, and exposes women to more modern ideas and amenities. On the other hand, religious education of household heads might have the opposite effect. All these factors influence the demand for no additional children. Data on Matlab in 1983 show that women living in a literate *bari* environment have demand for fewer children than women living in an illiterate *bari* environment in both areas of Matlab, and that the pattern is more or less similar to that of the education of household heads, in these two areas. However, the religious education of *bari* head does not show any trend.

Demand for no additional children and education of husbands, and couples at the national level and Matlab in 1994/1996 are presented in Table 10.5b. The Table 10.5b reveals that overall demand for no additional children increased slightly, irrespective of the level of education during the period of 1984 to 1996 at the national level. The Tables shows that the gap in demand for no additional children between couples where the husband was illiterate and those where the husband was literate was small in 1983 but widened during the study period. Table 10.5a also demonstrates that there was no difference between the demand for no additional children among illiterate and literate couples and a slightly high demand for no additional children among couples where the husband was literate. In 1996, however, the higher demand for no additional children increased among couples with a literate husband or where both couples are illiterate.

The demand for additional children by different forms of education for both areas of Matlab for the year 1994 is also presented in Table 10.5b. In 1994, husband education collected for Matlab shows the same trends as for women education and demand for children. The same is true for couple's education, that is, demand for no additional children is lower among literate than for illiterate couples.

The education of household heads and percent of head literate in a *bari* shows an expected pattern of relationship with demand for no additional children as it showed in 1984 but in a less consistent manner. Education of household head in the intervention area shows a double wave pattern while in the control area it appears as J. The education environment of *bari* represented by percent of educated household heads in *bari* though shows a similar pattern as it appears for household heads education in both areas. The religious education of household heads in a *bari* does not show any pattern of relationship with women's demand for additional children.

**Table 10.5b: Percent of women wanting no additional children by education of husband, head of household, bari head and religious educated head, national level (rural) and two areas of Matlab, 1994/1996.**

| | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab -1994 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Education of husband** | | | | | | |
| Illiterate or madrasha* | 63.9 | 2416 | 60.4 | 369 | 68.1 | 332 |
| 1—5 years | 66.0 | 1454 | 64.5 | 310 | 67.2 | 241 |
| 6—9 years | 62.2 | 751 | 60.8 | 194 | 58.1 | 160 |
| 9+ years | 65.8 | 652 | 63.1 | 187 | 58.5 | 123 |
| **Education of household head** | | | | | | |
| Illiterate or madrasha* | -- | -- | 56.7 | 497 | 63.0 | 408 |
| 1—5 years | -- | -- | 68.0 | 309 | 64.6 | 285 |
| 6—9 years | -- | -- | 63.6 | 140 | 70.8 | 106 |
| 9+ years | -- | -- | 68.4 | 114 | 64.9 | 57 |
| **Education of Couples** | | | | | | |
| Both illiterate | 66.2 | 1925 | 61.5 | 291 | 71.0 | 252 |
| Husband literate | 72.6 | 984 | 67.2 | 235 | 73.1 | 197 |
| Wife literate | 54.8 | 491 | 56.4 | 78 | 58.8 | 80 |
| Both literate | 61.0 | 1873 | 61.0 | 456 | 56.0 | 327 |
| **% of educated HH Head in Bari** | | | | | | |
| None | -- | -- | 60.4 | 338 | 62.8 | 333 |
| <40 | -- | -- | 60.5 | 504 | 65.9 | 393 |
| 40+ | -- | -- | 68.8 | 218 | 65.4 | 130 |
| **HH Head with religious education in Bari** | | | | | | |
| None | -- | -- | 62.5 | 989 | 64.6 | 800 |
| At least one | -- | -- | 57.7 | 71 | 64.3 | 56 |

-- indicates data not available

*Religious education institute

### 10.2.3 Summary

The national and Matlab data reveal that impact of education, in general, or through different biosocial factors on demand for no additional children is not as straight forward as the theoretical assumption would expect. A clear-cut positive relationship between women education and demand for no additional children is not present in any of the examined three areas. In general, demand for no additional children has a slightly inverse relationship with education. At the national level in 1983, when women's age was taken into account, demand for no additional children in the youngest age group is found similar, irrespective of education. The positive impact of education on demand for no additional children is evident from the age of 20 years with the highest impact in age group 25-29 years. In 1996, the relationship between women's education and demand for no additional children had changed. An inverse relationship between demand for no additional children and education, irrespective of woman's age is evident.

In both the intervention and control areas, the relationship between demand for no additional children and education by women' age is more diverse. In the intervention area, in 1984, young women with higher education have less demand for no additional children but have the same demand at age 20-25 years as the two other education groups. From age 25 years, the higher educated women have a higher demand for no additional children than the other two education groups. In 1994, higher education among women shows a positive relationship with demand for no additional children except in the age groups 20-24 years where high education have an inverse relationship with demand for no additional children. The impact of primary education has also a positive relationship with demand for no additional children except among the very young age group.

In the control area in 1984, the impact of education on demand for no additional children irrespective of women' age is less clear. In general, demand for no additional children has a inverse relationship with education. In most of the age groups, high-educated women have a low demand for no additional children while women with primary education have a higher demand for no additional children. In 1994, the same positive relationship between high education and demand for additional children is evident up to age 29 years. From age 30, there is a weak positive relationship between high education and demand for no additional children.

The constant inverse relationship between demand for no additional children and women education in Matlab was similar to national trends but stronger in Matlab, especially in the control area. These trends widened in the 10 years, that is, the positive relationship between women education and demand for additional children was even stronger in 1994/1996 in all three areas. This trend is ambiguous and contradicts the assumption of education hypotheses and its relation with reproductive behaviour. But analysis reveals that most of the young women with higher education are those who have a demand for additional children. This would be expected as this young educated group get married at higher age are still in the family building process.

An analysis of the trends in demand for no additional children as its association with education by number of living children suggests that the demand for no additional children had a consistent positive relationship with education irrespective of number of living children in 1983. In 1996, the same relationship between demand for no additional children and education existed but to a weaker level. In the intervention area, the relationship between demand for no additional children and education was not very clear in 1984. In 1994, the demand for no additional children is higher among the higher educated women having less than four living children. After three living children, the effect of higher education is reduced. In the control area in 1984, a low demand for no additional children among the high-educated women who had only one to three living children is evident. In 1994, the low demand for additional children among higher educated women was evident among those who had only one child. In the rest of the living children group with high education, demand for no additional children is high. However, when comparison are made horizontally among the three areas within the same period, the results suggest that with similar characteristics, demand for additional children is higher in both areas of Matlab than in the national rural level during the whole study period. But demand for no additional children was also universal at a stage when women had five or more children in all the three areas, irrespective of level of education, in 1983/1984. In 1994/1996, the same situation of demand appeared among women with four living children. In general, in all the three areas, demand for no additional children increases with increasing number of living children and year.

Analysis of demand for no additional children and its association with education by number of living sons manifests almost a similar pattern, as it was evident in the case of living children. In all the three areas, demand for no additional children was low in 1983/1984 but increased during the study. And again, when comparisons are made horizontally among three areas within the same period, the results suggest that with similar characteristics (similar education and number of living sons), demand for additional children is higher in both areas of Matlab than at the national rural level during the whole study period.

The comparison of three data sets over the period demonstrates no pattern of relationship between demand for no additional children and husband education at the national level in 1983 nor in the intervention area in 1994 but a inverse relationship between husband education and demand for no additional children in the control area is evident in 1994. Husband education shows the same trends as it was for women education and demand for no additional children in the control area in 1994. There was no substantial change in demand for no additional children by husband education at the national rural level during 1983-1996 period. Interestingly, the couple's education reveals that the demand for no additional children was high among the couples where the husband was literate, than it was for those where the wife was literate in 1983. The findings were more evident in all three areas in 1996. The demand for no additional children was also higher among illiterate couple than literate couples in three areas in 1996.

Education of women even when controlled for biosocial factors, did not give a clear direction of the relationship between demand for additional children and education nor did it gives clear ideas from other education levels as was assumed by education hypothesis. A four way table controlling women's age and living children might be a better option but the small number of cases left in each group after controlling these two factors make the findings inconclusive. A multivariate analysis controlling for all other factors might provide a plausible explanation of the relationship between demand for additional children and education. However, in any traditional society, culture may influence more directly then the social development. The demand for additional children and it association with cultural settings will be discussed next.

## 10.3 Cultural Environment

In a traditional society, culture dominates the social entity of the individuals. Distinct cultural settings of the society affect individual's reproductive behaviour differently. For this reason, the women of southern India make different fertility decisions than the women of north India (Dyson & Moore 1983), and demand for no additional children in Pakistan is low despite a similar religious background. These cultural forces are the dynamics of reproductive change in Thailand (Knodel et al. 1987). The cultural peculiarity of Bangladesh is discussed in chapters two and four. The following section will examine the relationship between culture and demand for no additional children among the women at the national level and both areas Matlab under the major headings. i. Gender preference and sex composition of the family ; ii. Spousal communication; iii. Freedom of women movement; iv. Religiosity. However, because of the size of present chapter, spousal communication and freedom of women movement will be presented in the next chapter.

### 10.3.1 Gender Preference

#### *Sex Composition of the family and Women's age*

Tables 10.6a and 10.6b present the demand for no additional children by sex composition of the children and women' age in national rural and two areas of Matlab in 1983/1984 and 1994/996. Table 10.6a presents national rural data and Matlab areas during the period of 1983/1984. Table 10.6a demonstrates that at the national rural level in 1983, most women wanted more than two children irrespective of age. However, demand for no additional children increases with increasing age. Table shows a clear-cut division in the demand for no additional children between those who have more than two children and those who have two or less. Demand for no additional children is high among women who have more than two children irrespective of sex composition of the children and women age, and highest among those where sons outnumber daughters. Among women who have less than three children, demand for no additional children is high if the women have one son and one daughter, and low if they have one or two daughters irrespective of the woman's age. After age forty, most women do not want additional children but the demand for no additional children is low among women who have one or two daughters than for the other sex composition groups.

**Table 10.6a:Percent of women wanting no additional children by sex composition of family and woman's age, national level (rural) and two areas of Matlab, 1983/1984**

| Variables | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National --1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **Sex composition of family** | | | **Women aged <20** | | | |
| One Son & one daughter | 41.3 | 63 | 20.0 | 5 | 100.0 | 2 |
| 1-2 son only | 7.7 | 337 | 2.6 | 38 | 3.1 | 32 |
| 1--2 daughter only | 6.0 | 319 | 0.0 | 43 | 3.4 | 29 |
| Total >2, son => daughter | 45.5 | 11 | 33.3 | 3 | 100.0 | 1 |
| Total >2, daughter>son | 33.3 | 15 | 0 | 0 | 0 | 0 |
| **Sex composition of family** | | | **Women aged 20- 24** | | | |
| One Son & one daughter | 37.4 | 227 | 23.3 | 133 | 31.3 | 83 |
| 1-2 son only | 20.1 | 318 | 6.9 | 217 | 11.0 | 118 |
| 1--2 daughter only | 10.1 | 267 | 2.5 | 202 | 0.9 | 114 |
| Total >2, son => daughter | 59.4 | 207 | 56.9 | 51 | 72.0 | 25 |
| Total >2, daughter>son | 39.6 | 134 | 29.2 | 48 | 21.4 | 28 |
| **Sex composition of family** | | | **Women aged 25-29** | | | |
| One Son & one daughter | 36.4 | 99 | 36.0 | 75 | 20.6 | 34 |
| 1-2 son only | 35.4 | 99 | 20.2 | 89 | 20.8 | 48 |
| 1--2 daughter only | 13.8 | 116 | 13.0 | 54 | 6.7 | 45 |
| Total >2, son => daughter | 70.2 | 413 | 64.9 | 188 | 70.0 | 130 |
| Total >2, daughter>son | 47.9 | 340 | 23.4 | 145 | 42.2 | 90 |
| **Sex composition of family** | | | **Women aged 30-39** | | | |
| One Son & one daughter | 62.5 | 48 | 46.2 | 26 | 38.1 | 21 |
| 1-2 son only | 40.0 | 50 | 41.4 | 29 | 41.7 | 12 |
| 1--2 daughter only | 37.2 | 43 | 0.0 | 10 | 6.3 | 16 |
| Total >2, son => daughter | 82.2 | 712 | 85.5 | 502 | 87.1 | 319 |
| Total >2, daughter>son | 75.9 | 465 | 61.5 | 273 | 75.1 | 205 |
| **Sex composition of family** | | | **Women aged 40-49** | | | |
| One Son & one daughter | 85.7 | 21 | 57.1 | 7 | 100.0 | 1 |
| 1-2 son only | 93.8 | 16 | 80.0 | 5 | 66.7 | 3 |
| 1--2 daughter only | 65.4 | 26 | 0.0 | 1 | 0.0 | 4 |
| Total >2 son => daughter | 97.6 | 490 | 97.1 | 242 | 97.6 | 165 |
| Total >2, daughter>son | 92.8 | 318 | 92.7 | 179 | 94.1 | 101 |
| **Sex composition of family** | | | **All Women** | | | |
| One son and one daughter | 42.6 | 458 | 30.5 | 246 | 31.2 | 141 |
| 1-2 son only | 19.5 | 820 | 13.2 | 378 | 14.6 | 213 |
| 1-2 daughter only | 12.3 | 771 | 3.9 | 310 | 2.9 | 208 |
| total>2 and son>=daughter | 80.8 | 1833 | 82.8 | 986 | 85.8 | 640 |
| total>2 and daughter>son | 68.3 | 1272 | 59.2 | 645 | 69.1 | 424 |

The same table (Table 10.6a) presents the demand for no additional children by the sex composition of the family and women's age for both areas of Matlab for the year 1984. The Table demonstrates that similar to the national rural area, most women in these two areas want more than two children in these two areas and the trends in demand for no additional children by sex composition of the family , irrespective of women age, are almost the same in the three areas. However, the table also reveals that there is a stronger preference for sons and a higher number of children in both areas of Matlab than in the national rural areas. This is more evident if the women who have less than three children are considered. Demand for no additional children is low among women who have two or less children of the same sex and lowest if these two children are females irrespective of the women's age.

Table 10.6b presents demand for no additional children by sex composition of the family and woman's age for the national rural and two areas of Matlab for 1994/1996. It shows that in the national rural area, demand for no additional children has substantially increased among all women including women with two or less children irrespective of the women age. In each of the age groups, about 70 percent of women having more than two children or two children one of each sex have no intention to have additional children. However, this proportion increases with an increase in the age of the women. There is also an indication that demand for no additional children among the women having other sex composition of the family , that is, two or less children of the same sex, increases with increasing women age. After age 40, 70 percent of the women, irrespective of any sex composition of the family, reported to have no demand for additional children.

Table 10.6b shows that in two areas of Matlab, the demand for no additional children had increased in 1994 although not as much as in the national rural area in 1996. The demand for additional children is very high in these two areas among the women of age <20 irrespective of any sex composition of the children and is the highest in the intervention area. Demand for no additional children started rising from age 20 years, and among the women who have more than two children

**Table 10.6b:Percent of women wanting no additional children by sex composition of family and women's age, national level (rural) and two areas of Matlab, 1994/1996**

| Variables | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab -1994 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **Sex composition of family** | | | **Women aged <20** | | | |
| One Son & one daughter | 73.7 | 57 | 0.0 | 2 | 50.0 | 2 |
| 1-2 son only | 13.8 | 275 | 2.0 | 50 | 9.4 | 32 |
| 1--2 daughter only | 7.3 | 313 | 2.6 | 38 | 8.8 | 34 |
| Total >2, son => daughter | 66.7 | 3 | 0 | 0 | 0 | 0 |
| Total >2, daughter>son | 0 | 0 | 0 | 0 | 0 | 0 |
| **Sex composition of family** | | | **Women aged 20- 24** | | | |
| One Son & one daughter | 69.6 | 257 | 48.6 | 37 | 41.5 | 41 |
| 1-2 son only | 24.2 | 372 | 12.9 | 70 | 18.8 | 69 |
| 1--2 daughter only | 20.3 | 311 | 16.2 | 74 | 13.8 | 58 |
| Total >2, son => daughter | 79.3 | 111 | 66.7 | 15 | 88.2 | 17 |
| Total >2, daughter>son | 66.4 | 113 | 72.7 | 11 | 41.2 | 17 |
| **Sex composition of family** | | | **Women aged 25-29** | | | |
| One Son & one daughter | 76.4 | 242 | 57.1 | 49 | 45.8 | 24 |
| 1-2 son only | 43.4 | 219 | 38.6 | 44 | 31.6 | 19 |
| 1--2 daughter only | 27.8 | 180 | 26.3 | 38 | 19.0 | 21 |
| Total >2, son => daughter | 91.1 | 361 | 85.5 | 83 | 86.7 | 75 |
| Total >2, daughter>son | 74.6 | 311 | 62.3 | 61 | 66.7 | 72 |
| **Sex composition of family** | | | **Women aged 30-39** | | | |
| One Son & one daughter | 82.7 | 150 | 66.7 | 30 | 75.0 | 4 |
| 1-2 son only | 57.1 | 98 | 52.6 | 19 | 75.0 | 8 |
| 1--2 daughter only | 35.4 | 79 | 14.3 | 7 | 40.0 | 5 |
| Total>2, son => daughter | 95.0 | 721 | 93.7 | 174 | 96.1 | 153 |
| Total >2, daughter>son | 89.0 | 534 | 87.2 | 117 | 90.0 | 90 |
| **Sex composition of family** | | | **Women aged 40-49** | | | |
| One Son & one daughter | 71.4 | 21 | 100.0 | 4 | 100.0 | 2 |
| 1-2 son only | 69.2 | 13 | 0.0 | 0 | 0.0 | 0 |
| 1--2 daughter only | 69.2 | 13 | 100.0 | 1 | 50.0 | 2 |
| Total >2, son => daughter | 98.1 | 322 | 98.9 | 90 | 100.0 | 73 |
| Total >2, daughter>son | 97.0 | 197 | 100.0 | 46 | 97.4 | 38 |
| **Sex composition of family** | | | **All Women** | | | |
| One son and one daughter | 75.0 | 727 | 57.4 | 122 | 46.6 | 73 |
| 1-2 son only | 29.5 | 977 | 20.2 | 183 | 21.9 | 128 |
| 1-2 daughter only | 19.3 | 896 | 15.8 | 158 | 15.0 | 120 |
| Total>2 and son>=daughter | 93.5 | 1518 | 92.0 | 362 | 94.3 | 318 |
| Total>2 and daughter>son | 84.2 | 1155 | 82.6 | 235 | 79.7 | 217 |

in both areas. The third group of women who have higher demand for no additional children are the women who have two children, one of each sex. But these proportions are lower than in the national rural areas. From women of age 30 and above a higher proportion of women in the control area do not want additional children. After age 40, almost none wanted any more children irrespective of any sex composition of the family in both areas of Matlab though the number of cases above age 30 having less than three children is small.

### *Sex composition of the family and women education*

Sex composition of the family controlled for education in 1983/1984 is presented in Table 10.7a for national rural and both areas of Matlab. The national data presented in the Table demonstrates that most of the women with more than two children have a lower demand for additional children. Among these groups, the high educated women had the highest demand for no additional children. Ninety three percent of the high educated (5+years) women who had more sons than daughters and 77 percent of the high educated (5+years) women who had more daughters than sons, for example, did not want additional children compared to their illiterate counterparts 80 percent and 67 percent respectively. The same is true for women who have primary education. The positive relationship between demand for no additional children and education among women who had two or less children though exists, is weak.

**Table 10.7a: Percent of women wanting no additional children by sex composition of family and women's education, national level (rural) and two areas of Matlab, 1983/1984.**

| | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National --1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 41.7 | 307 | 27.7 | 112 | 23.9 | 92 |
| 1-2 son only | 19.1 | 535 | 15.3 | 177 | 14.8 | 128 |
| 1--2 daughter only | 11.5 | 522 | 2.1 | 146 | 2.6 | 117 |
| Total >2, son => daughter | 80.0 | 1363 | 82.1 | 541 | 85.9 | 434 |
| Total >2, daughter>son | 67.1 | 900 | 61.8 | 361 | 72.7 | 256 |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| One Son & one daughter | 44.9 | 127 | 29.6 | 108 | 45.0 | 40 |
| 1-2 son only | 17.3 | 202 | 11.0 | 163 | 17.1 | 70 |
| 1--2 daughter only | 13.8 | 188 | 6.3 | 128 | 2.9 | 70 |
| Total >2, son => daughter | 81.6 | 408 | 82.9 | 380 | 85.0 | 187 |
| Total >2, daughter>son | 70.4 | 328 | 58.6 | 249 | 64.7 | 153 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| One Son & one daughter | 41.7 | 24 | 46.2 | 26 | 44.4 | 9 |
| 1-2 son only | 27.7 | 83 | 13.2 | 38 | 0.0 | 15 |
| 1--2 daughter only | 14.8 | 61 | 2.8 | 36 | 4.8 | 21 |
| Total >2, son => daughter | 93.5 | 62 | 87.7 | 65 | 89.5 | 19 |
| Total >2, daughter>son | 77.3 | 44 | 37.1 | 35 | 53.3 | 15 |

In both areas of Matlab, in 1984, the table demonstrates that most of the women with more than two children have a higher demand for no additional children irrespective of education, followed by the women who have two children, one of each sex. In general, demand for no additional children is high among women who have more than two children, and those who have sons outnumbering daughters but that there is a positive relationship between education and sex composition of the family among this group evident in data from areas of Matlab. Although the second highest group who do not want additional children are the women who have more than two children and where daughters are equal or outnumber sons, there is an inverse relationship between demand for no additional children and education in this group which means educated women in Matlab have a stronger demand for sons. It also appears from the Table that in both areas, demand for no additional children increases with increasing education among women who have child one of each sex but that demand for additional children is equally strong when they have children from the same sex, and strongest when they have daughters only. For example, 98 percent of illiterate women of both areas did want additional children if they had one or two daughters. These percentages did not change with higher levels of education. The demand for no additional children is slightly higher among the women who had one or two sons only than those who have one or two daughters only. This trend in relationship between education and demand for no additional children among the women who have one or two children of the same sex was the same in 1994 as was in 1984.

**Table 10.7b: Percent of women wanting no additional children by sex composition of Family and women's education, national level (rural) and two areas of Matlab, 1994/1996**

| | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab -1994 | | | |
| | | | Intervention | | Control | |
| **Variables** | % | N | % | N | % | N |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 75.8 | 376 | 50.0 | 58 | 47.1 | 34 |
| 1-2 son only | 30.8 | 452 | 18.8 | 80 | 24.0 | 50 |
| 1--2 daughter only | 21.6 | 416 | 17.2 | 64 | 12.8 | 39 |
| Total>2, son => daughter | 92.1 | 952 | 89.4 | 189 | 93.0 | 199 |
| Total >2, daughter>son | 83.7 | 713 | 83.7 | 135 | 82.7 | 127 |
| **Sex composition of family** | **Education of woman :1-5 years** | | | | | |
| One Son & one daughter | 71.5 | 214 | 48.7 | 39 | 41.7 | 24 |
| 1-2 son only | 28.2 | 308 | 17.7 | 62 | 19.2 | 52 |
| 1--2 daughter only | 17.1 | 292 | 9.6 | 52 | 18.9 | 37 |
| Total >2, son => daughter | 95.2 | 418 | 93.5 | 138 | 96.0 | 101 |
| Total >2, daughter>son | 85.6 | 333 | 81.3 | 75 | 75.0 | 76 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| One Son & one daughter | 78.1 | 137 | 88.0 | 25 | 53.3 | 15 |
| 1-2 son only | 28.6 | 217 | 26.8 | 41 | 23.1 | 26 |
| 1--2 daughter only | 17.6 | 188 | 21.4 | 42 | 13.6 | 44 |
| Total >2, son => daughter | 98.0 | 148 | 100.0 | 35 | 100.0 | 18 |
| Total >2, daughter>son | 83.5 | 109 | 80.0 | 25 | 78.6 | 14 |

The association between demand for no additional children by sex composition of the family and women education after a decade, that is, in 1994/96, is presented in Table 10.7b for national rural and both areas of Matlab. The data demonstrate that at the national rural level, the demand for additional children substantially decreased during the study period. At the national level (rural), about 70 percent or more women with one child of each sex do not want additional children irrespective of their education. More than 90 percent of the women having more than two children and more sons than daughters have no demand for additional children irrespective their of level of education although there is a slight positive trends in demand for no additional children in relation to education among this groups. The demand for no additional children also increases among the women who have more than two children and have equal or more number of sons and daughters but the impact of education is not evident. The demand for additional children with one or two sons also decreases over the period but it is not as large as it is with one child from each sex. The decrease does not reflect any relationship with women's education. Demand for no additional children is very low among the women who have two or less daughters, irrespective of the level of the education.

For both areas of Matlab, in 1994, the data show that demand for additional children also reduced during the period of 1984-1994 for all levels of education but that the change is not as large as that at the national level. Data from both areas of Matlab shows a shift in attitude among the women with more than two children. This changed view is more evident among women having more daughters than sons in both areas of Matlab. Similar to 1984, the 1994 data from Matlab shows a positive relationship between demand for no additional children and high education among the women who had one child from each sex. But for primary education, the relationship is less clear. Demand for no additional children also increases among women who have two or less children of the same sex. Despite this change, gender preference is strong in both areas in 1994. Most women with one or two sons or one or two daughters want additional children and demand is stronger if they have daughters only. This is the case for most women irrespective of the level of education in both areas.

**Table 10.8a: Percent of women wanting no additional children by religion and woman's education, national level (rural) and two areas of Matlab, 1983/1984.**

| Variables | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National --1983 | | Matlab –1984 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **Religion** | | | | | | |
| Muslim | 53.9 | 4605 | 52.9 | 2220 | 57.6 | 1452 |
| Hindus | 58.3 | 549 | 46.4 | 345 | 50.0 | 174 |
| **Education of woman: None** | | | | | | |
| Muslim | 54.4 | 3248 | 56.3 | 1104 | 60.5 | 883 |
| Hindus | 57.5 | 379 | 45.5 | 233 | 47.9 | 144 |
| **Education of woman : 1-5years** | | | | | | |
| Muslim | 53.3 | 1130 | 50.6 | 940 | 55.5 | 492 |
| Hindus | 65.0 | 123 | 48.9 | 88 | 60.7 | 28 |
| **Education of woman : 5+ years** | | | | | | |
| Muslim | 49.3 | 227 | 43.8 | 176 | 37.7 | 77 |
| Hindus | 46.8 | 47 | 45.8 | 24 | 50.0 | 2 |

### 10.3.2 Religion

As noted in chapter 2, Bangladesh is basically a Muslim dominated society with 88 percent Muslim and the remainder mostly Hindus. Other groups are negligible. The demand for additional children for Muslims and Hindus individually are presented in Tables 10.8a and 10.8b. Table 10.8a presents demand for additional children and religion, and demand for additional children and religion controlling for education of the three areas for 1983/1984. It shows that there is no virtual difference in demand for no additional children between the Hindus and the Muslim in all the three areas. This trend holds true when education is controlled.

Table 10.8b presents demand for additional children and religion, and demand for additional children and religion controlling for education of the three areas in 1994/1996. In addition, a new variable, times prayed in a day, is also presented in this Table for national data, 1996. The Table shows a similar trend in demand for additional children by religion as was revealed in 1983/1984 for all three areas. This is true when education is controlled. Data on number of times prayed collected in national survey in 1996 shows that those who prayed more than twice a day have a higher demand for no additional children than the other groups. Demand for additional children and number of times prayed in a day controlled for education is also presented in the same Table. It shows that the demand for no additional children is high among illiterate women and women with primary education who prayed more than twice a day.

**Table 10.8b: Percent of women wanting no additional children by religion and women's education, national level (rural) and two areas of Matlab, 1994/1996.**

| | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab -1994 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Religion** | | | | | | |
| Muslim | 64.6 | 4719 | 63.1 | 903 | 64.8 | 772 |
| Hindus | 63.4 | 554 | 56.7 | 157 | 63.1 | 84 |
| **Times prayed per day** | | | | | | |
| Non faith | 63.2 | 555 | -- | -- | -- | -- |
| 0-2 | 59.8 | 1336 | -- | -- | -- | -- |
| 2+ | 66.5 | 3382 | -- | -- | -- | -- |
| **Religion** | **Education of woman: None** | | | | | |
| Muslim | 68.7 | 2658 | 66.6 | 437 | 72.7 | 384 |
| Hindus | 64.1 | 251 | 51.7 | 89 | 67.7 | 65 |
| **Religion** | **Education of woman: 1-5 years** | | | | | |
| Muslim | 62.1 | 1396 | 62.0 | 326 | 62.8 | 277 |
| Hindus | 62.7 | 169 | 57.5 | 40 | 53.8 | 13 |
| **Religion** | **Education of woman: 6 or more years** | | | | | |
| Muslim | 53.2 | 665 | 55.0 | 140 | 42.3 | 111 |
| Hindus | 62.7 | 134 | 71.4 | 28 | 33.3 | 6 |
| **Times prayed per day** | **Education of woman: None** | | | | | |
| Non faith | 64.1 | 251 | -- | -- | -- | -- |
| 0-2 | 62.9 | 958 | -- | -- | -- | -- |
| 2+ | 72.0 | 1700 | -- | -- | -- | -- |
| **Times prayed per day** | **Education of woman: 1-5 years** | | | | | |
| Non faith | 62.4 | 170 | -- | -- | -- | -- |
| 0-2 | 54.6 | 273 | -- | -- | -- | -- |
| 2+ | 64.0 | 1122 | -- | -- | -- | -- |
| **Times prayed per day** | **Education of woman: 6 or more years** | | | | | |
| Non faith | 62.7 | 134 | -- | -- | -- | -- |
| 0-2 | 44.8 | 105 | -- | -- | -- | -- |
| 2+ | 54.8 | 560 | -- | -- | -- | -- |

"—" Indicates no data available

### 10.3.3 Summary

The four tables related with sex composition and demand for addition children clearly demonstrate that demand for additional children is decreasing substantially. Gender preference, though, shows a trend of decline but it is not as the decline of demand for additional children. The analysis suggests two broad trends. At the early stage of fertility decline, demand for additional children began to decline among women who had more than two children and to a lesser extent among those who had at least one child of each sex, irrespective of woman's age or education. This trend is true for all three areas under study but more evident among the high-educated women of the two areas of Matlab for the whole study period.

The demand for additional children is strong if women have only sons, but stronger if they have only daughters. This holds true irrespective of women's age and education for the whole study period in all three areas examined. It is interesting to note that in both areas of Matlab in 1984, high educated women having more daughters than sons have a higher demand for additional children than the illiterate or primary educated women having the same sex composition of the family. In all three areas, the proportion changes in demand for additional children are faster among women with two children, one child of each sex.

In general, demand for no additional children is higher at the national rural area and low in the two areas of Matlab. It generated earlier (i.e. before 1983) at the national rural level and more radical change occurred in the Matlab areas, especially in the intervention area during the study period. Despite all the changes, demand for additional children is still strong among women with children of one sex and stronger with those who have only daughters. This trend is evident in all three areas.

A four way table of the demand for additional children by sex composition of the family controlling women education and age was prepared. The results are similar to those of the three ways tables but because of the small number of cases in some categories the results are inconclusive. The tables are attached in the appendix. The multivariate analysis performed later will provide us a better idea of the conclusive relationship between these four variables.

In terms of religion, analysis shows that the demand for no additional children is slightly higher among the Hindus at the national level, but lowers in both areas of Matlab. Demand for additional children and number of times prayed in a day controlled for education use for national data shows that the demand for no additional children is high among illiterate women and women with primary education who prayed more than twice a day.

Because of the large size of this chapter, some cultural values still remain to be analysed that have not analysed in this chapters will be examined in the next chapter before making conclusion of the social and cultural aspects and its relationship with demand for additional children.

# Chapter 11: Social and Cultural Change and Demand for Additional Children II

## 11.1 Introduction

The previous chapter examined several socio-cultural aspects of the society and their association with demand for no additional children. These include education at all levels, sex composition of the family and their mediating effect through biosocial factors. This chapter explores further macro socio-cultural aspects which effect the community and micro behavioural aspects. These are spousal communication, women autonomy or freedom of movement, and women's membership on NGO organization. This chapter will also examine relationship of these factors with demand for no additional children and the mediating effect of these factors through women's education and age. As discussed in chapter two, and four society in Bangladesh in patriarchal but communication between spouses is quite common. Frequent discussions between spouses about family affairs might generate demand for no additional children as a response to their sharing in the family decision-making process in contrast to women who have less communication with their husband. Woman autonomy or freedom of movement exposes women to different development activities from which demand for fertility control can be generated. In addition, woman's involvement in the NGO activities not only enhanced her status it also has increased mobility. These two together can generate a demand for fertility control in the rural area of Bangladesh.

## 11.2 Spousal Communication

Spousal communication is an important factor in reproductive behaviour irrespective of social structure or degree of development in all countries. But it is more important in a developing country like Bangladesh where society is traditionally patriarchal. In a traditional patriarchal society, discussion and communication between spouses is constrained by culture. Men make decisions on important matters including reproduction and very few discuss these matters with wife. Historically, spousal communication was not common in this sub-continents including Bangladesh (Caldwell et al. 1984; Khan 1984 Aziz et al. 1985). In recent times, situation has been changed. Discussion between spouses has been found to be common in rural Bangladesh (Khan 1984; BDHS-1996; Population report 1998). The effect of spousal communication on reproductive behaviour during the study period will be examined in this section. Three types of information will be used to explore the relationship between spousal communication and demand for no additional children. These are: i. discussion of family planning matters with husband; ii. women's perception of husband family planning approval; iii women's perception of agreed number of children by husband. However, data on spousal communication was not collected in all the three area for both period. Matlab has data for both period and National area for only 1996.

### 11.2.1 Spousal Communication About Family Planning

The relationship between demand for additional children and spousal communication about family planning in the two areas of Matlab in 1984 and three areas in 1994/96 is presented in Tables 11.1a and 11.1b respectively.

Table 11.1a presents the demand for no additional children by spousal communication for 1984 in both areas of Matlab. It shows that, in general, women who did not discuss family planning matters with their husband have a slightly lower demand for no additional children in both areas of Matlab. The relationship between demand for no additional children and spousal discussion of family planning matters by women's education and age reveals that there is a slightly higher demand for no additional children among women who discuss family planning matter with husband irrespective of woman's age. However, contrary to expectations, education, though consistent, has only a weak positive relationship with demand for no additional children among the women who discuss family planning matters with husband. The demand for no additional children is substantially lower among higher educated women who did not discuss family planning matters with their husband compared to the same educated women group who discuss family planning matters with their husband.

**Table 11.1a:Percent of women wanting no additional children by spousal communication: discussion of family planning with husband, woman's education and age, national level (rural) and both areas of Matlab, 1983/1984**

| Variables | Discussed FP with Husband | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1983 | | Matlab -1984 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | **Education of woman: None** | | | | | |
| <20 | Yes | -- | -- | 2.8 | 36 | 10.5 | 19 |
| | No | -- | -- | 0.0 | 3 | 0.0 | 20 |
| 20-24 | Yes | -- | -- | 13.6 | 257 | 17.7 | 124 |
| | No | -- | -- | 12.5 | 32 | 11.3 | 71 |
| 25-29 | Yes | -- | -- | 37.6 | 250 | 47.2 | 161 |
| | No | -- | -- | 34.4 | 32 | 28.1 | 57 |
| 30-39 | Yes | -- | -- | 72.3 | 401 | 79.5 | 273 |
| | No | -- | -- | 65.9 | 44 | 68.7 | 99 |
| 40-49 | Yes | -- | -- | 94.6 | 241 | 95.0 | 121 |
| | No | -- | -- | 87.8 | 41 | 96.3 | 82 |
| **Age of woman** | | **Education of woman:1-5 years** | | | | | |
| <20 | Yes | -- | -- | 4.9 | 41 | 8.3 | 12 |
| | No | -- | -- | 0.0 | 2 | 25.0 | 8 |
| 20-24 | Yes | -- | -- | 14.2 | 239 | 26.3 | 99 |
| | No | -- | -- | 19.6 | 46 | 9.5 | 42 |
| 25-29 | Yes | -- | -- | 37.9 | 203 | 48.3 | 89 |
| | No | -- | -- | 13.3 | 15 | 30.0 | 20 |
| 30-39 | Yes | -- | -- | 77.3 | 308 | 79.2 | 144 |
| | No | -- | -- | 70.6 | 34 | 84.6 | 39 |
| 40-49 | Yes | -- | -- | 94.0 | 116 | 95.6 | 45 |
| | No | -- | -- | 100.0 | 24 | 81.8 | 22 |
| **Age of women** | | **Education of woman : 6 or more years** | | | | | |
| <20 | Yes | -- | -- | 0.0 | 4 | 0.0 | 5 |
| | No | -- | -- | 0.0 | 3 | 0.0 | 0 |
| 20-24 | Yes | -- | -- | 17.1 | 70 | 13.0 | 23 |
| | No | -- | -- | 0.0 | 7 | 11.1 | 9 |
| 25-29 | Yes | -- | -- | 47.9 | 48 | 46.2 | 13 |
| | No | -- | -- | 33.3 | 3 | 28.6 | 7 |
| 30-39 | Yes | -- | -- | 77.1 | 48 | 80.0 | 15 |
| | No | -- | -- | 60.0 | 5 | 66.7 | 3 |
| 40-49 | Yes | -- | -- | 100.0 | 12 | 100.0 | 3 |
| | No | -- | -- | 0 | 0 | 100.0 | 1 |
| **Age of woman** | | **ALL women** | | | | | |
| <19 | Yes | -- | -- | 3.7 | 81 | 8.3 | 36 |
| <19 | No | -- | -- | 0.0 | 8 | 7.1 | 28 |
| 20-24 | Yes | -- | -- | 14.3 | 566 | 20.7 | 246 |
| 20-24 | No | -- | -- | 15.3 | 85 | 10.7 | 122 |
| 25-29 | Yes | -- | -- | 38.7 | 501 | 47.5 | 263 |
| 25-29 | No | -- | -- | 28.0 | 50 | 28.6 | 84 |
| 30-39 | Yes | -- | -- | 74.6 | 757 | 79.4 | 432 |
| 30-39 | No | -- | -- | 67.5 | 83 | 73.0 | 141 |
| 40-49 | Yes | -- | -- | 94.6 | 369 | 95.3 | 169 |
| 40-49 | No | -- | -- | 92.3 | 65 | 93.3 | 105 |

Table continued

**Table 11.1a: (Cont.)Percent of women wanting no additional children by spousal communication: discussion of family planning with husband, woman's education and age, national level (rural) and both areas of Matlab, 1983/1984**

| Variables | Discussed FP with Husband | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1983 | | Matlab -1984 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Education of woman** | | | | | | | |
| None | Yes | -- | -- | 54.7 | 1185 | 61.9 | 698 |
| None | No | -- | -- | 52.6 | 152 | 52.0 | 329 |
| 1-5 years | Yes | -- | -- | 50.7 | 907 | 58.4 | 389 |
| 1-5 years | No | -- | -- | 48.8 | 121 | 48.1 | 131 |
| 6 or more | Yes | -- | -- | 46.2 | 182 | 40.7 | 59 |
| 6 or more | No | -- | -- | 22.2 | 18 | 30.0 | 20 |
| **All** | Yes | -- | -- | 52.4 | 2274 | 59.6 | 1146 |
| | No | -- | -- | 49.1 | 291 | 50.0 | 480 |

In the control area, in 1984, the table shows the same relationship between demand for no additional children among women who discuss family planning matter with their husband irrespective of their age, that is, within the same age groups, demand for no additional children is higher among women who discussed family planning matters with husband than those who did not. The relationship between demand for no additional children and spousal discussion of family planning matters, when age is controlled, shows an inverse relationship with education among the very young women (age <20) and an inverted U among the women of age 20-24 years. Beyond age 24 years, education does not seem to have an impact among those who discussed family planning matters with husband. Among the women who did not discuss family planning matters with their husband, when women's age is controlled, an inverted U relationship between education and demand for no additional children irrespective of age is evident. And similar to intervention area, demand for no additional children is substantially lower among high educated women who did not discuss family planning matters with husband compared to the same educated women groups who discussed family planning matters with their husband.

Table 11.1b presents the demand for additional children by spousal discussion about family planning controlling for education in three areas in 1994/96. In general, national data in 1996 for rural area shows similar trends, to the was the trend in Matlab in 1984. Demand for no additional children in general is slightly lower among women who did not discuss family planning matters with their husband. The relationship between demand for no additional children and spousal discussion of family planning matters by women's age reveals that there is a substantially higher demand for no additional children among women who discussed family planning matter with husband, irrespective of age, except those who are young (<24 years) and highly literate (6 or more years). When women's age is controlled, education shows an inverse relationship with demand for no additional children among women who discussed family planning matters with husband, that means, high educated women discussing family planning matters with husband have a low demand for no additional children. Among the women who did not discuss family planning with their husband, demand for no additional children is high in most age groups among the women with primary education. The impact of higher education on demand for no additional children is either low or similar to that for women who have primary education.

In both areas of Matlab, in 1994, demand for no additional children is high among women who discuss family planning matters with husband irrespective of age except for the illiterate women in the control area. In this group, demand for no additional children is similar between those who discuss family planning matters with husband and those who do not.

In the intervention area in 1994, when women's age is controlled, education shows an U relationship with demand for no additional children among the women, age <20 years and an inverse relationship among women of 20-24 years. From age 25 years, education shows an expected positive relationship with demand for no additional children among those who discussed family planning with their husband. Among the women who did not discuss family planning matters with their husband, the relationship between education and demand for no additional children varies with varying age groups. The demand for additional children is universal irrespective of education among the young women of age <20, there is a U shape relationship between no demand for additional children and education among women of age 20-24 years, and a positive relationship among women of age 25-29 years. From age 30, education does not seem to have

**Table 11.1b Percent of women wanting no additional children by spousal communication: discussion of family planning with husband, woman's education and age, national level (rural) and both areas of Matlab, 1994/1996.**

| Variables | Discussed FP with Husband | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | | | **Education of woman: None** | | | |
| <20 | Yes | 22.4 | 152 | 2.7 | 37 | 13.0 | 23 |
| | No | 12.2 | 147 | 0.0 | 6 | 25.0 | 4 |
| 20-24 | Yes | 52.7 | 332 | 30.4 | 69 | 31.3 | 67 |
| | No | 35.9 | 270 | 45.0 | 20 | 30.8 | 13 |
| 25-29 | Yes | 80.0 | 421 | 59.8 | 97 | 69.3 | 88 |
| | No | 61.1 | 314 | 46.7 | 30 | 68.2 | 22 |
| 30-39 | Yes | 92.9 | 451 | 83.8 | 136 | 96.0 | 99 |
| | No | 80.4 | 439 | 78.7 | 47 | 84.2 | 57 |
| 40-49 | Yes | 99.2 | 118 | 98.0 | 51 | 100.0 | 24 |
| | No | 92.8 | 265 | 100.0 | 33 | 98.1 | 52 |
| **Age of woman** | | | | **Education of woman:1-5 years** | | | |
| <20 | Yes | 16.1 | 155 | 0.0 | 27 | 13.0 | 23 |
| | No | 15.2 | 79 | 0.0 | 4 | 0.0 | 3 |
| 20-24 | Yes | 46.4 | 211 | 25.0 | 60 | 32.3 | 65 |
| | No | 41.2 | 148 | 10.0 | 10 | 20.0 | 10 |
| 25-29 | Yes | 72.7 | 220 | 61.1 | 90 | 66.7 | 63 |
| | No | 52.9 | 153 | 55.6 | 18 | 37.5 | 8 |
| 30-39 | Yes | 93.7 | 252 | 91.4 | 81 | 87.7 | 57 |
| | No | 79.1 | 206 | 79.3 | 29 | 100.0 | 24 |
| 40-49 | Yes | 98.1 | 54 | 100.0 | 38 | 95.0 | 20 |
| | No | 96.6 | 87 | 100.0 | 9 | 100.0 | 17 |
| **Age of woman** | | | | **Education of woman: 6 or more years** | | | |
| <20 | Yes | 13.1 | 84 | 6.7 | 15 | 0.0 | 13 |
| | No | 16.1 | 31 | 0.0 | 1 | 0.0 | 2 |
| 20-24 | Yes | 31.1 | 135 | 22.0 | 41 | 26.2 | 42 |
| | No | 32.4 | 68 | 28.6 | 7 | 20.0 | 5 |
| 25-29 | Yes | 61.2 | 139 | 68.6 | 35 | 45.0 | 20 |
| | No | 54.5 | 66 | 60.0 | 5 | 40.0 | 10 |
| 30-39 | Yes | 86.3 | 153 | 89.8 | 49 | 94.4 | 18 |
| | No | 80.2 | 81 | 80.0 | 5 | 100.0 | 5 |
| 40-49 | Yes | 95.7 | 23 | 100.0 | 9 | 100.0 | 2 |
| | No | 94.7 | 19 | 100.0 | 1 | 0.0 | 0 |
| **Age of woman** | | | | **ALL women** | | | |
| <19 | Yes | 17.9 | 391 | 2.5 | 79 | 10.2 | 59 |
| <19 | No | 13.6 | 257 | 0.0 | 11 | 11.1 | 9 |
| 20-24 | Yes | 46.5 | 678 | 26.5 | 170 | 30.5 | 174 |
| 20-24 | No | 37.0 | 486 | 32.4 | 37 | 25.0 | 28 |
| 25-29 | Yes | 74.6 | 780 | 61.7 | 222 | 65.5 | 171 |
| 25-29 | No | 58.0 | 533 | 50.9 | 53 | 55.0 | 40 |
| 30-39 | Yes | 91.9 | 856 | 87.2 | 266 | 93.1 | 174 |
| 30-39 | No | 80.0 | 726 | 79.0 | 81 | 89.5 | 86 |
| 40-49 | Yes | 98.5 | 195 | 99.0 | 98 | 97.8 | 46 |
| 40-49 | No | 93.8 | 371 | 100.0 | 43 | 98.6 | 69 |

Table continued

**Table 11.1b(Cont.): Percent of women wanting no additional children by spousal communication: discussion of family planning with husband, woman's education and age, national level (rural) and both areas of Matlab, 1994/1996.**

| Variables | Discussed FP with Husband | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Education of woman** | | | | | | | |
| None | Yes | 73.4 | 1474 | 62.6 | 390 | 67.8 | 301 |
| None | No | 63.1 | 1435 | 68.4 | 136 | 80.4 | 148 |
| 1-5 years | Yes | 64.1 | 892 | 61.5 | 296 | 59.2 | 228 |
| 1-5 years | No | 59.6 | 673 | 61.4 | 70 | 74.2 | 62 |
| 6 or more | Yes | 54.7 | 534 | 58.4 | 149 | 41.1 | 95 |
| 6 or more | No | 55.1 | 265 | 52.6 | 19 | 45.5 | 22 |
| **Discuss Family planning** | Yes | 67.1 | 2900 | 61.4 | 835 | 60.6 | 624 |
| | No | 61.2 | 2373 | 64.9 | 225 | 75.4 | 232 |

any impact on demand for no additional children among the women who do not discuss family planning matters with husband.

In the control area, in 1994, when women's age is controlled, no definite pattern of relationship appears between education and demand for no additional children. Among the women who discuss family planning with their husband, a somewhat inverse relationship between education and demand for no additional children is evident with women of age less than 30 years. From age 30 and above the relationship is an inverted U. Among the women, who did not discuss family planning matters with their husband, the same inverse relationship between women's education and demand for no additional children is evident among women of age <30 years. A positive relationship between education and demand for no additional children is evident among women of age 30 and above.

### 11.2.2 Women's Perception of Spouses' Attitude Towards Family Planning

Table 11.2a and Table 11.2b present the demand for no additional children and women's perception of their husband's approval of family planning programme by women's age and education in two areas of Matlab in 1984 and three areas in 1994/96 periods. As reported earlier CPS-1983 did not have this variable so Table 11.2a is produced using data from Matlab only.

Table 11.2a shows that, in general, in the intervention area, demand for no additional children and women's perception of their husband's approval or disapproval of family planning programme does not affect her attitude towards demand for no additional children. Unexpectedly, in the control area, demand for no additional children is low among women whose husbands approve of the family planning programme.

In the intervention area, the table shows that the demand for no additional children increases with an increase in the women's age irrespective of education and women's perception of their husband's approval or disapproval of the family planning programme. But within the same age groups, in most age groups, demand for no additional children is slightly higher among those women whose husband approves of family planning except for the high educated women of age greater than 24 years. Among these age groups, demand for no additional children is higher among the women who think their husband disapproves of family planning. The demand for no additional children does not show any consistent relationship with education irrespective of women's age except for women of age 25- 29. In these age groups, a weak positive relationship with education is evident among the women irrespective of their perception of husband's approval of family planning programmes.

The Table shows that in the control area, in 1984, the same positive relationship between demand for no additional children and women age, irrespective of education among both groups whose husband approves family planning and whose husband does not, is found as was found in the intervention area in 1984. But within the same age group, demand for no additional children is higher among the illiterate women who think their husband disapproves of the family planning programmes. Among the women with primary education, demand for no additional children is slightly higher among those who think their husband approves of family planning. No conclusion can be made about the relationship woman's high education, spousal communication and demand for no additional children because the number of women in the higher educated group was small. The demand for no additional children shows an inverted U with education

**Table 11.2a: Percent of women wanting no additional children by spousal communication: woman's perception of her husband approval of family planning, by woman's education and age national level (rural) and both areas of Matlab, 1983/1984.**

| Variables | Husband approved FP | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1983 | | Matlab -1984 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | | | **Education of woman: None** | | | |
| <20 | Yes | -- | -- | 0.0 | 19 | 3.0 | 33 |
| | No | -- | -- | 5.0 | 20 | 16.7 | 6 |
| 20-24 | Yes | -- | -- | 17.0 | 165 | 16.4 | 122 |
| | No | -- | -- | 8.9 | 124 | 13.7 | 73 |
| 25-29 | Yes | -- | -- | 37.2 | 145 | 40.3 | 119 |
| | No | -- | -- | 37.2 | 137 | 44.4 | 99 |
| 30-39 | Yes | -- | -- | 74.0 | 227 | 75.6 | 193 |
| | No | -- | -- | 69.3 | 218 | 77.7 | 179 |
| 40-49 | Yes | -- | -- | 94.8 | 155 | 96.6 | 118 |
| | No | -- | -- | 92.1 | 127 | 94.1 | 85 |
| **Age of woman** | | | | **Education of woman:1-5 years** | | | |
| <20 | Yes | -- | -- | 9.1 | 22 | 17.6 | 17 |
| | No | -- | -- | 0.0 | 21 | 0.0 | 3 |
| 20-24 | Yes | -- | -- | 18.6 | 183 | 21.6 | 97 |
| | No | -- | -- | 8.8 | 102 | 20.5 | 44 |
| 25-29 | Yes | -- | -- | 39.3 | 122 | 49.2 | 61 |
| | No | -- | -- | 32.3 | 96 | 39.6 | 48 |
| 30-39 | Yes | -- | -- | 78.5 | 181 | 82.8 | 99 |
| | No | -- | -- | 74.5 | 161 | 77.4 | 84 |
| 40-49 | Yes | -- | -- | 96.3 | 80 | 91.1 | 45 |
| | No | -- | -- | 93.3 | 60 | 90.9 | 22 |
| **Age of woman** | | | | **Education of woman: 6 or more years** | | | |
| <20 | Yes | -- | -- | 0.0 | 7 | 0.0 | 4 |
| | No | -- | -- | 0 | 0 | 0.0 | 1 |
| 20-24 | Yes | -- | -- | 16.1 | 56 | 14.8 | 27 |
| | No | -- | -- | 14.3 | 21 | 0.0 | 5 |
| 25-29 | Yes | -- | -- | 43.6 | 39 | 47.1 | 17 |
| | No | -- | -- | 58.3 | 12 | 0.0 | 3 |
| 30-39 | Yes | -- | -- | 75.0 | 36 | 76.9 | 13 |
| | No | -- | -- | 76.5 | 17 | 80.0 | 5 |
| 40-49 | Yes | -- | -- | 100.0 | 6 | 100.0 | 3 |
| | No | -- | -- | 100.0 | 6 | 100.0 | 1 |
| **Age of woman** | | | | **ALL women** | | | |
| <19 | Yes | -- | -- | 4.2 | 48 | 7.4 | 54 |
| <19 | No | -- | -- | 2.4 | 41 | 10.0 | 10 |
| 20-24 | Yes | -- | -- | 17.6 | 404 | 18.3 | 246 |
| 20-24 | No | -- | -- | 9.3 | 247 | 15.6 | 122 |
| 25-29 | Yes | -- | -- | 38.9 | 306 | 43.7 | 197 |
| 25-29 | No | -- | -- | 36.3 | 245 | 42.0 | 150 |
| 30-39 | Yes | -- | -- | 75.9 | 444 | 78.0 | 305 |
| 30-39 | No | -- | -- | 71.7 | 396 | 77.6 | 268 |
| 40-49 | Yes | -- | -- | 95.4 | 241 | 95.2 | 166 |
| 40-49 | No | -- | -- | 92.7 | 193 | 93.5 | 108 |

Table continued

**Table 11.2a(Cont.): Percent of women wanting no additional children by spousal communication: woman's perception of her husband approval of family planning, by woman's education and age national level (rural) and both areas of Matlab, 1983/1984.**

| Variables | Husband approved FP | Demand for no additional children: National -1983 % | N | Matlab -1984 Intervention % | N | Matlab -1984 Control % | N |
|---|---|---|---|---|---|---|---|
| **Education of woman** | | | | | | | |
| None | Yes | -- | -- | 55.8 | 711 | 56.2 | 585 |
| None | No | -- | -- | 52.9 | 626 | 62.0 | 442 |
| 1-5 years | Yes | -- | -- | 51.5 | 588 | 55.5 | 319 |
| 1-5 years | No | -- | -- | 49.1 | 440 | 56.2 | 201 |
| 6 or more | Yes | -- | -- | 41.0 | 144 | 39.1 | 64 |
| 6 or more | No | -- | -- | 51.8 | 56 | 33.3 | 15 |
| **Husband approved FP** | Yes | -- | -- | 52.6 | 1443 | 54.9 | 968 |
| | No | -- | -- | 51.3 | 1122 | 59.6 | 658 |

"—" indicate no not available

irrespective of women's age among the women who think their husband approves of family planning. Among the women, who think their husband disapproves of the family planning programme; there is a positive relationship between demand for no additional children and education up to primary education. The number of higher educated women who think their husband disapproves of family planning programme are very few.

Table 11.2b presents the same variables for national and Matlab areas in 1994/1996. The Table shows similar trend to Matlab 1984 that the demand for no additional children at the national rural level has a positive relationship with women's age irrespective of education and women perceptions of their husband approval of family planning or not. Within the same age group, demand for no additional children is consistently high among women who think their husband approves of family planning except for two groups in the higher education categories, (age groups <20 and 25-29 years) but the number of women in these groups who think their husband disapproves of family planning are few. Demand for no additional children shows an inverse relationship with education irrespective of age among the women who think their husband approves of family planning. But the relationship between no demand for additional children and education varies with varying age groups among those who think their husband disapproves of family planning.

**Table 11.2b: Percent of women wanting no additional children by spousal communication: woman's perception of her husband approval of family planning, by woman's education and age national level (rural) and both areas of Matlab, 1994/1996**

| Variables | Husband approved FP | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | **Education of woman: None** | | | | | |
| <19 | Yes | 19.2 | 250 | 2.5 | 40 | 15.4 | 26 |
| | No | 8.2 | 49 | 0.0 | 3 | 0.0 | 1 |
| 20-24 | Yes | 50.0 | 502 | 29.2 | 72 | 34.3 | 67 |
| | No | 21.0 | 100 | 52.9 | 17 | 15.4 | 13 |
| 25-29 | Yes | 76.5 | 614 | 56.2 | 105 | 67.4 | 92 |
| | No | 48.8 | 121 | 59.1 | 22 | 77.8 | 18 |
| 30-39 | Yes | 90.1 | 698 | 82.8 | 157 | 93.6 | 109 |
| | No | 74.5 | 192 | 80.8 | 26 | 87.2 | 47 |
| 40-49 | Yes | 98.4 | 254 | 98.4 | 64 | 100.0 | 45 |
| | No | 87.6 | 129 | 100.0 | 20 | 96.8 | 31 |
| **Age of woman** | | **Education of woman: 1-5 years** | | | | | |
| <19 | Yes | 16.4 | 213 | 0.0 | 26 | 13.6 | 22 |
| | No | 9.5 | 21 | 0.0 | 5 | 0.0 | 4 |
| 20-24 | Yes | 45.4 | 328 | 23.4 | 64 | 30.4 | 69 |
| | No | 32.3 | 31 | 16.7 | 6 | 33.3 | 6 |
| 25-29 | Yes | 67.7 | 341 | 61.1 | 95 | 67.2 | 64 |
| | No | 31.3 | 32 | 53.8 | 13 | 28.6 | 7 |
| 30-39 | Yes | 89.7 | 387 | 90.5 | 95 | 91.0 | 67 |
| | No | 73.2 | 71 | 73.3 | 15 | 92.9 | 14 |
| 40-49 | Yes | 99.0 | 101 | 100.0 | 38 | 96.4 | 28 |
| | No | 92.5 | 40 | 100.0 | 9 | 100.0 | 9 |
| **Age of woman** | | **Education of woman: 6 or more years** | | | | | |
| <19 | Yes | 12.3 | 106 | 6.7 | 15 | 0.0 | 12 |
| | No | 33.3 | 9 | 0.0 | 1 | 0.0 | 3 |
| 20-24 | Yes | 31.6 | 196 | 23.4 | 47 | 25.5 | 47 |
| | No | 28.6 | 7 | 0.0 | 1 | 0.0 | 0 |
| 25-29 | Yes | 58.7 | 196 | 67.5 | 40 | 37.0 | 27 |
| | No | 66.7 | 9 | 0.0 | 0 | 100.0 | 3 |
| 30-39 | Yes | 85.0 | 220 | 88.0 | 50 | 95.0 | 20 |
| | No | 71.4 | 14 | 100.0 | 4 | 100.0 | 3 |
| 40-49 | Yes | 94.7 | 38 | 100.0 | 10 | 100.0 | 1 |
| | No | 100.0 | 4 | 0.0 | 0 | 100.0 | 1 |
| **Age of woman** | | **ALL women** | | | | | |
| <19 | Yes | 16.9 | 569 | 2.5 | 81 | 11.7 | 60 |
| <19 | No | 11.4 | 79 | 0.0 | 9 | 0.0 | 8 |
| 20-24 | Yes | 45.0 | 1026 | 25.7 | 183 | 30.6 | 183 |
| 20-24 | No | 23.9 | 138 | 41.7 | 24 | 21.1 | 19 |
| 25-29 | Yes | 70.9 | 1151 | 60.0 | 240 | 62.8 | 183 |
| 25-29 | No | 46.3 | 162 | 57.1 | 35 | 67.9 | 28 |
| 30-39 | Yes | 89.1 | 1305 | 86.1 | 302 | 92.9 | 196 |
| 30-39 | No | 74.0 | 277 | 80.0 | 45 | 89.1 | 64 |
| 40-49 | Yes | 98.2 | 393 | 99.1 | 112 | 98.6 | 74 |
| 40-49 | No | 89.0 | 173 | 100.0 | 29 | 97.6 | 41 |

Table continued

**Table 11.2b(Cont.): Percent of women wanting no additional children by spousal communication: woman's perception of her husband approval of family planning, by woman's education and age national level (rural) and both areas of Matlab, 1994/1996**

| | | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | Husband | | | Intervention | | Control | |
| Variables | approved FP | % | N | % | N | % | N |
| **Education of woman** | | | | | | | |
| None | Yes | 71.1 | 2318 | 62.6 | 438 | 69.6 | 339 |
| None | No | 57.5 | 591 | 71.6 | 88 | 79.1 | 110 |
| 1-5 years | Yes | 62.9 | 1370 | 61.9 | 318 | 62.0 | 250 |
| 1-5 years | No | 56.9 | 195 | 58.3 | 48 | 65.0 | 40 |
| 6 or more | Yes | 54.6 | 756 | 57.4 | 162 | 39.3 | 107 |
| 6 or more | No | 58.1 | 43 | 66.7 | 6 | 70.0 | 10 |
| **Husband approved FP** | Yes | 65.8 | 4444 | 61.4 | 918 | 62.2 | 696 |
| | No | 57.4 | 829 | 66.9 | 142 | 75.0 | 160 |

In the intervention area, in 1994, the same positive relationship, as was found in 1984, between demand for no additional children and women's age appears irrespective of education and women's perceptions of their husband approval of family planning or not. But within the same age group, contrary to expectation, demand for no additional children is high among illiterate women who think their husband disapproves of family planning. However, among the women with primary education and whose husband approves of family planning, demand for no additional children is high but the results are inconclusive among women who have high education (6 or more years) because of the small number of cases in these groups. The demand for no additional children has a positive relationship with education among the women who think their husband approves of family planning and are in the age groups 25 years and above. Among the < 20 years women it is an U and in the age groups 20-25 it is linearly inverse. Among the women who think their husband disapproves of family planning, demands for no additional children has a positive relationship with education up to primary education irrespective of age, but the number of women in the high education group is small and thus the results are inconclusive.

In the control area, in 1994, the same positive relationship between demand for no additional children and women's age appears irrespective of education and women's perceptions of their husband's approval of family planning or not, as was seen in 1984 or 1994 in Matlab or 1996 national rural. Within the same age group, demand for no additional children is higher among women who think their husband approves of family planning than for those who think their husband disapproves it, irrespective of age or education except for one age group of illiterate women. The demand for no additional children has an inverse relationship with education irrespective of age among women who think their husband approves of family planning except for women in the age group 30-39 years. The same is true among the women who think their husband disapproves of family planning though the number of women in the high education groups is small.

### 11.2.3 Women's Perception of Agreed Number of Children with Husband

Demand for no additional children and women's perception of her husband's agreed number of children by women's age and education in both areas of Matlab in 1984 and three areas for 1994/1996 are presented in Tables 11.3a and 11.3b. In 1984, the data for both areas of Matlab show that similar to other two spousal communication factors, women's age has an independent positive effect on demand for no additional children irrespective of women's education and women's perception of their husband's agreed number of children. In both areas, the demand for no additional children increases with increasing age, irrespective of education, and whether the couples want the same number or children or not. Within the same age groups, irrespective of women education, demand for no additional children is high where the husband has the same or less number of expected children. This is evident in both areas of Matlab.

Table 11.3a for the intervention area in 1984 shows that the demand for no additional children and education, when women's age is controlled, has a positive relationship among women who think their husband wants the same or less number of children except for the very young age group. But the relationship varies with varying age groups among women who think their husband wants more children. For example, among the young age groups of age <25, it is rather an inverse relationship, while the rest of the age groups have a positive relationship between education and demand for no additional children.

**Table 11.3a: Percent of women wanting no additional children by spousal communication: perception of the woman on agreed number of children by their husbands by woman's education and age national level (rural) and both areas of Matlab, 1983/1984**

| Variables | Both wants same # of children | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1983 | | Matlab -1984 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | | | **Education of woman: None** | | | |
| <19 | Same or less | -- | -- | 0.0 | 10 | 0.0 | 7 |
| | More or unknown | -- | -- | 3.4 | 29 | 6.3 | 32 |
| 20-24 | Same or less | -- | -- | 15.5 | 116 | 22.4 | 76 |
| | More or unknown | -- | -- | 12.1 | 173 | 10.9 | 119 |
| 25-29 | Same or less | -- | -- | 37.3 | 118 | 49.0 | 98 |
| | More or unknown | -- | -- | 37.2 | 164 | 36.7 | 120 |
| 30-39 | Same or less | -- | -- | 76.2 | 277 | 85.4 | 212 |
| | More or unknown | -- | -- | 64.3 | 168 | 65.0 | 160 |
| 40-49 | Same or less | -- | -- | 96.8 | 217 | 95.9 | 171 |
| | More or unknown | -- | -- | 83.1 | 65 | 93.8 | 32 |
| **Age of woman** | | | | **Education of woman: 1-5 years** | | | |
| <19 | Same or less | -- | -- | 5.6 | 18 | 9.1 | 11 |
| | More or unknown | -- | -- | 4.0 | 25 | 22.2 | 9 |
| 20-24 | Same or less | -- | -- | 17.8 | 129 | 25.9 | 54 |
| | More or unknown | -- | -- | 12.8 | 156 | 18.4 | 87 |
| 25-29 | Same or less | -- | -- | 40.4 | 114 | 53.7 | 54 |
| | More or unknown | -- | -- | 31.7 | 104 | 36.4 | 55 |
| 30-39 | Same or less | -- | -- | 82.9 | 199 | 89.2 | 102 |
| | More or unknown | -- | -- | 67.8 | 143 | 69.1 | 81 |
| 40-49 | Same or less | -- | -- | 97.3 | 111 | 94.7 | 57 |
| | More or unknown | -- | -- | 86.2 | 29 | 70.0 | 10 |
| **Age of woman** | | | | **Education of woman: 6 or more years** | | | |
| <19 | Same or less | -- | -- | 0.0 | 5 | 0.0 | 3 |
| | More or unknown | -- | -- | 0.0 | 2 | 0.0 | 2 |
| 20-24 | Same or less | -- | -- | 20.8 | 48 | 17.6 | 17 |
| | More or unknown | -- | -- | 6.9 | 29 | 6.7 | 15 |
| 25-29 | Same or less | -- | -- | 42.4 | 33 | 63.6 | 11 |
| | More or unknown | -- | -- | 55.6 | 18 | 11.1 | 9 |
| 30-39 | Same or less | -- | -- | 78.0 | 41 | 81.3 | 16 |
| | More or unknown | -- | -- | 66.7 | 12 | 50.0 | 2 |
| 40-49 | Same or less | -- | -- | 100.0 | 11 | 100.0 | 3 |
| | More or unknown | -- | -- | 100.0 | 1 | 100.0 | 1 |
| **Age of woman** | | | | **ALL women** | | | |
| <19 | Same or less | -- | -- | 3.0 | 33 | 4.8 | 21 |
| <19 | More or Unknown | -- | -- | 3.6 | 56 | 9.3 | 43 |
| 20-24 | Same or less | -- | -- | 17.4 | 293 | 23.1 | 147 |
| 20-24 | More or Unknown | -- | -- | 12.0 | 358 | 13.6 | 221 |
| 25-29 | Same or less | -- | -- | 39.2 | 265 | 51.5 | 163 |
| 25-29 | More or Unknown | -- | -- | 36.4 | 286 | 35.3 | 184 |
| 30-39 | Same or less | -- | -- | 78.9 | 517 | 86.4 | 330 |
| 30-39 | More or Unknown | -- | -- | 65.9 | 323 | 66.3 | 243 |
| 40-49 | Same or less | -- | -- | 97.1 | 339 | 95.7 | 231 |
| 40-49 | More or Unknown | -- | -- | 84.2 | 95 | 88.4 | 43 |

Table continued

**Table 11.3a(cont.): Percent of women wanting no additional children by spousal communication: perception of the woman on agreed number of children by their husbands by woman's education and age national level (rural) and both areas of Matlab, 1983/1984**

| Variables | Both wants same # of children | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1983 | | Matlab -1984 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Education of woman** | | | | | | | |
| None | Same or less | -- | -- | 65.4 | 738 | 72.7 | 564 |
| None | More or Unknown | -- | -- | 40.9 | 599 | 41.7 | 463 |
| 1-5 years | Same or less | -- | -- | 60.1 | 571 | 68.0 | 278 |
| 1-5 years | More or Unknown | -- | -- | 38.5 | 457 | 41.7 | 242 |
| 6 or more | Same or less | -- | -- | 48.6 | 138 | 52.0 | 50 |
| 6 or more | More or Unknown | -- | -- | 33.9 | 62 | 13.8 | 29 |
| **Both Spouses** | Same or less | -- | -- | 61.7 | 1447 | 70.1 | 892 |
| **want same # child** | More or Unknown | -- | -- | 39.5 | 1118 | 40.6 | 734 |

"—" indicate no not available

In the control area in the same year, the demand for no additional children and education, when women's age is controlled, shows an inverted U turn relationship among women of age 20-24 years and 30-39 years, and a positive relationship among women of age 25-29 years who think their husband wants same or less number of children. Among the women who think their husband wants more children, when women's age is controlled, demand for no additional children shows, an inverted U for most age groups, which indicates that the women with primary education having known that their husbands want more children have higher demand for no additional children and demand for no additional is low among high educated women whose husband wanted more.

Table11.3b presents the same variables for national and two areas of Matlab for 1994/1996. The data for all three areas show the same positive effect of women's age on demand for no additional children regardless of women's education and women's perception of their husband's agreed number of children.

At the national level, within the same age groups, when education is controlled, demand for no additional children is found to be high among women who think their husband has the same or less number of expected children except for the very young age groups. Young women irrespective of education have lower demand for additional children even if their husband wants more. But when women's age is controlled, education shows an inverse relationship with demand for no additional children among the women who think their husband want the

**Table 11.3b: Percent of women wanting no additional children by spousal communication: perception of the woman on agreed number of children by their husbands, by woman's education and age national level (rural) and both areas of Matlab, 1994/1996**

| | | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | Both wants same # | | | Intervention | | Control | |
| Variables | of children | % | N | % | N | % | N |
| **Age of woman** | | | | **Education of woman: None** | | | |
| <19 | Same or less | 16.4 | 256 | 0.0 | 35 | 14.3 | 21 |
| | More or Unknown | 23.3 | 43 | 12.5 | 8 | 16.7 | 6 |
| 20-24 | Same or less | 47.0 | 508 | 28.3 | 60 | 35.1 | 57 |
| | More or Unknown | 35.1 | 94 | 44.8 | 29 | 21.7 | 23 |
| 25-29 | Same or less | 73.6 | 625 | 54.8 | 84 | 66.7 | 81 |
| | More or Unknown | 62.7 | 110 | 60.5 | 43 | 75.9 | 29 |
| 30-39 | Same or less | 88.5 | 723 | 83.0 | 135 | 94.6 | 92 |
| | More or Unknown | 79.0 | 167 | 81.3 | 48 | 87.5 | 64 |
| 40-49 | Same or less | 97.4 | 305 | 100.0 | 55 | 100.0 | 34 |
| | More or Unknown | 84.6 | 78 | 96.6 | 29 | 97.6 | 42 |
| **Age of woman** | | | | **Education of woman:1-5 years** | | | |
| <19 | Same or less | 15.3 | 216 | 0.0 | 23 | 9.5 | 21 |
| | More or Unknown | 22.2 | 18 | 0.0 | 8 | 20.0 | 5 |
| 20-24 | Same or less | 43.7 | 332 | 21.7 | 60 | 28.6 | 63 |
| | More or Unknown | 51.9 | 27 | 30.0 | 10 | 41.7 | 12 |
| 25-29 | Same or less | 64.5 | 338 | 61.3 | 80 | 68.9 | 61 |
| | More or Unknown | 65.7 | 35 | 57.1 | 28 | 30.0 | 10 |
| 30-39 | Same or less | 87.7 | 397 | 90.1 | 81 | 90.5 | 63 |
| | More or Unknown | 83.6 | 61 | 82.8 | 29 | 94.4 | 18 |
| 40-49 | Same or less | 98.4 | 124 | 100.0 | 34 | 95.7 | 23 |
| | More or Unknown | 88.2 | 17 | 100.0 | 13 | 100.0 | 14 |
| **Age of woman** | | | | **Education of woman: 6 or more years** | | | |
| <19 | Same or less | 13.1 | 107 | 7.1 | 14 | 0.0 | 14 |
| | More or Unknown | 25.0 | 8 | 0.0 | 2 | 0.0 | 1 |
| 20-24 | Same or less | 31.2 | 189 | 21.7 | 46 | 21.6 | 37 |
| | More or Unknown | 35.7 | 14 | 50.0 | 2 | 40.0 | 10 |
| 25-29 | Same or less | 58.8 | 187 | 67.6 | 34 | 36.0 | 25 |
| | More or Unknown | 61.1 | 18 | 66.7 | 6 | 80.0 | 5 |
| 30-39 | Same or less | 84.0 | 219 | 88.4 | 43 | 94.7 | 19 |
| | More or Unknown | 86.7 | 15 | 90.9 | 11 | 100.0 | 4 |
| 40-49 | Same or less | 94.9 | 39 | 100.0 | 9 | 100.0 | 1 |
| | More or Unknown | 100.0 | 3 | 100.0 | 1 | 100.0 | 1 |
| **Age of woman** | | | | **ALL women** | | | |
| <19 | Same or less | 15.4 | 579 | 1.4 | 72 | 8.9 | 56 |
| <19 | More or Unknown | 23.2 | 69 | 5.6 | 18 | 16.7 | 12 |
| 20-24 | Same or less | 43.1 | 1029 | 24.1 | 166 | 29.3 | 157 |
| 20-24 | More or Unknown | 38.5 | 135 | 41.5 | 41 | 31.1 | 45 |
| 25-29 | Same or less | 68.5 | 1150 | 59.6 | 198 | 62.9 | 167 |
| 25-29 | More or Unknown | 63.2 | 163 | 59.7 | 77 | 65.9 | 44 |
| 30-39 | Same or less | 87.5 | 1339 | 86.1 | 259 | 93.1 | 174 |
| 30-39 | More or Unknown | 80.7 | 243 | 83.0 | 88 | 89.5 | 86 |
| 40-49 | Same or less | 97.4 | 468 | 100.0 | 98 | 98.3 | 58 |
| 40-49 | More or Unknown | 85.7 | 98 | 97.7 | 43 | 98.2 | 57 |

**Table 11.3b(cont.): Percent of women wanting no additional children by spousal communication: perception of the woman on agreed number of children by their husbands, by woman's education and age national level (rural) and both areas of Matlab, 1994/1996**

| Variables | Both wants same # of children | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Education** | **of woman** | | | | | | |
| None | Same or less | 69.4 | 2417 | 62.3 | 369 | 69.5 | 285 |
| None | More or Unknown | 63.0 | 492 | 68.2 | 157 | 76.2 | 164 |
| 1-5 years | Same or less | 61.5 | 1407 | 60.8 | 278 | 61.0 | 231 |
| 1-5 years | More or Unknown | 67.7 | 158 | 63.6 | 88 | 67.8 | 59 |
| 6 or more | Same or less | 54.5 | 741 | 55.5 | 146 | 37.5 | 96 |
| 6 or more | More or Unknown | 58.6 | 58 | 72.7 | 22 | 61.9 | 21 |
| **Both spouses** | Same or less | 64.6 | 4565 | 60.5 | 793 | 61.3 | 612 |
| **Want same #** | More or Unknown | 63.7 | 708 | 67.0 | 267 | 73.0 | 244 |

same or a less number of children. But an inverted U relationship between education and demand for no additional children is evident among the women who think their husbands want more children than the women want.

In contrast in the intervention area, in 1994, within the same age groups, when education is controlled, demand for no additional children was found to be high among illiterate women of age less than 30 years who think their husband wants more children than women want. The same is true among women of age 20-24 years having primary or high education. The demand for no additional children, when women's age is controlled, shows a positive relationship with education among women who think their husband wants the same or a lesser number of children than the women want though this relationship is neutralized among the older age group of 40 years and above. Among the women who think their husband wants more children than the women want, education has an inverse relationship with demand for no additional children among the women of age <25 years and positive among women who are more than 24 years of age.

In the control area, in 1994, within the same age groups, when education is controlled, demand for no additional children is found, in general, to be high except for two groups of illiterate women (<20, 24-29 years), and two groups of women with primary education (20-24, 30-39 years) whose demand for no additional children is low, among women who think their husband wants same or lesser number children than the women want. That means, these four groups of women along with a high-educated women of age groups 20-24 years have a higher demand for no additional children even when their husband wants more children. When women's age is controlled, demand for no additional children shows an inverse relationship with education among women of age less than 30 years who think their husband wants the same or a less number of children. This relationship turns into a U among the women aged more than 29 years. However, the relationship between education and demand for no additional children among the women who think their husband wants more children, when women's age is controlled, appears to be positive except among the women of age groups <20 and 25-29 years.

### 11.2.4 Summary

Comparison of two Matlab data between two periods (1984 and 1994) and the two data sets, national and Matlab in 1996 shows that, overall , the effect of spousal communication, measured by the three spousal communication factors, on demand for additional children is not very high at the national level or in the intervention area and reverse in the comparison area. At the national level, the impact of spousal discussion of family planning matters on demand for no additional children is very small. In two areas of Matlab in 1984 , there were no differences in demand for no additional children between those who discussed family planning matters with husband and those who did not. In 1994 both areas, demand for no additional children was higher among women who did not discuss family planning matters with their husband  and more strong in the control area. The same is true about the relationship between demand for no additional children and women's perception of her husband's approval of family planning, and demand for no additional children and women's perception of their agreed number children.

An analysis of the effect of women's age and education does not provide a very clear evidence of the relationship of these two biosocial factors on spousal communication and demand for no additional children. In both areas, the effect of women's age has an independent effect on demand for no additional children regardless of education or level of discussion between spouses. Within the same age groups, demand for no additional children is higher among women who discuss family planning matters with husband, regardless of education, in most age groups. This is also true within same education groups between those who discuss family planning and those who did not. But the impact of education, when age is controlled, on the relationship between demand for no additional children and spousal discussion is less evident. In the intervention area, in 1984, demand for no additional children increases with increasing education among all age groups who discuss family planning matters with their husband except women in the very young age group. But the same relationship is not evident in the control area. In all three areas, in 1994/1996, an inverse relationship between demand for no additional children with education among the younger women of age about <29 years appears among those who discuss family planning matters with husband.

No pattern is apparent in the relationship between demand for no additional children and education when women's age is controlled, among women who do not discuss family planning matters with husband in both areas of Matlab except for the very old age groups (40 and above) in 1984. The same is true in all the three areas in 1994/1996.

An examination of the relationship between demand for no additional children and women's perception of their husband approval of family planning also suggests the same effect of women's age on demand for no additional children regardless of women's education or husband approval or disapproval of family planning. The same types of relationship are also evident in the demand for no additional children and women's perception of their husband's expected number of children.

## 11.3 Woman's Autonomy and Empowerment.

### 11.3.1 Woman's Freedom of Movement

Like the three other variables discussed above, women autonomy and freedom of movement in Bangladesh are largely determined by existing culture and religious beliefs. Women's freedom of movement is restricted to within the courtyard of the house or at most to within the *bari* premises (Jahan 1975; Aziz et al. 1984) This is applies, especially, to the young women (married and unmarried) of high and middle class families. The origins of women's restriction on movement and the relative change on this restriction over the period have been discussed in chapter four. Data on women autonomy and freedom of movement were not collected at the national level in 1983 and at Matlab in 1984. This section, thus, briefly discusses the empirical research published on women autonomy and freedom of movement in the recent past before the analysis of the present data.

***Women's Freedom of Movement: Results from Published Sources.***

The qualitative analysis on women's freedom of movement clearly articulates a severe restriction on women freedom to move in the past (Aziz et al. 1984). Most of the women had to seek permission to go outside the house and had to be accompanied by some one. But the strict observance of *purdah* is fading though not eroded completely in the society (Razzaque et al. 1998). BFS-1989 collected information on women's autonomy and freedom of movement which was published in Cleland et al. (1994). This is presented in Table 11.4.

**Table 11.4: Type and level of movement women enjoyed in the rural area of Bangladesh, 1989**

| Activity | Percent says Yes |
|---|---|
| Walk inside locality | 80 |
| Talk to unknown person | 75 |
| Go to film show | 9 |
| Walk outside locality | 32 |
| Visit health centre | 39 |
| Visit club | 13 |
| Go shopping | 11 |
| Go to political meeting | 6 |

Sources: Cleland et al. 1994 page: 55

This Table shows a radical changes in women's freedom of movement compared to the past. In 1989, eighty percent of the women reported that they could walk within the locality and 75 percent of women in Bangladesh reported that they could talk to an unknown person. About one third of the women reported that they could travel outside the locality and could visit health facilities. All available literature demonstrates that this level of movement is a radical deviation from the past.

A new dimension of women autonomy was asked in the BFS-1989. It concerned domestic decision-making. As reproductive decision making comes within the range of domestic decision making, domestic decision making can give an idea of the reproductive decision making process of a couple. BFS-1989 reported that 64 percent of the women said that they made joint decisions on their children's education and two fifths of the women said that they made joint decisions on household purchases and whether to visit friends house or not. This finding coincides with the earlier studies conducted by Khan (1984). My own survey during the pretest of 1996 socio-economic census questionnaire of Matlab HDSS provided similar results about decision making on children's health and education (unpublished HDSS data).

***Women's Freedom of Movement and Demand for No Additional Children***

While the above statistics seem positive, an examination of the association of these factors with demand for no additional children is absent in the literature. The following table has been computed to examine the relationship between demand for no additional children and women's freedom of movement. The other variable that could enhance women's autonomy is believed to be NGO activities and the involvement of women in these activities. This variable is also added to the table. However, these data were collected in recent surveys only. The Table 11.5 presents data for the 1994/96.

Table 11.5 shows that in general, at the national rural level, in general, women who have high or medium level autonomy have a higher demand for no additional children compared to those women who have low or very low autonomy. Demand for no additional children is high among those women who have medium autonomy followed by those who reported to have a high autonomy. The lowest demand for no additional children appears among those women who reported a low level of autonomy. The same broad trends are reflected in both areas of Matlab.

**Table 11. 5: Percent of woman wanting no additional children by woman's freedom of movement, Woman's education and age, national level (rural) and both areas of Matlab, 1994/1996**

| Variables | Woman's freedom of movement | Demand for additional children | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | | | **Education of woman: None** | | | |
| <19 | High | 14.9 | 47 | 7.1 | 14 | 27.3 | 11 |
| | Medium | 28.2 | 85 | 0.0 | 16 | 0.0 | 8 |
| | Very low | 14.4 | 97 | 0.0 | 13 | 12.5 | 8 |
| | Low | 10.0 | 70 | -- | -- | -- | -- |
| 20-24 | High | 38.0 | 100 | 33.3 | 30 | 28.6 | 28 |
| | Medium | 51.8 | 245 | 32.6 | 43 | 40.5 | 37 |
| | Very low | 41.6 | 154 | 37.5 | 16 | 13.3 | 15 |
| | Low | 41.7 | 103 | -- | -- | -- | -- |
| 25-29 | High | 74.4 | 129 | 59.2 | 49 | 64.7 | 51 |
| | Medium | 73.9 | 371 | 54.4 | 57 | 79.2 | 48 |
| | Very low | 70.0 | 160 | 57.1 | 21 | 45.5 | 11 |
| | Low | 62.7 | 75 | 0 | 0 | 0 | 0 |
| 30-39 | High | 85.6 | 153 | 88.3 | 103 | 93.3 | 89 |
| | Medium | 88.1 | 471 | 79.0 | 62 | 91.2 | 57 |
| | Very low | 88.1 | 201 | 61.1 | 18 | 80.0 | 10 |
| | Low | 75.4 | 65 | -- | -- | -- | -- |
| 40-49 | High | 94.7 | 95 | 100.0 | 31 | 97.6 | 42 |
| | Medium | 96.0 | 200 | 100.0 | 41 | 100.0 | 30 |
| | Very low | 90.1 | 71 | 91.7 | 12 | 100.0 | 4 |
| | Low | 100.0 | 17 | -- | -- | -- | -- |
| **Age of woman** | | | | **Education of woman: 1-5 years** | | | |
| <19 | High | 16.7 | 24 | 0.0 | 7 | 11.1 | 9 |
| | Medium | 22.8 | 57 | 0.0 | 10 | 16.7 | 6 |
| | Very low | 15.1 | 86 | 0.0 | 14 | 9.1 | 11 |
| | Low | 10.4 | 67 | -- | -- | -- | -- |
| 20-24 | High | 50.0 | 62 | 35.7 | 28 | 30.0 | 30 |
| | Medium | 50.3 | 157 | 16.0 | 25 | 36.4 | 33 |
| | Very low | 30.9 | 94 | 11.8 | 17 | 16.7 | 12 |
| | Low | 43.5 | 46 | -- | -- | -- | -- |
| 25-29 | High | 79.5 | 73 | 61.5 | 52 | 69.8 | 43 |
| | Medium | 67.2 | 183 | 66.7 | 42 | 50.0 | 20 |
| | Very low | 54.2 | 72 | 35.7 | 14 | 62.5 | 8 |
| | Low | 46.7 | 45 | -- | -- | -- | -- |
| 30-39 | High | 83.5 | 103 | 88.7 | 53 | 91.1 | 45 |
| | Medium | 90.1 | 242 | 89.4 | 47 | 92.9 | 28 |
| | Very low | 85.4 | 82 | 80.0 | 10 | 87.5 | 8 |
| | Low | 80.6 | 31 | -- | -- | -- | -- |
| 40-49 | High | 100.0 | 26 | 100.0 | 26 | 92.9 | 14 |
| | Medium | 97.7 | 87 | 100.0 | 20 | 100.0 | 21 |
| | Very low | 91.7 | 24 | 100.0 | 1 | 100.0 | 2 |
| | Low | 100.0 | 4 | -- | -- | -- | -- |
| **Age of woman** | | | | **Education of woman: 6 or more years** | | | |
| <19 | High | 11.8 | 17 | 0.0 | 4 | 0.0 | 4 |
| | Medium | 18.8 | 32 | 0.0 | 4 | 0.0 | 6 |
| | Very low | 12.9 | 31 | 12.5 | 8 | 0.0 | 5 |
| | Low | 11.4 | 35 | -- | -- | -- | -- |

Table continued

**Table 11. 5(Cont.): Percent of woman wanting no additional children by woman's freedom of movement, Woman's education and age, national level (rural) and both areas of Matlab, 1994/1996**

| Variables | Woman's freedom of movement | Demand for additional children | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| 20-24 | High | 23.1 | 39 | 26.3 | 19 | 35.0 | 20 |
| | Medium | 40.3 | 67 | 20.0 | 15 | 16.7 | 12 |
| | Very low | 30.0 | 50 | 21.4 | 14 | 20.0 | 15 |
| | Low | 27.7 | 47 | 0 | 0 | 0 | 0 |
| 25-29 | High | 54.2 | 48 | 66.7 | 21 | 46.2 | 13 |
| | Medium | 60.0 | 90 | 63.6 | 11 | 46.2 | 13 |
| | Very low | 62.5 | 40 | 75.0 | 8 | 25.0 | 4 |
| | Low | 59.3 | 27 | -- | -- | -- | -- |
| 30-39 | High | 85.9 | 71 | 85.3 | 34 | 93.3 | 15 |
| | Medium | 81.7 | 109 | 93.8 | 16 | 100.0 | 8 |
| | Very low | 85.7 | 35 | 100.0 | 4 | 0 | 0 |
| | Low | 89.5 | 19 | -- | -- | -- | -- |
| 40-49 | High | 100.0 | 13 | 100.0 | 7 | 100.0 | 1 |
| | Medium | 92.9 | 14 | 100.0 | 3 | 100.0 | 1 |
| | Very low | 100.0 | 5 | 100.0 | 10 | 0 | 0 |
| | Low | 90.0 | 10 | -- | -- | -- | -- |
| **Age of woman** | | **All women** | | | | | |
| <20 | High | 14.8 | 88 | 4.0 | 25 | 16.7 | 24 |
| <20 | Medium | 24.7 | 174 | 0.0 | 30 | 5.0 | 20 |
| <20 | Very low | 14.5 | 214 | 2.9 | 35 | 8.3 | 24 |
| <20 | Low | 10.5 | 172 | -- | -- | -- | -- |
| 20-24 | High | 38.8 | 201 | 32.5 | 77 | 30.8 | 78 |
| 20-24 | Medium | 49.7 | 469 | 25.3 | 83 | 35.4 | 82 |
| 20-24 | Very low | 36.2 | 298 | 23.4 | 47 | 16.7 | 42 |
| 20-24 | Low | 38.8 | 196 | -- | -- | -- | -- |
| 25-29 | High | 72.0 | 250 | 61.5 | 122 | 64.5 | 107 |
| 25-29 | Medium | 70.0 | 644 | 60.0 | 110 | 66.7 | 81 |
| 25-29 | Very low | 64.7 | 272 | 53.5 | 43 | 47.8 | 23 |
| 25-29 | Low | 57.1 | 147 | -- | -- | -- | -- |
| 30-39 | High | 85.0 | 327 | 87.9 | 190 | 92.6 | 149 |
| 30-39 | Medium | 87.8 | 822 | 84.8 | 125 | 92.5 | 93 |
| 30-39 | Very low | 87.1 | 318 | 71.9 | 32 | 83.3 | 18 |
| 30-39 | Low | 79.1 | 115 | -- | -- | -- | -- |
| 40-49 | High | 96.3 | 134 | 100.0 | 64 | 96.5 | 57 |
| 40-49 | Medium | 96.3 | 301 | 100.0 | 64 | 100.0 | 52 |
| 40-49 | Very low | 91.0 | 100 | 92.3 | 13 | 100.0 | 6 |
| 40-49 | Low | 96.8 | 31 | -- | -- | -- | -- |

Table continued

**Table 11. 5(Cont.): Percent of woman wanting no additional children by woman's freedom of movement, Woman's education and age, national level (rural) and both areas of Matlab, 1994/1996.**

| Variables | Woman's freedom of movement | Demand for additional children | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Education of woman** | | | | | | | |
| None | High | 69.1 | 524 | 71.4 | 227 | 76.0 | 221 |
| None | Medium | 75.2 | 1372 | 61.6 | 219 | 75.0 | 180 |
| None | Very low | 63.1 | 683 | 50.0 | 80 | 41.7 | 48 |
| None | Low | 49.4 | 330 | -- | -- | -- | -- |
| 1-5 years | High | 71.2 | 288 | 69.3 | 166 | 66.7 | 141 |
| 1-5 years | Medium | 71.3 | 726 | 65.3 | 144 | 64.8 | 108 |
| 1-5 years | Very low | 48.3 | 358 | 28.6 | 56 | 41.5 | 41 |
| 1-5 years | Low | 42.8 | 138 | -- | -- | -- | -- |
| 6 or more years | High | 59.0 | 188 | 64.7 | 85 | 52.8 | 53 |
| 6 or more years | Medium | 60.6 | 312 | 57.1 | 49 | 42.5 | 40 |
| 6 or more years | Very low | 49.1 | 161 | 41.2 | 34 | 16.7 | 24 |
| 6 or more years | Low | 39.9 | 193 | -- | -- | -- | -- |
| **Women autonomy** | | | | | | | |
| | High | 67.8 | 1000 | 69.5 | 478 | 69.9 | 415 |
| | Medium | 72.2 | 2410 | 62.4 | 412 | 67.7 | 328 |
| | Very low | 56.8 | 1202 | 41.2 | 170 | 36.3 | 113 |
| | Low | 45.2 | 661 | -- | -- | -- | -- |

"—" indicate no not available

At the national rural area, demand for no additional children by women's freedom of movement, when education is controlled, shows a positive relationship with women's age regardless of education and type of women's freedom of movement. The relationship between demand for no additional children by women movement, when women's age is controlled, shows an inverse relationship with women's education irrespective of the type of movement that women have among the young women of age <20 years. Among the women of age group 20-24 years, demand for no additional children is high among those who have primary education and either high or medium level of autonomy. Among the same age groups, women who have a medium level of autonomy, the demand for no additional children is similar between those who are illiterate or have primary education but lower among high-educated women. But among these same age groups, those who have very low level of autonomy, education shows a positive relationship with demand for no additional children. Among the women of age groups 25-29 years, the relationship between demands for no additional children and education is differs with different types of movement of women. Among these age groups, demand for no additional children and education has an inverted U relationship among those who have high autonomy, an inverse relation among those who have medium level of autonomy, and a U relationship among those who have low or very low level of autonomy. The relationship between demand for no additional children and education differs among the age group 30-39 years. Among the women of this age group, the relationship is less clear between demand for no additional children and education, except for the women who have low-level autonomy. The relationship between demand for no additional children and education is positive among women who have a low level of autonomy.

In the intervention area, the same positive relationship between demand for no additional children and women's age, when education is controlled, appears irrespective of the type of movement a woman is allowed. Within the same age groups, expectantly, demand for no additional children is high among women who have a high level of autonomy followed by women who have a medium level of autonomy regardless of the level of education. No pattern is apparent in the relationship between demand for no additional children and education, when women's age is controlled, among the women who reported to have high autonomy. It is inverse among the women in the 20-24 age group and positive among women in the 25-29 age groups. Demand for no additional children increases with increasing education and age among the women's who have a medium level of autonomy. But the relationship between demand for no additional children and education, when women's age is controlled, appears to be an U among the women aged 20-29 years, and is positive among women of age 30 and above of those who have a very low level of autonomy.

In the control area, similar to the other two areas, the same positive relationship between demand for no additional children and women age, when education is controlled, appears irrespective of the type of movement a woman is allowed. Within the same age groups, demand for no additional children is high among women who have high autonomy followed by women who have medium autonomy regardless of the level of education. Demand for no additional children and education, when women's age is controlled, shows in most age groups as positive among the women who have high autonomy except for the very young and in the age group 25-29 years, where the relationships are inverse and an inverted U respectively. A clear inverse relationship between demand for additional children and education appears, when women's age is controlled,

**Table 11.6: Percent of women wanting no additional children by NGO membership of woman, national level (rural) and both areas of Matlab, 1994/1996**

| Variables | Woman's NGO membership | Demand for additional children | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention area | | Comparison area | |
| | | % | N | % | N | % | N |
| Age of woman | | Education of woman: None | | | | | |
| <19 | No | 17.3 | 255 | 2.6 | 39 | 13.0 | 23 |
| | Yes | 18.2 | 44 | 0.0 | 4 | 25.0 | 4 |
| 20-24 | No | 41.3 | 487 | 34.6 | 78 | 29.7 | 74 |
| | Yes | 61.7 | 115 | 27.3 | 11 | 50.0 | 6 |
| 25-29 | No | 69.9 | 554 | 53.5 | 101 | 65.6 | 93 |
| | Yes | 78.5 | 181 | 69.2 | 26 | 88.2 | 17 |
| 30-39 | No | 86.2 | 659 | 80.5 | 154 | 91.7 | 144 |
| | Yes | 88.3 | 231 | 93.1 | 29 | 91.7 | 12 |
| 40-49 | No | 93.5 | 307 | 100.0 | 69 | 98.6 | 69 |
| | Yes | 100.0 | 76 | 93.3 | 15 | 100.0 | 7 |
| Age of woman | | Education of woman: 1-5 years | | | | | |
| <19 | No | 13.5 | 185 | 0.0 | 25 | 11.5 | 26 |
| | Yes | 24.5 | 49 | 0.0 | 6 | | |
| 20-24 | No | 39.6 | 265 | 18.6 | 59 | 30.3 | 66 |
| | Yes | 57.4 | 94 | 45.5 | 11 | 33.3 | 9 |
| 25-29 | No | 60.3 | 257 | 55.9 | 93 | 67.8 | 59 |
| | Yes | 74.1 | 116 | 86.7 | 15 | 41.7 | 12 |
| 30-39 | No | 85.5 | 324 | 91.5 | 82 | 91.7 | 72 |
| | Yes | 91.0 | 134 | 78.6 | 28 | 88.9 | 9 |
| 40-49 | No | 96.5 | 113 | 100.0 | 41 | 97.1 | 34 |
| | Yes | 100.0 | 28 | 100.0 | 6 | 100.0 | 3 |
| Age of woman | | Education of woman: 6 or more years | | | | | |
| <19 | No | 12.6 | 103 | 6.7 | 15 | 0.0 | 15 |
| | Yes | 25.0 | 12 | 0.0 | 1 | 0.0 | 0 |
| 20-24 | No | 30.6 | 173 | 20.5 | 44 | 23.8 | 42 |
| | Yes | 36.7 | 30 | 50.0 | 4 | 40.0 | 5 |
| 25-29 | No | 61.8 | 170 | 67.6 | 37 | 44.0 | 25 |
| | Yes | 45.7 | 35 | 66.7 | 3 | 40.0 | 5 |
| 30-39 | No | 82.0 | 178 | 88.4 | 43 | 100.0 | 19 |
| | Yes | 91.1 | 56 | 90.9 | 11 | 75.0 | 4 |
| 40-49 | No | 94.1 | 34 | 100.0 | 9 | 100.0 | 2 |
| | Yes | 100.0 | 8 | 100.0 | 1 | 0.0 | 0 |
| Age of woman | | ALL women | | | | | |
| <20 | No | 15.1 | 543 | 2.5 | 79 | 9.4 | 64 |
| 20-24 | No | 38.8 | 925 | 26.0 | 181 | 28.6 | 182 |
| 25-29 | No | 66.0 | 981 | 56.7 | 231 | 63.3 | 177 |
| 30-39 | No | 85.4 | 1161 | 84.9 | 279 | 92.3 | 235 |
| 40-49 | No | 94.3 | 454 | 100.0 | 119 | 98.1 | 105 |
| <20 | Yes | 21.9 | 105 | 0.0 | 11 | 25.0 | 4 |
| 20-24 | Yes | 56.9 | 239 | 38.5 | 26 | 40.0 | 20 |
| 25-29 | Yes | 73.5 | 332 | 75.0 | 44 | 64.7 | 34 |
| 30-39 | Yes | 89.5 | 421 | 86.8 | 68 | 88.0 | 25 |
| 40-49 | Yes | 100.0 | 112 | 95.5 | 22 | 100.0 | 10 |

Table continued

**Table 11.6(Cont.) Percent of women wanting no additional children by NGO membership of woman, national level (rural) and both areas of Matlab, 1994/1996**

| Variables | Woman's NGO membership | Demand for additional children | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention area | | Comparison area | |
| | | % | N | % | N | % | N |
| **Education of woman** | | | | **ALL of woman** | | | |
| None | No | 65.7 | 2262 | 62.4 | 441 | 71.0 | 403 |
| 1-5 Years | No | 58.7 | 1144 | 59.7 | 300 | 63.0 | 257 |
| 6 or more years | No | 53.0 | 658 | 55.4 | 148 | 40.8 | 103 |
| None | Yes | 77.4 | 647 | 72.9 | 85 | 80.4 | 46 |
| 1-5 years | Yes | 71.7 | 421 | 69.7 | 66 | 57.6 | 33 |
| 6 or more years | Yes | 63.1 | 141 | 75.0 | 20 | 50.0 | 14 |
| **NGO Membership** | | | | | | | |
| | No | 61.7 | 4064 | 60.3 | 889 | 64.2 | 763 |
| | Yes | 73.8 | 1209 | 71.9 | 171 | 67.7 | 93 |

among the women of age group20-29 years who have a medium level of autonomy. The older women who have a medium level autonomy show a positive relationship between demand for no additional children and education. However, three patterns of relationships between demand for additional children and education appear among women who have a low level of autonomy. Among the very young women it is inverse, among the women of age 20-24 years it is positive, and among the age group 25-29 years, it is a U.

### 11.3.2 Demand for additional children by NGO Membership

In terms of the NGO membership, Table 11.6 reveals a common feature for all three areas. It shows that the demand for no additional children is much higher among the women of three areas who have NGO membership. However, the relationship is stronger in the national and Matlab intervention areas than in the control area.

The demand for no additional children and membership in the NGO controlled for women's education and age is presented in Table 11.6. The Table shows that like all other variables, the effect of women's age on demand for no additional children is very clear regardless of education level. Within the same age group, demand for additional children is consistently higher among all age groups among those who have membership in an NGO. This is true in all three areas but stronger in the national rural area. The relationship between demand for no additional children and NGO membership by education, when women's age is controlled, appears to be a different relationship in each of the three areas. At the national rural area, demand for no additional children has a positive relationship with education among women of age <20 years and above 29 years and an inverse relationship among women aged 20-29 years who have NGO membership. In the intervention area, demand for no additional children and education has a positive relationship among women of age 20-24 years, an inverted U among women of age, 25-29 years and an U relationship among women of age 30-39 years who have NGO membership. In the control area, the number of women in the young and old age groups is small. In the other three age groups, demand for no additional children has a U relationship with education among women aged 20-24 years and an inverse relationship among women aged 25-39 years who have NGO membership.

### 11.3.3 Summary

Analysis of the demand for additional children by women's freedom of movement, in general, shows clear evidence of a positive relationship between demand for no additional children and women's freedom of movement. This is apparent in all the three areas. At the national level, the highest demand for no additional children appears among women who have a medium level of freedom of movement followed by women who have high freedom of movement. However, the lowest demand for no additional children is found among women who have a low level of autonomy. In contrast to national trends, both areas of Matlab appear to be consistent between level of movement and demand for no additional children. In both areas of Matlab, demand for no additional children is high among women who have high freedom of movement. Demand is slightly less for those who are allowed a medium level of movement and the lowest demand for no additional children is found among women who have low autonomy.

The analysis of the demand for no additional children by women's freedom of movement controlled for women's age and education provides clear evidence that in all the three areas, there is a strong effect of women's age on the relationship of demand for no additional children by women's freedom of movement regardless of education and type of movement women are allowed. However, in the national rural area and the control area, within the same age group but between different types of movement, demand for no additional children is high in most age groups among women who are allowed a medium level of movement. And the effect is more consistent in the national rural area. But the relationship between demand for no additional children and different types of women's freedom of movement within the same age group is not consistent in the intervention area.

The impact of education on the relationship between demand for no additional children and different types of women's freedom of movement is not clear as it is in the case of women's age in all the three areas. It appears that among the women, education has an inverse impact on the relationship between demand for no additional children and women's freedom of movement among the young groups, at least up to age 24 years, in all the three areas. From age 25 years, the relationship seems to converge towards a positive one.

Analysis of the demand for additional children by women's membership in an NGO shows clear evidence of positive relationship between demand for no additional children and membership in an NGO for in all the three areas. The same relationship holds true in all three areas when age has been controlled. The demand for no additional children is consistently high among women who are members of an NGO regardless of age. However, the impact of education on the relationship between demand for additional children and membership of an NGO is mixed. At the national rural area, the impact of education is positive among the very young of age less than 20 years, and in older women of age 30 and above but has an inverse relationship among women of age 20-29 years. In both areas of Matlab, NGO memberships among the women of age less than 20 years and more than 40 years is not large. In the other age groups, the impact of education on the relationship between demand for no additional children and NGO membership is positive among women of age 20-24 years but it is an inverted U for the rest of the other two groups in the intervention area. In the control area, the impact of education on the relationship between demand for no additional children and NGO membership is inversed in all age groups.

## 11.4 Conclusion

In summary, the impact of spousal communication factors on demand for no additional children, in general is less evident. The effect of spousal communication, measured by the three spousal communication factors, on demand for additional children is small at the national level, no effect is evident in the intervention area and a reverse effect can be seen in the comparison area during the study period. At the national level, the impact of spousal discussion of family planning matters on demand for no additional children is very small. For the year 1984, in the two areas of Matlab, there were no differences in demand for no additional children between those who discussed family planning matters with their husband and those who did not. In 1994, contrary to expectations, demand for no additional children was higher among women who did not discuss family planning matters with their husband in both areas and this was particularly evident in the control area. The same trend appears in the relationship between demand for no additional children and women's perception of her husband's approval of family planning, and demand for no additional children and women's perception of their agreed number of children.

It appears from the 1984 data when the effect of spousal communication is examined by considering the women's age and education, that demand for no additional children is always high irrespective of women's age or education, except for a few age groups, among women who have discussed family planning with their husband or whose husband expresses a favourable attitude towards family planning or that, the husband wants the same or less number of children. In 1994/1996, a change in the trends in demand for no additional children by spousal communication was evident among some illiterate women in both areas of Matlab. These women, despite their husband's disapproval and have demand for more children, have higher demand for fertility control. In addition, irrespective of any factors, young women have a high demand for additional children and the young high educated have a higher demand for additional children than the other two groups. However, the small number of cases among the high educated groups makes the results inconclusive.

The positive relationship between demand for no additional children and women's freedom of movement in all the three areas is clearly evident in the analysis. A contrast arises from the relative role of the freedom of movement and its impact on demand for no additional children. At the national level, the highest demand for no additional children appears among women who have medium level freedom of movement but in both areas of Matlab, demand for no additional children is high among women who have high freedom of movement. Both women's age and education does have an impact on the relationship between demand for no additional children and type of movement But women's age has a stronger influence than education on the relationship between demand for additional children and types of movement.

The membership in the NGO shows a very consistent positive effect on the demand for additional children in the three areas. Similar to women's freedom of movement, impact of women's age and education also has an shows an influence on the relationship between demand for additional children and women's membership with the NGO. Women's age appears to have a stronger effect on the relationship between demand for additional children and women's membership in the NGOs, than education does.

### 11.4 An overview of the Demand for No Additional Children

The examination of the demand for additional children and its determinants presented in chapter 8-11 demonstrates that there has been a rapid change in the demand for additional children among the women in the three areas, national rural, Matlab intervention and Matlab control during the study period. Despite a controversy about the question itself and its reliability, surveys conducted on this aspect and discussed in Chapter 8 consistently report that a demand for fertility control originates predated this thesis, that is, in the late 1960s if not earlier (NIS-1969, Stoeckel and Chowdhury 1973). In 1975, ideal family size was reported as 4.1 children per women. During the study period, demand for additional children declined further and by 1996, ideal family size had reduced down to 2.5

children per women at the national level with a slightly higher ideal family size in both areas of Matlab (2.6 children per women).

The modest demand for additional children in the past, among the rural population, including Matlab areas, and the change in desired family size and demand for additional children in recent time indicate that the women in Bangladesh do not desire a large family. The excessive mortality until the 1930s probably contributed towards a higher demand for additional children but it is evident that this demand reduced again when the minimum level of survival of the children was ensured( described in chapter 8 & 9). This modest pattern of demand for additional children is not new in this region. Desired family size in most Asian countries like Sri Lanka, Taiwan, Thailand, Pakistan, Indonesia, and the republic of Korea in the early 1960s was reported to have ranged from 3.2 to 4.3 children (Mauldin 1965). The demand in these countries declined successively as happened in Bangladesh. In addition, despite a strong son preference, fertility in Taiwan and Korea further declined to replacement level in 25 years (Freedman et al. 1994). This finding in a similar society may indicate that the demand for additional children in Bangladesh is also irreversible. However, it is important to note that this demand originated in the 1960s in the absence of any systematic family planning programme. The family planning programmes until mid 1970 were restricted to the big cities and urban areas and lacked the linking mechanism between women's demand for no additional children and the supply of contraceptives through which they could realize their reproductive goals. As noted in Chapter two and Chapter four the macro and community level social and cultural constraints what Easterlin (1975, 1984) referred to as the 'cost of contraception' were paramount in that period in the form of inaccessible rural infrastructures and community cultural norms related with reproduction[1] and restriction on the free movement of women. The introduction of the Matlab family planning programme in the intervention area and the rapid rise of contraceptive use in Matlab intervention area after the introduction of FPHSP is further proof of risen demand for fertility control among the

[1] Most rural men and women did not want to be open to discuss reproductive matters.

population prior to the introduction of a full fledged family planning programme at the national level.

At the determinants level, the results of the analysis show that micro level biosocial factors, that is, woman's age and number of living children and number of living sons (a factor of macro level survivorship) have a substantial inverse relationship with demand for additional children. The survival of children especially son positively increases the demand for no additional children but woman's age seems to have a strong independent effect as was its effect through her having surviving children or sons. The data reveal that demand for no additional children began to rise among the older women first and extended to age 30 years during the study period. It arose among women who had three or more surviving children in the early stage of the study, and to those who had a lower number of surviving children at the later stages of study.

The independent effect of woman's age is evident when the demand for additional children and its association with woman's education was examined. The effect of woman's education on demand for no additional children increases with increasing women's age but it did not increase with increasing education for all age groups. It is often reversed at the later end of the study that means, women's education has an inverse relationship with demand for no additional children. The other biosocial factors, number of surviving children and no of sons also has a stronger positive effect on demand for no additional children than their social factor measures by level of education.

The comparative analysis of the effect of biosocial and social factors (woman's education) shows that biosocial factors played a significant positive role in shaping the demand for no additional children but the effect of education is less evident. The positive impact of woman's age on the demand for no additional children is not unexpected in a traditional society like Bangladesh. In Bangladesh, most young women started their married life in a joint or extended family (Cain et al. 1986; Amin 1998 ) Being a young and new member in the husband's family, young women have a very vulnerable position in the family and want to consolidate their position by having children, especially sons (Nahar, et al.

1998). With increasing age and number of surviving children, women might earn a better position in the family, and have less restrictions on their movement (Jones 1982; White 1991) than a young educated woman who is striving to get a better position in the husband's family. The impact of husband's education or households head's education on woman's demand for no additional children is small.

The impact of other socio-cultural factors on demand for additional children is not unidirectional. While some of them have a definite positive impact, others have negative impact on the demand for no additional children. The results in Chapter 10 clearly demonstrate that gender preference of the family (a macro and community cultural factors) has a substantial positive impact on demand for additional children in all three areas irrespective of women's age or education. This impact is even stronger among the high educated women in the Matlab areas. At the early stages of fertility decline, demand for additional children was low among women who have more than two children in all the three areas. The demand is strong if women have only sons and stronger if they have only daughters and is true for all women irrespective of age, education or area during the study period. However, the demand for additional children rapidly reduced during the study period among those who have two children, one of each sex. Both national and Matlab data, 1994/1996 show that three quarters of women in the national rural area and more than 50 percent of women in the Matlab areas who had a child of each sex did not want additional children. Although demand for additional children was somewhat larger among the women of the Matlab areas, the rate of change in demand for additional children in all three areas is the same. Although the reduced demand for additional children has emerged from the data, demand for additional children is still strong among the women who have children from the same gender and stronger for those who have daughters only. This strong cultural attitude, one of the strong barriers to further fertility decline is not new in this population and the population of South and South East Asian regions. A large review of the literature on gender preferences was discussed in Chapters two, four and seven. For economic and cultural reasons, societies have a strong preference for sons. In Bangladesh, however, women want sons they also want a daughter which might be a barrier to any further decline in demand for no additional children.

Similar to woman's education, the effect of the three spousal communications (another macro and community level cultural factor) factors on demand for no additional children is not very high. In fact, in the control area it was even reversed, indicating that women have their own perception of their demand for additional children. Once again, the effect of woman's age appears to be more important than spousal communication, while the mediating effect of education seems less prominent. The same was true for woman's freedom of movement and woman's education.

The analysis of the demand for additional children by woman's freedom of movement (indicator of community level social change), in general, demonstrates a clear positive relationship between demand for no additional children and woman's freedom of movement, for all the three areas. However, the impact of the level of freedom of movement of women on the demand for no additional children varies among the three areas. At the national rural level and in Matlab control area, woman's medium level freedom of movement has a stronger positive relationship with demand for no additional children, but in the Matlab intervention area, it is high freedom of the movement of women which has a positive effect on demand for no additional children.

The results of the analysis shows that similar to women's freedom of movement, the demand for no additional children and women's membership in the NGO (another indicator of community level social change) have a positive relationship in all the three areas in the study. In all the age groups, demand for no additional children is substantially high among women who are the members of the NGOs. Women's age appears to have an independent effect on the relationship between demand for additional children and women's membership in the NGO but the impact of education is less evident.

However, the present analysis manifests that the relationship between demand for additional children and economic factors was weak at the beginning of the study period and did not improve later. The weak relationship between demand for no additional children and the economic factors found in the present analysis is not different from other studies. Cleland et al. (1994) found that the fertility was the same among the farmers and agricultural labour in rural Bangladesh. Rural society in Bangladesh was socially structured and stratified but the ongoing pressure on land due to improvement in the overall survival level of the population and the land inheritance system minimized the difference between different landed occupancy classes. As noted in Chapters four and seven that by 1996, more than 60 percent of the household in Bangladesh, including Matlab, were landless and about 30 percent of them had land but the average landholding of the households who had land was also small. The landed peasants were not, in a better position than the landless, indeed, they were in a more stringent position because of their social status and scarce resources. It appears that the economic factors have no major effect on the demand for no additional children. Whatever the differences between different economic strata and the changes that occurred in those factors during 1983-1996, the change in demand for no additional children is overwhelmed across the country irrespective of economic strata. In terms of comparative demand for additional children, it seems that there is no major differential in demand for additional children among the three areas by economic factors.

Finally, it appears from the last four chapters that biosocial factors have a strong effect on the demand for additional children. Woman's age seems to have a stronger effect, while the weakest factor one seems to be the number of children who have died. The impact of socio-cultural factors on demand for additional children seems to be mixed. Thee overall education as a whole and spousal communication did not show a very strong relationship with demand for no additional children but sex composition of the family, women's autonomy and women's membership in the NGO, all seems to have an impact on the demand for no additional children. However, while the women autonomy and membership in the NGO have a positive impact on the demand for no additional children, sex preference of the family has a strong inverse relationship with no demand for additional children. The economic situation has a weak relationship with demand for no additional children.

However, the analysis in the previous four chapters was carried out using bivariate analysis. A multivariate analysis in part IV will provide a better idea of the relationship between demand for no additional children and all these biosocial, economic and socio-cultural aspects of the women in the rural area of Bangladesh.

# PART III: CURRENT CONTRACEPTIVES USE

# Chapter 12: Trends in Current Contraceptive Use behaviour

## 12.1 Introduction

Rapid fertility decline in Bangladesh has been a direct consequence of the dramatic increase in modern contraceptive practice. Other determinants such as age at marriage or proportion married, and breastfeeding that have direct influence on fertility decline (discussed in Chapter four) in most European and some Latin American countries, have played a minor role in fertility decline in both national and Matlab areas (Dyson and Murphy 1985). Changes in these aspects were modest over the periods in the three areas under study. Marriage in Bangladeshi society is universal, and the rise in age at marriage is slow. The impact of this slow increase in age at marriage on fertility has compensated through increased survival of the population and longer duration of marital union. As a result, the impact of age at marriage on overall fertility level has been small (Chowdhury & Bairagi 1992). Details of these features discussed in Chapter 8. The present chapter, thus, concentrates on family planning programme factors, like knowledge of contraceptives and contraceptive supply and the family planning workers visits and their association with current contraceptive use using the study data. Trends in current contraceptive use and the pattern of methods used will be analysed at the end with a brief discussion of the past trends for continuity.

As documented in the last four chapters, and chapter four, that preference for smaller family size had already generated prior to increase in contraceptive use, even before the national family planning programme had been introduced in the rural areas. Both national and Matlab researches have documented that preferences for smaller family size generated much earlier than the establishment of family planning programme activities in the rural areas of Bangladesh (Rahman et al.1982; Bhatia et al. 1980; Stockel and Chowdhury 1969; Cleland et al. 1994). The family planning programme in Bangladesh was restricted to the urban areas and operated to a very limited scale in the rural area prior to 1975. Although history of the national and Matlab family planning programme was provided in chapter four. A summary of features relevant to this discussion would be helpful at this point.

Despite its long existence, the activities of the Bangladesh national family planning programme during the 1960s were restricted mainly to the cities and towns and adopted more of a clinical services approach whilst providing contraceptives mainly in the form IUD and sterilization (Adil 1968). The programme failed to link the vast majority of the rural population with urban oriented clinical approach due to existing social and cultural restrictions on the rural women during that period. Rural areas were inaccessible by any modern means of communication and women's freedom of movement and communication with the outside world was extremely restricted. There was no effective communicating or mediating agent between the rural women and the urban family planning programme.

During the early 1970s, the National Family Planning Programme like other Asian family planning programmes incorporated non-clinical supply services using a mass distribution of contraceptives at the doorstep or ensured supply from a fixed spot. It was basically distribution of one or two methods at a time, usually pill or condoms and workers were minimally trained to handle the side effects of contraceptives or to give counselling. The government policy at that time was basically to popularise one method at a time and not focussing on individual need of reproductive women or giving them a choice. Family planning staff postings were also highly dispersed and scanty in the rural areas. The small number of staff in the rural areas meant that the rural population were not well linked with the programme activities, which were largely setup in the cities. Despite a demand for family limitation, the national family planning programme failed to produce any discernible effect on fertility through contraceptive methods in the rural areas of Bangladesh until the late 1970s.

However, as reported earlier, the Matlab MCH-FP intervention was different from its inception. It was a high management oriented programme where each woman was given individual attention, and a close relationship between the women and the primary service providers, that is, the Community Health Worker (CHW) was ensured. These CHW visited all reproductive women once in 15 days and were under close supervision for technical, social and administrative help. In addition, the Matlab staff had a rapport with the population as a result of its long existence in the area.

Chapter four discussed the set up of the family planning programme both at national level and in Matlab and thereby illustrated the difference in the two systems. The present chapter will examine the level of contraceptive use in different stages of the family planning programme activities at both the national level and in the two areas of Matlab. Available published sources will be used to examine the past trends. But while the Matlab's published data is straight forward and taken from a single longitudinal data base of Matlab HDSS, the national data were derived from two sources: survey reports and official documents. For obvious reasons, the official documents were over reported (Kamal et al. 1988 1990 cited in Cleland et al. 1994); but a possibility of under reporting or over reporting in the survey data was present as well (Bairagi 2000). However, in analysing survey data, Cleland et al. (1994) concluded that the survey data were more reliable than the programme data at the national level. In the present chapter, besides the own thesis data, information on national statistics published on surveys will be taken into account.

The level of current contraceptive use largely depends on the level of contraceptive knowledge and knowledge of the sources of contraceptive supply, and more importantly, on the commitment of supply to those who have knowledge of contraceptives and demand for fertility control. The next section will, thus, examine the association between current contraceptive use and knowledge of contraceptives, knowledge of the sources of contraceptives supply and the family planning worker's visitation.

## 12.2 Knowledge of Contraceptives and Family Planning Worker's Visits

### 12.2.1 Knowledge of Contraceptive Methods, and the Knowledge of the Sources of Contraceptive Supply

Knowledge of the contraceptive methods and knowledge of the sources of contraceptives supply were substantial by 1983/1984 and universal by 1994-1996 in all the three areas. Chapter seven has discussed the knowledge of contraceptives and the knowledge of the sources of supply. The present chapter will examine the bivariate relationship between current contraceptive use by the knowledge of contraceptives and the knowledge of the sources of contraceptive supply.

Table 12.1a and Table 12.1b present the knowledge of contraceptives and the knowledge of the sources of contraceptive supply for the three areas for the period of 1983/1984 to 1994/1996. The national data presented in 12.1a for the year 1983 shows that knowledge of contraceptives had a positive relationship with current

**Table 12.1a: Percent of women currently using contraceptives by the knowledge of Contraception, sources of contraceptive supply and family planning worker's visit, national level (rural) and two areas of Matlab, 1983/1984.**

| Variables | National -1983 | | Matlab-1984 | | | |
|---|---|---|---|---|---|---|
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **No. of modern Methods known** | | | | | | |
| 0-2 | 8.9 | 1617 | 20.0 | 25 | 8.7 | 126 |
| 3 | 16.8 | 1828 | 33.0 | 376 | 12.4 | 379 |
| 4 or more | 29.1 | 2556 | 43.6 | 2394 | 20.9 | 1183 |
| **No. of Traditional Methods known** | | | | | | |
| 0-1 | 19.7 | 4023 | 38.4 | 1759 | 15.7 | 1181 |
| 2 | 19.2 | 1014 | 44.7 | 742 | 24.0 | 354 |
| 3 or more | 21.8 | 964 | 55.8 | 294 | 22.9 | 153 |
| **No. of contraceptives Sources known** | | | | | | |
| None | 8.7 | 1101 | 0.0 | 33 | 3.9 | 102 |
| At least one | 22.4 | 4900 | 42.4 | 2762 | 19.0 | 1586 |
| **Family planning worker's visit** | | | | | | |
| Once in a month | 29.9 | 853 | 42.3 | 2358 | 25.2 | 155 |
| Within last six months | 26.9 | 784 | 37.7 | 281 | 19.7 | 213 |
| More than six months | 16.7 | 4364 | 44.2 | 156 | 17.0 | 1320 |

contraceptive use. This was more prominent among the women who had knowledge of modern forms of contraceptives. The current contraceptive use was nine percent among the women who had knowledge of two or less modern contraceptive methods which increased by 7.9 percentage points among the women who had knowledge of three methods and further increased by 12.3 percentage points among the women who knew more than three methods. The difference in current contraceptive use between those who had knowledge of two or less contraceptives and those who had more than three contraceptives were three times larger (3.27 percent). There was also a positive relationship between current contraceptive use and knowledge of traditional methods but the relationship was not as strong as it was for knowledge of modern contraceptives. The national data also show a strong relationship between the knowledge of the sources of supply of modern contraceptives and current contraceptive use. The current contraceptive use among the women who did not know the sources was 9 percent, and it increased 13.7 percentage points among the women who knew at least one source of contraceptive supply.

The Matlab data for both areas presented in Table 12.1a for the year 1984 shows that knowledge of contraceptives had a positive relationship with current contraceptive use. This was more prominent among the women who were familiar with modern contraceptives. The current contraceptive use in the intervention area was 20 percent among the women who were aware of two or less modern contraceptives methods and use increased 13 percentage points among the women who were aware of two methods and further increased 10 percentage points among the women who knew more than two methods. The difference in contraceptive use between those who had knowledge of two or less modern contraceptive methods and those who have knowledge of more than three contraceptive methods was two fold.

In the control area, current contraceptive use was 9 percent among the women who had knowledge of two or less modern contraceptive methods and it increased by 3.7 percentage points among the women who had knowledge of two methods and further increased by 8.4 percentage points among the women who had knowledge of more than two methods. The same relationship holds true for traditional methods in both areas of Matlab. The relationship between the knowledge of the sources supply and current contraceptive use was positive and strong in both areas. In fact, there were very few women in the intervention area who did not know where to obtain the contraceptives Those who did not know where to obtain contraceptives were not using them too. In the control area, the current contraceptive use among the women who knew only one source of contraceptive supply was 4 percent, and it increased 15 percentage points among the women who knew more than one source of contraceptive supply

**Table 12.1b: Percent of women currently using contraceptives by the knowledge of Contraception, sources of contraceptive supply and family planning worker's visit, national level (rural) and two areas of Matlab, 1994/1996.**

| | National-1996 | | Matlab -1994 | | | |
|---|---|---|---|---|---|---|
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **No. of modern Methods known** | | | | | | |
| 0-2 | 17.1 | 70 | 57.8 | 116 | 32.1 | 109 |
| 3 | 32.2 | 518 | 100.0 | 1 | 33.3 | 6 |
| 4 or more | 56.1 | 5606 | 65.8 | 1122 | 43.7 | 909 |
| **No. of Traditional Methods known** | | | | | | |
| 0-1 | 39.9 | 1959 | 61.3 | 564 | 35.2 | 529 |
| 2 | 54.3 | 1752 | 67.8 | 506 | 49.1 | 389 |
| 3 or more | 64.1 | 2483 | 69.2 | 169 | 53.8 | 106 |
| **No. of contraceptive Sources known** | | | | | | |
| None | 9.5 | 410 | 0.0 | 1 | 0.0 | 0 |
| At least one | 56.8 | 5784 | 65.1 | 1238 | 42.4 | 1024 |
| **Family planning worker's visit** | | | | | | |
| Once in a month | 75.2 | 306 | 73.8 | 526 | 67.7 | 65 |
| Within last six months | 70.1 | 1996 | 70.9 | 371 | 59.8 | 239 |
| More than six months | 43.5 | 3892 | 45.3 | 342 | 34.3 | 720 |

In 1996 at the national level, the association between the current contraceptive use by knowledge of contraceptive methods and knowledge of the sources of modern contraceptive methods supply is stronger (Table 12.1b). The current contraceptive use among the women who had knowledge of two or less modern contraceptive methods is 17 percent and it increases to 39 percentage points among those who had knowledge of four or more methods. But the difference in current contraceptive use in 1996 between those who knew two or less methods and those who knew four or more methods was even larger than it was in 1983. The current contraceptive use by traditional method had increased among all women who knew traditional methods in 1996. The current contraceptive use among women who were familiar with at least one traditional method was 40 percent and it increased by 24 percentage points among women who knew more than two methods. The current contraceptive use by sources of supply, however, shows that the current contraceptive use among the women who did not know the sources of supply was the same as it was 1983, that is, 9 percent but it increased to 49 percentage points among the women who knew at least one source of contraceptive supply. The difference in contraceptive use between those who knew one source of supply and those who knew more was 6 times (5.97 percent) in 1996.

In 1994, a positive association between the current contraceptive use by knowledge of contraceptive methods was evident in both areas of Matlab is shown in Table 12.1b but the relationship is less strong than in 1984. The current contraceptive use among the women in the intervention area who had knowledge of two or less modern contraceptive methods is 58 percent and it increases to 66 percent among those who knew four or more methods. In the control area it is 32 and 44 percent respectively. The current contraceptive use by traditional method has increased among all women who were familiar with traditional methods in 1996. The current contraceptive use among women who knew at least one traditional method is 61 percent in the intervention area and 35 percent in the control area. These figure increased by 8 percentage points and 19 percentage points respectively among women who were aware of more than two methods. In both areas of Matlab in 1994, knowledge of the sources of contraceptive supply is universal.

### 12.2.2 Family Planning Workers Visits

The Family Planning Workers visits is one of the crucial elements for the success of family planning programme in a traditional society like Bangladesh where communication infrastructure are poor and there is restriction on women's freedom of movement. Table 12.1a shows that, in 1983, contraceptive use is the lowest among women who were either never visited or had been visited before 6 months ago. The current use of contraceptives increases with increasing number of visits to the women by the Family Welfare Assistant (FWA). The current contraceptive use is 17 percent among the women who were never visited or visited more than six months ago, it increases by 10 percentage points among those who were visited once during the six months and further increases by 3 percentage points among those who were visited once in a month.

Table 12.1a also presents the current contraceptive use by the Community Health Worker (CHW) visit in the two areas of Matlab in 1984. It shows a general positive relationship between current contraceptive use and CHW's visitation in both areas of Matlab. The current contraceptive use is 38 percent among women who were visited once during the six months and it increases by 4 percentage points among women who were visited once in a month in the intervention area. However, there is an anomaly in that the highest contraceptive use is among the women who were not visited within the last six months. Some other factors may be related with this outcome. In the control area, on the other hand, the current contraceptive use is 17 percent among women who were never been visited or visited before six months. It increases by 3 percentage points among those who had been visited once during the last six months and a further 5 percentage points among those who were visited once in a month.

In 1996 at the national rural level, the difference in current contraceptive use by FWA visits is more evident. The current contraceptive use is 44 percent among the women who had never been visited or visited within the last six months, it increases by 36.6 percentage points among those who had been visited once during the last six months a further 5 percentage points among those who were visited once in a month. But the percentage points difference of contraceptive use between those who were visited once during the last six months and those who were visited once in a month in 1996 is the same as that for the 1983 visits.

In 1994, the difference in contraceptive use made by the frequency of visits of FWA/CHW is more evident than it was in 1984 for both areas of Matlab. The current contraceptive use in the intervention area is 45 percent among the women who were never visited or visited six months ago. it increases by 36 percentage points among those who were visited once during the six months and a further 3 percentage points among those who were visited once a month. In the control area, the Table shows that the current contraceptive use is 34 percent among the women who were never visited or visited six months ago, it increases by 36 percentage points among those women who were visited once during the six months and a further eight percentage points among those who were visited once a month.

### 12.2.3 Summary

The level of knowledge of contraceptives and the knowledge of the number of the sources of contraceptive supply was high among women in the three areas and in the intervention area it was almost universal by the 1983/1984. By 1994/1996, knowledge of contraceptives and the sources of contraceptive supply were almost universal. Both knowledge of contraceptives and knowledge of the sources of contraceptive methods supply had a positive relationship with current contraceptive use of women in all three areas in 1983/1984. However, this relationship was stronger in 1994/1996. The FWA/CHW visitations seem to have had a positive relationship with current contraceptive use in all the three areas. This relationship was strong in both 1983/1984 and in 1994/1996 periods in all the three areas.

## 12.3 Trends in Contraceptive Use

### 12.3.1 Contraceptive Prevalence

Despite Bangladesh having one of the oldest family planning programme, contraceptive prevalence rate was low at the initial stages of the programme. The national family planning programme started in 1960 later extended its activities to the rural areas by 1965, mainly through linking the rural population with the urban clinical services by monetary incentives to family planning staffs and through the media. The NIS-1966-68 reported that only 3.7 percent of the currently married women of reproductive age were using contraceptive methods. The period of 1970-1975 was characterized by geo-political and social unrest with floods, famine and the war of independence. Because of this no reliable information is available for this period. Most analysts, thought it unlikely that contraceptive prevalence would rise during this unstable period (Arthur and McNicoll 1978; Cleland et al. 1994). However, BFS-1975 did find a slight increase (7.7 percent) in the use of current contraceptive use among the married women of reproductive age in 1975. Since 1975, organized and systematic Contraceptive Prevalence Surveys (CPS) at the national level have been conducted every alternative year except for a few exceptions. The trends in current contraceptive use at the national level for the period of 1975 to 1996 are presented in Table 12.2a which clearly illustrates a steadily raising trend in current contraceptive use. In 1979, contraceptive use had increased to 12.7 percent. From 1979 each successive survey reported an increased level of current contraceptive use. In 1983, it was 19.1, an increase of 6.4 percentage points within 4 years. A rapid rise in contraceptive use is evident from 1983 in the rural area of Bangladesh. During the 1983- 1989 period, current contraceptive use prevalence increased an 11.8 percentage points, an average of two percentage points a year and the trend further accelerated during the period 1989-1996. During this period, current contraceptive use increased by another 18.4 percentage points within 7 years and reached a level of 49.2 percent of all reproductive women in 1996. The reason for this dramatic rise in current contraceptive prevalence rate in the 1980s and early 1990s has been the focus of the present study.

**Table 12.2a: Percent of eligible women using contraceptives at the national level during 1975-1996**

| Methods | 1975 | 1979 | 1983 | 1989 | 1996 |
|---|---|---|---|---|---|
| **Any methods (CPR)** | 7.7 | 12.7 | 19.1 | 30.8 | 49.2 |
| **Any modern methods** | 5.0 | 8.9 | 13.8 | 23.2 | 41.6 |

Sources: Cleland et al. 1994; Mitra et al. 1996.

The trends in current contraceptive use in both areas of Matlab are presented in Table 12.2b. The Table illustrates that the contraceptive prevalence rate was much lower in both areas of Matlab in earlier years (1975) than at the national level, with the lowest rates in the Contraceptive Distribution Project (CDP) intervention area in 1975. The reported CPR in CDP 1975 was one percent, and 2.9 percent in the CDP intervention and CDP control areas respectively[1]. As noted in chapter four the CDP programme had been launched in half of the Matlab area in October 1975. Rahman et al. (1980) reported that within three months of this distribution CPR rises from one to 17.8 percent in the CDP intervention area which then

[1] This division of CDP-intervention and CDP-control in the Contraceptive Distribution project (CDP) is different from the later study, that is, Maternal Child Health and Family Planning (MCH-FP) programme area division. In CDP area was also divided into intervention and control. In order to differentiate the two project's population, Areas used in CDP were termed as CDP intervention and CDP control. In the CDP intervention area mass distribution of contraceptive methods approach was followed where the control area has the normal government programme. CDP programme area was designed in a 4 cells model: North and South and distribution and control. Each part has one control and one intervention. When MCH-FP programme was launched in October, 1978, it included half of the control and half of the CDP intervention areas as new intervention area for MCH-FP intervention.

gradually decreased 5.8 percentage points within 18 months and attaining stability at 12 percent.

**Table 12.2b. Percent of eligible women currently using contraceptives in both areas of Matlab, 1975-1994.**

| | 1975[a] | | 1977[a] | | 1979[a] | | 1984[b] | | 1990[c] | | 1994 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Methods | INT | CON | INT | CON | INT | CON | INT | CON | INT | CON | INT | CON |
| **Any methods (CPR)** | 1.0 | 2.9 | 12.0 | 3.8 | 33.5 | --- | 38.8 | 16.[illegible] | 57.1 | 27.2 | 65.1 | 42.2 |
| **Any modern methods** | 1.0 | 2.9 | 12.0 | 3.8 | 31.9 | -- | 36.3 | 12.[illegible] | 53.8 | 20.1 | -- | -- |

INT=Intervention , CON=Control ; '—' data not available.
Source: [a] computed from Rahman et al. 1980; Bhatia et al. 1980; [b] Thesis data [c] Koenig et al. 1992.

In the CDP control area, where the government had launched a mass oral pill and condom distribution campaign, current contraceptive use prevalence had reached at 3.8 percent in the same period. In October 1977, Cholera Research Laboratory (CRL[2]) launched its limited Family Planning and Health Service Project (FPHSP) in a half of the CDP intervention area. Details of this programme have been discussed in chapters four and six. The impact of this programme is demonstrated through Table 12.2b. It shows that within two years of the programme intervention, contraceptive prevalence rate in the intervention area had risen a 21.5 percentage points, a more than 10 percentage point increase each year but remained fairly constant (or reached a plateau) over the next three years (Phillips et al. 1984). It then started rising continuously again from 1984. During 1979-1984, current contraceptive use increased only 5.3 percentage point increased contraceptive use in the intervention area, but from 1984 to 1990 it increased again by another 18 percentage point, a three percentage points rise each year. By, in 1994, contraceptive prevalence rate had reached 65 percent of all eligible women in the intervention area, that is, a further increase of eight percentage points in just 4 years.

In the CDP control area, on the other hand, CPR was higher during the pre-CDP period. But had became much lower after the CDP campaign had been started in the CDP intervention area by CRL. Despite the government's mass contraceptive distribution campaign, the CPR in the CDP control area had only been 3.8 percent

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[2] Predecessor of International Centre for Diarrhoal Disease Research, Bangladesh (ICDDR,B)

in 1977. However, no information on current contraceptive use in the FPHSP control area[3] was available for the intervening period, 1977-1984[4]. The KAP-84 survey reported that the CPR in the control area in 1984 was 16.5 percent of all eligible women. This had increased by 10.7 percentage points by 1990 and within another 4 years, the CPR in this area had increased by a further 15 percentage points, an increase of nearly 4 percentage points each year. In 1994, the CPR in the control area had become 42.4 percent of all eligible women.

### 12.3.2 Contraceptive Methods Mix

The role of each of the contraceptive methods, that is, the methods mix, in the rapid rise of contraceptive prevalence over the last 20 years at the national level is presented in Table 12.3a. The Table demonstrates that in the earlier stages, that is, in the 1970s, the dominant methods used by the rural women were oral pill and traditional means of control like abstinence, withdrawal and other unspecified traditional means.

**Table 12.3a: Percent of eligible women using any contraceptive method (contraceptive method mix ) at the national level during 1975-1996.**

| Methods | 1975 | 1979 | 1983 | 1989 | 1996 |
|---|---|---|---|---|---|
| **Any modern methods** | 5.0 | 8.9 | 13.8 | 23.2 | 41.6 |
| Pill | 2.7 | 3.6 | 3.3 | 9.6 | 20.8 |
| IUD | 0.5 | 0.2 | 1.0 | 1.4 | 1.8 |
| Injectables | U | 0.2 | 0.2 | 0.6 | 6.2 |
| Vaginal methods | 0.0 | 0.1 | 0.3 | 0.1 | U |
| Condom | 0.7 | 1.5 | 1.5 | 1.8 | 3.9 |
| Female sterilization | 0.6 | 2.4 | 6.2 | 8.5 | 7.6 |
| Male sterilization | 0.5 | 0.9 | 1.2 | 1.2 | 1.1 |
| **Traditional methods** | 2.7 | 3.8 | 5.4 | 7.6 | 7.7 |

Sources: Cleland et al. 1994; Mitra et al. 1997.

From 1979, use of three methods, oral pill, irreversible methods, tubectomy and vasectomy, and traditional methods of birth control began to rise. But the highest increase was apparent in the use of oral pills. In 1975, the use of oral pill was 2.7 percent, 35 percent of the total prevalence. In 1983 it had increased by a 0.9

[3] FPHSP control and FPHSP intervention are known as Comparison and MCH-FP intervention area. For the present analysis we use the term control and intervention respectively.

se[4] In 1977, CDP Intervention and CDP control was again divided, into MCH-FP intervention and comparison areas with half of the population from each of the above areas(CDP Intervention CDP Control) into the MCH-FP intervention and the comparison areas at the time of the introduction of family planning and health service project. Since the introduction of the FPHSP, the areas were known as intervention and comparison.

percentage points and was still the largest contributor at 28 percent of the total contraceptive prevalence at that time. From 1983, use of oral pill steeply rises. CPS-1989 reported a 6.3 percentage points increase during the period between 1983-1989, a 41 percent of the total use of modern contraceptive use prevalence. By 1996, it had increased another 11.2 percentage points. It appears that oral pill was the most popular contraceptive among the rural women of Bangladesh from the beginning and contributed to nearly half of the total current use prevalence followed by the sterilization. Sterilization started a rapid raise in the late 1970s and continued until 1985. The percentage of sterilizations was only 1.1 in 1975. It increased by 2.2 percentage points in 1979 and by 6.4 percentage points in 1989. From 1989, sterilization shows a declining trend and by 1996 it had reduced to 8.7 percent although still holding the second most preferred method, contributing 18 percent to the total use prevalence.

The rapid increase of sterilization in the late 1970s coincided with the government's sterilization drive through temporary sterilization camps in different parts of the country based on the ideology of a single method oriented distribution programme. A silent feature of sterilization drive was the acceptance of this method largely by the women. The percentage of male and female sterilizations was almost similar at the initial stage of the sterilization drive in 1975. The percentage for male and female sterilizations, were 0.5 and 0.6 percent respectively. At the later stage after 15 years of programme it was the women who were being sterilized. Male sterilization rate during 1975-1996 increased to 1.2 percent, a 0.7 percentage point increase in 15 years, in contrast to the increase to 9.1 percent for the female, an increase of 8.9 percentage points during the same period.

The other methods that affect the CPR substantially at the national level are traditional methods. Like the oral pill, the use of traditional methods rose from 1975. An increased use of traditional methods was reported by each successive survey. In the early stage of contraceptive prevalence, during the 1970s, traditional methods were the most preferred method of contraception among women in rural areas. In the early 1980s these methods were superseded by sterilization. The use of traditional methods, for example, was 2.7 in 1975 it increased by a 2.7 percentage points by 1983 and further 2.2 percentage points by 1989. From 1989, the use of traditional contraceptive appeared to be static. By 1996, 7.7 percent of the eligible rural women were using traditional contraceptives. After 1989, a subtle change is evident in the contraceptive use pattern at the national level. Women in rural Bangladesh seemed to be favouring DMPA and switching to it. The use of DMPA was minimal at the national level in the past. At the national level, the use of DMPA was less than one percent until 1989 but by 1996 following the Matlab trends the use of DMPA had increased by 5.6 percentage points reaching 6.2 percent.

The relative role of each of the methods of contraceptives on the total rise of contraceptive use and the pattern of contraceptive method mixed over the last 20 years in both areas of Matlab are presented in Table 12.3b. The Table demonstrates that in the earlier stages, that is, in the 1970s till 1977, contraceptive use was very low and the oral pill was the primary method of contraception in both areas of Matlab. In 1979, however, DMPA was the dominant method followed by sterilization and the oral pill in the Matlab intervention area. The Table shows that 16.6 percent of eligible women in the intervention area in 1979 were using DMPA, which accounted for 49 percent of the total current contraceptive use. This pattern continued for the whole study period until 1994. In fact, DMPA has played a major role in rapid rise of current contraceptive use in the Matlab intervention area since it's inception in 1977.

The second preferred contraceptive, the oral pill dominated the total use in the early stages of contraceptive prevalence before the introduction of FPHSP in the intervention area in 1977. In 1977, the use of oral contraceptive was 8.4 percent of all reproductive women, which accounted for a 70 percent of the total use. However, this percentage had reduced by 4.1 percentage points by 1979 and the contribution of the oral pill into the total current contraceptive prevalence in 1979 had declined to 13 percent. However, there were rising trends in the use of the oral pill in the 1990s. The use of oral contraceptives rose by 8.9 percentage points in 1990, and again by 3.6 percentage points within 4 years. It was the second most preferred contraceptive in the intervention area in 1994. The third preferred method in the intervention area was sterilisation. Until 1977, the percent sterilizations was low. From 1979, it began to rise in the same way as it was rising at the national level. Separate information on rate of sterilizations performed by male and female were not available in any published report for either areas of Matlab before 1979. The sterilized person in 1979 was 7.5 percent of which 88 percent were female. From 1984, there were slow rise of sterilization. During 1984-1990, percent of sterilization increased by 2.4 percentage points but decreased by one-percentage point in 1990, which then regained in 1994.

In the control area, details of contraceptive use are not available for all the years from 1975-1994. The available information is presented in table 12.2b. It demonstrates that at the early stages of contraceptive use in this area, like in other two areas, the oral pill was the most preferred form of contraception. In 1975, the use of the oral pill was 2.2 percent. But from during the 1977 to 1984 the use of oral pill declined to 0.8 percent. However, from 1990, there was a rapid rise in the use of the oral pill. It roses from 0.8 percent to 8.1 percent of reproductive women, a rise of 7.3 percentage points in 1990, and accounted for 40 percent of total modern contraceptive use in the control area. The use of oral pill had further increased by 10.3 percentage point in 1994, and accounted for 52 percent of the total modern contraceptive use in the area. Information on sterilization in the control area was not available until 1984. In 1984, sterilisation accounted for 67 percent of the total current modern contraceptive use with female sterilisation contributing 96 percent of the total sterilization. Fewer sterilization was performed from 1984 and though it was still a prominent method used by the women in the control area, the rate of increase had slowed after 1984. During the 10 year period, between 1984-1994, it increased by only 2.6 percentage points and became the second most preferred contraceptive in the control area. The third most preferred form of contraception was traditional methods. Separate information on the use of traditional methods was not available in Matlab before 1984. In 1984, only 4 percent of eligible women in the control area were using traditional methods, within 6 years this had risen by rose by 3 percentage points and then it plateaued at this level until 1994.

**Table 12.3b. Percent of eligible women currently using any contraceptive method (contraceptive method mix) in both areas of Matlab, 1975-1994.**

| Methods | 1975[a] | | 1977[a] | | 1979[a] | | 1984[b] | | 1990[c] | | 1994[b] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | INT | Control | INT | Control | INT | Control | INT | Control | INT | Control | INT | Control |
| **Any modern methods** | 1.0 | 2.9 | 12.0 | 3.8 | 31.9 | Not | 36.3 | 12.6 | 53.8 | 20.1 | 60.8 | 35.3 |
| Pill | 0.8 | 2.2 | 8.4 | 1.5 | 4.3 | A | 3.1 | 0.8 | 12.0 | 8.1 | 15.6 | 18.4 |
| IUD | - | - | - | - | 1.4 | | 7.9 | 2.3 | 3.5 | 0.7 | 2.0 | 0.2 |
| Injectables | - | - | - | - | 16.6 | A | 14.5 | 0.4 | 28.4 | 1.1 | 30.9 | 4.7 |
| Vaginal methods | - | - | - | - | 0.8 | i | 0.1 | 0.0 | 0.1 | 0.1 | 0.6 | 0.8 |
| Condom | 0.02 | 0.2 | 1.8 | 0.4 | 1.5 | l | 0.8 | 0.4 | 0.8 | 0.4 | 1.5 | 0.7 |
| Female sterilization | - | - | - | - | 6.6 | a | 9.5 | 8.2 | 8.5 | 9.5 | 9.9 | 10.8 |
| Male sterilization | - | - | - | - | 0.9 | b | 0.4 | 0.3 | 0.4 | 0.2 | 0.1 | 0.0 |
| **Traditional methods** | - | - | - | - | 1.6 | l | 2.5 | 4.0 | 3.3 | 7.1 | 4.3 | 6.9 |
| Others* | 0.2 | 0.5 | 1.8 | 1.9 | - | e | - | - | - | - | - | - |

INT=Intervention , Source: [a] computed from Rahman et al. 1980; Bhatia et al. 1980; [b] Thesis data [c] Koenig et al. 1992.

### 12.3.3 Summary

The analysis of three areas during 1983-1996 shows that contraceptive use was very low in all three areas at the early stages of the family planning programme. It was lowest in the intervention area. Introduction of two family planning programme interventions in the Matlab intervention area raised the level of contraceptive prevalence in that area. The rise in current contraceptive use level was quick and sharp and from a very low point of one percent to 18 percent within just the first three months of the contraceptive distribution project in the intervention area in the mid 1970s. The same trends, for example, were was evident when FPHSP was launched in 1977. Within two years, current contraceptive use had risen to 33 percent of all eligible women. Finally, within 20 years, from 1975–1994, current contraceptive use level rose from one percent to 65 percent of all eligible women.

The level of contraceptive prevalence in the other two areas was low. It started rising at the national level from 1979 but was still low in the Matlab control area. In 1984, the current contraceptive use in the control area started to rise. The Matlab family planning programmes (CDP and FPHSP) had immediate an effect on the current contraceptive use behaviour, but the effect of regular government family planning services on the control area was slower. Although there was a slow rise of current contraceptive use at the initial stage of the programme in the control area and national level it caught up quickly at a later stage. This quick rise in current contraceptive use at a later stage may be related with the strategic changes in the national programme in 1979. Despite all these rise in CPR in the control area, CPR was consistently high and total fertility rate was low in the intervention area than the other two areas for all the time.

The basic use pattern, that is, method mix, differed among the three areas. In the early stages, when contraceptive use was low, most women used the oral pill. But in the later stages when the family planning programme in all three areas was modified, the pattern of contraceptive method mix changed accordingly. In the Matlab intervention area, the DMPA dominated the current contraceptive use pattern for the whole study period. At the national rural level and in the Matlab control area, sterilization was the prominent method of contraception in the 1980s. However, in the 1990s sterilization was replaced by oral pill in both the national rural area and the Matlab control area. In the intervention area, though DMPA largely contributed to the current level of contraceptive use, there was a considerable rise of the use of oral pill in the 1990s.

## 12.4 Conclusion

Analysis of the trends in contraceptive use, and the method mix has illustrated that the current contraceptive use in the Matlab intervention area was consistently high throughout the study period. Current contraceptive use quickly rose from a very low level when CRL launched a contraceptive distribution campaign in 1975. Despite a homogeneous socio-cultural environment and the existence of a national family planning programme in the other two areas, current contraceptive use was low at the national level and the lowest in the control area at that time. The causes of the apparent lag of performance of control area and the national level despite a large and equal demand for fertility limitation in all the three areas are worthwhile exploring.

The sharp rise in current contraceptive use after three months of the mass distribution of oral contraceptives and the condoms through the Contraceptive Distribution Project (CDP) in the intervention area and the rapid and continuous rise in CPR after the introduction of the Family Planning and Health Services project (FPHSP) in the Matlab intervention area provides an obvious demonstration that demand for no additional children existed in Matlab prior to the introduction of the projects and substantiates the earlier findings discussed in chapter eight (Bhatia et al. 1980; Phillips et al 1982, 1984; Ginneken et al. 1998). An analysis of the CDP project performance provides an idea of how and why the Matlab programme worked differently than national programme in the rise of current contraceptive use in the Matlab area.

Analysis of the programmes performance reveals that the first programme (CDP) was introduced with the assumption that demand for no additional children existed among the population, and the second programme was introduced on the basis of an evaluation of the first programme. It is documented that though the current contraceptive use rose from one to 18 percent within 3 months of the CDP, it started declining after six months and within 18 months of the project it had declined to 12 per 100 eligible women. This decline in the CPR, 18 months after the project was launched, has been attributed to the side effects of the oral contraceptive, lack of technical backup and the lack of alternative method for the women to switch to (Huber and Rahman et al. 1980). The prior existence of demand for no additional children is further augmented by the finding of Rahman et al. (1980) that illiterates that women in the rural areas were taking oral pill for abortion.

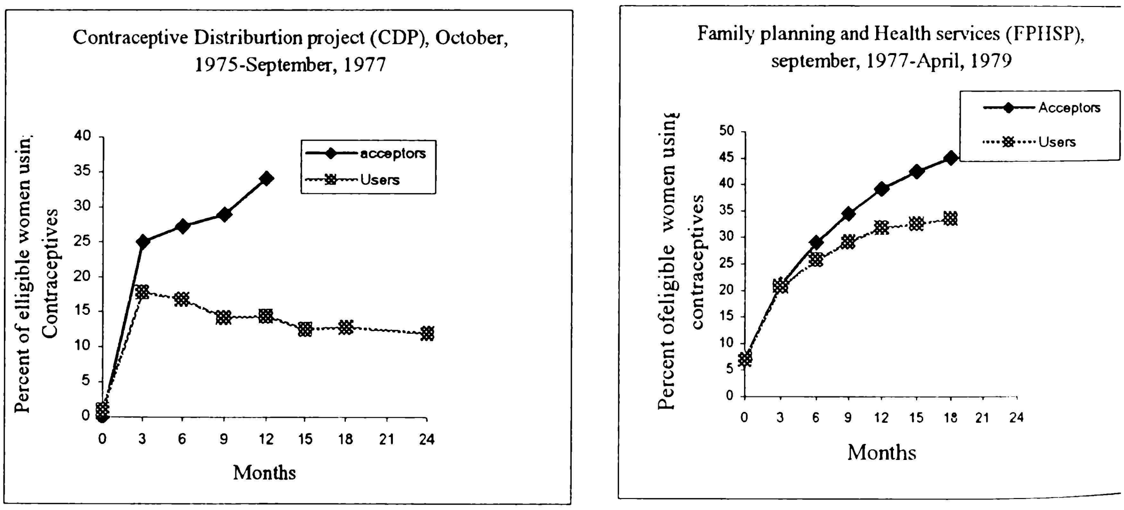
An appraisal of the CDP demonstrates that the project had adopted a culturally inappropriate strategy for an illiterate population as it was based on foreign fertility control technology. As discussed in chapter 4, for example, less than 10 percent of the women had finished primary school. Thus, the distribution of oral pill into a community without technical back up was unlikely to be successful as the oral pill would have been a new technique to the population and the recipients would not have been be able to read the instructions. The situation was worsened by inaccessible road communication, and cultural restrictions on the movement of women. Thus, an appropriate service delivery strategy taking into consideration of the cultural constraints of the society was introduced to mitigate the demand for fertility control of the women (Rahman et al. 1980; Bhatia et al. 1980; Huber 1976[5]).

The validity of the CDP findings was strengthened by the CPR's rapid rise within three months of the FPHSP programme being was introduced into half of the Matlab HDSS areas in October 1977. By 1979, CPR had risen to 33 percent and rose continuously to reach at 65 percent per hundred couples in 1996 (Bhatia et al. 1980; Rahman et al. 1980; Phillips et al. 1984; HDSS report 2001). This sharp rise in contraceptive use within a short time of FPHSP, according to most analysts was, due to, on one side, a demand for fertility control and on the other side, a programme backed up with an appropriate strategy (details of the strategies have been discussed in chapter two and chapter five). The contrasting results of the two projects, CDP and FPHSP, based on two hypotheses are shown in Figure 12.1.

[5] Phillips and Huber (1976) conducted a follow-up survey of 1527 pill acceptors of CDP after eight to 13 weeks confirmed that almost 62 percent had some physical complaint and 30 percent had already discontinued use.

In the CDP control area, during the pre- FPHSP period, the government had also launched a similar mass distribution programme. Despite an equal demand for fertility control in both areas, the adoption of the same strategy by the government produced minimal results. The results of the national method oriented distribution programme can be seen in Table 12.1b. The reasons behind the apparent failure, according to most analysts, were two. The first, was the, lack of support of an organized administrative and logistic resources like CRL, and the second and more important one, was lack of confidence of the population on the national staff, a confidence that CRL staffs had build-up by serving the community over the last 12 years and by maintaining close and cordial communication with the community. In addition, the CDP was a simple house-to-house distribution of non-clinical contraceptives, population in the CDP intervention area knew that the CRL staffs because of their other work in the community are available in time of need. The National family planning programme had severe lacking in these two aspects.

**Figure 12.1: Cumulative contraceptive acceptors and current contraceptive users in the first 18-24 months of the two projects (CDP & FPHSP) in Matlab based on two different approach of contraceptive distribution during 1975-1979.**




Sources: Rahman et al. 1980

As mentioned earlier, the national policy was to distribute nonclinical contraceptive supplies using temporary hired personnel or/and distribution of contraceptives from a fixed supply spot from where a free supply could be ensured on demand. In contrast to CRL, the worker client rapport and confidence building was absent until the mid 1970s. As discussed in chapter four, there were only 122 teams[6] of community

[6] team consists of one male and one female motivator per union in 35 Thana in 5 districts.

workers in 35 out of 467 Thana, and 425 Family Welfare Visitors (FWV) in 1975 for a population of one hundred and 12 million. The supply of contraceptives from a fixed supply spot was intended for those who had strong demand for contraceptive and who could overcome the physical and social barriers to obtain them. This type of disconnected service programme using unfamiliar technology would be unlikely to have a strong influence on a traditional rural society characterised by physical and social barriers. Thus an economically efficient and viable, (a programme with less man power and monetary support) but disconnected approach, that is, a policy of popularising 'single method at a time approach' without linking the service provider and the mass population and ignoring the real and psychic effect of the complications of contraceptive technology on a traditionally illiterate society virtually discredited the national family planning programme in the early stages. However, since 1976, as discussed in chapter four, the government's strong commitment to control the population is reflected in its comprehensive programme incorporating eight relevant ministries and the recruitment of a large groups of grass root level workers to provide family planning services to the community. The recruitment of Family Welfare Assistants (FWA) increased to 12,185 in 1979-80 from its earlier level of 123 teams in 1975. But the worker population ratio was several times larger than the CRL worker population ratio and the coverage of the population through regular visits was sparse at the national level. The contraceptive prevalence rate in this period (i.e. 1979) at the national level had increased to 12 percent, which is close to the Matlab CDP experience in 1976.

The impact of the government's comprehensive family planning programme and recruitment of a large army of workers was slower than the impact from using the same approach in the Matlab intervention area. The causes of the slow response to the programmes intervention at the national level were debated at length among the government, donors and ICDDR,B professionals and ways were sought to replicate some of the successful components of Matlab MCH-FP programme into the national family planning programme. A long and complicated dialogue was held for quite some time (detail process of negotiation and operation are found in Phillips et al. (1994) and Cleland et al. (1994). Analysing the national programme, Phillips et al.

(1994) concluded that despite an appointment of a large number of FWAs and FPAs, the numbers of workers employed were small in proportion to the population size and area. There were anomalies in the distribution of male and female staff ratios at the primary family welfare centre (a primary distribution unit for rural people). Philips et al. (1994), for example, reported that in one such family welfare centre, there were three male workers (FPA) and one female worker (FWA) to distribute contraceptives largely aimed at reaching women. Such a composition could hardly mitigate the demand for contraceptives of the women in a rural traditional Muslim society.

A long negotiation between three parties (government, Donors and ICDDR,B) and analysis of the national programme led to key operational changes in the national programme. These included doubling the capacity of the FWA to permit more intensive outreach; training FWA to provide injectables (DMPA) at home; and upgrading field management and ancillary health services to improve technical and operational support for the village workers. Before being introduced in the national grid, the programme was pre-tested in a pilot area known as the extension area. The result of the extension project in several other sites of the country substantiated once again the conclusions drawn from Matlab CDP and FPHSP projects (Cleland et al. 1994).

The government introduced all these three operation change into the national programme during the 1980s on the basis of ICDDR.B's recommendation. ICDDR,B did not radically change the government's existing programme as it may seem nor did it play a role in increasing the demand for fertility limitation. It simply searched out the irregularities and inconsistencies in the national programme and pre-tested remedies through operation research in the extension programme area and on the basis of that suggested remedies on the three aspects discussed earlier (Phillips et al. 1994).

However, neither the ICDDR,B nor any other NGO family planning programme shows that the family planning programmes help to increase demand for family size limitation (Koenig et al.1987, 1992; Phillips et al.1996; Arends-Kuenning et al. 1999, 2000). The desired family size was 4.11 all over the country including Matlab in the mid 1970s. The desired family size had declined in the late 1980s but it declined equally. ICDDR,B's successful linkage of demand for fertility control with an appropriate service strategy led to the early success to its programme in contrast to the delayed success of the national family planning programme.

Understanding of the programme dynamics and strategic difference of Matlab and national programmes is an important step in understanding the macro level fertility decline in Bangladesh. A fuller understanding, however, requires going beyond the macro level rates to explain variety of fundamental elements that underlie the changes in deliberate fertility control through contraception among married couples. In the next three chapters, the relationship between these forces and current contraceptive use will be illustrated mainly through using the micro level data.

# Chapter 13: Demand for additional children, Biosocial and Economic Characteristics and Current Contraceptive use

## 13.1 Introduction

The previous chapter examined the trends in contraceptive use and the use pattern of different methods for the three areas. The present chapter and the subsequent three chapters will discuss the fertility intention and subsequent use patterns of contraceptives among women of different biosocial and economic groups and socio-cultural groups. The women selected for this study are currently married women of reproductive age (10-49 years), not pregnant and has birth within the last fives years. The chapter has three major sections. The first is the demand for no additional children and subsequent contraceptive use pattern; the second is the biosocial characteristics and current contraceptive use; and the last is the economic characteristics and current contraceptive use during 1983-1996.

Fertility intention is a major driving force of subsequent reproductive behaviour especially about using contraceptives for fertility control. The fertility intention and subsequent contraceptives use are also closely linked with women's biosocial characteristics. An examination of the relationship of current contraceptive use and the biosocial factors controlling the effect of fertility intension will provide information about the dynamics of contraceptive use behaviour. Present section will examine the relationship between current contraceptive use and fertility intension separating the effect of biosocial factors.

## 13.2 Demand for Additional Children and Current Contraceptive Use

### *Demand for Additional Children, Women's age and Current Contraceptive Use*

Tables 13.1a and 13.1b present the current contraceptive use by women's age and demand for additional children for the national rural level and the two areas of Matlab in 1983/1984 and 1994/1996. Table 13.1a shows that at the national level in 1983, in general, current contraceptive use is high among the women who report no demand for additional children compared to the use among women who express a demand for more children. But within the demand for no more children group, current contraceptive use has an inverse relationship with women's age . The highest users at the national rural area are the younger women and the lowest users are the older women. Within the demand for more children groups, the current contraceptive use is quite low, irrespective of age, but lowest among the oldest group. Virtually no women are contracepting in the last age group. The younger group has a higher rate of contraceptive use than the other two groups. The same trends are evident among women who reported their demand for additional children as unknown.

**Table 13.1a: Percentage distribution of women currently using contraceptives by women's age, and demand for additional children at the national level (rural) and two areas of Matlab, 1983/1984**

| | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National-1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Age of woman** | **No demand for additional children** | | | | | |
| <20 | 44.8 | 58 | 33.3 | 3 | 0.0 | 4 |
| 20-24 | 44.5 | 339 | 38.5 | 96 | 14.1 | 64 |
| 25-29 | 41.3 | 574 | 45.9 | 233 | 30.9 | 178 |
| 30-39 | 36.9 | 1079 | 55.3 | 774 | 25.9 | 513 |
| 40-49 | 15.8 | 878 | 48.4 | 517 | 23.9 | 301 |
| Total | 32.5 | 2928 | 50.7 | 1623 | 25.4 | 1060 |
| **Age of woman** | **Demand for additional children** | | | | | |
| <20 | 8.9 | 942 | 34.0 | 94 | 5.0 | 60 |
| 20-24 | 10.8 | 758 | 29.6 | 531 | 5.5 | 272 |
| 25-29 | 8.8 | 486 | 32.5 | 317 | 4.8 | 168 |
| 30-39 | 4.0 | 276 | 24.6 | 207 | 7.1 | 112 |
| 40-49 | 0.0 | 56 | 15.0 | 20 | 0.0 | 14 |
| Total | 8.7 | 2518 | 29.6 | 1169 | 5.4 | 626 |
| **Age of woman** | **Demand for additional children undecided** | | | | | |
| <20 | 4.3 | 277 | 0.0 | 0 | 0.0 | 0 |
| 20-24 | 6.0 | 100 | 0.0 | 0 | 0.0 | 0 |
| 25-29 | 4.8 | 84 | 0.0 | 0 | 0.0 | 0 |
| 30-39 | 4.3 | 69 | 0.0 | 0 | 0.0 | 0 |
| 40-49 | 0.0 | 25 | 0.0 | 0 | 0.0 | 0 |
| Total | 4.5 | 555 | 0.0 | 0 | 0.0 | 0 |

0 = No undecided cases

Table 13.1a also presents the current contraceptive use by women's age , controlling for the demand for additional children, in two areas of Matlab for 1984. The table shows that the current contraceptive use in the control area in 1984 has a very weak inverse relationship with age It is also shown that in the control area in 1984, contraceptive use is lower than at the national level among the women who reported wanting more children.

In the intervention area, in 1984, contraceptive use among the women who stated to have no demand for additional children shows a J shape relationship with age. The highest users are the two middle age groups, that is, women's aged d 24-29 years and 30-39 years. The lowest current contracepting groups are the two young age groups. Among women who reported as wanting additional children, the current contraceptive use is low but not as low as it was found in the other two areas. Twenty nine percent of women in the intervention area in this age who reported to have demand for additional children are using contraceptives. The current contraceptive use of these women when broken down by age reveals an inverse relationship between current contraceptive use and age in the intervention area in 1984. This signifies that a greater number of young women who intend to have more children are using contraceptives in this area.

Table 13.1b presents current contraceptive use by women's age and demand for additional children in the three areas for the years 1994/1996. The table demonstrates that in 1996, at the national level, the current contraceptive use is substantially high among women who reported as having no demand for additional children compared to that of the women who reported a demand for additional children. An inverted U shape pattern is evident between current contraceptive use and age among women who report no demand for additional children in 1996. In contrast to the previous period, current contraceptive use is the highest among the middle age groups, that is, age 30-39, followed by the immediate younger age groups (aged 25-29 years). Seventy three percent of the women aged 30-39 years, for example, are using contraceptives, which is 36 percentage points higher than in 1983 but among the young women aged 25-29 years usage has increased by 24.6 percentage points only. Although current contraceptive use among the oldest age groups is lower than the other two age groups discussed above, its level of increase was higher (45 percentage points) than the other two age groups (groups 25-29 and 30-39 years) during the 1983-1996 period. There is an inverse relationship between current contraceptive use and age among the women who reported as wanting more children. It is high among the young age groups of age less than 30 years. In addition, a substantial number of women who reported their demand for additional children as undecided are also using contraceptives. However, the number of women in this group is small. It seems that except for the young two groups, current contraceptive use is close to similar among all age groups who indicate no demand for additional children.

**Table 13.1b: Percentage distribution of women currently using contraceptives by women's age, and demand for additional children, national level (rural) and two areas of Matlab, 1994/1996.**

| | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab-1994 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Age of woman** | **No demand for additional children** | | | | | |
| <20 | 54.3 | 81 | 100.0 | 1 | 50.0 | 4 |
| 20-24 | 56.9 | 459 | 71.4 | 42 | 45.8 | 48 |
| 25-29 | 65.9 | 881 | 69.9 | 146 | 51.9 | 135 |
| 30-39 | 72.8 | 1562 | 81.8 | 340 | 59.6 | 285 |
| 40-49 | 60.9 | 731 | 80.6 | 196 | 48.3 | 145 |
| Total | 66.5 | 3714 | 78.5 | 725 | 54.1 | 617 |
| **Age of woman** | **Demand for additional children** | | | | | |
| <20 | 34.0 | 926 | 41.3 | 150 | 16.0 | 125 |
| 20-24 | 38.9 | 786 | 42.6 | 176 | 28.0 | 161 |
| 25-29 | 35.8 | 452 | 61.9 | 113 | 32.1 | 78 |
| 30-39 | 18.9 | 228 | 40.0 | 50 | 18.2 | 22 |
| 40-49 | 0.0 | 33 | 0.0 | 1 | 0.0 | 2 |
| Total | 34.1 | 2425 | 46.3 | 490 | 24.2 | 388 |
| **Age of woman** | **Demand for additional children undecided** | | | | | |
| <20 | 0.0 | 2 | 0.0 | 3 | 0.0 | 2 |
| 20-24 | 73.7 | 19 | 60.0 | 5 | 25.0 | 4 |
| 25-29 | 50.0 | 20 | 50.0 | 8 | 50.0 | 6 |
| 30-39 | 36.4 | 11 | 42.9 | 7 | 40.0 | 5 |
| 40-49 | 66.7 | 3 | 0.0 | 1 | 0.0 | 2 |
| Total | 54.5 | 55 | 41.7 | 24 | 31.6 | 19 |

The same table demonstrates that in the control area in 1994, the overall current contraceptive use has increased. The pattern of current contraceptive use among women who express no demand for additional children by age has changed into an inverted U shape pattern. The highest current contraceptive use is evident among the middle age group aged 30-39 years followed by the age group 25-29 years. During the study period, current contraceptive use in these age groups increased rapidly. Current contraceptive use increased by 33.7 among the women of age 30-39 who expressed no demand for additional children. This rise is similar to the rise in this age group at the national level. The second largest increase during the study period, 31.7 points is evident among women of age 20-24 years. The lowest increase in current contraceptive use is evident among the oldest age groups, 24.4 percentage points, in the control area in 1994. The same inverted U relationship between current contraceptive use and age is evident among the women who reported as wanting more children. Younger women aged 20-24 and 25-29 years are the highest current users with 22.5 and 27.3 percentage points increase respectively, between the 1983 to 1996 period. The level of increase in current contraceptive use among the middle age group (30-39 years) is only 11.1 percentage points. No trends can be seen as only two women among the older age groups report as wanting more children. The women who reported their demand for additional children as undecided in both areas are also using contraceptives in 1994. The trend is similar among those women who have wanting more children in both the areas but the number of women stating demand for additional children as undecided is small.

In the intervention area, current contraceptive use by age controlling for demand for additional children presented in Table 13.1b demonstrates that a substantially high proportion of women who reported to have no demand for additional children were using contraceptives in 1994. The pattern of contraceptive use among women by age in the intervention area seems to be a bifurcated trend in 1994. Current contraceptive use, for example, is low and similar among women of age 20-24 and 25-29 years (71.4 percent and 69.9 percent respectively). Even though the current use is higher between two older age groups, these two older age groups have the similar level of current use of contraceptives. Virtually, none (only one case) at the younger age has no demand for additional children. In terms of percentage increase, change in current contraceptive use is faster in the very young and old age groups than in the other two groups. Between 1984-1994, the current contraceptive use among the younger and older age groups, increased 32.9 and 32.2 percentage points respectively and 24 and 26.5 percentage points among the middle two age groups.

The same inverted U shape relationship between current contraceptive use and age is evident in the intervention area in 1994 among the women who reported as wanting more children. The current contraceptive use between the young two age groups is similar (41.3 and 42.6 percent), but the level of increase is slightly higher among the women of age group 20-24 years. Current contraceptive use, for example, has increased 7.0 percentage points among the young women of age <20 years but increased 13.0 percentage points among the women of age 20-24 years.

The largest increase is evident among the middle age group (30-39 years) with a change of 29.4 percentage points during the study period. In the 40-49 age group no women expressed a desire for additional children in the intervention or control areas in 1994.

***Current Contraceptive Use, Demand for additional Children and Number of Living Children***

Current contraceptive use by number of living children controlled for demand for additional children for the three areas for 1983/1984 and 1994/1996 is presented in Tables 13.2a and 13.2b. The table reveals the same trends for current contraceptive use by number of living children controlled for demand for additional children as were demonstrated for women's age. In general, current contraceptive use is higher among women who reported as having no demand for additional children, than for women who want more children during the 1983 to 1996 period in all the three areas.

Table 13.2a shows that in 1983, at the national level, current contraceptive use among the women who reported as having no demand for additional children has an inverse relationship with number of living children. Current contraceptive use is high among women who have a small number of living children and decreases with an increase in the number of living children. A similar relationship exists among the women who report a demand for additional children.

In both areas of Matlab, a J shape distribution of current contraceptive use by living children in 1984 is evident among the women who report as having no demand for additional children. But the level of use reaches a plateau at four living children. The level of current contraceptive use is close to similar among the women who have more than two living children. But an inverted U relationship between current contraceptive use and living children in the intervention area is apparent among the women who reported a demand for additional children. In the control area, no pattern of relationship is evident between current contraceptive use and number of living children among the women who express demand for additional children in 1984. The current contraceptive use, for example, is 4.7 percent among women who have one living child. It increases 2.7 percentage points among the women who have two living children and reduces 2.8 percentage points among women who have three living children. After three living children, there is a positive rise of current contraceptive use by number of living children but the rise is small.

**Table 13.2a: Percentage distribution of women currently using contraceptives by number of total living children, and demand for additional children national level (rural) and two areas of Matlab, 1983/1984**

| | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National-1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **# of Living children** | **No demand for additional children** | | | | | |
| None | 50.0 | 4 | 50.0 | 2 | 0 | 0 |
| 1 | 43.2 | 74 | 18.2 | 22 | 16.7 | 12 |
| 2 | 43.5 | 352 | 37.4 | 115 | 20.0 | 70 |
| 3 | 39.8 | 488 | 51.7 | 261 | 24.5 | 163 |
| 4 | 32.9 | 526 | 56.3 | 396 | 27.7 | 213 |
| 5+ | 26.8 | 1484 | 50.4 | 827 | 25.6 | 602 |
| **# of Living children** | **Demand for additional children** | | | | | |
| None | 9.3 | 439 | 7.1 | 70 | 0.0 | 38 |
| 1 | 8.5 | 849 | 28.2 | 340 | 4.7 | 211 |
| 2 | 10.9 | 552 | 33.7 | 350 | 7.4 | 176 |
| 3 | 8.2 | 352 | 32.8 | 229 | 4.6 | 109 |
| 4 | 7.5 | 161 | 31.9 | 113 | 5.8 | 52 |
| 5+ | 3.6 | 165 | 23.9 | 67 | 7.5 | 40 |
| **# of Living children** | **Demand for additional children, undecided** | | | | | |
| None | 2.2 | 320 | 0.0 | 0 | 0.0 | 0 |
| 1 | 14.9 | 47 | 0.0 | 0 | 0.0 | 0 |
| 2 | 3.9 | 51 | 0.0 | 0 | 0.0 | 0 |
| 3 | 4.8 | 42 | 0.0 | 0 | 0.0 | 0 |
| 4 | 8.1 | 37 | 0.0 | 0 | 0.0 | 0 |
| 5+ | 6.9 | 58 | 0.0 | 0 | 0.0 | 0 |

0 = No undecided cases

Table 13.2b demonstrates that current contraceptive use at the national level in 1996 turns into a J shape pattern among both groups of women who report no demand for additional children, and those who report a demand for additional children. The current contraceptive use shows an inverse relationship with the number of living children among the women who report demand for additional children as undecided, but the number of women in each living children group is small in this category.

In both areas of Matlab in 1994, an inverted U shape relationship is evident between current contraceptive use and number of living children among the women who report as having no demand for additional children. Table 13.2 also shows that the number of women with no living children or only one living child is small among the groups who do not want additional children in both area which suggests demand for children is universal. An opposite trend is apparent among the women who reported a demand for additional children. A sizeable number of women having no living children or only one child, and who reported a demand for additional children are using contraceptives, though the rate of use among the no living children group is low compared to the other living children groups.

**Table 13.2b:Percentage distribution of women currently using contraceptives by number of total living children, and demand for additional children, national level (rural) and two areas of Matlab, 1994/1996**

| | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab-1994 | | | |
| | | | Intervention | | Control | |
| **Variables** | % | N | % | N | % | N |
| **# of Living children** | **No demand for additional children** | | | | | |
| None | 53.8 | 26 | 0.0 | 1 | 100.0 | 1 |
| 1 | 63.7 | 124 | 66.7 | 6 | 50.0 | 8 |
| 2 | 72.4 | 869 | 77.1 | 96 | 48.3 | 58 |
| 3 | 69.9 | 877 | 73.3 | 191 | 56.9 | 130 |
| 4 | 65.7 | 757 | 84.9 | 199 | 60.3 | 136 |
| 5+ | 59.9 | 1061 | 78.4 | 232 | 51.1 | 284 |
| **# of Living children** | **Demand for additional children** | | | | | |
| None | 18.5 | 611 | 15.3 | 98 | 8.5 | 94 |
| 1 | 42.5 | 1081 | 51.7 | 205 | 26.7 | 150 |
| 2 | 40.3 | 462 | 56.4 | 117 | 34.9 | 83 |
| 3 | 28.2 | 177 | 61.5 | 52 | 31.8 | 44 |
| 4 | 22.2 | 54 | 45.5 | 11 | 15.4 | 13 |
| 5+ | 15.0 | 40 | 42.9 | 7 | 25.0 | 4 |
| **# of Living children** | **Demand for additional children, undecided** | | | | | |
| None | 0.0 | 2 | 0.0 | 3 | 0.0 | 3 |
| 1 | 100.0 | 3 | 100.0 | 1 | 0.0 | 1 |
| 2 | 63.2 | 19 | 66.7 | 9 | 57.1 | 7 |
| 3 | 57.1 | 14 | 60.0 | 5 | 33.3 | 3 |
| 4 | 28.6 | 7 | 0.0 | 2 | 0.0 | 1 |
| 5+ | 50.0 | 10 | 0.0 | 4 | 25.0 | 4 |

Current contraceptive use has a J shape relationship with number of living children in both areas in 1994. The level of current use is low among women having fewer living children and starts to increase with increasing number of living children and then reduces at a higher number of living children in both areas. The number of women in each of the living children groups who report a demand for additional children as undecided is small but it is evident that they are using contraceptives in both areas in 1994.

*Current Contraceptive Use, Living Sons and Demand for Additional Children.*

Current contraceptive use by number living sons controlled for demand for additional children is presented in Table 13.3a and Table 13.3b. At the national level, the table shows that with the exception of the women with no living sons groups, current contraceptive use has an inverse relationship with number of living sons among the women who report to have no demand for additional children in 1983. There is also an inverse relationship between current contraceptive use and number of living sons among the group that have demand for additional children in the national rural area in 1983, although the rate of use is low among them. The table also shows, an inverted U shape relationship between current contraceptive use and number of living sons is apparent among women who have no demand for additional children, and a slight inverse relationship among the women who have demand for additional children in the control area in 1984.

**Table 13.3a: Percentage distribution of women currently using contraceptives by number Of living sons, and demand for additional children, national level (rural) and two areas of Matlab, 1983/1984.**

| | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National-1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **# of Living sons** | **No demand for additional children** | | | | | |
| None | 33.6 | 128 | 31.0 | 29 | 13.3 | 15 |
| 1 | 38.0 | 642 | 43.1 | 276 | 20.9 | 191 |
| 2 | 36.0 | 862 | 56.6 | 574 | 25.4 | 343 |
| 3 | 30.7 | 655 | 53.9 | 388 | 29.0 | 259 |
| 4 | 24.0 | 346 | 46.1 | 217 | 26.9 | 156 |
| 5+ | 23.7 | 295 | 43.9 | 139 | 24.0 | 96 |
| **# of Living sons** | **Demand for additional children** | | | | | |
| None | 9.3 | 1124 | 21.5 | 390 | 3.5 | 229 |
| 1 | 8.6 | 881 | 35.0 | 497 | 7.7 | 261 |
| 2 | 7.9 | 354 | 33.5 | 188 | 5.8 | 86 |
| 3 | 7.2 | 111 | 24.6 | 61 | 0.0 | 33 |
| 4 | 9.7 | 31 | 25.9 | 27 | 0.0 | 10 |
| 5+ | 5.9 | 17 | 50.0 | 6 | 14.3 | 7 |
| **# of Living sons** | **Demand for additional children undecided** | | | | | |
| None | 2.0 | 352 | 0.0 | 0 | 0.0 | 0 |
| 1 | 9.1 | 88 | 0.0 | 0 | 0.0 | 0 |
| 2 | 7.5 | 67 | 0.0 | 0 | 0.0 | 0 |
| 3 | 11.5 | 26 | 0.0 | 0 | 0.0 | 0 |
| 4 | 10.0 | 10 | 0.0 | 0 | 0.0 | 0 |
| 5+ | 8.3 | 12 | 0.0 | 0 | 0.0 | 0 |

0 = No undecided cases

The same inverted U relationship between current contraceptive use and number of living sons among both groups, who have a demand or no demand for additional children, is apparent in the intervention area in 1984 and 1994. But the level of current use is higher among all living sons groups in the intervention area than in the national rural or control areas during the 1983/1984 and 1994/1996 periods. This is true for both groups of women who report a demand for additional children and those who do not have a demand for additional children.

Table 13.3b shows a similar inverted U relationship between current contraceptive use and number of living sons at the national level in 1996. The current contraceptive use is low among women who have no living sons for the groups who have no demand for additional children and those who have a demand for additional children. Contraceptive use started declining in both demand groups from two living sons. But level of current contraceptive use is higher in all living sons groups in 1996 than in 1983.

**Table 13.3b:Percentage distribution of women currently using contraceptives by number of total living sons, and demand for additional children, national level (rural) and two areas of Matlab, 1994/1996**

| | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab-1994 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **# of Living sons** | **No demand for additional children** | | | | | |
| None | 64.8 | 261 | 75.0 | 24 | 40.0 | 25 |
| 1 | 69.3 | 1280 | 74.6 | 177 | 45.7 | 129 |
| 2 | 68.2 | 1163 | 80.1 | 316 | 57.9 | 209 |
| 3 | 64.9 | 601 | 82.4 | 125 | 58.6 | 133 |
| 4 | 60.2 | 284 | 76.3 | 59 | 58.7 | 75 |
| 5+ | 46.4 | 125 | 75.0 | 24 | 47.8 | 46 |
| **# of Living sons** | **Demand for additional children** | | | | | |
| None | 30.0 | 1382 | 38.5 | 244 | 18.1 | 216 |
| 1 | 41.4 | 810 | 54.3 | 184 | 35.1 | 131 |
| 2 | 36.5 | 181 | 52.1 | 48 | 25.8 | 31 |
| 3 | 20.0 | 35 | 66.7 | 9 | 11.1 | 9 |
| 4 | 16.7 | 12 | 100.0 | 2 | 0.0 | 1 |
| 5+ | 20.0 | 5 | 0.0 | 3 | 0 | 0 |
| **# of Living sons** | **Demand for additional children undecided** | | | | | |
| None | 53.8 | 13 | 25.0 | 8 | 0.0 | 4 |
| 1 | 61.1 | 18 | 60.0 | 10 | 33.3 | 6 |
| 2 | 60.0 | 10 | 33.3 | 6 | 60.0 | 5 |
| 3 | 30.0 | 10 | 0 | 0 | 0.0 | 2 |
| 4 | 0 | 0 | 0.0 | 0 | 0 | 0 |
| 5+ | 75.0 | 4 | 0.0 | 0 | 50.0 | 2 |

The same table shows that in the control area in 1994, the relationship between current contraceptive use and number of living sons controlling for demand for children remains unchanged. However the use of contraceptives has increased considerably among all the strata living sons of the groups who reported no demand for additional children and those who reported to have a demand for additional children. But among all the strata of living sons, current contraceptive use is lower in the control area than in the other two areas during the 1983-1996 periods.

***Current Contraceptive Use, Demand for Additional Children by Women's Child mortality experience***

Table 13.4a and 13.4b present the current contraceptive use by women's child mortality experience controlled for demand for additional children in the three areas during 1983-1994. Table 13.4a shows that although the level of current contraceptive use is different in three areas, all three areas in 1983/84 show a consistent inverse relationship between current contraceptive use and women's

**Table 13.4a: Percentage distribution of women currently using contraceptives by number of children who have died and demand for additional children, national level (rural) and two areas of Matlab, 1983/1984.**

| | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National-1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **# of dead children** | **No demand for additional children** | | | | | |
| None | 40.4 | 1038 | 52.8 | 657 | 26.8 | 366 |
| 1 | 31.5 | 798 | 50.4 | 486 | 26.6 | 334 |
| 2 | 29.3 | 512 | 49.8 | 257 | 25.9 | 170 |
| 3 or more | 22.6 | 580 | 46.2 | 223 | 20.0 | 190 |
| **# of dead children** | **Demand for additional children** | | | | | |
| None | 10.6 | 1627 | 32.4 | 785 | 5.3 | 378 |
| 1 | 6.7 | 569 | 23.5 | 264 | 8.0 | 150 |
| 2 | 4.6 | 175 | 25.0 | 92 | 0.0 | 71 |
| 3 or more | 1.4 | 147 | 25.0 | 28 | 7.4 | 27 |
| **# of dead children** | **Demand for additional children, undecided** | | | | | |
| None | 4.5 | 398 | 0.0 | 0 | 0.0 | 0 |
| 1 | 3.4 | 88 | 0.0 | 0 | 0.0 | 0 |
| 2 | 7.3 | 41 | 0.0 | 0 | 0.0 | 0 |
| 3 or more | 3.6 | 28 | 0.0 | 0 | 0.0 | 0 |

child mortality experience among the women who have no demand for additional children, that is, current contraceptive use is high among the women who have had fewer children die and low among the women who had more children die. The same inverse relationship is also apparent among the women who have a demand for more children in the national rural and intervention areas.

In 1994/1996, the relationship between current contraceptive use and women's child mortality experience has changed in the three areas. At the national level, the same inverse relationship is apparent, but it has turned into a J shape in the intervention area, and a weak inverse relationship in the control area.

**Table 13.4b: Percentage distribution of women currently using contraceptives by number of children who have died and demand for additional children, national level (rural) and two areas of Matlab, 1994/1996.**

| | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab-1994 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **# of dead children** | **No demand for additional children** | | | | | |
| None | 69.7 | 2120 | 77.1 | 433 | 54.6 | 315 |
| 1 | 67.3 | 956 | 79.9 | 194 | 55.7 | 176 |
| 2 | 56.5 | 407 | 85.5 | 62 | 50.0 | 78 |
| 3 or more | 51.1 | 231 | 75.0 | 36 | 52.1 | 48 |
| **# of dead children** | **Demand for additional children** | | | | | |
| None | 36.1 | 1941 | 45.1 | 419 | 24.5 | 318 |
| 1 | 28.2 | 341 | 52.7 | 55 | 25.5 | 51 |
| 2 | 21.9 | 96 | 53.8 | 13 | 15.4 | 13 |
| 3 or more | 19.1 | 47 | 66.7 | 3 | 16.7 | 6 |
| **# of dead children** | **Demand for additional children, undecided** | | | | | |
| None | 52.6 | 38 | 40.0 | 15 | 20.0 | 10 |
| 1 | 60.0 | 10 | 50.0 | 6 | 60.0 | 5 |
| 2 | 60.0 | 5 | 0.0 | 2 | 50.0 | 2 |
| 3 or more | 50.0 | 2 | 100.0 | 1 | 0.0 | 2 |

### 13.2.1 Summary

Several features are apparent from the above analysis of current contraceptive use by biosocial factors and demand for additional children. In general, an exploration of the demand for additional children and its association with current contraceptive use during the 1983-1996 periods provides evidence that the level of current contraceptive use is high in the intervention areas but has increased in all three areas during the study period. The current contraceptive use is consistently higher in the intervention area during the study period than in the other two areas.

In all three areas, a high proportion of women who intended to have no more children are using contraceptives. At the early stage of contraceptive prevalence, most of the women who stated intention to have no more children practised fertility control and the ratio of current contraceptive use between those who expressed a desire to have no more children and those who expressed to a desire for more children is large. At a later stage, this gap has been narrowed down. Despite a more rapid increase in current use of contraceptives among the women who intended to have more children, the women, who expressed no demand for additional children in 1994/1996, still account for more than 70 percent of the total current contraceptive use. In addition, almost 80 percent of the women in the intervention area who expressed their intention to have no more children are using contraceptives. The gap between the stated intention and current contraceptive use among the women who expressed a desire to have no more children also narrowed in the national rural area during the study period, but it is still considerable in the control area. The trends in current contraceptive use by stated intentions show that it took a long time to bridge the gap between stated intention and current contraceptive use behaviour even in the presence of an efficient intervention programme.

In terms of the current contraceptive use, fertility intention and biosocial factors, it seems that at the early stage of current contraceptive use when contraceptive prevalence was low at the national level there is an inverse relationship between current contraceptive use and age, number of living children and living sons, This suggests that demand for contraceptives rose first among the young and middle age women or women, having a smaller number of living children or sons. At the later stage, older women started using contraceptives for limiting births while the young women having few living children and demand for more children were using contraceptives to space their children.

In the Matlab areas, it is evident that older women who had a large number of living children started to use contraceptives for limiting births, but that the young women or women with one or two living children were using contraceptives for spacing births. In the later stage, it seems that younger women were starting to use contraceptives for limiting and spacing. The younger women or women having at least one living children started using contraceptives for spacing. The same is apparent with living sons. After having at least one son, women in the Matlab areas increasing coming up to use contraceptives either for spacing or limiting.

In terms of women child mortality experience, the analysis shows that although the level of current contraceptive use is different in the three areas in 1983/1984, all three areas show a consistent inverse relationship between current contraceptive use and women's child mortality experience among the women who report no demand for additional children, that is, current contraceptive use is high among the women who have had fewer children die and low among the women who have had more children die. The same inverse relationship is also apparent among the women who have a demand for more children in the national rural and intervention areas but not in the control area.

In 1994/1996, the relationship between current contraceptive use and women's child mortality experience has changed in the three areas. At the national level, the same inverse relationship by number of dead children is apparent in both groups who have a demand or no demand for additional children, but it is turns into a J shape in the intervention among those who have no demand for additional children and positive among women who have a demand for additional children. In the control area, the relationship is inverse in both cases (demand or no demand for additional children).

### 13.3 Biosocial Characteristics and Current Contraceptives Use

Tables 13.5 to 13.9b present the biosocial characteristics and the current use of contraceptives in the three areas: national rural, Matlab intervention and Matlab control.

Table13.5 presents the woman's age by current use of contraceptives for 1983 to 1996. It shows a J shape relationship between woman's age and current use of contraceptives in all three areas in 1983/1984. Current contraceptives use is the highest among women of age 30-39 years. However, contraceptive uses in the national rural area started rising from age 20 and it increases with increasing age up to 39. Among the older women (age 40+) it is lower. In the intervention area in

1984, although the pattern is similar but a sizable proportion of women's age less than 20 were also using contraceptives. In the control area in 1984, women started using contraceptives at a later than other two areas. Current contraceptives in the control area, started rising at age 25 years and among the three age groups (25-29, 30-39, 40+) current use is close to similar.

**Table 13.5: Percent of woman using contraceptives by woman's age, national level (rural) and two areas of Matlab, 1983-1996.**

| | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National | | Matlab | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Age of woman** | | | 1983/1984 | | | |
| <20 | 9.6 | 1277 | 34.0 | 97 | 4.7 | 64 |
| 20-24 | 20.0 | 1197 | 30.9 | 627 | 7.1 | 336 |
| 25-29 | 24.8 | 1144 | 38.2 | 550 | 18.2 | 346 |
| 30-39 | 28.9 | 1424 | 48.9 | 982 | 22.8 | 627 |
| 40-49 | 14.5 | 959 | 47.3 | 539 | 22.9 | 315 |
| **Total** | 19.9 | 6001 | 34.3 | 1274 | 18.1 | 1688 |
| **Age of woman** | | | 1994/1996 | | | |
| <19 | 35.6 | 1009 | 40.9 | 154 | 16.8 | 131 |
| 20-24 | 46.0 | 1264 | 48.4 | 223 | 31.9 | 213 |
| 25-29 | 55.7 | 1353 | 65.9 | 267 | 44.7 | 219 |
| 30-39 | 65.7 | 1801 | 75.8 | 397 | 56.4 | 312 |
| 40-49 | 58.3 | 767 | 79.8 | 198 | 47.0 | 149 |
| **Total** | 53.7 | 6194 | 65.1 | 1239 | 42.4 | 1024 |

In 1994/1996, current use of contraceptive use increases in all the three areas and all age groups. The relationship between current contraceptive use and woman's age in the national rural area is similar to1983 that is a J shape relationship but in two areas of Matlab in turned into a linear positive. In all the age groups, current use is lower in the control area in 1994 as well.

Biosocial factors are the direct determinants of current contraceptive use. The most important is women's age. But all other biosocial factors such as number of living children, and living sons or dead children are all inter-related with age. While each has an independent effect on contraceptive use they are interlinked to one another. An examination of the relationship of current contraceptive use by biosocial factors controlling the effect of each other will provide more useful insights than examining the bivariate relationship of current contraceptive use by single biosocial factor. The following section will examine the relationship between current contraceptive use and women's age separating the effect of other biosocial factors.

### *Woman's Age and Number of Living children*

Current contraceptive use by number of living children controlling for women's age has been computed in order to separate the impact of living children on current contraceptive use from the impact of women's age. The results are Presented in Table 13.6a. for the years 1983/1984 and Table 13.6b for the years 1994/1996.

Table 13.6a shows that at the national level in 1984, in all the areas, current contraceptive use is low among women having no children irrespective of age. Overall, current contraceptive use is low among the young women of age <20 years, and also low among those young women who have less than three children. It is also low among women who have less than two children irrespective of age. A significant proportion of women having two or more children are using contraceptives and current contraceptive use is high among all the living children groups for the 25-29 and 30-39 age groups.

In the control area, in 1984 the same table shows that current contraceptive use is very low; virtually none of the women irrespective of age who have no living children are using contraceptives having no living children irrespective of age. Current use of contraceptives is also low among the two young age groups, <20 years and 20-24 years. Among the very young, that is, the <20 years age group contraceptive use is very low among those who have zero or one living child and starts to rise among those who have more than one children. Current contraceptive use is very low among the 20-24 year group who have no living children and it starts to rise with an increasing number of living children. But the number of cases in the youngest age groups with more than three children is small. Among women of age 25-29 years and 30-39 years who have more than one child, contraceptive use is high. Among the oldest age group, age 40-49 years, contraceptive use is higher than in most of the other age groups. It starts to rise among women who have more than one child.

**Table 13.6a: Percentage distribution of women currently using contraceptives by number of total Living children, and woman's age, national level (rural) and two areas of Matlab, 1983/1984.**

| | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National-1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **# of Living children** | **Women aged <20 years** | | | | | |
| None | 7.0 | 571 | 7.7 | 13 | 0.0 | 12 |
| 1 | 9.8 | 531 | 38.0 | 71 | 6.5 | 46 |
| 2 | 15.6 | 147 | 40.0 | 10 | 0.0 | 5 |
| 3 | 20.8 | 24 | 33.3 | 3 | 0 | 0 |
| 4 or more | 50.0 | 4 | 0 | 0 | 0.0 | 1 |
| **# of Living children** | **Women aged 20-24 years** | | | | | |
| None | 7.1 | 98 | 4.7 | 43 | 0.0 | 23 |
| 1 | 14.2 | 295 | 27.0 | 230 | 4.0 | 126 |
| 2 | 25.6 | 445 | 36.9 | 255 | 8.9 | 135 |
| 3 | 19.9 | 267 | 35.7 | 84 | 10.9 | 46 |
| 4 | 24.3 | 74 | 40.0 | 15 | 20.0 | 5 |
| 5 or more | 27.8 | 18 | 0 | 0 | 100.0 | 1 |
| **# of Living children** | **Women aged 25-29years** | | | | | |
| None | 7.0 | 43 | 0.0 | 4 | 0.0 | 2 |
| 1 | 13.4 | 82 | 22.9 | 48 | 5.4 | 37 |
| 2 | 25.9 | 216 | 30.3 | 145 | 11.6 | 69 |
| 3 | 28.2 | 337 | 45.7 | 208 | 17.6 | 119 |
| 4 | 28.7 | 247 | 44.2 | 113 | 22.5 | 80 |
| 5 or more | 21.9 | 219 | 31.3 | 32 | 35.9 | 39 |
| **# of Living children** | **Women aged 30-39 years** | | | | | |
| None | 0.0 | 26 | 27.3 | 11 | 0 | 0 |
| 1 | 9.8 | 41 | 0.0 | 12 | 18.2 | 11 |
| 2 | 19.8 | 101 | 40.0 | 45 | 21.2 | 33 |
| 3 | 32.3 | 189 | 42.6 | 162 | 17.7 | 79 |
| 4 | 30.0 | 270 | 52.8 | 309 | 25.7 | 152 |
| 5 or more | 30.9 | 797 | 51.2 | 443 | 23.0 | 352 |
| **# of Living children** | **Women aged 40-49years** | | | | | |
| None | 0.0 | 25 | 0.0 | 1 | 0.0 | 1 |
| 1 | 9.5 | 21 | 0.0 | 1 | 0.0 | 3 |
| 2 | 4.3 | 46 | 10.0 | 10 | 0.0 | 4 |
| 3 | 16.9 | 65 | 45.5 | 33 | 17.9 | 28 |
| 4 | 13.1 | 130 | 55.6 | 72 | 17.9 | 28 |
| 5 or more | 15.9 | 672 | 47.2 | 422 | 24.7 | 251 |

In the intervention area, in 1984, Table 13.6a shows that current contraceptive use is higher in all living children groups than in the other two areas, irrespective of age. The current contraceptive use is low among the women who have no living children, irrespective of age. A substantial number of young women of age <20 years except those with no living children are using contraceptives. The current contraceptive use by living children in this group is higher than the current use by living children in the immediate older age (20-24 years) group.

**Table 13.6b:Percentage distribution of women currently using contraceptives by number of total living children, and woman's age, national level (rural) and two areas of Matlab, 1994/1996.**

| | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab-1994 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **# of Living children** | **Women aged <20 years** | | | | | |
| None | 22.0 | 405 | 13.6 | 66 | 10.3 | 68 |
| 1 | 44.4 | 498 | 61.2 | 85 | 20.0 | 55 |
| 2 | 46.6 | 103 | 66.7 | 3 | 50.0 | 8 |
| 3 | 33.3 | 3 | 0 | 0 | 0 | 0 |
| **# of Living children** | **Women aged 20-24 years** | | | | | |
| None | 16.8 | 143 | 10.0 | 30 | 0.0 | 26 |
| 1 | 47.4 | 420 | 44.3 | 88 | 30.4 | 79 |
| 2 | 57.0 | 470 | 66.2 | 77 | 40.0 | 75 |
| 3 | 42.4 | 191 | 51.9 | 27 | 40.7 | 27 |
| 4 | 20.6 | 34 | 100.0 | 1 | 60.0 | 5 |
| 5 or more | 33.3 | 6 | 0 | 0 | 0.0 | 1 |
| **# of Living children** | **Women aged 25-29 years** | | | | | |
| None | 15.1 | 53 | 60.0 | 5 | 50.0 | 2 |
| 1 | 44.1 | 186 | 59.3 | 27 | 35.3 | 17 |
| 2 | 64.5 | 437 | 68.2 | 88 | 40.4 | 47 |
| 3 | 61.4 | 381 | 67.7 | 93 | 47.5 | 80 |
| 4 | 52.6 | 196 | 76.2 | 42 | 52.9 | 51 |
| 5 or more | 44.0 | 100 | 16.7 | 12 | 31.8 | 22 |
| **# of Living children** | **Women aged 30-39 years** | | | | | |
| None | 18.5 | 27 | 0.0 | 0 | 50.0 | 2 |
| 1 | 40.7 | 86 | 30.0 | 10 | 37.5 | 8 |
| 2 | 69.2 | 289 | 57.4 | 47 | 57.1 | 14 |
| 3 | 72.8 | 401 | 76.6 | 111 | 62.3 | 61 |
| 4 | 69.1 | 450 | 83.3 | 120 | 58.1 | 74 |
| 5 or more | 62.2 | 548 | 78.9 | 109 | 54.2 | 153 |
| **# of Living children** | **Women aged 40-49 years** | | | | | |
| None | 9.1 | 11 | 0.0 | 1 | 0 | 0 |
| 1 | 22.2 | 18 | 50.0 | 2 | 0 | 0 |
| 2 | 56.9 | 51 | 85.7 | 7 | 0.0 | 4 |
| 3 | 68.5 | 92 | 76.5 | 17 | 22.2 | 9 |
| 4 | 65.2 | 138 | 83.7 | 49 | 55.0 | 20 |
| 5 or more | 56.9 | 457 | 79.5 | 122 | 49.1 | 116 |

In 1996 at the national level, Table 13.6b shows that current contraceptive use has increased among all living children groups irrespective of age. In contrast to 1983, a substantial proportion of women having no living children are using contraceptives. Although current contraceptive use by living children among the young women is still low compared to the contraceptive use by living children of all other age groups, it increases substantially especially among the zero and one living children groups during the study period.

Data from Table 13.6b shows that in the control area, in 1994, the same table (Table 13.6b) shows that current contraceptive use has increased substantially among all living children groups irrespective of age and that the increase has been faster among all living children groups in the two younger age groups. In 1984, the current use of contraceptives, for example, was negligible among all living children groups of age <20 years and among the less than three children of the 20-24 years age group. In 1994, current use of contraceptives among these groups is substantial and current use by living children in the age 20-24 groups is close to the proportions for current use by the number of living children of other older age groups. The proportion of currently using contraceptives among the very young women (<20 years) who have no living children is greater than the proportion increase among the no children groups of all other age groups.

In 1994 in the intervention area, the general trends in current contraceptive use are similar to that of the control area but the use of contraceptives in the intervention area is the highest.

***Women's Age and Living Sons***

Tables 13.7a and 13.7b present the current contraceptive use by living sons controlling for women's age for the three areas in 1983/1984 and 1994/1996 respectively.

Table 13.7a shows that in the national rural area, the contraceptive use is minimum among the women having no living sons irrespective of their age but not as low as it is for those who have no living children. Current contraceptives use is high among the women who have living sons and are in their middle age in 1983. Among the young women, age less than 25 years, relationship between current contraceptive use and number of living sons is linearly positive and after age 24 it is either an inverted U or a J shape curve. As expected, current contraceptive use among all living sons groups is high irrespective of age in the intervention area in 1984, but the pattern of relationship between current contraceptive use and number of living sons in all age groups is close to a J curve except for the very young age group (age <20 years). In the control area, current contraceptive use is very low among the younger women of age <25 years irrespective of number of living sons. Among the other age groups, current contraceptive use is low among all age groups who have no living sons. Use increases with increasing number of living sons up to three but then reduces except in the age group 30-39. Among the women of age 30-39 the relationship between current contraceptive use and number of living son is linearly positive.

**Table 13.7a: Percentage distribution of women currently using contraceptives by number of total living sons, and woman's age, national level (rural) and two areas of Matlab, 1983/1984.**

| | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National-1983 | | Matlab –1984 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **# of Living sons** | **Women aged <20 years** | | | | | |
| None | 8.2 | 865 | 21.8 | 55 | 2.9 | 35 |
| 1 | 11.2 | 349 | 52.6 | 38 | 7.7 | 26 |
| 2 | 19.0 | 58 | 33.3 | 3 | 0.0 | 3 |
| 3 | 20.0 | 5 | 0.0 | 1 | 0 | 0 |
| **# of Living sons** | **Women aged <20-24 years** | | | | | |
| None | 12.0 | 359 | 22.1 | 226 | 4.3 | 116 |
| 1 | 23.2 | 492 | 33.0 | 276 | 7.5 | 161 |
| 2 | 23.1 | 286 | 41.7 | 103 | 11.3 | 53 |
| 3 | 25.5 | 51 | 42.9 | 21 | 0.0 | 5 |
| 4 | 25.0 | 8 | 100.0 | 1 | 100.0 | 1 |
| 5+ | 100.0 | 1 | 0 | 0 | 0 | 0 |
| **# of Living sons** | **Women aged <25-29 years** | | | | | |
| None | 12.4 | 202 | 26.6 | 79 | 5.9 | 51 |
| 1 | 22.8 | 359 | 34.5 | 203 | 14.9 | 114 |
| 2 | 30.8 | 364 | 46.8 | 186 | 23.4 | 111 |
| 3 | 32.5 | 157 | 37.1 | 70 | 25.5 | 55 |
| 4 | 25.5 | 47 | 45.5 | 11 | 18.2 | 11 |
| 5+ | 13.3 | 15 | 100.0 | 1 | 25.0 | 4 |
| **# of Living sons** | **Women aged <30-39 years** | | | | | |
| None | 10.5 | 105 | 18.8 | 48 | 3.0 | 33 |
| 1 | 28.5 | 270 | 45.1 | 193 | 21.8 | 119 |
| 2 | 31.0 | 378 | 54.6 | 324 | 21.3 | 183 |
| 3 | 32.9 | 346 | 53.0 | 230 | 26.0 | 154 |
| 4 | 29.2 | 192 | 44.3 | 131 | 25.8 | 93 |
| 5+ | 27.8 | 133 | 48.2 | 56 | 28.9 | 45 |
| **# of Living sons** | **Women aged <40-49years** | | | | | |
| None | 5.5 | 73 | 9.1 | 11 | 0.0 | 9 |
| 1 | 11.3 | 141 | 39.7 | 63 | 9.4 | 32 |
| 2 | 18.8 | 197 | 54.8 | 146 | 26.6 | 79 |
| 3 | 14.2 | 233 | 53.5 | 129 | 27.8 | 79 |
| 4 | 12.1 | 140 | 43.1 | 102 | 25.8 | 62 |
| 5+ | 18.3 | 175 | 40.9 | 88 | 18.5 | 54 |

Table 13.7b demonstrates that this trend has changed over the study period. In 1994/1996 in all three areas there was a substantial increase in current contraceptive use among the women who had no living sons irrespective of the women's age. At the national level, the same inverted U relationship exists between current contraceptive use and number of living sons in 1996 as existed in 1983 except for the very young women, age <20 years. In this age group, the

number of women having more than one son is small but there is a strong positive relationship between current contraceptive use and number of living sons.

**Table 13.7b: Percentage distribution of women currently using contraceptives by number of total living sons, and women's age, national level (rural) and two areas of Matlab, 1994/1996.**

| | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab-1994 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **# of Living sons** | **Women aged <20 years** | | | | | |
| None | 31.3 | 706 | 28.2 | 103 | 12.0 | 100 |
| 1 | 45.3 | 278 | 66.7 | 51 | 31.0 | 29 |
| 2 | 48.0 | 25 | 0 | 0 | 50.0 | 2 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 |
| **# of Living sons** | **Women aged <20-24 years** | | | | | |
| None | 35.3 | 456 | 40.6 | 96 | 20.0 | 85 |
| 1 | 53.6 | 575 | 51.1 | 90 | 41.2 | 85 |
| 2 | 52.5 | 198 | 64.5 | 31 | 32.4 | 37 |
| 3 | 20.6 | 34 | 40.0 | 5 | 66.7 | 6 |
| 4 | 100.0 | 1 | 100.0 | 1 | 0 | 0 |
| 5+ | 0 | 0 | 0 | 0 | 0.0 | 0 |
| **# of Living sons** | **Women aged <25-29 years** | | | | | |
| None | 41.0 | 278 | 63.3 | 49 | 32.4 | 34 |
| 1 | 59.5 | 566 | 60.8 | 102 | 40.7 | 81 |
| 2 | 61.7 | 366 | 65.9 | 85 | 56.0 | 75 |
| 3 | 56.0 | 116 | 88.9 | 27 | 38.1 | 21 |
| 4 | 41.7 | 24 | 66.7 | 3 | 50.0 | 8 |
| 5+ | 33.3 | 3 | 100.0 | 1 | 0 | 0 |
| **# of Living sons** | **Women aged <30-39 years** | | | | | |
| None | 43.4 | 175 | 56.0 | 25 | 45.0 | 20 |
| 1 | 69.2 | 556 | 74.5 | 102 | 40.4 | 57 |
| 2 | 70.8 | 554 | 78.0 | 177 | 63.9 | 97 |
| 3 | 68.3 | 306 | 83.3 | 60 | 59.3 | 81 |
| 4 | 62.2 | 156 | 70.8 | 24 | 63.9 | 36 |
| 5+ | 46.3 | 54 | 66.7 | 9 | 52.4 | 21 |
| **# of Living sons** | **Women aged <40-49 years** | | | | | |
| None | 46.3 | 41 | 33.3 | 3 | 0.0 | 6 |
| 1 | 57.9 | 133 | 76.9 | 26 | 50.0 | 14 |
| 2 | 62.1 | 211 | 85.7 | 77 | 44.1 | 34 |
| 3 | 62.6 | 190 | 78.6 | 42 | 52.8 | 36 |
| 4 | 56.5 | 115 | 81.8 | 33 | 53.1 | 32 |
| 5+ | 46.8 | 77 | 64.7 | 17 | 44.4 | 27 |

In Matlab, in 1994, the Table shows that in both areas there are very few young women of age <20 years having more than one living son, very few women aged 20-24 years have more than two living sons and very few women of age 25-29 years have more than three living sons. In all these age groups, the relationship between current contraceptive use and number of living son is positive in the intervention area. After age 29 years, an inverted U relationship is evident between current contraceptive uses and number of living sons.

In the control area, in 1994, the relationship between current contraceptive use and number of living sons is positive among the very young women of age <20 years, but in all other age groups it is mostly an inverted U shape.

### *Women's Age, Number of dead Children and Current Contraceptive Use*

Tables 13.8a and 13.8b present the current contraceptive use by number of dead children controlling for age in all the three areas in 1983/1984 and 1994/1996 respectively. Table 13.8a presents the distribution of current contraceptive use by number of dead children in all three areas for 1983/1984. At the national level, in 1983, the Table shows that the current use of contraceptive has a consistent inverse relationship with the number of dead children irrespective of the mothers' age. Current contraceptive use is high among the women who have no dead but use decreases with an increase in the number of dead children.

**Table 13.8a: Percentage distribution of women currently using contraceptives by number of children who have died and women's age, national level (rural) and two areas of Matlab, 1983/1984.**

| | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National-1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **# of dead children** | **Women aged <20 years** | | | | | |
| None | 9.8 | 1100 | 37.2 | 86 | 3.7 | 54 |
| 1 | 8.5 | 153 | 0.0 | 10 | 11.1 | 9 |
| 2 | 4.3 | 23 | 100.0 | 1 | 0.0 | 1 |
| 3 or more | 0.0 | 1 | 0 | 0 | 0 | 0 |
| **# of dead children** | **Women aged 20-24 years** | | | | | |
| None | 21.7 | 780 | 32.1 | 496 | 7.3 | 246 |
| 1 | 16.4 | 317 | 25.0 | 116 | 6.8 | 73 |
| 2 | 19.5 | 77 | 38.5 | 13 | 6.7 | 15 |
| 3 or more | 13.0 | 23 | 50.0 | 2 | 0.0 | 2 |
| **# of dead children** | **Women aged <25-29 years** | | | | | |
| None | 28.2 | 560 | 43.1 | 334 | 22.1 | 190 |
| 1 | 22.5 | 355 | 33.8 | 154 | 17.0 | 106 |
| 2 | 23.7 | 135 | 19.6 | 51 | 2.4 | 42 |
| 3 or more | 14.9 | 94 | 36.4 | 11 | 25.0 | 8 |
| **# of dead children** | **Women aged 30-39 years** | | | | | |
| None | 32.7 | 425 | 52.2 | 402 | 23.2 | 207 |
| 1 | 29.1 | 399 | 49.5 | 309 | 26.2 | 195 |
| 2 | 28.6 | 297 | 44.0 | 166 | 20.4 | 113 |
| 3 or more | 23.8 | 303 | 41.9 | 105 | 18.8 | 112 |
| **# of dead children** | **Women aged 40-49 years** | | | | | |
| None | 17.7 | 198 | 46.0 | 126 | 17.0 | 47 |
| 1 | 13.4 | 231 | 45.3 | 161 | 26.5 | 102 |
| 2 | 14.3 | 196 | 52.5 | 118 | 27.8 | 72 |
| 3 or more | 13.5 | 334 | 46.3 | 134 | 18.1 | 94 |

In both areas of Matlab in 1984, current contraceptive use does not demonstrate any consistent pattern of relationship. In both areas, at the younger age group, (age <20 years) very few women have had children die. Among the women aged 20-24 and 25-29 years in the intervention area, current use of contraceptives is a U relationship with the number of dead children. Among the aged 30-39, the relationships appears inverse, while no relationship is apparent among women of age 40 + years.

In the control area in 1984, among the very young, the relationship is was positive but among women of age 20-24 years it is bleak. Among the women of age 25 to 39 years, there is an inverse relationship between current contraceptive use and number of dead children, and it turns into an inverted U among the two older age groups at the extreme.

**Table 13.8b:Percentage distribution of women currently using contraceptives by number of children who have died and women's age, national level (rural) and two areas of Matlab, 1994/1996.**

| | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab-1994 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **# of dead children** | **Women aged <20 years** | | | | | |
| None | 36.4 | 937 | 40.5 | 148 | 16.7 | 126 |
| 1 | 22.1 | 68 | 50.0 | 6 | 0.0 | 4 |
| 2 | 75.0 | 4 | 0 | 0 | 100.0 | 1 |
| 3 or more | 0 | 0 | 0 | 0 | 0 | 0 |
| **# of dead children** | **Women aged 20-24 years** | | | | | |
| None | 47.6 | 1018 | 49.0 | 192 | 33.1 | 169 |
| 1 | 41.1 | 202 | 46.2 | 26 | 28.2 | 39 |
| 2 | 31.7 | 41 | 40.0 | 5 | 33.3 | 3 |
| 3 or more | 0.0 | 3 | 0 | 0 | 0.0 | 2 |
| **# of dead children** | **Women aged <25-29 years** | | | | | |
| None | 57.6 | 957 | 64.4 | 202 | 44.2 | 154 |
| 1 | 54.0 | 272 | 71.4 | 56 | 48.8 | 43 |
| 2 | 46.5 | 86 | 71.4 | 7 | 36.8 | 19 |
| 3 or more | 39.5 | 38 | 50.0 | 2 | 66.7 | 3 |
| **# of dead children** | **Women aged 30-39 years** | | | | | |
| None | 71.0 | 930 | 72.7 | 238 | 56.1 | 148 |
| 1 | 66.0 | 536 | 80.9 | 110 | 61.7 | 94 |
| 2 | 54.1 | 218 | 80.0 | 35 | 51.1 | 45 |
| 3 or more | 44.4 | 117 | 78.6 | 14 | 48.0 | 25 |
| **# of dead children** | **Women aged 40-49** | | | | | |
| None | 62.3 | 257 | 82.8 | 87 | 52.2 | 46 |
| 1 | 63.8 | 229 | 75.4 | 57 | 46.2 | 52 |
| 2 | 50.3 | 159 | 83.3 | 30 | 42.3 | 26 |
| 3 or more | 50.0 | 122 | 75.0 | 24 | 44.0 | 25 |

In 1996 at the national level (Table 13.8b), current contraceptive use has increased among all subgroups of the number of dead children but the same inverse relationship between current contraceptive use and women's child mortality experience is evident. At the national level, the number of the younger women of age <20 years and 20-24 years having experienced child death substantially reduced during the study period. In both areas of Matlab, in 1994 (Table 13.8b), few young women of age group (age <20 years) have had children die. In the age group 20-24 years, the number of women who have more than one dead child is very small. Despite this fact, in the intervention area, current use of contraceptives has a positive relationship with number of dead children among the women of age 20-24 years but a J relationship among the women of age 25-29 and 30-39 years. From age 40, the relationship between current use and number of dead children is less clear. This unclear relationship may be related with woman age and number of surviving children.

In the control area in 1994, an inverted U relationship between current contraceptive use and number of dead children is evident among the women of age 20-29 years though the number of women with two or more dead children is small. From age 30, an inverse relationship is evident between current contraceptive use and number of dead children.

***Women's age and Number of Expected children***

Tables 13.9a and 13.9b present current contraceptive use by number of expected children controlling the effect of women's age for all three areas for the periods, 1983/1984, and 1994/1996. At the national level, Table 13.9a for the year 1983 shows that the current contraceptive use was consistently high among the women aged <30 years who expected a smaller number of children (0-2). Among the women, aged more than 29 years, the trends in current use is an inverted U.

In the intervention area, in 1984, the relationship between current contraceptive use and expected number of children was not as clear as it was at the national level. In the younger age group, <20 years, the current contraceptive use is higher among women who reported to have fewer expected children than for those in the same age group have a greater expected number of children. In remaining age groups, current use of contraceptives was lower among women who have fewer expected children than those who have a greater number of expected children. In these age groups, there is an inverted U relationship between current contraceptive use and expected number of children suggesting that the current contraceptive use is low among women who wanted fewer children, use increases with increasing number of expected children and then decreases again. In the control area, in 1984, current contraceptive use is high among all age groups who had expected a lower number of children (0-2 group) except for the age group 25-29 years.

**Table 13.9a: Percentage distribution of women currently using contraceptives by number of expected children, and women's age, national level (rural) and two areas of Matlab, 1983/1984**

| | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National-1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| **Variables** | % | N | % | N | % | N |
| **# of expected children** | **Women aged <20 years** | | | | | |
| 0-2 | 21.5 | 297 | 42.9 | 7 | 11.8 | 17 |
| 3 | 8.9 | 246 | 41.0 | 39 | 6.7 | 15 |
| 4 | 7.6 | 158 | 31.3 | 32 | 0.0 | 16 |
| 4+ | 11.0 | 73 | 22.2 | 9 | 0.0 | 9 |
| Undecided | 3.2 | 503 | 20.0 | 10 | 0.0 | 7 |
| **# of expected children** | **Women aged 20-24 years** | | | | | |
| 0-2 | 41.9 | 258 | 31.7 | 120 | 9.5 | 74 |
| 3 | 26.4 | 273 | 37.6 | 202 | 8.2 | 97 |
| 4 | 16.2 | 185 | 27.8 | 212 | 5.3 | 114 |
| 4+ | 11.1 | 90 | 28.1 | 57 | 9.1 | 33 |
| Undecided | 4.9 | 391 | 13.9 | 36 | 0.0 | 18 |
| **# of expected children** | **Women aged 25-29 years** | | | | | |
| 0-2 | 43.2 | 125 | 31.4 | 70 | 13.9 | 36 |
| 3 | 37.4 | 227 | 44.4 | 162 | 22.0 | 91 |
| 4 | 30.7 | 261 | 41.7 | 192 | 16.4 | 116 |
| 4+ | 23.0 | 230 | 32.1 | 112 | 19.3 | 88 |
| Undecided | 4.0 | 301 | 0.0 | 14 | 13.3 | 15 |
| **# of expected children** | **Women aged 30-39 years** | | | | | |
| 0-2 | 26.8 | 82 | 36.8 | 38 | 27.3 | 22 |
| 3 | 39.2 | 153 | 51.3 | 119 | 23.2 | 69 |
| 4 | 37.3 | 220 | 54.6 | 293 | 25.7 | 144 |
| 4+ | 33.3 | 730 | 47.2 | 515 | 22.2 | 374 |
| Undecided | 2.1 | 239 | 11.8 | 17 | 5.6 | 18 |
| **# of expected children** | **Women aged 40-49** | | | | | |
| 0-2 | 6.6 | 61 | 0.0 | 9 | 0.0 | 5 |
| 3 | 16.4 | 67 | 48.4 | 31 | 17.9 | 28 |
| 4 | 13.9 | 122 | 55.6 | 72 | 16.7 | 30 |
| 4+ | 16.4 | 652 | 47.3 | 423 | 24.3 | 251 |
| Undecided | 0.0 | 57 | 0.0 | 4 | 100.0 | 1 |

In 1996 (Table 13.9b), in the national rural area, the trend has changed. The current use of contraceptives is consistently high among the women whose expected number of children is small, irrespective of age. On the other hand, in general, current use of contraceptives has an inverse relationship with expected number of children and is positive with women's age.

**Table 13.9b: Percentage distribution of women currently using contraceptives by number of expected Children, and women's age, national level (rural) and two areas of Matlab, 1994/1996.**

| | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab-1994 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **# of expected children** | **Women aged <20 years** | | | | | |
| 0-2 | 40.8 | 731 | 37.9 | 95 | 16.3 | 86 |
| 3 | 27.6 | 163 | 45.7 | 46 | 23.3 | 30 |
| 4 | 24.1 | 58 | 62.5 | 8 | 10.0 | 10 |
| 4+ | 12.5 | 8 | 100.0 | 1 | 0.0 | 1 |
| Undecided | 2.0 | 49 | 0.0 | 4 | 0.0 | 4 |
| **# of expected children** | **Women aged 20-24 years** | | | | | |
| 0-2 | 52.0 | 846 | 51.9 | 129 | 30.9 | 123 |
| 3 | 41.0 | 251 | 49.3 | 73 | 35.7 | 70 |
| 4 | 31.1 | 106 | 30.8 | 13 | 33.3 | 15 |
| 4+ | 10.0 | 10 | 12.5 | 8 | 0.0 | 1 |
| Undecided | 7.8 | 51 | 0 | 0 | 0.0 | 4 |
| **# of expected children** | **Women aged 25-29 years** | | | | | |
| 0-2 | 63.5 | 864 | 73.3 | 131 | 47.5 | 101 |
| 3 | 48.8 | 285 | 60.4 | 101 | 42.4 | 85 |
| 4 | 41.3 | 121 | 52.9 | 34 | 50.0 | 26 |
| 4+ | 30.0 | 20 | 100.0 | 1 | 0 | 0 |
| Undecided | 14.3 | 63 | 0.0 | 0 | 14.3 | 7 |
| **# of expected children** | **Women aged 30-39 years** | | | | | |
| 0-2 | 74.2 | 1004 | 78.4 | 176 | 57.1 | 126 |
| 3 | 65.5 | 417 | 77.8 | 153 | 61.5 | 130 |
| 4 | 52.4 | 246 | 77.8 | 54 | 55.3 | 38 |
| 4+ | 40.7 | 27 | 0 | 0 | 100.0 | 1 |
| Undecided | 24.3 | 107 | 14.3 | 14 | 11.8 | 17 |
| **# of expected children** | **Women aged 40-49 years** | | | | | |
| 0-2 | 66.8 | 337 | 76.5 | 68 | 47.5 | 40 |
| 3 | 61.9 | 202 | 83.9 | 87 | 53.2 | 62 |
| 4 | 58.0 | 119 | 74.3 | 35 | 43.8 | 32 |
| 4+ | 42.3 | 26 | 100.0 | 2 | 60.0 | 5 |
| Undecided | 20.5 | 83 | 83.3 | 6 | 10.0 | 10 |

In the intervention area in 1994, patterns of current use by expected number of children have changed. Table 13.9b reveals that the current use of contraceptives by the very young (Age <20 years) and the old women (Age 40+ years) who wanted fewer children is low, but that it is higher among the women of ages 20-24 years and 25-29 years. However, there is no difference in current use of contraceptive among the women of age 30-39 years by expected number of children. In the control area in 1994, the relationship between current contraceptive use and 0-2 expected children is the reverse of the 1984 relationship. The current contraceptive use is low among women who expect to have 0-2 children compared those who expected to have more in all the age groups, except age 25-29 years. An inverted U relationship is evident between expected children and current contraceptive use although the number of women expecting to have more than four children is very small.

### 13.3.1 Summary

The general trends in current contraceptive use by biosocial factors in the three areas have undergone considerable changes over time. The general pattern of relationship between current contraceptive use and women's age , number of living children, living sons or number of children dead is an expected positive one except for the extreme cases like older age groups or those who have large numbers of living children or living sons. Analysis reveals that there are differences in the level of current contraceptive use by the biosocial factors in the three areas but that difference between the three areas reduced when the level of contraceptive use approaches closer to other areas.

The three way tables of current contraceptive use by women's age , number of living children, living sons and number of dead children suggest that all these biosocial factors have independent and confounding effects on the current use of contraceptives. In all three areas women's age has a large independent effect on current use of contraceptives. But the effect of women's age on current contraceptives use when separated from the effect of number of living children suggest that number of living children has an effect on current contraceptives use as well.

In general, current contraceptive use among women having no living children is very low irrespective of age or areas. At the national level and in the intervention area, women irrespective of age having at least one child started using contraceptives in 1983/1984. The current use of contraceptives increases with increase in the women's age and number of living children. This relationship is evident up to a certain number of living children and to a certain age then the pattern changes that means, there was a downward trend in current contraceptive use after certain number of living children in both areas and it varies by various ages.

In the control area, overall contraceptive use is lower than in the other two areas and the contraceptive use is very low among the women aged less than 25 years irrespective of number of living children. From age 25 years, the number of women with no living children is few. Contraceptive use has a weak positive relationship with women aged 25-39 years and also with the number of living children. Again, in the higher age group, that is, 40 and above years, there is not enough women with less than three living children. Contraceptives use in the rest of the living children groups, that is, more than three children, of this women's age group demonstrates a positive relationship. In 1994, this pattern has changed. Current contraceptive use increases among all age groups irrespective of number of living children. It shows the same general pattern of increasing current use with increasing age and number of living children and still have fewer women in the age group 40 and above years with living children zero to three.

In terms of number of living sons, the three ways table of current contraceptive use, age and living sons shows a similar strong positive relationship between current contraceptive use and the number of living sons in all the three areas in 1984 irrespective of age. Similar to living children, current contraceptive starts declining among the women of age 25 to 39 years who have several living sons at the national rural level and in the intervention area. In both areas in 1994/1996, the same inverted U relationship between current contraceptive use and living sons appears in almost all the age groups except the youngest age group. This means that contraceptive use is low among women with fewer sons. It increases with increasing number of sons and then decreases again. In fact, the table shows that the highest contraceptive users are women who have one to three sons, irrespective of age

In the control area no clear cut pattern is apparent. The current use of contraceptives is very low among the women aged less than 25 years and most of these women have zero to two sons. Among these age groups, the relationship between current contraceptive use and number of living sons is positive. It is also positive among women of age 30 to 39 but an inverted U in the other two groups. Despite this fact, the current use of contraceptives among women who have no living sons is low, irrespective of the women's age. In 1994, current contraceptive use in the control area increases substantially among all living sons groups irrespective of women's age. However, the relationship between current contraceptive and living sons among the young age group of <25 is positive while an inverted U or an unstable inverted U is evident between current contraceptive use and number of living sons among the other three age groups.

In terms of number of dead children, current contraceptive use has a consistent inverse relationship with number of dead children at the national level during the 1983-1996 period, irrespective of women's age. However, at the national level, the number of dead children died among the younger women of age <24 years substantially reduced during the study period. In both areas of Matlab in 1984-1994, current contraceptive use does not demonstrate any consistent pattern of relationship with number of dead children by woman's age. In fact each age group shows a different pattern of relationship between current contraceptive use and numbers of dead children. One important point to note here is that the number of young women (age less than 29 years) with dead children is small for both areas of Matlab in 1984. In 1994, the child mortality in these age groups is even lower.

The three ways examination of the relationship between current contraceptive use, expected number of children and women's age provides strong evidence of a significant reduction in expected number of children in all three areas during the study period. In the early stages of contraceptive use, as shown in the table for the national rural area or in Matlab control area in 1983/1984, or even at a middle stage as shown in the Matlab intervention area in 1984, the number of expected children is high and the current use of contraceptives is low. A sizable number of women reported an undecided demand for more children and current use of contraceptives among them is the lowest. The number of undecided expected children is large at the national level. In 1994/96, the pattern has completely changed. Most of the women want fewer children and the number of undecided cases of expected number of children is low in all three areas.

In terms of contraceptive use, at the national level, current use of contraceptives has a consistent inverse relationship with expected number of children irrespective of women's age for whole study period. But the trend is different in both areas of Matlab. Current contraceptive use is, high among younger women of age less than 25 years who expected to have a smaller number of children, and high among those who expect to have a higher number of children. In contrast, current contraceptive is low among older women aged more than 24 who expected to have smaller number of children. Interestingly, in both areas of Matlab, not many women expect to have more than four children. But the lower current contraceptive use with smaller numbers of expected children in both areas of Matlab is rather confusing. One of the plausible reasons for such a trend may be that those who have expected to have a large number of children are using contraceptives for spacing. Another notable point revealed from the analysis relates to the women who stated their demand for more children as undecided. In 1983, at the national level when the demand for additional children is controlled for age, it shows that most of these undecided cases are from the younger age groups and current use of contraception among them is low. The confusion relating to the question of demand for additional children is largely removed in 1996. Only a few of them stated their demand for additional children as undecided and there is no trend of concentration of cases by age. Contrary to expectation, a sizable proportion of these women were using contraceptives.

Fertility limitation or current contraceptive use is not only interlinked with biosocial factors. The macro and micro economic development impinge upon the biosocial factors and change the reproductive behaviour, especially the contraceptive use behaviours. In the next section, current contraceptive use and its association with the economic factors at the individual, household and *Bari* level will be examined.

### 13.4 Economic Characteristics and Current Contraceptive Use

Tables 13.10a and 13.10b present the current contraceptive use and the economic characteristics of the women in all three areas for the 1983/1984 and 1994/1996 periods respectively. As noted earlier, the integrated national data file has limited economic information; these are the employment of women and possession of land. Table 13.10a shows that there is a positive relationship between women's employment and current contraceptive use at the national level in 1983. Thirty one percent of the women engaged in paid work are using contraceptives as opposed to 19 percent of the women who are engaged in house work. Possession of farm land by the household does not show any relationship with women's current contraceptive use.

Table 13.10a also presents the current contraceptive use and the economic characteristics of the women in both areas of Matlab for 1984. In both areas of Matlab, a larger range of number of economic information at individual, household and *Bari* level was collected in 1984. All the individual level, this includes, women and husband's occupation; at the household level, possession of land, construction materials used for housing, members living outside the demographic surveillance area, possession of modern consumer durables, household wealth index; and at the bari level; occupation of the majority of the household heads, and percent of households having a radio.

The table shows that despite a lower level contraceptive use in the control area than in the intervention area, the trend in contraceptive use was the same in both areas in 1984. There is a positive relationship with women's paid work and current contraceptive use in both areas of Matlab. Forty nine percent of the women in the intervention area and 23 percent of the women in the control area, engaged in paid work are using contraceptives in contrast to 42 and 18 percent respectively for women who are not engaged in paid work. The relationship between women's current contraceptive use by husband occupation in the same table shows that contraceptive use is high among the women whose husbands are farmers or engaged in either businesses or services in the intervention area. As for example, 45 percent of women whose husbands are farmers and 44 percent of women whose husbands were engaged in businesses or services are using contraceptives. Women whose husbands are engaged in other occupations show lower percentages of contraceptive use in the same area. In the control area, women whose husbands are engaged in businesses or services have a higher percentage of contraceptive use than all the other groups.

**Table 13.10a: Percentage distribution of women currently using contraceptives by economic factors national level (rural) and two areas of Matlab in1983/1984 period.**

| | National -1983 | | Matlab -1984 | | | |
|---|---|---|---|---|---|---|
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Employment status of women** | | | | | | |
| Paid works | 31.0 | 529 | 48.6 | 111 | 22.7 | 66 |
| Housewife | 18.9 | 5472 | 41.7 | 2684 | 17.9 | 1622 |
| **Occupation of husband** | | | | | | |
| Farmer | -- | -- | 45.4 | 948 | 17.3 | 631 |
| Labour, skill & unskilled | -- | -- | 35.9 | 820 | 16.5 | 605 |
| Business & professional | -- | -- | 44.4 | 824 | 21.6 | 384 |
| Fisherman | -- | -- | 40.9 | 203 | 19.1 | 68 |
| **Household 's Possession of land (acres)*** | | | | | | |
| No land | 20.9 | 1810 | 42.1 | 655 | 18.0 | 350 |
| 0.1-0.4 | 19.5 | 4191 | 41.2 | 604 | 19.3 | 379 |
| 0.5-2.99 | -- | -- | 42.2 | 1257 | 18.1 | 775 |
| 3.00+ | -- | -- | 42.1 | 280 | 15.8 | 184 |
| **Construction materials used for housing** | | | | | | |
| Mixed | -- | -- | 41.0 | 2480 | 17.4 | 1524 |
| All tin | -- | -- | 49.2 | 315 | 24.4 | 164 |
| **Member living outside HDSS area** | | | | | | |
| None | -- | -- | 41.8 | 2553 | 18.1 | 1577 |
| At least one | -- | -- | 43.0 | 242 | 17.1 | 111 |
| **Household's possession of watch and Radio** | | | | | | |
| None | -- | -- | 41.7 | 1851 | 17.2 | 1162 |
| At least one | -- | -- | 42.5 | 944 | 20.0 | 526 |
| **Wealth Index of household** | | | | | | |
| None | -- | -- | 42.6 | 514 | 19.1 | 298 |
| Low | -- | -- | 40.4 | 1317 | 15.9 | 834 |
| Medium | -- | -- | 41.8 | 531 | 18.9 | 322 |
| High | -- | -- | 46.0 | 433 | 23.1 | 234 |
| **Occupation of majority of household head** | | | | | | |
| Agriculture | -- | -- | 42.3 | 1598 | 16.3 | 930 |
| Business | -- | -- | 52.3 | 88 | 16.7 | 18 |
| Service | -- | -- | 53.3 | 60 | 15.6 | 32 |
| Fisherman | -- | -- | 42.0 | 205 | 17.5 | 40 |
| Others mostly labourer | -- | -- | 36.9 | 214 | 22.1 | 140 |
| Non classified occupation | -- | -- | 40.2 | 630 | 20.3 | 528 |
| **% of Households in a bari with Radio** | | | | | | |
| None | -- | -- | 42.2 | 932 | 15.2 | 631 |
| <40 | -- | -- | 40.7 | 1559 | 19.3 | 895 |
| 40+ | -- | -- | 47.4 | 304 | 22.2 | 162 |

* For CPS-1983 possession of land was coded as No and Yes land; -- = data not available

The household economic status measured by possession of land did not show any relationship with current contraceptive use in either area of Matlab in 1984. The same is true for members living outside the demographic surveillance area, and for possession of modern consumer durables. However, the quality of housing shows a positive relationship with current contraceptive use in both areas. For example, 49 percent of the women in the intervention area and 24 percent in the control area living in a good quality housing are using contraceptives as opposed to 41 percent and 17 percent in the intervention and control areas living in poor quality housing. The household wealth index computed for both areas shows that the use of contraceptives increases with increasing household wealth index in both areas of Matlab. Contraceptive use is 43 percent and 19 percent in the intervention and control areas respectively for women with no household wealth index, and it increases only 3 percentage points and 4 percentage points for those in the intervention and control areas respectively with a high household wealth index.

Two types economic information about the *bari* (a smaller community within the village, a form of extended family) are also used in the present analysis to see whether these have any relationship to the current use contraceptives among the women of that *bari*. They are occupation of the majority of household heads in a *bari* and the percent of households having a radio in a *bari*

Table 13.10a shows that in the intervention area, in 1984, if the occupation of the household heads in a *bari* was mainly in business or services, the contraceptive use of the women of that *bari* is high, followed by the *bari* women whose household heads are engaged in farming. The lowest contraceptive use is observed among the *bari* women whose household heads were engaged in daily labour (skilled and unskilled). In the control area, the table shows that contraceptive use is similar irrespective of the type of occupation of the majority of household heads in the *bari* with the exception of bari women where the majority of household heads were engaged in the daily labour force. The percent of households having radio in a *bari* is positively related with proportion of women using contraceptives in a *bari*. Table 13.10a shows that 42 percent of *bari* women in the intervention area and 15 percent of *bari* women in the control area who have no radio are using contraceptives. This rate increases among the women in a *bari* where more than

40 percent of the households have a radio by 5 percentage points in the intervention and by 7 percentage point control area respectively.

The bivariate relationship between economic characteristics and current contraceptive use at the national level in 1996 is presented in Table 13.10b. The table shows that in the national rural area in 1996, use of contraceptives is high among the women engaged in paid work. This trend is the same as was found in 1983. The relationship between current contraceptive use and the husband's occupation shows that use of contraceptives is the highest among women whose husbands were engaged in business or services. The next highest rate is by women whose husbands were engaged in farming. The lowest contraceptive use is observed among women whose husbands were engaged in daily skilled and unskilled labour.

At the household level, the table shows that, possession of land has a positive relationship with current contraceptive use. The women living in a household with land has a slightly higher rate of contraceptive use than women living in a landless household. The possession of modern consumer durables such as radios and watches, and household wealth index have positive relationship with current contraceptive use. Although this positive relationship between current contraceptive use and possession of modern consumer durables and household wealth index is to some extent larger than that for possession of land, it is still weak.

Table 13.10b also presents the current contraceptive use by economic factors in both areas of Matlab for 1996. Both areas of Matlab have the same type of economic data available for 1984 and 1994. This table shows a positive relationship between women's employment and current contraceptive use in both the areas of Matlab. The relationship is stronger in the control area in 1994. The differences in current contraceptive use between women who are in paid work and those who are house wives in 1984 are seven percentage points and five percentage points in the intervention and control areas respectively, but the differences in contraceptive use between those in paid work and house wives in 1994 in these two areas increased by 16 percentage points and 10 percentage points in the control and intervention areas respectively. Women's current contraceptive use by husband occupation in 1994 shows the same trends as in 1984. The current contraceptive use of women whose husbands are farmers or engaged in business or services is high compared to women whose husbands are engaged in labour force. In the control area, women whose husbands are engaged in service or business still have slightly low rate of contraceptive use.

**Table 13.10b:Percentage distribution of women currently using contraceptives by economic factors national level (rural) and two areas of Matlab in1994/1996.**

| | National -1996 | | Matlab -1994 | | | |
|---|---|---|---|---|---|---|
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Employment status of women** | | | | | | |
| Paid works | 60.5 | 2315 | 74.3 | 101 | 56.8 | 74 |
| Housewife | 49.6 | 3879 | 64.2 | 1138 | 41.3 | 950 |
| **Occupation of husband** | | | | | | |
| Farmer | 55.7 | 1896 | 71.4 | 336 | 45.8 | 323 |
| Labour, skilled & unskilled | 48.6 | 2879 | 60.6 | 784 | 40.4 | 624 |
| Business & professional | 61.2 | 1419 | 77.2 | 79 | 44.2 | 52 |
| Fisherman | | | 75.0 | 40 | 44.0 | 25 |
| **Household 's possession of land (acres)*** | | | | | | |
| No land | 51.9 | 2405 | 67.5 | 412 | 45.8 | 347 |
| 0.1-0.4 | 54.8 | 3789 | 62.9 | 342 | 43.5 | 278 |
| 0.5-2.99 | -- | -- | 65.5 | 426 | 39.8 | 337 |
| 3.00+ | -- | -- | 57.6 | 59 | 32.3 | 62 |
| **Constructional materials used for housing** | | | | | | |
| Mixed | 53.3 | 4819 | 66.5 | 755 | 42.7 | 649 |
| All tin | 54.8 | 1375 | 62.8 | 484 | 41.9 | 375 |
| **Member living outside HDSS area** | | | | | | |
| None | -- | -- | 67.5 | 840 | 41.3 | 663 |
| At least one | -- | -- | 59.9 | 399 | 44.3 | 361 |
| **Household's possession of Watch and Radio** | | | | | | |
| None | 50.0 | 2874 | 66.4 | 422 | 42.8 | 374 |
| At least one | 56.8 | 3320 | 64.4 | 817 | 42.2 | 650 |
| **Household Wealth Index** | | | | | | |
| None | 48.6 | 1404 | 70.7 | 191 | 46.4 | 183 |
| 1-2 | 52.5 | 1733 | 64.9 | 265 | 42.2 | 185 |
| 3-4 | 55.0 | 1255 | 61.7 | 235 | 40.5 | 232 |
| 4+ | 57.8 | 1802 | 64.6 | 548 | 41.7 | 424 |
| **Occupation of majority household head in a *Bari*** | | | | | | |
| Agriculture | -- | -- | 63.7 | 267 | 39.1 | 271 |
| Business | -- | -- | 74.3 | 74 | 51.3 | 39 |
| Service | -- | -- | 76.0 | 25 | 54.5 | 22 |
| Fisherman | -- | -- | 71.9 | 64 | 44.6 | 56 |
| Others mostly labourer | -- | -- | 59.9 | 307 | 42.6 | 209 |
| Non classified occupation | -- | -- | 66.1 | 502 | 42.6 | 427 |
| **% of Household with Radio in Bari** | | | | | | |
| None | -- | -- | 70.1 | 137 | 37.3 | 134 |
| <40 | -- | -- | 64.1 | 395 | 40.6 | 387 |
| 40+ | -- | -- | 64.6 | 707 | 45.1 | 503 |

-- = data not available

The household economic status measured by possession of land does not show any relationship with current contraceptive use in the intervention area but does show a positive relationship in the control area. The current contraceptive use among the women of landless households and households with three or more acres of land in the intervention area are 65 and 58 percent respectively. Current contraceptive uses among the women of landless households and households with three or more acres of land in the control area are 43 and 30 percent respectively. No other household economic factors in the intervention area show any relationship with current contraceptive use except for the household members living outside the HDSS. The slightly positive relationship between current contraceptive use and the household wealth index shown in 1984 for both areas is also reduced in 1996.

In terms of *bari* characteristics and current contraceptive use, Table 13.10b shows the same trends of contraceptive use in 1994 as in 1984. The contraceptive use is high among women living in a *bari* where the occupation of the household heads is predominantly by business, services and fishing and low among the women who are living in a *bari* where the occupation of the household heads is predominantly labours. The current use of contraceptives is more than 10 percentage points higher among women living in a bari with these three dominating occupation groups (business, services and fishing) than the women whose bari head's occupation is dominated by daily labour. In the control area, the trends are similar but the level of use is lower. The other variable, percent of households owning a radio in a bari shows a positive relationship with current contraceptive use in the control area while the effect of these variables in the intervention area is reversed

### 13.4.1 Summary

A comparative analysis of the women employment in three areas for the 1983/1984 reveals a clear positive relationship with women's employment and current contraceptive use and that this relationship is stronger at the national level than the other two areas. This difference in current contraceptive use has reduced at the national level and Matlab intervention areas but increased in the control area later. The other common variable among the three areas, possession of land did not show any difference between use and non-use of contraceptives during the 1983-1996. In the recent surveys, (1994/1996), there are few other common variables for the three areas. Occupation of husband is one of the common variables collected in 1994/1996. Contraceptive use by husband occupation shows that the current use is high among the women whose husbands were engaged in business or services followed by the women whose husbands were engaged in farming. The lowest contraceptive use is found in all the areas, among the women whose husbands were engaged in daily labours. The possession of modern consumer durables such as radios and watches has a positive relationship with current contraceptive use in 1996 at the national level, but the relationship of this variable with contraceptive use has reduced in 1994 in both areas of Matlab.

Finally, the economic factors and their relationships with current contraceptive use examined in this section suggests that women's employment has always led a positive relationship with current contraceptive use which is consistent with the fertility transition's theory's claim of the relationship with employment and current contraceptive use. However, the proportion of women engaged in the labour force at the national level seems to be higher than expected and the proportion employed in paid work in both areas of Matlab is very low. The positive relationship with service or business or farming occupation of husband and women's current contraceptive use also show an expected direction. The relationship between current contraceptive use and other economic variables at the household level though showing an expected direction is not strong. At the *bari* level, occupation of household heads shows the same trends as shown for husband occupation especially in the intervention area. Women in the intervention areas who are living in a *bari* where the occupation of household heads were predominantly business or service have higher rates of current contraceptive use than other occupations during the 1984 to 1994 period.

## 13.5 Conclusion

In conclusion, analysis of the demand for additional children and current contraceptive use illustrates that at the early stages of fertility decline, use of contraceptives started among the women who wanted no more children. But with increasing maturity of the programme, women who wanted additional children also started using contraceptives. In the intervention area, the gap in current contraceptive use between women who reported to have no demand for additional children and those who reported to have demand for additional children is lower than in the other two areas during the 1983/1984 period, but the gap between those women desiring additional children and those who do not reduced rapidly in the national rural and control areas area during the study period. In 1994/1996, the difference in current contraceptive use between those who wanted more children and who do not is close to similar in all three areas. However, current contraceptive use is substantially higher among women who reported to have no demand for additional children in the three areas, and highest in the intervention area in 1994. Almost 80 percent of the women who reported to have no demand for additional children are using contraceptives. Another trait appears from the analysis when demand for additional children by age is examined. The analysis reveals that though the proportion wanting no additional children is low, higher proportion of these young women using contraceptives than the women who stated no intention of more children and are at the older segment.

The biosocial factors play an important role in the rise of current use of contraceptives like any other contemporary fertility transitions (Knodel et al. 1987; Freedman et al. 1995). The analysis of the biosocial factors and their association with current contraceptive use demonstrates that at the early stages of fertility transition (evidence from national and Matlab control, 1983/1984), women in their late twenties and thirties having at least two living children were using contraceptives. The women in their early twenties with two children were using contraceptives but this was only in the national rural area. Current contraceptive uses among the very old (40+ years) and very young (<20 years) women were low in these two areas. But the case of intervention area was different. The current contraceptive use in this area was high among all age groups having at least one child.

In the later stage of transition, in 1994/1996, the pattern of current contraceptive use had radically changed. Virtually, women of all age strata or by number of living children in the three areas, except those who had no living children, started using contraceptives. Even 10 to 20 percent of women who had no living children started using contraceptives in the national area, an indication that a considerable number of women were actually using contraceptives to delay their first birth. This is a radical shift in a patriarchal society like Bangladesh where most couples in the earlier times wanted to have a child as soon as possible after marriage. However, this radical shift in current contraceptive use by women who had no living children was not evident in either of the Matlab areas..

A preference for sons in rural Bangladesh is well documented in the literature. An exploration of these three data sets provides enough support for this hypothesis. In 1983/1984, in all the three areas, current contraceptive use was low among women who had no living sons, irrespective of women's age . It is lower in the intervention area and the lowest in the control area. During the study period, current contraceptive use increased among all the living sons groups including those who had no living sons and in all the three areas, a noticeable change had occurred in the relationship between the number of living sons and current contraceptive use. In 1983/1984, women started using contraceptives after having one living son, current use of contraceptives increased when they had two living sons but having more than two sons did not systematically increase the current use level. In 1994/1996, a sizable number of women in all three areas irrespective of age who had no living sons started to use contraceptives.

The effect of children death's on women's current contraceptive use is consistent with theoretical expectation but the effect was not as evident in either of the two areas of Matlab. There may have some important biosocial and cultural factors, which undermine the effect of child's death on current contraceptive use. In recent times, there has been a significant improvement in child survival and child nutritional status (BBS 1997). The highest improvement in child survival was achieved in the intervention area. On the other hand, age at marriage is low in all these three areas and because of improved survival rates, couples had the opportunity to have more children even if some of them died. That may have reduced the overall effect of child mortality on current contraceptive use. Despite all these differences in current contraceptive use among the three areas, current contraceptive use was significantly higher in the intervention areas followed by the national rural area. The lowest prevalence rate was evident in the control areas.

At the theoretical level, the results of the analysis in this chapter support a part of the argument postulated by the classical fertility transition theory that the demand for fertility control originates from the number of surviving children the couple have. Women in these three areas started using contraceptives to a greater extent only when they had a greater number of surviving children The improvement in the probability of surviving in the past provided couples with the expected number of children. The recent improvement in survival rates probably gives them more confidence that this children will survive to adulthood.

The association between economic factors and current contraceptive use during the study period in all the three areas is rather unclear. Women employment has a consistent positive relationship with current contraceptive use but the proportion of women employed in a paid work, especially in the Matlab areas, at that time was small. The association between women's current contraceptive use and husband's occupation seems to fit the economic explanation of fertility transition. The positive relationship between women's current contraceptive use and husband's occupation in farming or services or business may be a reflection of the economic constraints, and subsequent choice of a smaller number of children to overcome the economic hurdle. The negative relationship between women's current contraceptive use and husband's occupation as daily labour may also reflect the same economic constraints. This group of people has virtually no other income than their own labour, so choosing to have more children would raise the probability of more income in the future. The household economic characteristics did not show any strong relationship with women's current contraceptive use. Finally, while the individual farming occupation has a positive relationship with current contraceptive use, it has a negative impact on current contraceptive use of the bari women. if the *bari* occupational environment is dominated by farming

However, the relationships between current contraceptive use and biosocial and economic factors discussed here have been based on bivariate distribution. A multivariate analysis, which will be added later, might provide a better idea of the relation between biosocial and economic factors with women's current contraceptive use.

# Chapter 14: Social and Cultural Change and Current Contraceptive Use -I

## 14.1 Introduction

The influences of economic changes on current contraceptive use are mediated through the social and cultural values of a particular society. The social values and cultural settings of a society change with the economic changes. Most fertility transition theories postulate that the general socio-economic development of a society influences current contraceptive use through its influence on the demand for children. In Bangladesh, for the last 25 years, there has been a rapid change especially in the field of female education and micro-credit development through NGO programme activities, besides the usual social and economic development. These developments have some independent effect on the current use of contraceptives. The biosocial and economic factors and its association with current contraceptive use were discussed in chapter 13.

Chapters 14 and 15 explore the rapid changes in current contraceptive use in terms of their association with the social and cultural aspects of the society. The chapter will begin with the social development represented by education at several levels. At the individual level education of women; at the household level the education of husband and household heads; at the *bari* (a smaller community) level, percent of household heads educated and the presence of religiously educated household heads. The chapter will start by examining the relationship between current contraceptive use and education of women, husband, household head and *bari* level education. An examination of cultural factors like gender preference, spousal communication and perception of women about their husbands' attitude about family size and family planning, women freedom of movement, religion and religiosity will follow this analysis. Chapter 14 will cover education at all level, and sex composition of the family, religion and religiosity. Chapter 15 will deal with the spousal communication, and women's autonomy and empowerment (women's freedom of movement and involvement of women in the NGO activities) and their association with current contraceptive use.

## 14.2 Social Development

### 14.2.1 Women Education

Education is the most widely used variable in fertility analysis and has been treated as one of the proxies to other social developments. The education of women has been treated as a mechanism through which an individual's ideas about family and reproductive behaviour can be transformed (Caldwell 1982). It provides access to information and creates a sense of maturity for rational thought in all aspects especially in contraceptive use (Bledsoe et al. 1999)

Tables 14.1a and 14.1b demonstrate the trends in current contraceptive use by education and age for 1983/1984 and 1994/1996 at the national level and the two areas of Matlab. In 1983/1984, in the national rural area and Matlab control, Table 14.1a demonstrates a linear positive relationship between education and current contraceptive use irrespective of age. On the other hand, when education is controlled, women's age shows an independent J shape relationship with current contraceptive use.

Table 14.1a shows that in the intervention area, in 1984, the relationship between current contraceptive use, and women education and age does not appear as straightforward as it is at the national rural area. In the intervention area, in 1984, a linear positive relationship between women's education and current contraceptive use is evident among the women in their late twenties and above. The relationship between education and current contraceptive use among the teens and early twenties is unexpectedly inconsistent. Among the teens it is inversed; among women in early twenties, it is a U shape relationship, which means, current contraceptive use decreases with increasing education among the very young women and among the women in the early twenties, the lowest current use appearing among the women of 20-24 years with primary education. The effect of age on current contraceptive use irrespective of level of education appears at the later stage of reproductive life. Current contraceptive use is almost similar among the illiterate women aged less than 30 years and then it starts rising with increasing age. Among the women with primary education, in general, contraceptive use increases with increasing age but not as consistently as shown in the national rural areas.

**Table 14.1a: Percentage distribution of women currently using contraceptives by woman's education and age, National level (rural) and two areas of Matlab, 1983/1984**

| | National -1983 | | Matla-1984 | | | |
|---|---|---|---|---|---|---|
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Education of woman** | | | **Women aged <20 years** | | | |
| Illiterate | 6.1 | 824 | 32.6 | 43 | 0.0 | 40 |
| 1-5 years | 11.0 | 355 | 36.2 | 47 | 9.5 | 21 |
| 6 or more years | 33.7 | 98 | 28.6 | 7 | 33.3 | 3 |
| **Education of woman** | | | **Women aged 20-24** | | | |
| Illiterate | 17.2 | 789 | 31.3 | 275 | 5.7 | 175 |
| 1-5 years | 21.8 | 321 | 28.0 | 279 | 7.0 | 128 |
| 6 or more years | 37.9 | 87 | 41.1 | 73 | 15.2 | 33 |
| **Education of woman** | | | **Women aged <25-29** | | | |
| Illiterate | 21.8 | 775 | 32.0 | 281 | 19.1 | 220 |
| 1-5 years | 27.0 | 285 | 42.6 | 216 | 14.2 | 106 |
| 6 or more years | 45.2 | 84 | 52.8 | 53 | 30.0 | 20 |
| **Education of woman** | | | **Women aged 30-39** | | | |
| Illiterate | 27.2 | 1053 | 45.9 | 534 | 22.5 | 400 |
| 1-5 years | 31.6 | 329 | 50.5 | 390 | 21.1 | 204 |
| 6 or more years | 52.4 | 42 | 65.5 | 58 | 43.5 | 23 |
| **Education of woman** | | | **Women aged 40-49** | | | |
| Illiterate | 12.9 | 777 | 47.5 | 356 | 22.6 | 234 |
| 1-5 years | 19.9 | 166 | 45.5 | 165 | 23.4 | 77 |
| 6 or more years | 37.5 | 16 | 61.1 | 18 | 25.0 | 4 |
| **Education of woman** | | | **All women** | | | |
| None | 17.6 | 4218 | 40.6 | 1489 | 18.2 | 1069 |
| 1--5 | 22.2 | 1456 | 41.8 | 1097 | 16.2 | 536 |
| 6 or more years | 40.4 | 327 | 52.2 | 209 | 27.7 | 83 |

In the control area, in 1984, the same table shows, current contraceptive use demonstrates a positive relationship with education irrespective of age but the relationship is less strong in the older age group of age greater than 29 years. When education is controlled, age shows a positive relationship with current contraceptive use among the illiterate young women of age less than 30 years but flattens at the older age. Among women of primary education, it is an unbent J shape and among the secondary educated women it is a J shape distribution. In 1983/1984, current contraceptive use is high among women with secondary education irrespective of age and area.

In 1994/1996 periods, the statistics presented in Table 14.1b illustrate a similar relationship in 1996 at the national level, as in 1983, though the strong linear positive relationship between current contraceptive use and education, especially the gap between women of primary and secondary education flattens, among all the age groups. The relationship between age and current contraceptive use turns into a J shape when education is controlled.

**Table 14.1b: Percentage distribution of women currently using contraceptives by women's education and age , national level (rural) and two areas of Matlab, 1994/1996**

| | National -1996 | | Matlab -1994 | | | |
|---|---|---|---|---|---|---|
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Education of woman** | | | **Women aged <20 years** | | | |
| Illiterate | 29.5 | 413 | 49.1 | 57 | 20.5 | 39 |
| 1-5 years | 37.5 | 371 | 37.9 | 58 | 20.4 | 49 |
| 6 or more years | 43.6 | 225 | 33.3 | 39 | 9.3 | 43 |
| **Education of woman** | | | **Women aged 20-24** | | | |
| Illiterate | 40.6 | 633 | 48.0 | 98 | 32.1 | 84 |
| 1-5 years | 52.4 | 380 | 49.3 | 69 | 33.8 | 77 |
| 6 or more years | 49.8 | 251 | 48.2 | 56 | 28.8 | 52 |
| **Education of woman** | | | **Women aged <25-29** | | | |
| Illiterate | 52.2 | 765 | 60.6 | 127 | 40.3 | 119 |
| 1-5 years | 60.2 | 377 | 69.6 | 102 | 49.3 | 71 |
| 6 or more years | 60.2 | 211 | 73.7 | 38 | 51.7 | 29 |
| **Education of woman** | | | **Women aged 30-39** | | | |
| Illiterate | 61.5 | 1039 | 76.6 | 218 | 53.9 | 193 |
| 1-5 years | 69.3 | 512 | 74.6 | 122 | 61.7 | 94 |
| 6 or more years | 76.0 | 250 | 75.4 | 57 | 56.0 | 25 |
| **Education of woman** | | | **Women aged 40-49** | | | |
| Illiterate | 57.5 | 537 | 81.6 | 125 | 45.5 | 101 |
| 1-5 years | 57.9 | 183 | 75.8 | 62 | 46.7 | 45 |
| 6 or more years | 68.1 | 47 | 81.8 | 11 | 100.0 | 3 |
| **Education of woman** | | | **All women** | | | |
| None | 51.0 | 3387 | 67.4 | 625 | 43.5 | 536 |
| 1--5 | 56.3 | 1823 | 64.2 | 413 | 44.6 | 336 |
| 6 or more years | 58.1 | 984 | 59.7 | 201 | 33.6 | 152 |

In the intervention area by 1994, the impact of education on current contraceptive use has almost been neutralized and in some cases unexpected (age less than 24 years). But when education is controlled, the impact of age is evident. Current contraceptive use demonstrates a linear positive relationship with women's age irrespective of level of education.

In the control area, when age has been controlled, the relationship between current contraceptive use and education reversed among the young women aged less than 20 years. The relationship was not very clear between current contraceptive use and education among the women of age 25-29 years and 40-49 years but an inverted U appears among the women of age 30-39 years. The relationship between current contraceptive use and age appears as a J shaped distribution among the illiterate women and women with primary education and as positive among women of secondary education, when education is controlled.

This relationship between age and current contraceptive use irrespective of education is confounded by the effect of the number of living children and number of living sons. In the next section, the relationship between current contraceptive use, education and living children and living sons will be examined.

***Women education: the mediating effect of number of living children.***

The current contraceptive use by education and number of living children at the national rural area and two areas of Matlab for the year 1983/1984 and 1994/1996 are presented in Table 14.2a and Table 14.2b respectively.

In 1984, at the national level, Table 14.2a shows that current contraceptive use has a strong linear positive relationship with education when number of living children has been controlled. Current contraceptive use, for example, is 4 percent among the illiterate nulliparas and increases by 17 percentage points among illiterate women having more than four children. The same trend is true for the other two education groups. But the relationship between current contraceptive use and number of living children is positive among women with less than three living children and the relationship reaches a plateau among women who have less than two children. The relationship increases with increasing education and number of living children.

In the intervention area, in 1984, current contraceptive use has a positive relationship with education only when women have two or more living children. The relationship between current contraceptive use and education is not clear among the women who have less than two children. When education is controlled, current contraceptive use shows an unstable positive relationship with number of living children for illiterate women, and a J shape relationship between current use and number of children among women with primary and secondary education.

The table also shows that in the control area, in 1984, women with no living children are not using contraceptives. Contraceptive use starts with at least one living child and shows the expected positive relationship with women having secondary education. There is always a significant difference in current contraceptive use between illiterate and secondary educated women irrespective of number of living children. The difference in current contraceptive use between illiterate women and those with primary level education is minimal among all the groups. The independent effect of number of living children on current contraceptive use is evident in the control area in 1984 irrespective of education.

**Table 14.2a: Percentage distribution of women currently using contraceptives by education of woman and number of living children national level (rural) and two areas of Matlab, 1983/1984**

| | National -1983 | | Matla-1984 | | | |
|---|---|---|---|---|---|---|
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Education of woman** | | **No. of living children: None** | | | | |
| Illiterate | 4.1 | 489 | 7.0 | 43 | 0.0 | 20 |
| 1-5 years | 5.6 | 213 | 12.5 | 24 | 0.0 | 13 |
| 6 or more years | 29.5 | 61 | 0.0 | 5 | 0.0 | 5 |
| **Education of woman** | | **No. of living children: One** | | | | |
| Illiterate | 6.6 | 635 | 31.6 | 171 | 4.8 | 126 |
| 1-5 years | 13.6 | 243 | 23.1 | 160 | 5.3 | 75 |
| 6 or more years | 39.1 | 92 | 29.0 | 31 | 9.1 | 22 |
| **Education of woman** | | **No. of living children: Two** | | | | |
| Illiterate | 19.9 | 657 | 30.5 | 210 | 10.8 | 157 |
| 1-5 years | 24.5 | 233 | 33.8 | 198 | 8.1 | 74 |
| 6 or more years | 41.5 | 65 | 52.6 | 57 | 26.7 | 15 |
| **Education of woman** | | **No. of living children: Three** | | | | |
| Illiterate | 23.5 | 625 | 35.4 | 268 | 19.3 | 161 |
| 1-5 years | 28.3 | 219 | 49.7 | 183 | 10.4 | 96 |
| 6 or more years | 42.1 | 38 | 61.5 | 39 | 26.7 | 15 |
| **Education of woman** | | **No. of living children: Four** | | | | |
| Illiterate | 23.9 | 553 | 48.6 | 286 | 22.7 | 185 |
| 1-5 years | 27.5 | 142 | 52.4 | 189 | 25.0 | 72 |
| 6 or more years | 58.6 | 29 | 61.8 | 34 | 33.3 | 9 |
| **Education of woman** | | **No. of living children: Five or more** | | | | |
| Illiterate | 21.4 | 1259 | 48.7 | 511 | 23.6 | 420 |
| 1-5 years | 29.6 | 406 | 47.2 | 343 | 23.8 | 206 |
| 6 or more years | 42.9 | 42 | 58.1 | 43 | 58.8 | 17 |

Table 14.2b demonstrates that in 1996, contraceptive use increased significantly in all categories irrespective of education, number of living children or areas. The data shows at the national level, there is a same linear positive relationship with education irrespective of number of living children except for women with five or more living children. It also shows a J shape relationship with number of children

among the illiterate women and women with secondary education. But among the women who have primary education and have less than two living children, current contraceptive use shows a linear positive relationship with education.

In the control area in 1994, current use of contraceptives has increased among women who have no living children but no trend appears in terms of education. The trend is similar among women of all education groups who have no living child or have at least one. Among the women who have more than one living child, the relationship between number of living children and current contraceptive use is J shaped among illiterate women, an unstable inverted U

**Table 14.2b: Percentage distribution of women currently using contraceptives by education of woman and number of living children, national level (rural) and two areas of Matlab, 1994/1996**

| | National -1996 | | Matlab -1994 | | | |
|---|---|---|---|---|---|---|
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Education of woman** | | | **No. of living children: None** | | | |
| Illiterate | 13.5 | 251 | 10.7 | 28 | 8.0 | 25 |
| 1-5 years | 20.5 | 200 | 11.8 | 34 | 8.8 | 34 |
| 6 or more years | 27.7 | 188 | 20.0 | 40 | 10.3 | 39 |
| **Education of woman** | | | **No. of living children: One** | | | |
| Illiterate | 37.4 | 545 | 48.8 | 86 | 28.6 | 56 |
| 1-5 years | 47.1 | 376 | 52.2 | 69 | 27.3 | 55 |
| 6 or more years | 55.7 | 287 | 57.9 | 57 | 27.1 | 48 |
| **Education of woman** | | | **No. of living children: Two** | | | |
| Illiterate | 57.0 | 709 | 66.7 | 111 | 32.4 | 71 |
| 1-5 years | 65.4 | 405 | 64.3 | 70 | 52.2 | 46 |
| 6 or more years | 66.9 | 236 | 65.9 | 41 | 45.2 | 31 |
| **Education of woman** | | | **No. of living children: Three** | | | |
| Illiterate | 59.0 | 646 | 66.9 | 130 | 50.5 | 99 |
| 1-5 years | 64.4 | 292 | 71.6 | 88 | 48.4 | 62 |
| 6 or more years | 78.5 | 130 | 83.3 | 30 | 56.3 | 16 |
| **Education of woman** | | | **No. of living children: Four** | | | |
| Illiterate | 60.0 | 500 | 82.9 | 117 | 52.9 | 87 |
| 1-5 years | 62.8 | 234 | 81.0 | 79 | 62.5 | 56 |
| 6 or more years | 76.2 | 84 | 81.3 | 16 | 42.9 | 7 |
| **Education of woman** | | | **No. of living children: Five or more** | | | |
| Illiterate | 54.8 | 736 | 77.1 | 153 | 48.5 | 198 |
| 1-5 years | 65.8 | 316 | 72.6 | 73 | 51.8 | 83 |
| 6 or more years | 61.0 | 59 | 82.4 | 17 | 72.7 | 11 |

among women of primary education; and an unsteady positive among women of secondary education which signifies that the relationship between education and current contraceptive use is not straightforward. In some cases, women with secondary education have a lower current contraceptive use than women who have primary education and two living children.

In 1996, contraceptive use reached a peak in the intervention area. Table 14.2b illustrates a positive relationship between current contraceptive with both education and number of living children; the relationship appears stronger with number of living children. However, a stronger relationship between current contraceptive use and education (secondary) is apparent among women who have no living children or have more than two.

***Education: Mediating effect of number of living sons***

The current contraceptive use by education and women's number of living sons at the national rural level and two areas of Matlab for 1983/1984 and 1994/1996 is presented through Table 14.3a and Table 14.3b respectively.

In 1983, at the national level, contraceptive use shows the same strong positive relationship with education and number of living sons, as was the case with number of living children. A stronger positive relationship between women's current contraceptive use and secondary education (6 or more years), irrespective of number of living sons, is also evident. With increasing number of living sons, the effect of education on current contraceptive use reduces but it is still strong. This gap in current contraceptive use between illiterate women and literate with secondary education is true for all living sons groups. But the difference in current contraceptive use between illiterate women and women with primary education within the same living children group is substantially lower than the differences in current contraceptive use between illiterate women and women with secondary education. But the changing pattern of contraceptive use according to number of living sons during 1983-1996 is similar to that of the number of living children. In the Matlab intervention area in 1984, a positive relationship of current contraceptive use with both education and number of living sons is apparent only among the women who have less than three children. This relationship is not, however, as strong as it is in the national rural area. Current contraceptive use among the illiterate women who have no living sons is 20 percent but it increases by 18 percentage points, that is, nearly double among women with secondary education.

**Table 14.3a: Percentage distribution of women currently using contraceptives by education of woman and number of living sons, national level (rural) and two areas of Matlab, 1983/1984**

| Variables | National -1983 | | Matla-1984 | | | |
|---|---|---|---|---|---|---|
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **Education of woman** | | | **No. of living sons: None** | | | |
| Illiterate | 6.7 | 1067 | 20.4 | 201 | 4.3 | 141 |
| 1-5 years | 10.7 | 413 | 19.9 | 171 | 2.5 | 79 |
| 6 or more years | 30.6 | 124 | 38.3 | 47 | 8.3 | 24 |
| **Education of woman** | | | **No. of living sons: One** | | | |
| Illiterate | 17.7 | 1095 | 34.7 | 401 | 12.9 | 264 |
| 1-5 years | 22.1 | 416 | 39.8 | 314 | 13.3 | 158 |
| 6 or more years | 42.0 | 100 | 50.0 | 58 | 16.7 | 30 |
| **Education of woman** | | | **No. of living sons: Two** | | | |
| Illiterate | 24.5 | 923 | 48.5 | 400 | 21.8 | 289 |
| 1-5 years | 28.8 | 299 | 51.3 | 302 | 17.3 | 127 |
| 6 or more years | 50.8 | 61 | 65.0 | 60 | 53.8 | 13 |
| **Education of woman** | | | **No. of living sons: Three** | | | |
| Illiterate | 24.5 | 596 | 47.2 | 265 | 25.8 | 198 |
| 1-5 years | 31.8 | 176 | 55.2 | 165 | 24.7 | 89 |
| 6 or more years | 50.0 | 20 | 47.6 | 21 | 50.0 | 6 |
| **Education of woman** | | | **No. of living sons: Four** | | | |
| Illiterate | 18.8 | 293 | 46.7 | 135 | 23.4 | 111 |
| 1-5 years | 33.3 | 81 | 39.6 | 96 | 25.5 | 51 |
| 6 or more years | 38.5 | 13 | 50.0 | 14 | 80.0 | 5 |
| **Education of woman** | | | **No. of living sons: Five or more** | | | |
| Illiterate | 19.7 | 244 | 48.3 | 87 | 22.7 | 66 |
| 1-5 years | 25.4 | 71 | 32.7 | 49 | 21.9 | 32 |
| 6 or more years | 66.7 | 9 | 66.7 | 9 | 40.0 | 5 |

The same pattern is found in the other two groups (one and two living sons). The trend shown in the relationship between current contraceptive use and education among women who have three living sons is a U shape, and for those who have more than three living sons is an inverted U shape. In these groups, current contraceptive use is higher among the illiterate, declines among women with primary education and then rises again among women with secondary education. However, the number of women with secondary education in these groups is small. The impact of living sons on current contraceptive use among the women who have more than two sons also differs. It shows no relationship pattern between current contraceptive use and number of living sons among illiterate women, an inverse relationship among women with primary education, and a positive relationship among women with secondary education.

In the control area, during the same year, the Table 14.3b shows that the overall current contraceptive use is low among women who have no living sons and the relationship between current contraceptive use and education among this group has a U shaped distribution. A consistent positive relationship between current contraceptive use, and illiterate and literate women with secondary education within the same living sons groups, is apparent among women who have more than one living son. But the number of women with secondary education in these groups in this area (control) is smaller than in the other two areas. The difference in current use of contraceptives between illiterate women and women with primary education is also minimal but the relationship between current contraceptive use and living sons, when education is controlled for, becomes positive with number of living sons irrespective of level of education. It bends slightly at the end, that is, current use of contraceptives declines among the women who have more than four children.

**Table 14.3b: Percentage distribution of women currently using contraceptives by education of woman and number of living sons, National level (rural) and two areas of Matlab, 1994/1996**

| | National -1996 | | Matlab -1994 | | | |
|---|---|---|---|---|---|---|
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Education of woman** | | | **No. of living sons: None** | | | |
| Illiterate | 32.5 | 754 | 39.8 | 103 | 15.9 | 82 |
| 1-5 years | 35.0 | 517 | 40.9 | 93 | 23.8 | 80 |
| 6 or more years | 42.9 | 385 | 43.8 | 80 | 20.5 | 83 |
| **Education of woman** | | | **No. of living sons: one** | | | |
| Illiterate | 54.1 | 1123 | 66.3 | 187 | 41.2 | 131 |
| 1-5 years | 62.7 | 620 | 62.4 | 117 | 39.8 | 98 |
| 6 or more years | 64.9 | 365 | 61.2 | 67 | 37.8 | 37 |
| **Education of woman** | | | **No. of living sons: two** | | | |
| Illiterate | 60.9 | 792 | 77.1 | 201 | 50.0 | 146 |
| 1-5 years | 66.4 | 396 | 72.7 | 128 | 59.5 | 79 |
| 6 or more years | 72.3 | 166 | 78.0 | 41 | 60.0 | 20 |
| **Education of woman** | | | **No. of living sons: Three** | | | |
| Illiterate | 58.2 | 431 | 78.9 | 76 | 54.2 | 96 |
| 1-5 years | 68.0 | 175 | 83.0 | 47 | 57.1 | 42 |
| 6 or more years | 75.0 | 40 | 90.9 | 11 | 50.0 | 6 |
| **Education of woman** | | | **No. of living sons: Four** | | | |
| Illiterate | 52.8 | 199 | 74.4 | 39 | 57.4 | 47 |
| 1-5 years | 68.4 | 79 | 80.0 | 20 | 54.2 | 24 |
| 6 or more years | 77.8 | 18 | 100.0 | 2 | 80.0 | 5 |
| **Education of woman** | | | **No. of living sons: Five or more** | | | |
| Illiterate | 40.9 | 88 | 63.2 | 19 | 41.2 | 34 |
| 1-5 years | 55.6 | 36 | 75.0 | 8 | 61.5 | 13 |
| 6 or more years | 60.0 | 10 | | | 100.0 | 1 |

In all the three areas, the effect of education on current contraceptive use deflated in the 1983-1996 period especially among the women who have more than one living son. At the national level, although there is a consistent positive relationship between current contraceptive use and education in all the living sons groups, the relationship is not as strong in 1996 as it was in 1983. The gap in current contraceptive use between women with secondary education and other two groups has substantially reduced. A large number of illiterate women are using contraceptives irrespective of number of living sons. The relationship between number of living sons and current contraceptive use, when education is controlled for, is a U among illiterate women, and a J among the women of the other two education groups.

In the intervention area, in 1994, the table illustrates that the relationship between current contraceptive use, and education is not consistently positive as was found at the national rural area, when number of living sons is controlled. Current contraceptive use appears almost the same among women who have no living sons irrespective of level of education but surprisingly the relationship between current contraceptive use and education appears linearly reversed among women who have only one son. However, current contraceptive use shows a positive relationship with education among women who have more than two sons, but the number of secondary educated women in those groups is very small. When education is controlled, a U shape relationship is apparent between current contraceptive use and number of living sons among illiterate women and women with primary education, but a positive relationship is apparent among women with secondary education.

In the control area, in 1994, trends of current contraceptive use neither followed the national trends nor those of the intervention area. An inverted U shape relationship between current contraceptive use and education is apparent among women who have no or one living son. An unstable relationship between current contraceptive use and education is evident in the control area in 1994. But drawing any conclusions about the relationship is difficult because of the small number of cases in the secondary education group.

Another set of relationship between current contraceptive use by education controlling for dead children has also been examined and placed in the appendix as it is not different from the two variables discussed above.

### 14.2.2 Household and Bari Level Education

In a closed patriarchal society, individual literacy helps to transform ideas. The education of a household and a *bari* provides an enlightened environment for the women and reduces the conservatism in the society enabling women to make independent decisions on new innovations such as modern contraceptive methods. Thus, inclusion of the education of husbands, household head or *bari* is an important factor to consider in any examination of reproductive behaviour, in this case for current contraceptive use.

Table 14.4a and Table 14.4b present the current contraceptive use in terms of education of husbands, couples, household heads and percent of household heads educated in a *bari* in 1983/84 and 1994/96 at the national rural level and the two areas of Matlab. The current contraceptive use of women in terms of religious education of the *bari* heads in the Matlab areas is also presented in these same Tables. Table 14.4a reveals an expected positive relationship between husband education and women's current contraceptive use. The difference in contraceptive use between women whose husband has more than 9 years of education and those whose husband is illiterate is about two times higher. Husband and wife's education is used to create the couples' education for the national rural data. The Table shows that contraceptive use among couples who are illiterate, or where one of the partners is illiterate, is similar and lower than that of the literate couples. The current contraceptive use among couples who are illiterate or where one of the partners is illiterate, for example, is around 17 percent and this increases by 12 percentage points among the literate couples.

Current contraceptive use and different forms of education collected in 1984 in Matlab are also presented in Table 14.4a. Husbands' education was not available in the Matlab data but education of household heads is available. In a patriarchal society, where household heads have a social and economic control over the

**Table 14. 4a: Percentage distribution of women currently using contraceptives by education of women, husband, head of household, bari head and religious education, national level (rural) and two areas of Matlab, 1983/1984.**

| Variables | National-1983 | | Matlab -1984 | | | |
|---|---|---|---|---|---|---|
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **Education of husband** | | | | | | |
| None or madrasha | 17.3 | 3609 | -- | -- | -- | -- |
| 1—5 | 19.4 | 1052 | -- | -- | -- | -- |
| 6—9 | 22.3 | 775 | -- | -- | -- | -- |
| 9+ | 34.3 | 565 | -- | -- | -- | -- |
| **Education of household head** | | | | | | |
| None or madrasha | -- | -- | 38.2 | 1397 | 16.1 | 893 |
| 1—5 | -- | -- | 42.6 | 890 | 19.8 | 536 |
| 6–9 | -- | -- | 48.8 | 334 | 16.7 | 174 |
| 9+ | -- | -- | 55.7 | 174 | 30.6 | 85 |
| **Education of couples** | | | | | | |
| Both illiterate | 17.3 | 3130 | -- | -- | -- | -- |
| Husband literate | 18.4 | 1088 | -- | -- | -- | -- |
| wife literate | 17.5 | 479 | -- | -- | -- | -- |
| Both literate | 28.5 | 1304 | -- | -- | -- | -- |
| Total | 19.9 | 6001 | -- | -- | -- | -- |
| **% of HH Head educated in Bari** | | | | | | |
| None | -- | -- | 37.9 | 1193 | 15.7 | 805 |
| <40 | -- | -- | 43.2 | 1178 | 18.6 | 677 |
| 40+ | -- | -- | 50.0 | 424 | 25.7 | 206 |
| **HH Head with religious education in Bari** | | | | | | |
| None | -- | -- | 41.8 | 2656 | 18.4 | 1605 |
| At least one | -- | -- | 44.6 | 139 | 10.8 | 83 |

"—" indicate data not available

members of the households, the education of the head is equally important for the adoption of contraceptive methods by the members of the households. The education of the household head in both areas of Matlab demonstrates a consistent pattern of relationship between household head's education and women's current contraceptive use. The Table shows that in both areas, women living in households whose heads are highly literate (10 or more years of schooling) have a high rate of current use of contraceptives. The difference in contraceptive use between women, who live in a house, where the household head has secondary education and those who live in a house, where the household head is illiterate, is larger than the difference in usages between women who have secondary education and those who are illiterate in both areas. The difference in current contraceptive use between women living in literate households and illiterate households in the intervention area is 17 percentage point and 14 percentage point in the control area.

Two *bari* level education features presented in the Table 14.4a have been computed from Matlab longitudinal data. These are, percent of household heads educated in a *bari* and the influence of religious education of a *bari* on women's current contraceptive use. A greater number of literate household heads in a *bari* provide women with a secular environment, helps them acquire education, reduce restriction on movement, and expose women to more modern ideas and amenities. All these factors may have an influence on the current contraceptive use of women. Data on Matlab in 1983 show that women living in a literate *bari* environment have a higher rate of contraceptive use than women living in an illiterate *bari* environment for both areas of Matlab and the pattern is more or less similar to that of the education of household heads for both the areas. On the other hand, religious education of *bari* head does show an impact in the comparison area but not in the intervention area.

The current contraceptive use by education of husbands, and couples at the national level in the 1994/1996 are presented in Table 14.4b. The table reveals that overall use of contraceptives among women increased substantially, irrespective of the level of husband's education during the period of 1983 to 1996 at the national level. Tables 14.4a. and 14.4b show that the gap in current contraceptive use between women whose husband is illiterate and those whose husband is literate has reduced as it did in terms of women education in 1996. The same is true about couple's education. The difference in current contraceptive use between the illiterate couples or couples with either partner illiterate, and literate couples has been reduced. The current contraceptive use among couples who are illiterate or one of the partners is illiterate is around 50 percent compared to 59 percent among the couples who are literate.

The current contraceptive use by different forms of education for both areas of Matlab for the year 1994 is also presented in Table 14.4b. The relationship between current contraceptive use by husband education demonstrates the same trends as in 1984 in the intervention area. In the control area, current contraceptive use is similar to the 1984 level for the different education levels of the husbands groups except for women whose husband had 6-9 years of education. couples' education shows a similar pattern. Literate couples have a lower current use level of contraceptives than the other three groups in both the areas.

**Table 14.4b: Percent of women currently using contraceptives by education of women, husband, head of household, bari head and religious education, national level (rural) and two areas of Matlab, 1994/1996**

| | National -1996 | | Matlab -1994 | | | |
|---|---|---|---|---|---|---|
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Education of husband** | | | | | | |
| None or madrasha | 50.7 | 2865 | 68.1 | 427 | 41.6 | 389 |
| 1--5 | 52.0 | 1673 | 64.5 | 380 | 45.9 | 292 |
| 6--9 | 56.2 | 905 | 58.2 | 225 | 36.5 | 200 |
| 9+ | 65.6 | 751 | 67.1 | 207 | 45.5 | 143 |
| **Education of household head** | | | | | | |
| None or madrasha | -- | -- | 61.8 | 574 | 40.2 | 493 |
| 1--5 | -- | -- | 65.8 | 377 | 39.8 | 342 |
| 6--9 | -- | -- | 66.7 | 162 | 52.5 | 122 |
| 9+ | -- | -- | 75.4 | 126 | 53.7 | 67 |
| **Education of couples** | | | | | | |
| None or madrasha | 50.9 | 2271 | 67.6 | 346 | 43.1 | 299 |
| 1--5 | 51.0 | 1116 | 67.0 | 279 | 43.9 | 237 |
| 6--9 | 49.7 | 594 | 70.4 | 81 | 36.7 | 90 |
| 9+ | 58.9 | 2213 | 61.5 | 533 | 42.2 | 398 |
| **% of educated HH Head in Bari** | | | | | | |
| None | -- | -- | 63.7 | 411 | 38.5 | 395 |
| <40 | -- | -- | 64.7 | 573 | 42.7 | 471 |
| 40+ | -- | -- | 67.8 | 255 | 51.3 | 158 |
| **HH Head with religious education in Bari** | | | | | | |
| None | -- | -- | 65.3 | 1163 | 42.3 | 960 |
| At least one | -- | -- | 60.5 | 76 | 43.8 | 64 |

"—" indicate data not available

The education of household heads and percent of head literate in a *bari* show an expected positive relationship with women's current contraceptive use as in 1984. Education of household head in both areas shows a positive relationship between women's current contraceptive use. The current contraceptive use found among the women of illiterate household heads, 62 and 40 percent in the intervention and control areas respectively, increased by 13 percentage points and 14 percentage points in 1994. The education environment of *bari* represented by percent of literate household heads in *bari* shows an expected relation with current contraceptive use of women. But the difference in current use between women living under literate and illiterate household heads in both areas is not large. The same is true with religious education of household head in a *bari*.

### 14.2.3 Summary

Analysis of the education of women and its association with current contraceptive use at the national rural area and two areas of Matlab provide evidence that the impact of education is considerable at the early stages of contraceptive prevalence but deflates with time. In 1983/1984, contraceptive use has a strong positive relationship with education in all the three areas. The relationship is stronger at the national level and in the control area where contraceptive use is low. During the study period (1983-1996), the overall use of contraceptives increased substantially, irrespective of the level of education of women, and the difference in contraceptive use between illiterate women and women with secondary education reduced greatly.

Both intervention and control areas have the same positive relationship between women's education and current contraceptive use in 1984, but not as strong as at the national level. In 1994, the relationship between current contraceptive use by education demonstrates an unexpected pattern in Matlab. Although the overall contraceptive use prevalence increased substantially in both the areas, the relationship between current contraceptive use and women's education reversed. Figures from both areas reveal that the women with secondary education have a lower rate of current use of contraceptives than the illiterate women or women with primary (1-5 years) education. The impact of women education on contraceptive use reduces at the national rural level but reversed in both areas of Matlab.

Analysis of the mediating effect of education on women's biosocial factors for influencing the current contraceptive use pattern during the study period illustrates that at the national level, the positive effect of education on current contraceptive use, after controlling the effect of biosocial factors, was reduced but not neutralized. But in both areas of Matlab, the positive effect of women's education on current contraceptive use after controlling the effect of biosocial factors of women has not only been reduced but in some women's age and living sons groups especially among the young and those with fewer living children or sons, has reversed.

In terms other education level, the comparison of three data sets over the period demonstrates the same pattern of relationship between current contraceptive use and husband's education as it demonstrates for women education in 1983/1984 and 1994/1996. The positive relationship between current contraceptive use by husbands education at the national level is true in 1996 but to a lesser degree. The same is true about couple's education. Literate couples have higher rate of contraceptive use than other three groups but the relationship is less strong in 1996. As mentioned earlier, husband education was not available for the 1984 Matlab data and therefore there is no information on couples' education for Matlab. The 1994 data for Matlab does not show any relationship between husband education and current contraceptive use and neither does couple education. The household head's education though shows a consistent positive relationship with women's current contraceptive use in the 1984-1994 period, but the impacts were reduced in 1994.

However, in any traditional society, culture may have more direct influence then social development, and social development may also mediate through cultural constituents. The next section will examine the relationship between cultural setting and its association with current contraceptive use.

## 14.3 Cultural Environment

In a traditional society, culture dominates the social entity of the individuals. The following section will examine the relationship between culture and current contraceptive use among the women at the national level (rural) and both areas of Matlab under the major headings. i. Gender preference and sex composition of the family ; ii. Spousal communication; iii. Women's autonomy and empowerment; iv. Religiosity. However, because of the size of present chapter, spousal communication and women's autonomy and empowerment will be presented in the next chapter.

### 14.3.1 Gender Preference and Sex Composition of the family

A large literature on gender preference, especially sons, of the South East Asian and West Asian couples captures the demographic literature. Preference for a certain sex of the child originates in the patriarchal social structure in this region. The patriarchal culture and related root of gender preferences in Bangladesh and in Matlab have been discussed in chapter two and chapter four. This chapter will examine the role of gender preference on reproductive behaviour, that is, use of current contraceptives during the period of 1983/1984 to 1994/1996 using national rural and Matlab data.

Two sets of tables have been computed on sex composition and current contraceptive use. The first set is the current contraceptive use by sex composition of the family age, presented in Tables 14.5a and 14.5b, and the second set is current contraceptive use by sex composition of the family and education and presented in Tables 14.6a and 14.6b.

The Tables 14.5a and 14.5b present the current contraceptive use by sex composition of the family and age at the national level and both areas of Matlab in 1983/1984. The current contraceptive use by sex composition of the family for national rural area presented in Table 14.5a demonstrates that contraceptive use is high among three types of sex composition of family irrespective of women's age. These types are, two from the women who have more than two living children, and one from the women who have two living children one of each sex. The current use of contraceptives is highest among women who have more than two children where sons out numbered daughters except the women of age 20-24 years of age. But the second highest prevalence of current contraceptives use is found among prime reproductive age groups (20-29 years) who have two children, one of each sex. Among the older age groups (30 or more years), however, current contraceptive use higher among those women who have more than two children and more daughters than sons, than for women who have two children, one of each sex. For example, current contraceptive use among women aged 20-24 years who have a son and a daughter is 28.8 percent but it is 9 percentage points lower among the same age group who have a large number of daughters than sons. On the other hand, current contraceptive use among the older women of age 30-39 years who have more than two children but more daughters than sons is 30 percent and lowers by 10 percentage points among the same age group of women who have two children, one of each sex. These patterns of relationship by women's age affect the overall current use level by sex composition of the family. Contraceptive use is low among the women who have two or less children. Among them, contraceptive use is higher among women who have sons only and low among women who have daughters only.

**Table 14. 5a: Percentage distribution of women currently using contraceptives by sex composition of family and age of woman, national level (rural) and two areas of Matlab, 1983/1984**

| | National -1983 | | Matlab-1984 | | | |
|---|---|---|---|---|---|---|
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Sex composition of family** | | | **Women aged<20 years** | | | |
| One Son & one daughter | 20.3 | 64 | 80.0 | 5 | 0.0 | 2 |
| 1-2 son only | 9.9 | 324 | 47.1 | 34 | 7.7 | 26 |
| 1--2 daughter only | 10.3 | 290 | 26.2 | 42 | 4.3 | 23 |
| Total>2, son => daughter | 15.4 | 13 | 33.3 | 3 | 0.0 | 1 |
| Total>2, daughter>son | 33.3 | 15 | -- | -- | -- | -- |
| No children | 7.0 | 571 | 7.7 | 13 | 0.0 | 12 |
| **Sex composition of family** | | | **Women aged 20- 24 years** | | | |
| One Son & one daughter | 28.8 | 226 | 38.9 | 126 | 10.7 | 75 |
| 1-2 son only | 21.1 | 284 | 33.2 | 187 | 4.2 | 96 |
| 1--2 daughter only | 13.5 | 230 | 26.2 | 172 | 5.6 | 90 |
| Total>2, son => daughter | 21.9 | 219 | 43.4 | 53 | 16.0 | 25 |
| Total>2, daughter>son | 20.0 | 140 | 28.3 | 46 | 11.1 | 27 |
| No children | 7.1 | 98 | 4.7 | 43 | 0.0 | 23 |
| **Sex composition of family** | | | **Women aged 25-29 years** | | | |
| One Son & one daughter | 26.5 | 102 | 33.3 | 72 | 10.3 | 29 |
| 1-2 son only | 27.1 | 96 | 27.6 | 76 | 12.2 | 41 |
| 1--2 daughter only | 14.0 | 100 | 22.2 | 45 | 5.6 | 36 |
| Total>2, son => daughter | 31.6 | 449 | 48.6 | 210 | 24.2 | 149 |
| Total>2, daughter>son | 20.3 | 354 | 37.1 | 143 | 19.1 | 89 |
| No children | 7.0 | 43 | 0.0 | 4 | 0.0 | 2 |
| **Sex composition of family** | | | **Women aged 30-39 years** | | | |
| One Son & one daughter | 20.0 | 50 | 40.7 | 27 | 27.8 | 18 |
| 1-2 son only | 17.9 | 56 | 29.2 | 24 | 33.3 | 12 |
| 1--2 daughter only | 11.1 | 36 | 0.0 | 6 | 0.0 | 14 |
| Total>2, son => daughter | 31.2 | 778 | 52.1 | 606 | 25.4 | 358 |
| Total>2, daughter>son | 30.3 | 478 | 46.4 | 308 | 19.1 | 225 |
| No children | 0.0 | 26 | 27.3 | 11 | -- | -- |
| **Sex composition of family** | | | **Women aged 40-49 years** | | | |
| One Son & one daughter | 9.1 | 22 | 16.7 | 6 | 0.0 | 1 |
| 1-2 son only | 5.9 | 17 | 0.0 | 4 | 0.0 | 3 |
| 1--2 daughter only | 3.6 | 28 | 0.0 | 1 | 0.0 | 3 |
| Total>2, son => daughter | 16.4 | 525 | 50.6 | 310 | 26.0 | 192 |
| Total>2, daughter>son | 14.3 | 342 | 44.7 | 217 | 19.1 | 115 |
| No children | 0.0 | 25 | 0.0 | 1 | 0.0 | 1 |
| **Sex composition of family** | | | **All Women** | | | |
| One son and one daughter | 25.2 | 464 | 37.7 | 236 | 12.8 | 125 |
| 1-2 son only | 16.6 | 777 | 32.6 | 325 | 8.4 | 178 |
| 1-2 daughter only | 11.7 | 684 | 24.8 | 266 | 4.8 | 166 |
| total>2 and son>=daughter | 26.3 | 1984 | 50.7 | 1182 | 25.0 | 725 |
| total>2 and daughter>son | 22.5 | 1329 | 42.9 | 714 | 18.6 | 456 |
| No children | 6.6 | 763 | 8.3 | 72 | 0.0 | 38 |

The current contraceptive use for both areas of Matlab for the year 1984 is also presented in Table 14.5a. Table 14.5a demonstrates a similar pattern of relationship between contraceptive use and sex composition of the family in both areas of Matlab as is demonstrated at the national level. Current contraceptive use is high among the same three types of sex composition of the family irrespective of women's age, a similar trend to the national level. These types are two from the women who have more than two living children, and one from women who has two living children, one of each sex, but the relative position of these three groups is different in the Matlab areas. In the intervention area, current contraceptive use is high among women who have more than two children, and the highest among women who have more than two children and more sons than daughters. The third largest contraceptive users are the women who have two children, one of each sex. This pattern holds true among all the age groups except for women aged 20-24 years. In this age group, the second largest group of current use are those who have one son and one daughter followed by those who have only one or two sons. But this change in contraceptive use pattern in this particular age group does not affect the overall pattern of current contraceptive use by sex composition of the family. Among the rest of the sex composition groups, contraceptive use is similar to that shown for the national rural data, that is, current contraceptive is high among women who have one or two sons and low among women who have daughters only.

In the control area, in 1984, the overall contraceptive use is lower than in both the national rural level and intervention area. In the control area, it is women who have the same types of sex composition of the family as in the other two areas who are the major current users of contraceptives. These relationships between current use of contraceptives and sex composition are true for all age groups except age group 30-39 years. The women of this age group behave like the women of age group 20-24 in the intervention area. In this age group, the current use of contraceptives is the highest among women who have more than two children and more sons than daughters, followed by those who have two living children, one of each sex. The third level of users is those who have one or two sons. However, very few women aged more than 29 years have less than two living children in both the intervention and control areas. Among them, those who have more than two living children, current use of contraceptives is high among women who have more sons than daughters. The table, thus, reveals a strong preference for son, or at least a balanced sex composition of the family , but not daughters only.

The current contraceptive use by sex composition of the family for the year 1996 for national data is presented in Table 14.5b. It shows that current contraceptive use has substantially increased among women of all ages and any sex composition of the family children but the proportional increase is largest among those women who have less than three living children. The features of earlier use trend by three types of sex composition of the family have deflated. Most of the young women of age less than 30 years who have less than two children are using contraceptives. The current contraceptive use among young women of age <20 years are similar among three types of sex composition comprising of two or less children but higher than the other two types which comprising children more than two. The pattern of use started changing with increasing age. Through out age 20-39 years, the highest current use is evident among women who have two children, one of each sex, followed by one or two sons only among the 20-29 years women. Among the women of 30-39 years, the second major current users are women who have more than two children and more sons than daughters, followed by the other groups of women who have more than two children. But the old pattern of relationship between current contraceptive use and sex composition of the family as revealed in 1983 exists among the older age group.

A change is also evident among the women who had more daughters than sons. This changing pattern of current contraceptive use by age and living children reflects in the overall level of current contraceptive use by sex composition of the family in 1996. The highest increase is evident among women who have one child of each sex. Twenty five percent of women with one child from each sex in 1983 were using contraceptives; the corresponding figure in 1996 is 64 percent, a 40 percent increase that is the highest increase in any single groups by sex composition. However, current contraceptive use among women with two or less sons or daughters has also increased substantially. The analysis of the two tables reveals that the highest changes occurred (40 %) among the women who have two children; one of each sex, and the lowest (26 %) is among the women who have less than three daughters only. In the intervention area, in 1994, there is a rapid increase in current contraceptive use is evident among all types of sex

**Table 14. 5b: Percentage distribution of women currently using contraceptives by sex composition of family and age of woman in national and two Matlab populations 1994/1996**

| | National -1996 | | Matlab -1994 | | | |
|---|---|---|---|---|---|---|
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Sex composition of family** | | | **Women aged<20 years** | | | |
| One Son & one daughter | 45.3 | 53 | 50.0 | 2 | 33.3 | 3 |
| 1-2 son only | 45.7 | 247 | 67.3 | 49 | 32.1 | 28 |
| 1--2 daughter only | 43.9 | 301 | 54.1 | 37 | 15.6 | 32 |
| Total>2, son => daughter | 33.3 | 3 | 0 | 0 | 0 | 0 |
| Total>2, daughter>son | 0 | 0 | 0 | 0 | 0 | 0 |
| No children | 22.0 | 405 | 13.6 | 66 | 10.3 | 68 |
| **Sex composition of family** | | | **Women aged 20- 24 years** | | | |
| One Son & one daughter | 58.6 | 261 | 66.7 | 36 | 52.6 | 38 |
| 1-2 son only | 53.1 | 356 | 47.7 | 65 | 29.7 | 64 |
| 1--2 daughter only | 45.8 | 273 | 54.7 | 64 | 28.8 | 52 |
| Total>2, son => daughter | 35.4 | 113 | 58.8 | 17 | 52.9 | 17 |
| Total>2, daughter>son | 42.4 | 118 | 45.5 | 11 | 31.3 | 16 |
| No children | 16.8 | 143 | 10.0 | 30 | 0.0 | 26 |
| **Sex composition of family** | | | **Women aged 25-29 years** | | | |
| One Son & one daughter | 65.4 | 243 | 67.4 | 46 | 52.2 | 23 |
| 1-2 son only | 60.9 | 215 | 63.2 | 38 | 33.3 | 21 |
| 1--2 daughter only | 44.8 | 165 | 67.7 | 31 | 30.0 | 20 |
| Total>2, son => daughter | 58.4 | 361 | 76.7 | 86 | 55.4 | 83 |
| Total>2, daughter>son | 53.8 | 316 | 50.8 | 61 | 37.1 | 70 |
| No children | 15.1 | 53 | 60.0 | 5 | 50.0 | 2 |
| **Sex composition of family** | | | **Women aged 30-39 years** | | | |
| One Son & one daughter | 75.3 | 178 | 60.0 | 30 | 40.0 | 5 |
| 1-2 son only | 60.2 | 118 | 50.0 | 20 | 63.6 | 11 |
| 1--2 daughter only | 38.0 | 79 | 28.6 | 7 | 33.3 | 6 |
| Total>2, son => daughter | 68.8 | 826 | 78.9 | 209 | 61.7 | 193 |
| Total>2, daughter>son | 65.6 | 573 | 80.9 | 131 | 47.4 | 95 |
| No children | 18.5 | 27 | 0 | 0 | 50.0 | 2 |
| **Sex composition of family** | | | **Women aged 40-49 years** | | | |
| One Son & one daughter | 53.1 | 32 | 83.3 | 6 | 0.0 | 2 |
| 1-2 son only | 45.0 | 20 | 100.0 | 1 | 0 | 0 |
| 1--2 daughter only | 41.2 | 17 | 50.0 | 2 | 0.0 | 2 |
| Total>2, son => daughter | 60.1 | 431 | 80.8 | 125 | 51.0 | 98 |
| Total>2, daughter>son | 60.2 | 256 | 79.4 | 63 | 42.6 | 47 |
| No children | 9.1 | 11 | 0.0 | 1 | | |
| **Sex composition of family** | | | **All Women** | | | |
| One son and one daughter | 63.5 | 767 | 65.8 | 120 | 49.3 | 71 |
| 1-2 son only | 53.7 | 956 | 57.2 | 173 | 33.9 | 124 |
| 1-2 daughter only | 44.1 | 835 | 56.0 | 141 | 25.0 | 112 |
| Total>2 and son>=daughter | 62.2 | 1734 | 78.3 | 437 | 57.3 | 391 |
| Total>2 and daughter>son | 59.4 | 1263 | 72.2 | 266 | 42.1 | 228 |
| No children | 19.9 | 639 | 14.7 | 102 | 9.2 | 98 |

composition of the family irrespective of women's age. Changes in current use of contraceptives by sex composition or number of children are evident among all age groups but not in the same direction. Among the younger age groups of age less than 20 years, the number of women who have more than two children is virtually nil, and very few have one son and one daughter. Current use of contraceptives of this group of women is very high among those who have a son only but a substantial proportion of women having daughters only are also using contraceptives. Among the prime age groups (20-24 years), women having two children, one of each sex, are the major users, followed by the women who have more sons than daughters. But current use is also substantial among women who have two or less children irrespective of the sex composition of the family . These changes are more obvious in the second prime age group (25-29 years). In this group, current use of contraceptives, although highest among women having more than two children and more sons than daughters, is also substantially high among women who have two or less children irrespective of sex composition of the family. Current use of contraceptives is also very high among the older women, age greater than 29 years who have more than two children irrespective of number of sons or daughters, and low among women having less than two children. The latter findings may fluctuate due to small number of cases in these groups who have less than two children.

In the control area in 1994, contraceptive use increased among all women irrespective of age and sex composition of the family but the rate of increase is largest among women who have two children of the same sex. Contraceptive use among the women who have one or two sons, for example, increased nearly four times (3.9 times) in the 1984 to 1994 period and is close to the rate of increase among the women who have one child of each sex. But the rate of increase in contraceptive use is even larger, more than 5 times (5.1 times), among the women who have one or two daughters. The pattern of current contraceptive use by sex composition and women's age is more like the pattern evident at the national level in 1983. However, like the intervention area, only a few women aged 30-39 years and very few aged more than 40 years in the control area have less than two living children. Despite all these changes, current contraceptive use is the lowest among women who have only daughters though the differences narrowed down.

The theory of education assumes that improvement in education level challenges cultural constraints of a society and thus education acts as an agent of change. The next two tables will examine the current contraceptive use by gender preferences controlled for education in the national and Matlab areas during the study period.

***Sex composition of the family: Mediating Effect of Women's Education.***

The current contraceptive use by sex composition of the family controlled for education in 1983/1984 is presented in Table 14.6a for the national rural and Matlab areas. The national data presented in the table demonstrates that women with more than two children have a higher rate of contraceptive use than those who have fewer children irrespective of level of education, but that there is a positive relationship between current contraceptive use and education among all groups of women having different sex composition of the family. All groups of women with secondary education having different sex composition of the family have a higher rate of contraceptive use than women in other education groups. The current contraceptive use, for example, is 24 and 21 percent among the two groups of illiterate women who have more than two children. The rates increases by 8 and 4 percentage points among the same types of sex composition of the family for women who have primary education and further increases to 20 and 12 percentage points among the same type of sex composition of the family for women who have secondary education. The same pattern holds for other types of sex composition of the family.

The current contraceptive use by sex composition of the family controlled for education in both areas of Matlab in 1984 is also presented in Table 14.6a. The Matlab data presented in the table demonstrates the same pattern as that for the national level, that is current contraceptive use is higher among women with more than two children than those who have less irrespective of level of education. But on the other hand, there is a positive relationship between current contraceptive

**Table 14.6a: Percentage distribution of women using contraceptives by sex composition of family and education of woman national level (rural) and two areas of Matlab, 1983/1984**

| Variables | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National --1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **Sex composition of family** | | | **Women Education: None** | | | |
| One Son & one daughter | 23.4 | 325 | 34.9 | 109 | 12.5 | 80 |
| 1-2 son only | 12.1 | 504 | 32.1 | 156 | 7.2 | 111 |
| 1--2 daughter only | 7.8 | 463 | 25.9 | 116 | 5.4 | 92 |
| Total>2, son => daughter | 23.5 | 1485 | 50.2 | 664 | 24.9 | 486 |
| Total>2, daughter>son | 20.9 | 952 | 37.4 | 401 | 18.2 | 280 |
| No children | 4.1 | 489 | 7.0 | 43 | 0.0 | 20 |
| **Sex composition of family** | | | **Education of woman:1-5 years** | | | |
| One Son & one daughter | 28.3 | 120 | 36.9 | 103 | 8.3 | 36 |
| 1-2 son only | 15.6 | 192 | 30.7 | 137 | 10.9 | 55 |
| 1--2 daughter only | 15.9 | 164 | 20.3 | 118 | 1.7 | 58 |
| Total>2, son => daughter | 31.6 | 430 | 50.2 | 442 | 22.0 | 214 |
| Total>2, daughter>son | 25.2 | 337 | 47.6 | 273 | 18.8 | 160 |
| No children | 5.6 | 213 | 12.5 | 24 | 0.0 | 13 |
| **Sex composition of family** | | | **Education of woman: 6 or more years** | | | |
| One Son & one daughter | 36.8 | 19 | 54.2 | 24 | 33.3 | 9 |
| 1-2 son only | 46.9 | 81 | 43.8 | 32 | 8.3 | 12 |
| 1--2 daughter only | 31.6 | 57 | 37.5 | 32 | 12.5 | 16 |
| Total>2, son => daughter | 52.2 | 69 | 57.9 | 76 | 52.0 | 25 |
| Total>2, daughter>son | 37.5 | 40 | 65.0 | 40 | 25.0 | 16 |
| No children | 29.5 | 61 | 0.0 | 5 | 0.0 | 5 |

use and education among all groups of women. In the intervention area, current contraceptive use among two groups of illiterate women who have more than two children, are 50 and 37 percent, 50 and 48 percent among the same two groups of women who have primary education. The figures increase to 57 and 65 percent among the same two groups who have secondary education. The same pattern is evident among all other categories of sex composition of the family In the Matlab control area, trends in current contraceptive use are the same as those in the Matlab intervention area or the national rural level, that is, high contraceptive use among women with a larger number of children and a positive relationship between these two groups and education. The current contraceptive use among the women who have one or two children is lower in the control area than at the national level or in the Matlab intervention area especially among those women who have daughters only.

The association between current contraceptive use and sex composition of the family controlled for education after a decade, that is, in 1996, is presented in

Table 14.6b. The table shows that the same trends of contraceptive use by sex composition controlled for education exists in 1996 as in 1983 that there has been a substantial increase in the use of contraceptives among the illiterate women and women with primary education especially those groups who have less than three children of the same sex.

**Table 14.6b: Percentage distribution of women using contraceptives by sex composition of children and women's education, national level (rural) and two areas of Matlab, 1994/1996.**

| | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab -1994 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 58.5 | 407 | 71.4 | 63 | 40.5 | 37 |
| 1-2 son only | 47.2 | 458 | 55.1 | 78 | 32.7 | 52 |
| 1--2 daughter only | 39.6 | 389 | 50.0 | 56 | 18.4 | 38 |
| Total>2, son => daughter | 58.6 | 1100 | 76.9 | 242 | 54.9 | 244 |
| Total>2, daughter>son | 56.1 | 782 | 73.4 | 158 | 41.4 | 140 |
| No children | 13.5 | 251 | 10.7 | 28 | 8.0 | 25 |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| One Son & one daughter | 67.6 | 222 | 59.4 | 32 | 60.0 | 20 |
| 1-2 son only | 61.4 | 290 | 60.3 | 58 | 38.8 | 49 |
| 1--2 daughter only | 42.4 | 269 | 55.1 | 49 | 25.0 | 32 |
| Total>2, son => daughter | 65.5 | 475 | 78.3 | 157 | 60.0 | 125 |
| Total>2, daughter>son | 63.2 | 367 | 68.7 | 83 | 43.4 | 76 |
| No children | 20.5 | 200 | 11.8 | 34 | 8.8 | 34 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| One Son & one daughter | 71.7 | 138 | 60.0 | 25 | 57.1 | 14 |
| 1-2 son only | 57.2 | 208 | 56.8 | 37 | 26.1 | 23 |
| 1--2 daughter only | 56.5 | 177 | 66.7 | 36 | 31.0 | 42 |
| Total>2, son => daughter | 77.4 | 159 | 86.8 | 38 | 68.2 | 22 |
| No children | 69.3 | 114 | 76.0 | 25 | 41.7 | 12 |
| Total>2, daughter>son | 27.7 | 188 | 20.0 | 40 | 10.3 | 39 |

In 1994, data for both areas of Matlab show that the current contraceptive use has substantially increased in both areas of Matlab in the 1984-1994 period among all groups of sex composition and for all levels of education but the change is greater among women who are illiterate or have primary education and less than two children. Among the two children sex composition groups, in terms of area, Matlab intervention has the highest rate of contraceptive use among all the sex composition categories in 1984 and 1994, but the percent change during 1984-1994 was plausibly lower while in the control area it was substantial.

**Table 14.7a: Percentage distribution of women currently using contraceptives by religion and education, national level (rural)and two areas of Matlab , 1983/1984**

| Variables | National -1983 | | Matlab -1984 | | | |
|---|---|---|---|---|---|---|
| | | | Intervention area | | Control | |
| | % | N | % | N | % | N |
| **Religion** | | | | | | |
| Muslim | 18.7 | 5298 | 40.9 | 2364 | 16.9 | 1500 |
| Hindus | 29.4 | 703 | 47.6 | 431 | 27.1 | 188 |
| **Education of woman: None** | | | | | | |
| Muslim | 16.5 | 3736 | 39.7 | 1200 | 16.7 | 910 |
| Hindus | 26.1 | 482 | 44.3 | 289 | 27.0 | 159 |
| **Education of woman : 1-5 years** | | | | | | |
| Muslim | 20.6 | 1293 | 40.8 | 985 | 15.5 | 509 |
| Hindus | 34.4 | 163 | 50.9 | 112 | 29.6 | 27 |
| **Education of woman: 5+ years** | | | | | | |
| Muslim | 39.8 | 269 | 49.7 | 179 | 28.4 | 81 |
| Hindus | 43.1 | 58 | 66.7 | 30 | 0.0 | 2 |

## 14.3.2 Religion and Religiosity

As noted in chapter 2, Bangladesh is basically a Muslim dominated society with 88 percent Muslim and rest mostly Hindus. Other groups are negligible. Thus, the level of current contraceptive use of Muslims and Hindus are presented in the Tables 14.7a and 14.7b. Table 14.7a presents the current contraceptive use by religion, and current contraceptive use by religion controlling for education of the three areas in 1983/1984. It shows that the current contraceptive use is high among the Hindus at the national level and in both areas of Matlab. The current contraceptive use is 19 percent among the Muslims compared to 29 percent among the Hindus at the national level. Similarly the current contraceptive use among Muslims is 41 percent in the intervention area, and 17 percent in the control area compared to 48 percent and 27 percent respectively among the Hindus. Although there is a positive relationship between current contraceptive use and religion by education, in all three areas, contraceptive use is higher among Hindus irrespective of level of education.

Table 14.7b presents current contraceptive use by religion, and current contraceptive use by religion controlling education, for the three areas in 1994/1996. In addition, a new variable, times prayed in a day by the women, is also presented in this table for national data, 1996. The table shows a similar trend in current contraceptive use by religion as revealed in 1983/84 for all three areas. However, the pattern has changed in relation to education and religion. While the national data maintained its earlier trends, it has changed in both areas of Matlab. The impact of education on contraceptive use by women of both religions has declined in the intervention area. In the control area, it has converted into a U shape pattern among women of both religions though the number of Hindu women with primary education and secondary education in the control area is small.

**Table 14.7b: Percentage distribution of women currently using contraceptives by religion and religious performance and education, national level (rural) and two areas of Matlab, 1994/1996.**

| | National-1996 | | Matlab-1994 | | | |
|---|---|---|---|---|---|---|
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Religion** | | | | | | |
| Muslim | 52.5 | 5497 | 64.1 | 1037 | 41.8 | 919 |
| Hindus | 63.1 | 697 | 69.8 | 202 | 47.6 | 105 |
| **Times prayed a day** | | | | | | |
| Non faith | 63.0 | 698 | 0.0 | 0 | 0.0 | 0 |
| 0-2 | 48.6 | 1586 | 0.0 | 0 | 0.0 | 0 |
| 2+ | 54.0 | 3910 | 0.0 | 0 | 0.0 | 0 |
| **Religion** | | | **Education of woman: None** | | | |
| Muslim | 50.1 | 3056 | 66.9 | 504 | 42.3 | 452 |
| Hindus | 59.2 | 331 | 69.4 | 121 | 50.0 | 84 |
| | | | **Education of woman: 1-5 years** | | | |
| Muslim | 55.1 | 1623 | 63.2 | 364 | 45.2 | 321 |
| Hindus | 66.0 | 200 | 71.4 | 49 | 33.3 | 15 |
| | | | **Education of woman: 6 or more years** | | | |
| Muslim | 56.2 | 818 | 58.0 | 169 | 32.9 | 146 |
| Hindus | 67.5 | 166 | 68.8 | 32 | 50.0 | 6 |
| **Times prayed a day** | | | **Education of woman: None** | | | |
| Non faith | 59.2 | 331 | 0.0 | 0 | 0.0 | 0 |
| 0-2 | 48.1 | 1105 | 0.0 | 0 | 0.0 | 0 |
| 2+ | 51.2 | 1951 | 0.0 | 0 | 0.0 | 0 |
| | | | **Education of woman: 1-5 years** | | | |
| Non faith | 65.7 | 201 | 0.0 | 0 | 0.0 | 0 |
| 0-2 | 50.1 | 345 | 0.0 | 0 | 0.0 | 0 |
| 2+ | 56.5 | 1277 | 0.0 | 0 | 0.0 | 0 |
| | | | **Education of woman: 6 or more years** | | | |
| Non faith | 67.5 | 166 | 0.0 | 0 | 0.0 | 0 |
| 0-2 | 49.3 | 136 | 0.0 | 0 | 0.0 | 0 |
| 2+ | 57.6 | 682 | 0.0 | 0 | 0.0 | 0 |

Data on number of times prayed a day collected in the national survey in 1996 showed that Hindus (non faith in Islam) have a higher rate of contraceptive use than those who have faith in Islam. Among the Muslims (Have faith in Islam), those who prayed more than twice a day have a higher rate of contraceptive use than those who prayed less than three times a day indicating religious conservatism is not playing a dominant role in trends in current contraceptive use. The same trends reveal when current contraceptive use by number of times prayed in a day is controlled for education.

### 14.3.3 Summary

Contraceptive use substantially increased at the national level and both areas of Matlab during the study period. The comparison of contraceptive use in the three areas by gender preferences in 1983/1984 demonstrates the effect of age and living children or sons. The difference in current contraceptive use by women's age and living children structures affects the overall level of current use of contraceptives. The current use of contraceptives overall is highest among those women who have more than two children and have a large number of sons. However, those who are older and have a large number of children are also substantial users in all the three areas. At the national level, the second highest current users of contraceptives appear to be those who have two children, one of each sex. But the difference in current use of contraceptives between those who have more than two children where there were more sons than daughters and those who have two children one of each sex is not large. In 1996, this small difference in current contraceptive use between these two groups is reversed signifying that women are rapidly moving towards a two children family with balanced sex composition.

In two areas of Matlab in 1984, the highest current contraceptive use manifests among women who have more than two living children and more sons than daughters, the next highest current use is among women who have more than two living children. During the study period, as mentioned earlier, current contraceptive use by sex composition changed in all three areas, especially among the young women and women who have less than three children. Despite these changes, in contrast to the national level, the highest current use of contraceptives appears among women who have more than two children and more sons than daughters for both areas of Matlab, followed by the other women group who have more than two children (more daughter than sons) in the intervention area. In the control area, however, it is the women who have two children, one of each sex who emerges as the second highest users. In general, the current contraceptive use is greater among all the categories of sex composition of the family in the intervention area than in the other two. An analysis of the relationship between current contraceptive use and sex composition of the family by age, education, and examination of changes over time illustrates that the women of both areas of Matlab wanted a larger number of children than the women at the national level and that son preference is strong in all the three areas but stronger in both areas of Matlab though this trend appears to be changing slowly.

The Hindus has always higher level of contraceptive use then Muslims. Among the Muslims, however, there is no difference in current contraceptive use between those who performed religious ritual more vigorously than those who performed less vigorously.

### 14.4 Conclusion

This chapter has shown the association between current contraceptive use and social factor, education and cultural factors (sex composition of the family, religion) and their changing role in the rise of current contraceptive use during the study period. The national rural and Matlab data reveal that differentials in current contraceptive use by education, especially the secondary education of women, is substantial and paramount in the early stage of contraceptive prevalence but decreases with increasing contraceptive prevalence. All three areas, national rural, Matlab intervention, and Matlab control areas have the same positive relationship between women education and current contraceptive use in 1983/1984. This positive relationship is stronger at the national level and in the control area than in the Matlab intervention area in 1983/1984. In 1996, the relationship between women's education and current contraceptive use is still positive but less strong than in1983 at the national level. Within Matlab the current contraceptive use by education of women in both areas in 1994 is reversed, indicating that demand for contraceptives is overwhelming irrespective of the level of education.

The impact of primary education on current contraceptive is less evident in 1983/1984. The current contraceptive use among young and illiterate, however, has been increased rapidly during the study period. This rise in contraceptive use among young illiterates at the later stage of the study period signifies that in rural society of Bangladesh, educated women started using contraceptives first and the uneducated followed their educated compatriots. This finding fully coincides with the other studies conducted on the fertility transition of other third world countries of the Asia (Bhat 1997; Knodel et al. 1987). The role of education on fertility and current contraceptive use is well recognized in the literature and discussed in the earlier chapters. The education may have two roles one on the women themselves and other through defusing their ideas on others (Nahar et al. 1995).

It is surprising why the positive relationship between current contraceptive use and women education evident in the 1984 surveys in Matlab reversed in 1994. While the reduction of the impact of education at Matlab intervention area has a plausible explanation, the same trend in contraceptive use by education among the women in the control area in the absence of any efficient family planning programme is confusing. One explanation, as chapter four reveals is that the increase in high education among women is a recent phenomenon and therefore, high educated men and women are marrying later and are still in the family building process.

The same pattern of relationship between current contraceptive use and husbands education is appears as for women education in 1983-1996. In a closed patriarchal society, the role of the patriarch in the light of reproductive decision-making was discussed in chapter four. The evidence of the present chapter reconfirms the link between education of household's heads and women's reproductive behaviour. The household head's education shows a consistent positive relationship with women's current contraceptive use in 1984 but its impact has reduced in 1994.

The second factor illustrated in this chapter is the sex composition of the family. The early data from all three areas clearly demonstrate strong preferences for sons and for a large number of living children. In all the three areas, women who have large number of living children started using contraceptives and women who had more sons than daughters were the pioneers. However, the analysis also reveals that a certain number of women in all these three areas are wanting a boy and a girl, not a large number of children. However, there is still a large number of women who had either one or two boys or girls who were not using contraceptives in 1983/1984.

During the study period, that is, 1983-1996, a radical change is evident in the current contraceptive use by sex composition of the family. A substantial number of women from all the three areas who have less than three children started using contraceptives. Among them, contraceptive use is the highest among those who have one child of each sex; the rate of use of contraceptives among them comes closer to the rate of those women who have a large number of living children. The use of contraceptives also increased substantially among the women who have one or two children of the same sex, and the proportion increase in contraceptive use is larger among them during the study period. This finding reconfirms the findings of the earlier studies that the overall number of desired children had reduced in this population. The analysis also reveals that the educated women started using contraceptives with lower number of living children or children from the same sex. Later, during the study period, the proportion of women using contraceptives substantially increased among the illiterate women and women with primary education who had one or two living children from the same sex. In the earlier period, most women wanted two sons and a daughter (Bairagi 2001). Fertility analysts at that time were doubtful about the potential for further fertility decline in Bangladesh with such a combination of wanted children. But similar to experience of Taiwan, women in Bangladesh despite having a strong preference for son started using contraceptives and in time the number of wanted sons has reduced. The evidence of the present chapter is that women wanted a balanced sex composition of the family, that is a boy and a girl, but even if they did not have it using contraceptives too.

Sociological theories linking son preference with high fertility claim that high fertility arising out of son preference originates from the strong patriarchal culture of the South and South East Asian societies. In Bangladesh, it seems that the strong patriarchal culture initially constrains the current use contraceptives, but the attitude of the women changed over during the study period as was happened in Taiwanese society during their fertility transition.

Finally, the Hindus have higher contraceptive use than Muslims in all the three areas irrespective of education during the whole study period. As noted earlier that because of large volume, other cultural aspects, that is, spousal communication, and women autonomy and empowerment and its association with current contraceptive use will be discussed in the next chapter.

# Chapter 15: Social and Cultural Change and Current Contraceptive Use II

## 15.1 Introduction

Spousal communication is an important factor in the reproductive decision-making process irrespective of social structure or degree of development, where society is patriarchal. Spousal communication, in a traditional patriarchal society is modest. Bangladesh is a traditional patriarchal society, but recent data suggests that communication between spouses is common in Bangladesh rural society. The proportion of women who discussed family planning matters with their husband is one of the highest in 1996 (population report 1998). The effect of spousal communication on reproductive behaviour, especially on the demand for additional children, was examined in chapter 11. The analysis of the effect of spousal communication on current contraceptive use is more important than examining its effect on the formation of demand for additional children because while the latter is an attitude the former is an action to fertility control.

This chapter will examine the bivariate relationship between spousal communication and current contraceptive use. Like Chapter 11, three types of information will be used to explore the relationship between spousal communication and current contraceptive use, The first is discussion of family planning matters with husband; the second, women's perception of their husband's family planning approval; and the third, women's perception of agreed number of expected children with husband. The data on spousal communication is scanty. National surveys collected it only in 1996. In Matlab, however, information has been collected in both surveys. In this section, the discussion on spousal communication during the early eighties will be discussed based on Matlab data, and for the nineties, it will be based on both national rural and Matlab data.

## 15.2 Spousal Communication and Current Contraceptive use

***Discussion of Family Planning Matters between Spouses***

Tables 15.1a and 15.1b present current contraceptive use by spousal discussion of family planning matters by education of women and age in two areas of Matlab in 1984, and in three areas in the 1994/96 period. As the current contraceptive use by spousal communication information was not available for the year 1983 in the national rural area, Table 15.1b presents the current contraceptive use by spousal discussion about family planning by women's education and age in three areas in 1994/96.

The National rural data for 1996 (Table-15.1b) shows a substantially higher current use of contraceptives among women who discussed family planning with their husbands, irrespective of their level of education or age. The table has been constructed controlling for education and age of women. It shows that the relationships between current contraceptive use and spousal communication vary with varying levels of education and age of women. Current contraceptive use shows a linear positive relationship with women age and education, among women who have discussed family planning with husbands. In each education group, a clear positive relationship between current use of contraceptives and age is evident among the women who said they discussed family planning with their husband. However, when age is controlled, relationship between current contraceptive use and education is less evident than with age among the same group of women, who reported to have discussed family planning with husbands. For example, current contraceptive use among illiterate women of age 30-39 years who reported to have discussed family planning with their husbands is 79 percent. This increased by 7 percentage points among the same age group who had primary education and by a further 6 percentage points among women who had secondary education. The same trend is seen among all other age groups who discussed family planning with their husbands. Among women not discussing family planning matters with their husbands, the same relationship between current contraceptive use, women's education and age is evident. There is a positive relationship between current contraceptive use and women's age in each education group. The positive relationship between current contraceptive use and education seems to be quite strong among the women who did not discuss family planning matters with their husbands especially among the older women with

**Table 15.1a: Percentage distribution of women currently using contraceptives by spousal communication: discussion of family planning with husband, women's education and age, national level (rural) and both areas of Matlab, 1983/1984**

| Variables | Discussed FP with Husband | Current Contraceptive use | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1983 | | Matlab -1984 | | | |
| | | | | Intervention area | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | | | **Education of women: None** | | | |
| <20 | Yes | -- | -- | 38.9 | 36 | 0.0 | 17 |
| | No | -- | -- | 0.0 | 7 | 0.0 | 23 |
| 20-24 | Yes | -- | -- | 34.4 | 241 | 8.9 | 112 |
| | No | -- | -- | 8.8 | 34 | 0.0 | 63 |
| 25-29 | Yes | -- | -- | 33.3 | 252 | 23.5 | 170 |
| | No | -- | -- | 20.7 | 29 | 4.0 | 50 |
| 30-39 | Yes | -- | -- | 48.2 | 485 | 27.1 | 303 |
| | No | -- | -- | 22.4 | 49 | 8.2 | 97 |
| 40-49 | Yes | -- | -- | 50.8 | 311 | 29.8 | 151 |
| | No | -- | -- | 24.4 | 45 | 9.6 | 83 |
| **Age of woman** | | | | **Education of women::1-5 yrs** | | | |
| <20 | Yes | -- | -- | 34.1 | 44 | 18.2 | 11 |
| | No | -- | -- | 66.7 | 3 | 0.0 | 10 |
| 20-24 | Yes | -- | -- | 32.2 | 233 | 10.2 | 88 |
| | No | -- | -- | 6.5 | 46 | 0.0 | 40 |
| 25-29 | Yes | -- | -- | 43.6 | 204 | 17.0 | 88 |
| | No | -- | -- | 25.0 | 12 | 0.0 | 18 |
| 30-39 | Yes | -- | -- | 53.2 | 357 | 24.8 | 165 |
| | No | -- | -- | 21.2 | 33 | 5.1 | 39 |
| 40-49 | Yes | -- | -- | 49.3 | 140 | 30.4 | 56 |
| | No | -- | -- | 24.0 | 25 | 4.8 | 21 |
| **Age of woman** | | | | **Education of women:: 6 or more years** | | | |
| <20 | Yes | -- | -- | 50.0 | 4 | 33.3 | 3 |
| | No | -- | -- | 0.0 | 3 | 0.0 | 0 |
| 20-24 | Yes | -- | -- | 41.8 | 67 | 21.7 | 23 |
| | No | -- | -- | 33.3 | 6 | 0.0 | 10 |
| 25-29 | Yes | -- | -- | 56.0 | 50 | 42.9 | 14 |
| | No | -- | -- | 0.0 | 3 | 0.0 | 6 |
| 30-39 | Yes | -- | -- | 68.5 | 54 | 50.0 | 20 |
| | No | -- | -- | 25.0 | 4 | 0.0 | 3 |
| 40-49 | Yes | -- | -- | 61.1 | 18 | 33.3 | 3 |
| | No | -- | -- | 0 | 0 | 0.0 | 1 |
| **Age of woman** | | | | **All women** | | | |
| <19 | Yes | -- | -- | 36.9 | 84 | 9.7 | 31 |
| <19 | No | -- | -- | 15.4 | 13 | 0.0 | 33 |
| 20-24 | Yes | -- | -- | 34.4 | 541 | 10.8 | 223 |
| 20-24 | No | -- | -- | 9.3 | 86 | 0.0 | 113 |
| 25-29 | Yes | -- | -- | 39.7 | 506 | 22.4 | 272 |
| 25-29 | No | -- | -- | 20.5 | 44 | 2.7 | 74 |
| 30-39 | Yes | -- | -- | 51.5 | 896 | 27.3 | 488 |
| 30-39 | No | -- | -- | 22.1 | 86 | 7.2 | 139 |
| 40-49 | Yes | -- | -- | 50.7 | 469 | 30.0 | 210 |
| 40-49 | No | -- | -- | 24.3 | 70 | 8.6 | 105 |

Table continued

**Table 15.1a: (cont.) Percentage distribution of women currently using contraceptives by Spousal communication: discussion of family planning with husband, women's Education and age, national level (rural) and both areas of Matlab, 1983/1984**

| Variables | Discussed FP with Husband | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1983 | | Matlab -1984 | | | |
| | | | | Intervention area | | Control | |
| | | % | N | % | N | % | N |
| **Education of woman** | | | | | | | |
| None | Yes | -- | -- | 42.3 | 1325 | 23.5 | 753 |
| None | No | -- | -- | 18.9 | 164 | 5.7 | 316 |
| 1-5 years | Yes | -- | -- | 44.8 | 978 | 18.2 | 408 |
| 1-5 years | No | -- | -- | 17.6 | 119 | 2.3 | 128 |
| 6 or more | Yes | -- | -- | 54.9 | 193 | 36.5 | 63 |
| 6 or more | No | -- | -- | 18.8 | 16 | 0.0 | 20 |
| **Discussed FP** | Yes | -- | -- | 44.8 | 2496 | 23.2 | 1224 |
| **With Husband** | No | -- | -- | 18.4 | 299 | 4.5 | 464 |

"—" indicates data not available

secondary education. For example, current contraceptive use among the illiterate women, aged 30-39 years, who did not discuss family planning with their husbands is 35.1 percent, rising by only 6 percentage points among the same age group possessing primary education, but in comparison, contraceptive use rises by 20 percentage points among women of the same age group who have secondary education.

Table 15.1a shows current contraceptive use by spousal discussion about family planning by women education and age in two areas of Matlab in 1984. The table reveals that in both areas of Matlab, current contraceptive use is high among women, irrespective of their level of education or age, who reported as having discussed family planning matters with their husband. The effect of women's discussion of family planning matters with their husbands on current contraceptive use has been examined by controlling the effect of education and age. In general, education and age of women have independent relationships with current contraceptive use of women. The relationship between age of women and current contraceptive use is different at varying levels of education among the women who reported to have discussed family planning with their husbands. Table 15.1a reveals a partial J shape relationship between current contraceptive use and age of illiterate women, but the relationship turns into a J shape among women with primary or secondary education. Among the young (<20 years) illiterate, current contraceptive use is slightly high but declines between the two immediate higher age groups and then rises with age, while in the two other groups (30-39 and 40-49 year), the graph is bent at the end. Within women's age, a U shape relationship between current contraceptive use and education is evident among the young women of <24 years while for a positive relationship between current contraceptive use and education is evident for older women.

Among the women who had not discussed family planning matters with their husband, current contraceptive use shows a positive relationship with age irrespective of level of education. A similar trend is found among the three education groups irrespective of age in the intervention area, but the number of women with secondary education who did not discuss family planning with husbands was small.

In the control area, in 1984, current contraceptive use shows a positive linear relationship with age among the illiterate women who reported that they discussed family planning with their husbands, but it turns into a partial J distribution among the women who had primary education, and a J shape distribution among women with secondary education. Within the same age group of women who discuss family planning matters with the husband, a positive relationship between current contraceptive use and education was evident among the young women of <24 years while a U shape relationship between current contraceptive use and education is evident among older women. The overall current contraceptive use in the control area was very low and the current contraceptive use among women who did not discuss family planning with their husbands was even lower. In most cases, women who did not discuss family planning with their husbands were not contracepting. The Table also shows that the women who did not discuss family planning but used contraceptives were the older women. In the control area, the number of higher educated (secondary) women was small and the number of higher educated women did not discuss family planning with husband was also small.

In 1994, in the intervention area, table 15.1b shows that current contraceptive use among women who had discussed family planning with their husband had strong relationship with age and a weak relationship with education. Within the education groups, current contraceptive use had a J shape relationship with age of illiterate women but deflated at the older age. Among the women with primary and secondary education, it showed a linear positive relationship with age. Within the age groups, no uniform relationship between current contraceptive use and education is apparent. At the younger age group, (age <20 and 20-24 years), there is a U or inverted U relationship between current contraceptives and education, but a strong positive relationship among the women aged 24-29 years. The effect of education deflates among women in the 30-39 age group years and a weak positive relationship between education and current use is evident among women aged 40-49 years.

A significant change in current contraceptive use was apparent among the women who did not discuss family planning with their husbands in the intervention area in 1994. Current contraceptive use had significantly increased among illiterate women or women with primary education who did not discuss family planning with their husbands. In some age groups, current contraceptive use was even higher (illiterate women of age 25-29 years), or similar to the women who discussed family planning with their husbands. Within education groups, current contraceptive use showed a linear positive relationship with age among the illiterate women, but a J shape relationship with women who had primary education. An unstable relationship between current contraceptive use and secondary education can be seen among women who did not discuss family planning with their husbands. This may be due to the fact that there are few women in the higher education groups.

A similar trend in contraceptive use to that observed in the national rural or intervention areas appeared in the control area, in 1994 among the women who discussed family planning with their husbands irrespective of the woman's level of education or age. When the effect of women's discussion of family planning with their husbands on current contraceptive use is separated from the age of women and education, the table reveals that both education and age have an independent effect on current contraceptive use. When education is controlled, current contraceptive use shows a linear positive relationship with age irrespective of the level of education but the relationship flattens at the older age. When women's age is controlled, the education of women does not show a consistent

**Table 15.1b: Percentage distribution of women currently using contraceptives by spousal communication: discussion of family planning with husband, women's education and age, national level (rural) and both areas of Matlab, 1994/1996**

| Variables | Discussed FP with Husband | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | **Education of woman:: None** | | | | | |
| <20 | Yes | 46.2 | 197 | 56.8 | 44 | 30.8 | 26 |
| | No | 14.4 | 216 | 23.1 | 13 | 0.0 | 13 |
| 20-24 | Yes | 57.1 | 350 | 50.0 | 72 | 37.3 | 67 |
| | No | 20.1 | 283 | 42.3 | 26 | 11.8 | 17 |
| 25-29 | Yes | 69.3 | 466 | 59.0 | 100 | 45.2 | 93 |
| | No | 25.4 | 299 | 66.7 | 27 | 23.1 | 26 |
| 30-39 | Yes | 79.7 | 615 | 80.8 | 146 | 64.5 | 107 |
| | No | 35.1 | 424 | 68.1 | 72 | 40.7 | 86 |
| 40-49 | Yes | 91.9 | 258 | 81.0 | 63 | 63.6 | 33 |
| | No | 25.8 | 279 | 82.3 | 62 | 36.8 | 68 |
| **Age of woman** | | **Education of woman: 1-5 yrs** | | | | | |
| <20 | Yes | 53.2 | 222 | 42.6 | 47 | 26.3 | 38 |
| | No | 14.1 | 149 | 18.2 | 11 | 0.0 | 11 |
| 20-24 | Yes | 68.0 | 222 | 57.1 | 56 | 37.9 | 66 |
| | No | 30.4 | 158 | 15.4 | 13 | 9.1 | 11 |
| 25-29 | Yes | 74.9 | 231 | 77.1 | 83 | 54.1 | 61 |
| | No | 37.0 | 146 | 36.8 | 19 | 20.0 | 10 |
| 30-39 | Yes | 86.2 | 319 | 79.3 | 87 | 62.1 | 58 |
| | No | 41.5 | 193 | 62.9 | 35 | 61.1 | 36 |
| 40-49 | Yes | 88.0 | 92 | 84.1 | 44 | 66.7 | 24 |
| | No | 27.5 | 91 | 55.6 | 18 | 23.8 | 21 |
| **Age of woman** | | **Education of woman: 6 or more years** | | | | | |
| <20 | Yes | 57.8 | 147 | 43.3 | 30 | 11.8 | 34 |
| | No | 16.7 | 78 | 0.0 | 9 | 0.0 | 9 |
| 20-24 | Yes | 64.0 | 161 | 54.2 | 48 | 37.5 | 40 |
| | No | 24.4 | 90 | 12.5 | 8 | 0.0 | 12 |
| 25-29 | Yes | 76.8 | 142 | 84.8 | 33 | 63.2 | 19 |
| | No | 26.1 | 69 | 0.0 | 5 | 30.0 | 10 |
| 30-39 | Yes | 85.5 | 172 | 80.8 | 52 | 57.9 | 19 |
| | No | 55.1 | 78 | 20.0 | 5 | 50.0 | 6 |
| 40-49 | Yes | 75.0 | 28 | 88.9 | 9 | 100.0 | 2 |
| | No | 57.9 | 19 | 50.0 | 2 | 100.0 | 1 |
| **Age of woman** | | **ALL women** | | | | | |
| <19 | Yes | 51.9 | 566 | 47.9 | 121 | 22.4 | 98 |
| <19 | No | 14.7 | 443 | 15.2 | 33 | 0.0 | 33 |
| 20-24 | Yes | 61.9 | 733 | 53.4 | 176 | 37.6 | 173 |
| 20-24 | No | 23.9 | 531 | 29.8 | 47 | 7.5 | 40 |
| 25-29 | Yes | 72.1 | 839 | 69.9 | 216 | 50.3 | 173 |
| 25-29 | No | 28.8 | 514 | 49.0 | 51 | 23.9 | 46 |
| 30-39 | Yes | 82.5 | 1106 | 80.4 | 285 | 63.0 | 184 |
| 30-39 | No | 39.1 | 695 | 64.3 | 112 | 46.9 | 128 |
| 40-49 | Yes | 89.7 | 378 | 82.8 | 116 | 66.1 | 59 |
| 40-49 | No | 27.8 | 389 | 75.6 | 82 | 34.4 | 90 |

Table continued

**Table 15.1b (Cont.): Percentage distribution of women currently using contraceptives by spousal communication: discussion of family planning with husband, women's education and age, national level (rural) and both areas of Matlab, 1994/1996.**

| Variables | Discussed FP with Husband | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Education of woman** | | | | | | | |
| None | Yes | 71.1 | 1886 | 68 | 425 | 50.6 | 326 |
| None | No | 25.6 | 1501 | 66 | 200 | 32.4 | 210 |
| 1-5 years | Yes | 73.5 | 1086 | 70 | 317 | 48.6 | 247 |
| 1-5 years | No | 30.9 | 737 | 44 | 96 | 33.7 | 89 |
| 6 or more | Yes | 71.5 | 650 | 68 | 172 | 38.6 | 114 |
| 6 or more | No | 32.0 | 334 | 10.3 | 29 | 18.4 | 38 |
| All | Yes | 71.9 | 3622 | 68.7 | 914 | 47.9 | 687 |
| | No | 28.0 | 2572 | 54.8 | 325 | 31.2 | 337 |

pattern of relationship with current contraceptive use among the women who discussed family planning with their husbands. Among young women aged <20 years and older women of age >30 years contraceptive use shows an inverse relationship with education. No trend was apparent among women aged 20-24 years, and a strong positive linear relationship between current contraceptive use and education was apparent among women aged 25-29 years. Among the women who did not discuss family planning with their husbands, when education is controlled, women's age and current contraceptive use shows a J shape distribution irrespective of education But when age is controlled, no consistent relationship between education and current contraceptive use is evident. None of the young, age group <20 years who did not discuss family planning were using contraceptives irrespective of level of education. An inverse relationship between education and current contraceptive use manifests among women of aged 20-24 and 40 and above year women. The only consistent positive relationship between current contraceptive use and education manifests among women of age 30-39 years.

All three areas show that the effect of spousal communication has a strong impact on current contraceptive use irrespective of the level of education and age. The strong effect of the age of women on current contraceptive use is also evident when education and women's discussion of family planning with husbands is controlled, but the effect of education is less evident and rather deflated in the period, 1983-1996. During the study period, there has been a silent change in the relationship between spousal discussions of family planning and current contraceptive use. A high proportion of women who did not discuss family planning with their husbands are using contraceptives in all the three areas. This trend is more evident in the intervention area, especially among the old illiterate women, followed by the control area.

***Women's Perception of Their Husbands' Approval of the Family Planning Programme***

Tables 15.2a and 15.2b present the current contraceptive use by perception of women of their husband's approval of the family planning programme controlled for education and age in two areas of Matlab in 1984 and three areas in 1994/96. As stated earlier, spousal communication information is not available in the national data for 1983, Table 15.2a presents the bivariate distribution of current contraceptive use by women's perception of their husband's approval of family planning, age and education in both areas of Matlab in 1984. It reveals that current contraceptive use has a strong positive relationship with the perception of women of their husband's approval of family planning. The relationship is stronger in the control area than in the intervention area.

In the intervention area, when education is controlled, current contraceptive use shows an unsteady positive relationship with age among the illiterate women and women with secondary education, but J shape relationship among women with primary education among those who think their husband approve of family planning. In contrast, when women's age is controlled, current contraceptive use shows an inverse relation with education among the young women of age <20 years and a U shape relationship with education among women of age 20-24 years. The rest of the age groups show a positive relationship between current contraceptive use and education, though the relationship is flat between illiterate and primary education among the women aged 40-49 years.

Among the women who think their husband disapproves of family planning, the overall current contraceptive use is low. When education is controlled, age shows no clear-cut pattern of relationship with current contraceptive use. There is

**Table 15.2a: Percentage distribution of women currently using contraceptives by spousal communication: women's perception of her husband approval of family planning, by women's education and age, national level (rural) and both areas of Matlab, 1983/1984.**

| Variables | Husband approved FP | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1983 | | Matlab -1984 | | | |
| | | | | Intervention area | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | | | **Education of woman: None** | | | |
| <20 | Yes | -- | -- | 50.0 | 20 | 0.0 | 34 |
| | No | -- | -- | 17.4 | 23 | 0.0 | 6 |
| 20-24 | Yes | -- | -- | 40.6 | 160 | 8.0 | 113 |
| | No | -- | -- | 18.3 | 115 | 1.6 | 62 |
| 25-29 | Yes | -- | -- | 43.9 | 155 | 27.7 | 130 |
| | No | -- | -- | 17.5 | 126 | 6.7 | 90 |
| 30-39 | Yes | -- | -- | 57.0 | 307 | 33.0 | 230 |
| | No | -- | -- | 30.8 | 227 | 8.2 | 170 |
| 40-49 | Yes | -- | -- | 59.5 | 220 | 31.8 | 148 |
| | No | -- | -- | 27.9 | 136 | 7.0 | 86 |
| **Age of woman** | | | | **Education of woman: 1-5 yrs** | | | |
| <20 | Yes | -- | -- | 43.5 | 23 | 11.1 | 18 |
| | No | -- | -- | 29.2 | 24 | 0.0 | 3 |
| 20-24 | Yes | -- | -- | 29.2 | 185 | 10.3 | 87 |
| | No | -- | -- | 25.5 | 94 | 0.0 | 41 |
| 25-29 | Yes | -- | -- | 55.5 | 128 | 21.2 | 66 |
| | No | -- | -- | 23.9 | 88 | 2.5 | 40 |
| 30-39 | Yes | -- | -- | 64.9 | 228 | 31.1 | 119 |
| | No | -- | -- | 30.2 | 162 | 7.1 | 85 |
| 40-49 | Yes | -- | -- | 60.8 | 102 | 31.5 | 54 |
| | No | -- | -- | 20.6 | 63 | 4.3 | 23 |
| **Age of woman** | | | | **Education of woman: 6 or more years** | | | |
| <20 | Yes | -- | -- | 28.6 | 7 | 33.3 | 3 |
| | No | -- | -- | | | 0 | 0 |
| 20-24 | Yes | -- | -- | 44.2 | 52 | 16.7 | 30 |
| | No | -- | -- | 33.3 | 21 | 0.0 | 3 |
| 25-29 | Yes | -- | -- | 65.0 | 40 | 35.3 | 17 |
| | No | -- | -- | 15.4 | 13 | 0.0 | 3 |
| 30-39 | Yes | -- | -- | 73.8 | 42 | 50.0 | 18 |
| | No | -- | -- | 43.8 | 16 | 20.0 | 5 |
| 40-49 | Yes | -- | -- | 72.7 | 11 | 33.3 | 3 |
| | No | -- | -- | 42.9 | 7 | 0.0 | 1 |
| **Age of woman** | | | | **ALL** | | | |
| <19 | Yes | -- | -- | 44.0 | 50 | 5.5 | 55 |
| <19 | No | -- | -- | 23.4 | 47 | 0.0 | 9 |
| 20-24 | Yes | -- | -- | 35.8 | 397 | 10.0 | 230 |
| 20-24 | No | -- | -- | 22.6 | 230 | 0.9 | 106 |
| 25-29 | Yes | -- | -- | 51.1 | 323 | 26.3 | 213 |
| 25-29 | No | -- | -- | 19.8 | 227 | 5.3 | 133 |
| 30-39 | Yes | -- | -- | 61.4 | 577 | 33.2 | 367 |
| 30-39 | No | -- | -- | 31.1 | 405 | 8.1 | 260 |
| 40-49 | Yes | -- | -- | 60.4 | 333 | 31.7 | 205 |
| 40-49 | No | -- | -- | 26.2 | 206 | 6.4 | 110 |

**Table 15.2a (Cont.): Percentage distribution of women currently using contraceptives by spousal communication: women's perception of her husband approval of family planning, by women's education and age, national level (rural) and both areas of Matlab, 1983/1984.**

| Variables | Husband approved FP | National -1983 | | Matlab -1984 | | | |
|---|---|---|---|---|---|---|---|
| | | | | Intervention area | | Control | |
| | | % | N | % | N | % | N |
| **Education of woman** | | | | | | | |
| None | Yes | -- | -- | 52.1 | 862 | 25.6 | 655 |
| None | No | -- | -- | 24.7 | 627 | 6.5 | 414 |
| 1-5 years | Yes | -- | -- | 51.8 | 666 | 23.0 | 344 |
| 1-5 years | No | -- | -- | 26.2 | 431 | 4.2 | 192 |
| 6 or more | Yes | -- | -- | 59.2 | 152 | 31.0 | 71 |
| 6 or more | No | -- | -- | 33.3 | 57 | 8.3 | 12 |
| **Husband** | Yes | -- | -- | 52.6 | 1680 | 25.1 | 1070 |
| **approval** | No | -- | -- | 25.8 | 1115 | 5.8 | 618 |

"—" indicate no data available

virtually no difference in current contraceptive use among illiterate women aged less than 30 years but an inverse relationship is evident among this age group of women if they have primary or secondary education. However, current contraceptive use rises among women aged more than 29 years irrespective of the level of education. When age is controlled, current contraceptive use shows a positive relationship with education among the women aged <25 years but becomes an inverted U relationship among the women aged 25-29 years, and a U relationship among the other groups.

In the control area, in 1984, although the overall current contraceptive use is very low, there is a substantial difference in current contraceptive use between those who think their husband approves of family planning and those who think their husband disapproves of it. Current contraceptive use among the women who think their husband approves of family planning has a positive relationship with age when education is controlled. However, the number of women with secondary education in the control area is low. Thus the relationship between current contraceptive use and age in this age group is inconclusive. But the proportion of women who think their husband disapproves of family planning is very small and current contraceptive use among this group is very low as well. In this group, when education is controlled, it is evident that most young women aged <25 irrespective of education are not using contraceptives. Current contraceptive use is low in all other groups as well. Because of this small number of cases, when age is controlled, the relationship between current contraceptive use and education appears unstable, among the women who think their husband disapproves of family planning.

Table 15.2b presents the spousal communication variables of the national rural area for 1996. This table shows that like the spousal discussion about family planning, perception of women of their husband's approval of family planning has a substantial impact on women's current contraceptive use irrespective of level of education and age. Distribution of the current contraceptive use by these three factors reveals that current contraceptive use is substantially high among women who think their husband approves of family planning irrespective of the level of woman's education or age, while current use is considerably lower among women who think their husband does not approve of family planning, or if the women do not know whether their husband approves of family planning or not. When education of women is controlled, age shows a positive relationship with current contraceptive use among the women who think their husband approves of family planning but the relationship flattens among the older age groups (age 40-49 years) irrespective of the level of education. On the other hand, when women's age is controlled, education of women shows a different relationship at different ages with current contraceptive use among the women who think their husband approves of family planning. Among the very young women aged <20 years, and women aged 30-39 years, the relationship is a linear positive, among women aged 20-29 years it is an inverted U shape, and among old women of age 40-49 years it is a U shape.

Among the women who think their husband does not approve of family planning, when education is controlled, age shows a positive relationship with current contraceptive use among the illiterate women and a strongly positive relationship among the women with secondary education but an unstable positive relationship among women with primary education. When age is controlled, the education of women shows different relationships in different age groups with current contraceptive use. Education shows a positive relationship with current contraceptive use among young women aged <25 and women aged 30-39, an inverse relationship among the women aged 20-24, and a U relationship among women aged 40-49 years.

**Table 15.2b: Percentage distribution of women currently using contraceptives by spousal communication: women's perception of her husband approval of family planning, by women's education and age, national level (rural) and both areas of Matlab, 1994/1996**

| Variables | Husband approved FP | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | **Education of woman: None** | | | | | |
| <19 | Yes | 35.9 | 329 | 54.2 | 48 | 25.8 | 31 |
| | No | 4.0 | 50 | 22.2 | 9 | 0.0 | 8 |
| | Unknown | 5.9 | 34 | 0.0 | 0 | 0.0 | 0 |
| 20-24 | Yes | 47.7 | 518 | 53.9 | 76 | 37.1 | 70 |
| | No | 9.5 | 84 | 27.3 | 22 | 7.1 | 14 |
| | Unknown | 6.5 | 31 | 0.0 | 0 | 0.0 | 0 |
| 25-29 | Yes | 58.8 | 641 | 61.5 | 109 | 46.0 | 100 |
| | No | 21.3 | 94 | 55.6 | 18 | 10.5 | 19 |
| | Unknown | 6.7 | 30 | 0.0 | 0 | 0.0 | 0 |
| 30-39 | Yes | 70.3 | 845 | 78.1 | 187 | 66.2 | 145 |
| | No | 22.1 | 140 | 67.7 | 31 | 16.7 | 48 |
| | Unknown | 25.9 | 54 | 0.0 | 0 | 0.0 | 0 |
| 40-49 | Yes | 69.9 | 395 | 82.8 | 99 | 59.7 | 67 |
| | No | 23.8 | 101 | 76.9 | 26 | 17.6 | 34 |
| | Unknown | 22.0 | 41 | 0.0 | 0 | 0.0 | 0 |
| **Age of woman** | | **Education of woman:1-5 yrs** | | | | | |
| <19 | Yes | 43.0 | 314 | 46.7 | 45 | 22.5 | 40 |
| | No | 9.4 | 32 | 7.7 | 13 | 11.1 | 9 |
| | Unknown | 4.0 | 25 | 0.0 | 0 | 0.0 | 0 |
| 20-24 | Yes | 55.4 | 343 | 52.4 | 63 | 35.2 | 71 |
| | No | 21.7 | 23 | 16.7 | 6 | 16.7 | 6 |
| | Unknown | 28.6 | 14 | 0.0 | 0 | 0.0 | 0 |
| 25-29 | Yes | 64.3 | 347 | 71.4 | 91 | 52.4 | 63 |
| | No | 14.3 | 21 | 54.5 | 11 | 25.0 | 8 |
| | Unknown | 11.1 | 9 | 0.0 | 0 | 0.0 | 0 |
| 30-39 | Yes | 75.8 | 442 | 76.1 | 109 | 64.2 | 81 |
| | No | 27.1 | 59 | 61.5 | 13 | 46.2 | 13 |
| | Unknown | 36.4 | 11 | 0.0 | 0 | 0.0 | 0 |
| 40-49 | Yes | 69.5 | 141 | 82.4 | 51 | 57.1 | 35 |
| | No | 19.4 | 31 | 45.5 | 11 | 10.0 | 10 |
| | Unknown | 18.2 | 11 | 0.0 | 0 | 0.0 | 0 |
| **Age of woman** | | **Education of woman: 6 or more years** | | | | | |
| <19 | Yes | 47.3 | 203 | 38.2 | 34 | 10.5 | 38 |
| | No | 8.3 | 12 | 0.0 | 5 | 0.0 | 5 |
| | Unknown | 10.0 | 10 | 0.0 | 0 | 0.0 | 0 |
| 20-24 | Yes | 51.5 | 239 | 50.9 | 53 | 29.4 | 51 |
| | No | 25.0 | 4 | 0.0 | 3 | 0.0 | 1 |
| | Unknown | 12.5 | 8 | 0.0 | 0 | 0.0 | 0 |
| 25-29 | Yes | 62.4 | 202 | 73.7 | 38 | 57.7 | 26 |
| | No | 14.3 | 7 | 0.0 | 0 | 0.0 | 3 |
| | Unknown | 0.0 | 2 | 0.0 | 0 | 0.0 | 0 |

Table continued

**Table 15.2b (Cont.): Percentage distribution of women currently using contraceptives by spousal communication: women's perception of her husband approval of family planning, by women's education and age, national level (rural) and both areas of Matlab, 1994/1996.**

| Variables | Husband approved FP | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| 30-39 | Yes | 78.4 | 236 | 79.2 | 53 | 63.6 | 22 |
| | No | 36.4 | 11 | 25.0 | 4 | 0.0 | 3 |
| | Unknown | 33.3 | 3 | 0.0 | 0 | 0.0 | 0 |
| 40-49 | Yes | 76.0 | 250 | 81.8 | 11 | 100.0 | 2 |
| | No | 67.4 | 43 | 0.0 | 0 | 100.0 | 1 |
| | Unknown | 75.0 | 4 | 0.0 | 0 | 0.0 | 0 |
| **Age of Women** | | | | **ALL** | | | |
| <19 | Yes | 41.3 | 846 | 47.2 | 127 | 19.3 | 109 |
| <19 | No | 6.4 | 94 | 11.1 | 27 | 4.5 | 22 |
| <19 | Unknown | 5.8 | 69 | 0.0 | 0 | 100.0 | 1 |
| 20-24 | Yes | 50.9 | 1100 | 52.6 | 192 | 34.4 | 192 |
| 20-24 | No | 12.6 | 111 | 22.6 | 31 | 9.5 | 21 |
| 20-24 | Unknown | 13.2 | 53 | 0.0 | 0 | 100.0 | 1 |
| 25-29 | Yes | 61.0 | 1190 | 67.2 | 238 | 49.7 | 189 |
| 25-29 | No | 19.7 | 122 | 55.2 | 29 | 13.3 | 30 |
| 25-29 | Unknown | 7.3 | 41 | 0.0 | 0 | 100.0 | 1 |
| 30-39 | Yes | 73.1 | 1523 | 77.7 | 349 | 65.3 | 248 |
| 30-39 | No | 24.3 | 210 | 62.5 | 48 | 21.9 | 64 |
| 30-39 | Unknown | 27.9 | 68 | 0.0 | 0 | 100.0 | 1 |
| 40-49 | Yes | 69.6 | 579 | 82.6 | 161 | 59.6 | 104 |
| 40-49 | No | 24.3 | 136 | 67.6 | 37 | 17.8 | 45 |
| 40-49 | Unknown | 21.2 | 52 | 0.0 | 0 | 0.0 | 0 |
| **Education of woman** | | | | | | | |
| None | Yes | 59.1 | 2728 | 69.7 | 519 | 52.3 | 413 |
| None | No | 18.1 | 469 | 55.7 | 106 | 13.8 | 123 |
| None | Unknown | 15.3 | 190 | 0 | 0 | 0 | 0 |
| 1-5 years | Yes | 61.8 | 1587 | 68.0 | 359 | 47.9 | 290 |
| 1-5 years | No | 19.9 | 166 | 38.9 | 54 | 23.9 | 46 |
| 1-5 years | Unknown | 17.1 | 70 | 0 | 0 | 0 | 0 |
| 6 or more | Yes | 60.6 | 923 | 63.0 | 189 | 36.0 | 139 |
| 6 or more | No | 26.3 | 38 | 8.3 | 12 | 7.7 | 13 |
| 6 or more | Unknown | 13.0 | 23 | 0 | 0 | 0 | 0 |
| **ALL** | Yes | 60.2 | 5238 | 67.9 | 1067 | 48.1 | 842 |
| | No | 19.0 | 673 | 47.1 | 172 | 15.9 | 182 |
| | Unknown | 15.5 | 283 | 0 | 0 | 0 | 0 |

In 1994, in the intervention area, current contraceptive use among the women whose husband supports family planning is 68 percent compared to 47 percent among the women who think their husband disapproves of it. Women's age and education has been controlled to see the impact of these three variables on current contraceptive use and placed in the same table with national rural data (Table 15.2b). The Table reveals that, when education is controlled, current contraceptive use has a strong positive relationship with age irrespective of level of education among the women who thought their husband approved of family planning. When age is controlled, an inverse relationship between current contraceptive use and education among the young women of age <20 and a positive relationship between current contraceptive use and education among the women of age 25-29 years are evident among the women who think their husband approves of family planning. The impact of education on current contraceptive use among other age groups appears less evident.

Among the women who think their husband disapproves of family planning, current contraceptive use has a positive relationship with age among the illiterate women, and a J shape relationship with women who have primary education, when education is controlled. However, when age is controlled, current contraceptive use shows a strong inverse relationship with education irrespective of age among this group. In 1994, the number of women who think their husband disapproves of family planning is very small irrespective of level of education; and even smaller among the higher educated women. Therefore, it is difficult to assess the impact of education among those women who think their husband disapproves of family planning.

In the control area, in 1994, current contraceptive use is substantially high among the women who think their husband approves of family planning irrespective of women's education and age. When education of women is controlled, current contraceptive use shows a J shape distribution by age irrespective of the level of education. When women's age is controlled, an inverse relationship between current contraceptive use and education appears among the young women aged <25 years, and a positive relationship among the age group 25-29 years. Education has a minimum impact among the older age group. When education is controlled, age shows a positive relationship with current contraceptive use among the women who perceive their husband disapproves of family planning. When age is controlled, education shows a positive relationship with contraceptive use only up to primary level education. The number of women in the secondary education groups in this area who think their husband disapproves family planning is also very low and almost none amongst the women using contraceptives.

During the study period, 1984-1994, although the relationship between current contraceptive use and women perception of their husbands' approval has changed, there is still a substantial difference in current contraceptive use between those who think their husband approves family planning and those who think their husband disapproves of it.

***Women's Perception of Husband's Agreed Number of Children***

Current contraceptive use by women's perception of husband's agreed number of children, age and education in both areas of Matlab for 1984 is presented in Table 15.3a, and current contraceptive use by women's perception of husband's agreed number of children, age and education in three areas, national and Matlab intervention and Matlab control for 1994/96 is presented in Table 15.3b.

Table 15.3a shows that current contraceptive use in both areas of Matlab is high among women who think their husband wants the same or fewer numbers of children than the women want. But the number of women, who think their husband wants more children than they want is small and thus analysis of this category ('want more') for these two areas for 1984 has been skipped. But the number of women who reported their ignorance of their husbands' agreed number of children appears substantial.

In the intervention area, in 1984, when education is controlled, current contraceptive use among the women who think their husband wants the same or a lesser number of children than them, shows a J shape relationship with age irrespective of the level of education. When age is controlled, current contraceptive use among the women who think their husband wants the same or lesser number of children than them shows a positive relationship with education among the women aged 20-39 years, an inverted U among older women and an inverse relation among young women aged <20 years. No pattern appears among those women who think their husband wants more children than them and the number of cases in each category is small when age and education are controlled. Among the women who reported ignorance of their husbands' agreed number of children, when education is controlled, current contraceptive use shows an inverse

**Table 15.3a: Percentage distribution of women currently using contraceptives by spousal communication: perception of the women on agreed number of children by their husbands by women's education and age, national level (rural) and both areas of Matlab, 1983/1984**

| Variables | Both wants same # of children | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1983 | | Matlab -1984 | | | |
| | | | | Intervention area | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | **Education of woman: None** | | | | | |
| <19 | Same or less | -- | -- | 45.5 | 11 | 0.0 | 6 |
| | More | -- | -- | | | 0.0 | 2 |
| | Unknown | -- | -- | 28.1 | 32 | 0.0 | 32 |
| 20-24 | Same or less | -- | -- | 36.4 | 110 | 10.8 | 74 |
| | More | -- | -- | 33.3 | 9 | 0.0 | 1 |
| | Unknown | -- | -- | 27.6 | 156 | 2.0 | 100 |
| 25-29 | Same or less | -- | -- | 41.9 | 129 | 28.8 | 118 |
| | More | -- | -- | 0.0 | 5 | 25.0 | 4 |
| | Unknown | -- | -- | 24.5 | 147 | 7.1 | 98 |
| 30-39 | Same or less | -- | -- | 54.2 | 373 | 33.7 | 252 |
| | More | -- | -- | 75.0 | 4 | 20.0 | 5 |
| | Unknown | -- | -- | 25.5 | 157 | 2.8 | 143 |
| 40-49 | Same or less | -- | -- | 53.0 | 296 | 25.2 | 202 |
| | More | -- | -- | 0.0 | 2 | 0.0 | 4 |
| | Unknown | -- | -- | 20.7 | 58 | 7.1 | 28 |
| **Age of woman** | | **Education of woman:1-5 years** | | | | | |
| <19 | Same or less | -- | -- | 36.8 | 19 | 18.2 | 11 |
| | More | -- | -- | 0 | 0 | 0 | 0 |
| | Unknown | -- | -- | 35.7 | 28 | 0.0 | 10 |
| 20-24 | Same or less | -- | -- | 36.7 | 128 | 16.7 | 48 |
| | More | -- | -- | 40.0 | 5 | 0.0 | 4 |
| | Unknown | -- | -- | 19.9 | 146 | 1.3 | 76 |
| 25-29 | Same or less | -- | -- | 48.3 | 120 | 23.2 | 56 |
| | More | -- | -- | 0.0 | 3 | 0.0 | 3 |
| | Unknown | -- | -- | 36.6 | 93 | 4.3 | 47 |
| 30-39 | Same or less | -- | -- | 61.3 | 253 | 31.5 | 124 |
| | More | -- | -- | 55.6 | 9 | 33.3 | 3 |
| | Unknown | -- | -- | 28.9 | 128 | 3.9 | 77 |
| 40-49 | Same or less | -- | -- | 47.8 | 136 | 26.5 | 68 |
| | More | -- | -- | 0 | 0 | 0 | 0 |
| | Unknown | -- | -- | 34.5 | 29 | 0.0 | 9 |
| **Age of woman** | | **Education of woman: 6 or more years** | | | | | |
| <19 | Same or less | -- | -- | 20.0 | 5 | 50.0 | 2 |
| | More | -- | -- | | | | |
| | Unknown | -- | -- | 50.0 | 2 | 0.0 | 1 |
| 20-24 | Same or less | -- | -- | 48.9 | 45 | 14.3 | 21 |
| | More | -- | -- | 66.7 | 3 | 0.0 | 1 |
| | Unknown | -- | -- | 24.0 | 25 | 18.2 | 11 |
| 25-29 | Same or less | -- | -- | 65.7 | 35 | 38.5 | 13 |
| | More | -- | -- | 100.0 | 2 | 0 | 0 |
| | Unknown | -- | -- | 18.8 | 16 | 14.3 | 7 |

Table continued

**Table 15.3a (Cont): Percentage distribution of women currently using contraceptives by spousal communication: perception of the women on agreed number of children by their husbands by women's education and age, national level (rural) and both areas of Matlab, 1983/1984.**

| Variables | Both wants same # of children | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1983 | | Matlab -1984 | | | |
| | | | | Intervention area | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | **Education of woman: 6 or more years** | | | | | |
| 30-39 | Same or less | -- | -- | 67.3 | 49 | 47.6 | 21 |
| | More | -- | -- | 100.0 | 2 | 0 | 0 |
| | Unknown | -- | -- | 42.9 | 7 | 0.0 | 2 |
| 40-49 | Same or less | -- | -- | 64.7 | 17 | 33.3 | 3 |
| | More | -- | -- | 0 | 0 | 0 | 0 |
| | Unknown | -- | -- | 0.0 | 1 | 0.0 | 1 |
| **Age of woman** | | **ALL women** | | | | | |
| <19 | Same or less | -- | -- | 37.1 | 35 | 15.8 | 19 |
| <19 | More | -- | -- | 0.0 | 0 | 0.0 | 2 |
| <19 | Unknown | -- | -- | 32.3 | 62 | 0.0 | 43 |
| 20-24 | Same or less | -- | -- | 38.5 | 283 | 13.3 | 143 |
| 20-24 | More | -- | -- | 41.2 | 17 | 0.0 | 6 |
| 20-24 | Unknown | -- | -- | 23.9 | 327 | 2.7 | 187 |
| 25-29 | Same or less | -- | -- | 47.5 | 284 | 27.8 | 187 |
| 25-29 | More | -- | -- | 20.0 | 10 | 14.3 | 7 |
| 25-29 | Unknown | -- | -- | 28.5 | 256 | 6.6 | 152 |
| 30-39 | Same or less | -- | -- | 57.8 | 675 | 33.8 | 397 |
| 30-39 | More | -- | -- | 66.7 | 15 | 25.0 | 8 |
| 30-39 | Unknown | -- | -- | 27.4 | 292 | 3.2 | 222 |
| 40-49 | Same or less | -- | -- | 51.9 | 449 | 25.6 | 273 |
| 40-49 | More | -- | -- | 0.0 | 2 | 0.0 | 4 |
| 40-49 | Unknown | -- | -- | 25.0 | 88 | 5.3 | 38 |
| **Education of woman** | | | | | | | |
| None | Same or less | -- | -- | 49.8 | 919 | 27.3 | 652 |
| None | More | -- | -- | 30.0 | 20 | 12.5 | 16 |
| None | Unknown | -- | -- | 25.5 | 550 | 3.7 | 401 |
| 1-5 years | Same or less | -- | -- | 50.6 | 656 | 26.1 | 307 |
| 1-5 years | More | -- | -- | 41.2 | 17 | 10.0 | 10 |
| 1-5 years | Unknown | -- | -- | 28.3 | 424 | 2.7 | 219 |
| 6 or more | Same or less | -- | -- | 59.6 | 151 | 33.3 | 60 |
| 6 or more | More | -- | -- | 85.7 | 7 | 0.0 | 1 |
| 6 or more | Unknown | -- | -- | 25.5 | 51 | 13.6 | 22 |
| **ALL** | Same or less | -- | -- | 51.0 | 1726 | 27.3 | 1019 |
| | More | -- | -- | 43.2 | 44 | 11.1 | 27 |
| | Unknown | -- | -- | 26.6 | 1025 | 3.7 | 642 |

"—" indicates data not available .

relationship with age among the illiterate women. The impact of age on current use of contraceptives is less evident among the women with primary education, and unstable due to the small number of cases among the women with secondary education. When age is controlled, the current contraceptive use of the women who reported as ignorant of their husband's agreed number of children shows a positive relationship with primary education except for the 20-24 years age group.

The relationship between current contraceptive use and secondary education is unstable because of the small number of cases.

The Table shows that in the control area, in 1984, when education is controlled, current contraceptive use among women who think their husband wanted the same or fewer number of children than them shows a J shape relationship with age among the illiterate women and women with primary education, while the relationship between current contraceptive use and age has a U shape distribution among the women with secondary education. When age is controlled, no consistent relationship is evident between current contraceptive uses and education because only a few young women answered this question and only a few women in the old age group of 40-49 years have secondary education. For the rest of the groups, an inverted U relationship is found between the current contraceptive use women aged 20-24 years, a U shape among women aged 25-29 years and an inverse relationship among women aged 30-39 years.

In 1996, the national rural data shown in Table 15.3b (1983 data not available) shows that current contraceptive use has a positive relationship with women perception of their husband's agreed number of expected children but this relationship is not as strong as it is with other spousal communication variables. Current contraceptive use among the women who think their husband wants the same or lesser number of children than them is 57 percent, declining by only 11 percentage points among those who think their husband wants more children than them. The relationship between current contraceptive use with women's perception of their husband's agreed number of children; age and education has also been examined and is presented in the same table. The table shows that when education is controlled, current contraceptive use shows a linear positive relationship with age irrespective of the level of education, although the curve bends at 40–49 years. When women's age is controlled, current contraceptive use shows a linear positive relationship with education among the very young women of age <20 years, and age 30-39 years. While the positive impact of primary education among women of age 20-29 is evident, it is less evident in the case of secondary education among the same group. The impact of primary education appears less evident among the older women aged 40-49 years.

Table 15.3b: **Percentage distribution of women currently using contraceptives by spousal communication: perception of the women on agreed number of children by their husbands, by women's education and age, national level (rural) and both areas of Matlab, 1994/1996**

| Variables | Both wants same # of children | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab –1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | **Education of woman: None** | | | | | |
| <19 | Same or less | 33.2 | 346 | 54.8 | 42 | 34.8 | 23 |
| | More | 18.2 | 22 | 62.5 | 8 | 0.0 | 4 |
| | Unknown | 6.7 | 45 | 0.0 | 7 | 0.0 | 12 |
| 20-24 | Same or less | 45.0 | 529 | 49.2 | 65 | 42.4 | 59 |
| | More | 28.3 | 60 | 50.0 | 22 | 16.7 | 12 |
| | Unknown | 4.5 | 44 | 36.4 | 11 | 0.0 | 13 |
| 25-29 | Same or less | 56.0 | 657 | 63.6 | 88 | 45.9 | 85 |
| | More | 46.8 | 62 | 55.9 | 34 | 45.0 | 20 |
| | Unknown | 4.3 | 46 | 40.0 | 5 | 0.0 | 14 |
| 30-39 | Same or less | 66.4 | 880 | 79.9 | 164 | 64.1 | 117 |
| | More | 46.4 | 84 | 70.3 | 37 | 41.7 | 36 |
| | Unknown | 21.3 | 75 | 58.8 | 17 | 35.0 | 40 |
| 40-49 | Same or less | 61.6 | 453 | 84.3 | 83 | 65.4 | 52 |
| | More | 56.3 | 32 | 86.4 | 22 | 33.3 | 15 |
| | Unknown | 23.1 | 52 | 65.0 | 20 | 20.6 | 34 |
| **Age of woman** | | **Education of woman:1-5 years** | | | | | |
| <19 | Same or less | 41.2 | 318 | 50.0 | 38 | 24.3 | 37 |
| | More | 35.7 | 14 | 16.7 | 6 | 20.0 | 5 |
| | Unknown | 7.7 | 39 | 14.3 | 14 | 0.0 | 7 |
| 20-24 | Same or less | 53.3 | 347 | 52.5 | 59 | 35.9 | 64 |
| | More | 43.8 | 16 | 42.9 | 7 | 25.0 | 12 |
| | Unknown | 41.2 | 17 | 0.0 | 3 | 0.0 | 1 |
| 25-29 | Same or less | 61.2 | 343 | 71.4 | 77 | 53.3 | 60 |
| | More | 58.3 | 24 | 68.2 | 22 | 25.0 | 8 |
| | Unknown | 30.0 | 10 | 33.3 | 3 | 33.3 | 3 |
| 30-39 | Same or less | 71.4 | 454 | 74.5 | 94 | 65.8 | 76 |
| | More | 57.8 | 45 | 80.0 | 20 | 50.0 | 10 |
| | Unknown | 38.5 | 13 | 62.5 | 8 | 37.5 | 8 |
| 40-49 | Same or less | 61.8 | 165 | 80.9 | 47 | 66.7 | 30 |
| | More | 33.3 | 9 | 70.0 | 10 | 20.0 | 5 |
| | Unknown | 11.1 | 9 | 40.0 | 5 | 0.0 | 10 |
| **Age of woman** | | **Education of woman: 6 or more years** | | | | | |
| <19 | Same or less | 46.9 | 207 | 41.9 | 31 | 8.1 | 37 |
| | More | 0.0 | 3 | 0.0 | 2 | 0.0 | 1 |
| | Unknown | 6.7 | 15 | 0.0 | 6 | 20.0 | 5 |
| 20-24 | Same or less | 51.3 | 230 | 52.9 | 51 | 26.2 | 42 |
| | More | 46.2 | 13 | 0.0 | 3 | 50.0 | 8 |
| | Unknown | 12.5 | 8 | 0.0 | 2 | 0.0 | 2 |
| 25-29 | Same or less | 60.4 | 192 | 80.6 | 31 | 52.0 | 25 |
| | More | 71.4 | 14 | 50.0 | 4 | 50.0 | 2 |
| | Unknown | 20.0 | 5 | 33.3 | 3 | 50.0 | 2 |

Table continued

**Table 15.3b (Cont.): Percentage distribution of women currently using contraceptives by spousal communication: perception of the women on agreed number of children by their husbands, by women's education and age, national level (rural) and both areas of Matlab, 1994/1996.**

| Variables | Both wants same # of children | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab –1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | | | **Education of woman: 6 or more years** | | | |
| 30-39 | Same or less | 76.3 | 236 | 78.3 | 46 | 66.7 | 21 |
| | More | 81.8 | 11 | 60.0 | 10 | 0.0 | 4 |
| | Unknown | 33.3 | 3 | 100.0 | 1 | 00 | 00 |
| 40-49 | Same or less | 70.5 | 44 | 90.0 | 10 | 100.0 | 2 |
| | More | 50.0 | 2 | 0 | 0 | 100.0 | 1 |
| | Unknown | 0.0 | 1 | 0.0 | 1 | 0 | 0 |
| **Age of woman** | | | | **ALL women** | | | |
| <19 | Same or less | 39.4 | 871 | 49.5 | 111 | 20.6 | 97 |
| <19 | More | 23.1 | 39 | 37.5 | 16 | 10.0 | 10 |
| <19 | Unknown | 7.1 | 99 | 7.4 | 27 | 4.2 | 24 |
| 20-24 | More | 33.7 | 89 | 43.8 | 32 | 28.1 | 32 |
| 20-24 | Same or less | 48.9 | 1106 | 51.4 | 175 | 35.8 | 165 |
| 20-24 | Unknown | 14.5 | 69 | 25.0 | 16 | 0.0 | 16 |
| 25-29 | Same or less | 58.2 | 1192 | 69.4 | 196 | 49.4 | 170 |
| 25-29 | More | 53.0 | 100 | 60.0 | 60 | 40.0 | 30 |
| 25-29 | Unknown | 9.8 | 61 | 36.4 | 11 | 10.5 | 19 |
| 30-39 | Same or less | 69.3 | 1570 | 78.0 | 304 | 65.0 | 214 |
| 30-39 | More | 52.9 | 140 | 71.6 | 67 | 40.0 | 50 |
| 30-39 | Unknown | 24.2 | 91 | 61.5 | 26 | 35.4 | 48 |
| 40-49 | Same or less | 62.2 | 662 | 83.6 | 140 | 66.7 | 84 |
| 40-49 | More | 51.2 | 43 | 81.3 | 32 | 33.3 | 21 |
| 40-49 | Unknown | 21.0 | 62 | 57.7 | 26 | 15.9 | 44 |
| **Education of woman** | | | | | | | |
| None | Same or less | 55.3 | 2865 | 70.6 | 442 | 53.9 | 336 |
| None | More | 41.2 | 260 | 65.0 | 123 | 35.6 | 87 |
| None | Unknown | 13.4 | 262 | 48.3 | 60 | 18.6 | 113 |
| 1-5 years | Same or less | 58.5 | 1627 | 67.6 | 315 | 50.2 | 267 |
| 1-5 years | More | 50.9 | 108 | 64.6 | 65 | 30.0 | 40 |
| 1-5 years | Unknown | 21.6 | 88 | 30.3 | 33 | 13.8 | 29 |
| 6 or more | Same or less | 59.6 | 909 | 65.1 | 169 | 33.9 | 127 |
| 6 or more | More | 60.5 | 43 | 42.1 | 19 | 37.5 | 16 |
| 6 or more | Unknown | 12.5 | 32 | 15.4 | 13 | 22.2 | 9 |
| **ALL** | Same or less | 57.0 | 5401 | 68.6 | 926 | 49.0 | 730 |
| | More | 45.7 | 411 | 62.8 | 207 | 34.3 | 143 |
| | Unknown | 15.2 | 382 | 38.7 | 106 | 17.9 | 151 |

When education is controlled, current contraceptive use among women who think their husband wants more children shows a J shape relationship with age irrespective of the level of education. A linear positive relationship with education is evident when women's age is controlled. Interestingly, among the women who reported an ignorance of their husband's agreed number of children, when education is controlled, very few young illiterate women in this group of age <30 are using contraceptives but the number increases substantially among the women of age greater than 29 years. However, current contraceptive use among the women with primary or secondary education shows a positive relationship except for the very old (40-49 years age group). The impact of education, when age is controlled, is unstable. Current contraceptive use shows a positive relationship with education among women aged 20-29 years, a U relationship among women aged 30-39 years, an inverse relationship among women aged 40-49 years, and no trends among young women aged <20 years.

Table 15.3b also presents current contraceptive use by women's perception of their husband's agreed number of children for both areas of Matlab in 1994. The Table reveals that the current contraceptive use among women who think their husband wants the same or lesser number of children than them is high in both areas of Matlab. The gap in current contraceptive use between those who think their husband wants the same or less number children than them, and those who think their husband wants more is the same in the intervention area but decreases in the control area in the 1984-1994 period.

In the intervention area, in 1994, current contraceptive use is 69 percent among women who think their husband wants the same or a fewer number of children than them; it reduces only 6 percentage points among women who think their husband wants more children than them. The gap is almost same as was in 1984 (8 percentage points). In the control area, in 1994, current contraceptive use is 49 percent among women who think their husband wants the same or a lesser number of children than them; it reduces by 15 percentage points among women who think their husband wants more. However, the gap though the same in percentage points with 1984, is higher in percent change.

In the intervention area, when education is controlled, current contraceptive use among women who think their husband wants the same or fewer children than them shows an unstable positive relationship with age among the illiterate women, and a linear positive relationship with age among the women with primary and secondary education. Once again, when age is controlled, no uniform relationship between current contraceptive use and woman's education is evident. When education is controlled, contraceptive use among the women who think their husband wants more children than them, shows an unstable positive relationship with age among the illiterate women, and a J shape relationship between current contraceptive use and age among women with primary education. As the number of women in the secondary education groups and women who reported their ignorance about agreed number of expected children are small, the analysis on these categories have been skipped.

In the control area in 1994 , when education is controlled, current contraceptive use among women who think their husband wants the same or fewer children than them shows a linear positive relationship with women's age irrespective of level of education. When age is controlled, education shows an inverse relationship with current contraceptive use among women aged <30 years. The impact of education on current contraceptive use, especially secondary education, is less evident among the women in the older age groups. Among the women who think their husband wants more children than them, when education is controlled, current contraceptive use and age has a J shape distribution among illiterate women and a linear positive distribution among women with primary education. Similar to the intervention area, the numbers of women in the secondary education group who express their ignorance of agreed number of expected children with their husbands are small. However, most of the women who express their ignorance of their husband's agreed number of expected children are not using contraceptives, irrespective of age and education.

### 15.2.1 Summary

An examination of the association between current contraceptive use and three spousal communication variables at the national rural area and two areas of Matlab provides evidence of a substantially strong relationship of current contraceptive use with these three spousal communication factors. A substantially high current contraceptive use is apparent among the women who discuss family planning matters with their husband, and among the women whose husband has a positive attitude towards family planning. A high current contraceptive use is also found among women who think that their husband wants the same or fewer children than them. The lowest use rate is evident among women who reported they 'don't know' their husband's attitude towards family planning or the number of children their husband's want.

Discussing family planning matters with the husband clearly has an impact on women's level of current contraceptive use. In 1984, the difference in current contraceptive use between women who discussed family planning with their husband and those who did not, is more than two times higher in the intervention area and more than five times higher in the control area. In 1994, the impact of discussion of family planning matters with husbands had reduced in both areas of Matlab. The difference in contraceptive use between those who discuss family planning with husbands and those who do not is strong in both areas but not as strong as was in 1984. In 1994, the difference in current contraceptive use between women who discuss family planning maters with their husband and those who do not reduced in both areas of Matlab. The same was true with the variable, husband's family planning approval. The impact of the spousal communication variables, women's perception of husband's agreed number of expected children, is less evident than other two variables.

This strong relationship between current contraceptive use and the spousal communication in all the three areas is also age and education dependent. The relationship between current contraceptive use and spousal communication factors with women's age, when the effect of education is controlled, was in most cases ,J shaped in the early of 1980s and later turned into either J or straight positive linear relationship in the early 1990s. The relationship of current contraceptive use and spousal communication factors with women's education, when the effect of age is controlled, is positive in most cases in the early period of study. The differential in current use by spousal communication factors is more evident among women with no education and secondary education groups in the early 1980s but the impact of primary education is less evident. During the study period, however, there has been a substantial change in the trend of current contraceptive use and spousal communication factors by age and education. The positive impact of education is reversed among some age groups, especially in the young age groups in both areas of Matlab.

Finally, during the study period, there was a radical shift in current contraceptive use among the women who do not discuss family planning matters with their husband or think their husband disapproves family planning in two respects. Firstly, the number of women who reported less communication with husband or think their husband disapproves family planning declined overall. Secondly, those who do have little communication with their husbands or think their husband disapproves of family planning started using contraceptives. This is true among all the women in the intervention area and among older women in other two areas. An important point to note is that the number of women who reported that they 'don't know' their husband's attitude is large in the early study period (1983/1984 period) but that this number has substantially reduced at the later stages in 1994/1996. This finding implies that women in the recent times are becoming more self-assured and are more comfortable discussing family planning matters or are understanding their husband's attitude better.

## 15.3 Women Autonomy and Empowerment

### 15.3.1 Woman's Freedom of Movement

Like the three spousal communication factors discussed above, women autonomy and freedom of movement in Bangladesh are largely determined by the patriarchal culture and religious beliefs. In the past women's freedom of movement had been restricted to within the courtyard of the house or at most to within the *bari* premises. This applies more strictly, to the young women (married and unmarried) of high and middle class families. The origin of women restriction on movement and the relative change on this restriction over the period has been explained in chapters 4 and 5, the association of women freedom of movement and demand for no additional children were discussed in Chapter 11. This section, examines the bivariate distribution of current contraceptive use by women's freedom of movement.

Table 15.4 presents the current contraceptive use by women's freedom of movement. Table 15.4 shows that the women in the national rural area who have high or medium freedom of movement have a higher rate of contraceptive use than those who have a low level of freedom of movement, and much lower among

**Table 15. 4: Percentage distribution of women currently using contraceptives by woman's freedom of movement women's education and age, national level (rural) and both areas of Matlab, 1994/1996.**

| Variables | Women autonomy | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | | | **Education: None** | | | |
| <19 | High | 32.8 | 61 | 61.5 | 13 | 30.0 | 10 |
| | Medium | 33.7 | 92 | 64.7 | 17 | 40.0 | 10 |
| | Very low | 28.9 | 152 | 33.3 | 27 | 5.3 | 19 |
| | Low | 25.0 | 108 | -- | -- | -- | -- |
| 20-24 | High | 43.9 | 107 | 58.8 | 34 | 32.1 | 28 |
| | Medium | 46.3 | 240 | 50.0 | 44 | 35.9 | 39 |
| | Very low | 32.2 | 174 | 25.0 | 20 | 23.5 | 17 |
| | Low | 38.4 | 112 | -- | -- | -- | -- |
| 25-29 | High | 57.4 | 129 | 58.8 | 51 | 42.1 | 57 |
| | Medium | 52.6 | 386 | 62.1 | 58 | 43.1 | 51 |
| | Very low | 48.3 | 176 | 61.1 | 18 | 18.2 | 11 |
| | Low | 50.0 | 74 | -- | -- | -- | -- |
| 30-39 | High | 69.6 | 214 | 79.8 | 119 | 54.9 | 113 |
| | Medium | 63.3 | 532 | 73.4 | 79 | 52.9 | 70 |
| | Very low | 51.8 | 222 | 70.0 | 20 | 50.0 | 10 |
| | Low | 53.5 | 71 | -- | -- | -- | -- |
| 40-49 | High | 55.6 | 151 | 83.3 | 54 | 38.0 | 50 |
| | Medium | 61.3 | 266 | 82.5 | 57 | 51.1 | 45 |
| | Very low | 51.0 | 96 | 71.4 | 14 | 66.7 | 6 |
| | Low | 54.2 | 24 | -- | -- | -- | -- |
| **Age of woman** | | | | **Education:1-5 yrs** | | | |
| <19 | High | 41.9 | 43 | 20.0 | 15 | 33.3 | 12 |
| | Medium | 39.2 | 74 | 53.8 | 13 | 37.5 | 8 |
| | Very low | 34.4 | 151 | 40.0 | 30 | 10.3 | 29 |
| | Low | 38.8 | 103 | -- | -- | -- | -- |
| 20-24 | High | 56.1 | 66 | 64.0 | 25 | 30.0 | 30 |
| | Medium | 53.8 | 160 | 54.2 | 24 | 36.7 | 30 |
| | Very low | 48.0 | 102 | 25.0 | 20 | 35.3 | 17 |
| | Low | 51.9 | 52 | -- | -- | -- | -- |
| 25-29 | High | 66.7 | 78 | 77.6 | 49 | 60.5 | 43 |
| | Medium | 55.8 | 190 | 62.5 | 40 | 40.0 | 20 |
| | Very low | 54.7 | 64 | 61.5 | 13 | 12.5 | 8 |
| | Low | 75.6 | 45 | -- | -- | -- | -- |
| 30-39 | High | 72.3 | 112 | 64.5 | 62 | 62.7 | 51 |
| | Medium | 67.3 | 269 | 83.3 | 48 | 58.8 | 34 |
| | Very low | 74.0 | 96 | 91.7 | 12 | 66.7 | 9 |
| | Low | 62.9 | 35 | -- | -- | -- | -- |
| 40-49 | High | 60.0 | 35 | 74.3 | 35 | 45.0 | 20 |
| | Medium | 58.2 | 110 | 75.0 | 24 | 47.8 | 23 |
| | Very low | 50.0 | 30 | 100.0 | 3 | 50.0 | 2 |
| | Low | 75.0 | 8 | -- | -- | -- | -- |

Table continued

**Table 15. 4 (Cont.): Percentage distribution of women currently using contraceptives by woman's freedom of movement women's education and age, national level (rural) and both areas of Matlab, 1994/1996**

| Variables | Women autonomy | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | | | **Education: 6 or more years** | | | |
| <19 | High | 44.7 | 38 | 42.9 | 14 | 11.8 | 17 |
| | Medium | 34.0 | 50 | 11.1 | 9 | 0.0 | 11 |
| | Very low | 36.2 | 69 | 37.5 | 16 | 13.3 | 15 |
| | Low | 57.4 | 68 | -- | -- | -- | -- |
| 20-24 | High | 53.6 | 56 | 48.0 | 25 | 29.2 | 24 |
| | Medium | 52.9 | 68 | 47.1 | 17 | 33.3 | 12 |
| | Very low | 41.2 | 68 | 50.0 | 14 | 25.0 | 16 |
| | Low | 52.5 | 59 | -- | -- | -- | -- |
| 25-29 | High | 53.1 | 49 | 90.0 | 20 | 46.2 | 13 |
| | Medium | 60.9 | 92 | 66.7 | 12 | 58.3 | 12 |
| | Very low | 61.5 | 39 | 33.3 | 6 | 50.0 | 4 |
| | Low | 67.7 | 31 | -- | -- | -- | -- |
| 30-39 | High | 75.3 | 77 | 77.8 | 36 | 58.8 | 17 |
| | Medium | 75.4 | 118 | 76.5 | 17 | 50.0 | 8 |
| | Very low | 69.4 | 36 | 50.0 | 4 | 0.0 | 0.0 |
| | Low | 94.7 | 19 | 0.0 | 0.0 | 0.0 | 0.0 |
| 40-49 | High | 75.0 | 16 | 75.0 | 8 | 100.0 | 2 |
| | Medium | 62.5 | 16 | 100.0 | 3 | 100.0 | 1 |
| | Very low | 60.0 | 5 | 0.0 | 0.0 | 0.0 | 0.0 |
| | Low | 70.0 | 10 | -- | -- | -- | -- |
| **Age of woman** | | | | **ALL women** | | | |
| <20 | High | 38.7 | 142 | 40.5 | 42 | 23.1 | 39 |
| <20 | Very low | 32.5 | 372 | 37.0 | 73 | 9.5 | 63 |
| <20 | Medium | 35.6 | 216 | 48.7 | 39 | 24.1 | 29 |
| <20 | Low | 38.0 | 279 | -- | -- | -- | -- |
| 20-24 | High | 49.8 | 229 | 57.1 | 84 | 30.5 | 82 |
| 20-24 | Medium | 49.8 | 468 | 50.6 | 85 | 35.8 | 81 |
| 20-24 | Very low | 38.7 | 344 | 31.5 | 54 | 28.0 | 50 |
| 20-24 | Low | 45.3 | 223 | -- | -- | -- | -- |
| 25-29 | High | 59.4 | 256 | 71.7 | 120 | 49.6 | 113 |
| 25-29 | Medium | 54.6 | 668 | 62.7 | 110 | 44.6 | 83 |
| 25-29 | Very low | 51.6 | 279 | 56.8 | 37 | 21.7 | 23 |
| 25-29 | Low | 61.3 | 150 | -- | -- | -- | -- |
| 30-39 | High | 71.5 | 403 | 75.1 | 217 | 57.5 | 181 |
| 30-39 | Medium | 66.1 | 919 | 77.1 | 144 | 54.5 | 112 |
| 30-39 | Very low | 59.6 | 354 | 75.0 | 36 | 57.9 | 19 |
| 30-39 | Low | 62.4 | 125 | -- | -- | -- | -- |
| 40-49 | High | 57.9 | 202 | 79.4 | 97 | 41.7 | 72 |
| 40-49 | Medium | 60.5 | 392 | 81.0 | 84 | 50.7 | 69 |
| 40-49 | Very low | 51.1 | 131 | 76.5 | 17 | 62.5 | 8 |
| 40-49 | Low | 61.9 | 42 | -- | -- | -- | -- |

Table continued

**Table 15. 4 (Cont.): Percentage distribution of women currently using contraceptives by woman's freedom of movement women's education and age, national level (rural) and both areas of Matlab, 1994/1996**

| Variables | Women autonomy | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Education** | | | | | | | |
| None | High | 56.5 | 662 | 73.1 | 271 | 45.3 | 258 |
| None | Medium | 55.7 | 1516 | 68.2 | 255 | 46.5 | 215 |
| None | Low | 40.6 | 389 | -- | -- | -- | -- |
| None | Very low | 42.6 | 820 | 49.5 | 99 | 25.4 | 63 |
| 1-5 years | High | 62.6 | 334 | 66.1 | 186 | 51.3 | 156 |
| 1-5 years | Medium | 58.0 | 803 | 69.1 | 149 | 46.1 | 115 |
| 1-5 years | Very low | 50.1 | 443 | 50.0 | 78 | 26.2 | 65 |
| 1-5 years | Low | 53.1 | 243 | -- | -- | -- | -- |
| 6 or more years | High | 60.6 | 236 | 68.0 | 103 | 37.0 | 73 |
| 6 or more years | Medium | 60.5 | 344 | 56.9 | 58 | 36.4 | 44 |
| 6 or more years | Low | 62.0 | 187 | -- | -- | -- | -- |
| 6 or more years | Very low | 48.4 | 217 | 42.5 | 40 | 22.9 | 35 |
| **Women autonomy** | | | | | | | |
| | High | 58.9 | 1232 | 69.8 | 560 | 46.0 | 487 |
| | Medium | 57.0 | 2663 | 67.1 | 462 | 45.2 | 374 |
| | very low | 45.7 | 1480 | 48.4 | 217 | 25.2 | 163 |
| | Low | 49.2 | 819 | -- | -- | -- | -- |

"—" indicates data not available

those who have a very low level of autonomy to go out of their village. Fifty nine percent of the women who have high autonomy and 57 percent who have the medium autonomy for example, are found to be using contraceptives, compared to 49 percent and 46 percent women who have low or a very low level of autonomy. The relationship between current contraceptive use and women's freedom of movement, when education is controlled, is a J shaped one in most of the subsets of the women's freedom of movement variable. But like the spousal communication variables, the relationship between current contraceptive use and women's freedom of movement in most cases is linear when women's age is controlled.

The distribution of current contraceptive use by women's freedom of movement, age and education in both areas of Matlab is also presented in Table 154. The data shows a similar pattern of current contraceptive use in both areas of Matlab as shown at the national rural level.

In the intervention area, current contraceptive use is similar among women who have high or medium autonomy of movement and much higher than those who have low autonomy of movement. Seventy percent of the women who have high autonomy of movement, or 67 percent of the women who have medium autonomy, for example, are using contraceptives compared to 48 percent who have a very low level of autonomy to move outside the village.

The relationship between current contraceptive use and women's freedom of movement, when education is controlled, does not show a consistent pattern. Among the illiterate women, it shows a somewhat J shaped relationship between current contraceptive use and age with each subgroup freedom of movement variable. Among the women with primary education, the relationship appears positive between current contraceptive use and age up to 24 years and then starts to fluctuate among women having a high autonomy of movement. This positive relationship between current contraceptive use and age extends up to age 40 years among women who have a medium level of autonomy but a positive relationship between current contraceptive use and age starts at age 20 years among women who have a very low level of autonomy. Among the women with secondary education, current contraceptive use shows an inverted U relationship with age among women who have a high autonomy, and a J shape relationship among women who have medium autonomy of movement. In contrast, a wave like pattern is apparent among women who reported a very low level of autonomy of movement. The relationship between current contraceptive use and women's freedom of movement, when education is controlled, is more divergent.

In the control area, a similar pattern of contraceptive use by women's freedom of movement to that in the intervention area is evident. Current contraceptive use is similar among women who have high or medium level of autonomy but higher than for women who have very low level of autonomy. For example, 48 percent of the women who have a high-level autonomy and 45 percent of the women who have medium level autonomy are using contraceptives compared to 25 percent women who have a very low level of freedom of movement.

The relationship between current contraceptive use and women's high level of autonomy when education is controlled, shows an inverted U relationship with age among the illiterate women and women with primary education but a linear positive relationship with age among the women with secondary education. Among the women who reported a medium level of freedom of movement, current contraceptive use, when education has been controlled, shows a somewhat J shape relationship among the illiterate women and women with primary education but an inverted U shape among the women with secondary education.

The relationship between current contraceptive use and women's high or medium level freedom of movement, when age is controlled, shows an inverse relationship with education among the young women aged <25 years, an inverted U among women aged 25-29 years and a J shape relationship among women aged 30-39 years. The relationship between current contraceptive use and women's medium level freedom of movement, when age is controlled, shows an inverse relationship with education among the young women of age <25 years, and a contradictory relationship among the other three age groups. Among the women who reported a low level of autonomy, when education and age is controlled, an unstable relationship is evident between current contraceptive use and women's freedom of movement.

In all the three areas, however, current contraceptive use is higher among the women who have a high or medium level of autonomy and lower among those who have a low level of autonomy for all three-education groups. The overall current contraceptive use is low among the younger and older women irrespective of level of movement allowed. The education of women shows a positive relationship with current contraceptive use among all types of freedom of movement at the national level, but not in Matlab.

The other variable that could enhance women's autonomy is the Non Government Organization (NGO) through its activities and programmes, which involve women in different social and economic activities. The inherent process of the programme might affect the contraceptive use behaviour either its association with greater women's autonomy or some other ways. This variable is presented in Table 15.5 This variable was collected only in the recent surveys. Therefore the table presents data for the three areas for the 1994/96 period only.

### 15.3.2 Current Contraceptive Use by NGO Membership

Current contraceptive use of women by NGO membership, age and education is presented in Table 15.5. The table reveals a similar pattern of current contraceptive use among women of all the three areas. It shows that the current contraceptive use is high among the women of the three areas who have NGO membership, but a stronger relationship is evident in the control area than in the other two areas.

Current contraceptive uses by NGO membership controlled for education and age in all the three areas is also presented in the same table. At the national level, the Table shows that the relationship between current contraceptive use and age, when education is controlled, is unstable among the members of NGOs. The relationship between current contraceptive use and age is linearly positive among illiterate women, an unstable J among women with primary education, and a J shape relationship among women with secondary education. An unstable relationship between current contraceptive use and education is evident among the women who are members of NGOs, when age is controlled. Among the women who are not members of any NGO, current contraceptive use, when age is controlled, shows a linear positive relationship with education irrespective of age. The table shows that the current contraceptive use, when education is controlled, has a J shape relationship with age irrespective of the level of education of the non NGO members.

In the intervention area, among the women, who are members of NGOs, current contraceptive use shows a fluctuating rise with age among the illiterate women and women with primary education, and a positive rise among women of with secondary education. The relationship between current contraceptive use and education among the members of NGOs, when age is controlled, shows an inverted U shape among the women aged <25 years and an inverse relationship among the women aged 30-39 years. However, the number of NGO members

**Table 15.5: Percentage distribution of women currently using contraceptives by NGO membership of women, national level (rural) and two areas of Matlab, 1994/1996**

| Variables | NGO membership | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Age of woman** | | | | **Education: None** | | | |
| <19 | No | 27.6 | 362 | 49.1 | 53 | 22.9 | 35 |
| | Yes | 43.1 | 51 | 50.0 | 4 | 0.0 | 4 |
| 20-24 | No | 38.3 | 507 | 45.5 | 88 | 29.9 | 77 |
| | Yes | 50.0 | 126 | 70.0 | 10 | 57.1 | 7 |
| 25-29 | No | 47.2 | 568 | 58.8 | 97 | 34.7 | 98 |
| | Yes | 66.5 | 197 | 66.7 | 30 | 66.7 | 21 |
| 30-39 | No | 57.2 | 732 | 74.6 | 185 | 50.9 | 175 |
| | Yes | 71.7 | 307 | 87.9 | 33 | 83.3 | 18 |
| 40-49 | No | 52.8 | 409 | 83.3 | 102 | 41.4 | 87 |
| | Yes | 72.7 | 128 | 73.9 | 23 | 71.4 | 14 |
| **Age of woman** | | | | **Education: 1-5 years** | | | |
| <19 | No | 35.3 | 312 | 33.3 | 51 | 21.3 | 47 |
| | Yes | 49.2 | 59 | 71.4 | 7 | 0.0 | 2 |
| 20-24 | No | 48.1 | 285 | 45.0 | 60 | 30.0 | 70 |
| | Yes | 65.3 | 95 | 77.8 | 9 | 71.4 | 7 |
| 25-29 | No | 59.5 | 262 | 66.7 | 84 | 47.5 | 59 |
| | Yes | 61.7 | 115 | 83.3 | 18 | 58.3 | 12 |
| 30-39 | No | 66.5 | 355 | 74.7 | 87 | 60.7 | 84 |
| | Yes | 75.8 | 157 | 74.3 | 35 | 70.0 | 10 |
| 40-49 | No | 56.7 | 141 | 72.2 | 54 | 46.3 | 41 |
| | Yes | 61.9 | 42 | 100.0 | 8 | 50.0 | 4 |
| **Age of woman** | | | | **Education: 6 or more years** | | | |
| <19 | No | 43.5 | 209 | 32.4 | 37 | 9.3 | 43 |
| | Yes | 43.8 | 16 | 50.0 | 2 | 0.0 | 0 |
| 20-24 | No | 49.5 | 216 | 47.1 | 51 | 28.3 | 46 |
| | Yes | 51.4 | 35 | 60.0 | 5 | 33.3 | 6 |
| 25-29 | No | 60.9 | 174 | 74.3 | 35 | 50.0 | 24 |
| | Yes | 56.8 | 37 | 66.7 | 3 | 60.0 | 5 |
| 30-39 | No | 74.1 | 189 | 76.1 | 46 | 52.6 | 19 |
| | Yes | 82.0 | 61 | 72.7 | 11 | 66.7 | 6 |
| 40-49 | No | 68.4 | 38 | 80.0 | 10 | 100.0 | 3 |
| | Yes | 66.7 | 9 | 0.0 | 0 | 0.0 | 0 |
| **Age of woman** | | | | **ALL women** | | | |
| <20 | No | 34.1 | 883 | 39.0 | 141 | 17.6 | 125 |
| <20 | Yes | 46.0 | 126 | 61.5 | 13 | 0.0 | 6 |
| 20-24 | No | 43.5 | 1008 | 45.7 | 199 | 29.5 | 193 |
| 20-24 | Yes | 55.9 | 256 | 70.8 | 24 | 55.0 | 20 |
| 25-29 | No | 52.8 | 1004 | 64.4 | 216 | 40.9 | 181 |
| 25-29 | Yes | 63.9 | 349 | 72.5 | 51 | 63.2 | 38 |
| 30-39 | No | 62.3 | 1276 | 74.8 | 318 | 54.0 | 278 |
| 30-39 | Yes | 74.1 | 525 | 79.7 | 79 | 76.5 | 34 |
| 40-49 | No | 54.8 | 588 | 79.5 | 166 | 44.3 | 131 |
| 40-49 | Yes | 69.8 | 179 | 81.3 | 32 | 66.7 | 18 |

Table continued

**Table 15.5 (Cont.): Percentage distribution of women currently using contraceptives by NGO membership of women, national level (rural) and two areas of Matlab, 1994/1996.**

| Variables | NGO membership | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|---|
| | | National -1996 | | Matlab -1994 | | | |
| | | | | Intervention | | Control | |
| | | % | N | % | N | % | N |
| **Education** | | **All Women** | | | | | |
| None | No | 46.4 | 2578 | 65.9 | 525 | 40.3 | 472 |
| None | Yes | 65.4 | 809 | 75.0 | 100 | 67.2 | 64 |
| 1-5 Years | No | 53.1 | 1355 | 60.7 | 336 | 42.9 | 301 |
| 1-5 years | Yes | 65.6 | 468 | 79.2 | 77 | 60.0 | 35 |
| 6 or more years | No | 56.9 | 826 | 58.7 | 179 | 31.1 | 135 |
| 6 or more years | Yes | 64.6 | 158 | 68.2 | 22 | 52.9 | 17 |
| **ALL women** | | | | | | | |
| | No | 50.1 | 4759 | 63.0 | 1040 | 39.8 | 908 |
| | Yes | 65.4 | 1435 | 75.9 | 199 | 62.9 | 116 |

with primary or secondary education is small and therefore the findings are not discussed here. Among the women not a member of any NGO, the relationship between current contraceptive use and age, when education is controlled, shows an unstable positive relationship among illiterate women and a linear positive relationship among women of primary education but a J shape relationship among women with secondary education. Current contraceptive use among these women, when age is controlled, shows no effect from education among the women aged 20-24 and 30-39 years, a positive relationship with women of aged 25-29 years but an inverse relationship among the young women of <20 years and a U relationship among the oldest women.

In the control area, among the women, who are members of NGO, the relationship between current contraceptive use and age, when education is controlled, shows three different patterns. Among the illiterate women, it appears as a J, among women with primary education, it appears as a wave like fluctuation with no upper or lower bound trends, and among women with secondary education it appears positive, but the number of cases in this last education group is small. The relationships between current contraceptive use and education, when age is controlled, is an inverted U among women aged 20-24 years, a U among women aged 25-29 years while an inverse relationship is evident among the rest of the older groups. Among the women who are not members of any NGO, the relationship between current contraceptive use and age, when education is controlled, shows a J shape relationship among illiterate women and women with primary education but a linear positive relationship among women with secondary education. The relationship between current contraceptive use and education among NGO member women, when age is controlled, is inverse among the women aged <25 years, positive with women aged 25-29 years and 40-49 years but an inverted U among the women aged 30-39 years.

### 15.3.3 Summary

Despite differences, high current contraceptive use is evident among NGO members in all three areas. While the contraceptive use at the national level and its association with women's NGO membership, education and age appears relatively consistent, the relationship between current contraceptive use and NGO membership, age and education in both areas of Matlab appears unstable and variable, but this trend is more apparent in the intervention area. However, some of the instability in the relationship may also be related with the small number of cases in some groups.

Overall, the tables illustrate that women's freedom to move and NGO membership have consistent inverse relationship with current contraceptive use. However, current contraceptive use by these two variables controlling for education was not as straight forward as was expected, especially in the Matlab areas. At the national level, current contraceptive use by women's freedom of movement has a positive relationship when education is controlled but the same relationship does not hold for both areas of Matlab.

## 15.4 Conclusion

The current contraceptive use and spousal communication over the period shows that all three spousal communication factors had an enormous impact on contraceptive use behaviour of the reproductive women in all the three areas. The impact is significantly great at the early stages of contraceptive prevalence and large in the 1983-1996 period. A large impact is evident at the national rural level and in the control area in the study period, while the impact is lower in the intervention area and reduces still further in the study period. The impact of these variables is independent of the level of education or age of the women

In all the three areas, however, higher current contraceptive use is evident among the women who have a high or medium level of autonomy and lower among those who have low level of autonomy for all three-education groups. The overall current contraceptive use is low among the younger and older women irrespective of level of movement allowed. Education of women shows a positive relationship with current contraceptive use levels of women movement allowed at the national level but not in Matlab. Overall, women's freedom to move and NGO membership have a positive relationship with current contraceptive use. However, current contraceptive use by these two variables controlling for education is not straight forward as was expected, especially in the Matlab areas. At the national level, current contraceptive use by women's freedom of movement has a positive relationship when education is controlled. But the same relationship does not hold for both areas of Matlab.

The theory of family and society forwarded by sociologists hypotheses that in a traditional patriarchal society like Bangladesh, use of contraceptives has been constrained by cultural factors related with spousal communication and restrictions on women's freedom of movements. The data analysis partly supports the above hypothesis. The literature review suggests that spousal communication and women movement in the rural area was low in the past (Jahan 1975; Aziz et al.1984). During the study period, spousal communication became common among couples and had a significantly large impact on women current use of contraception. The system of women seclusion and use of strict *Purdah* reduced and freedom of movement for women improved (Razzaque et al.1998; Caldwell et al. 1999). These factors positively affect the current use of contraceptives, although not as strongly as the effect of the spousal communication variables.

Finally, the positive relationship between current contraceptive use and NGO membership in the present analysis supports the hypothesis forwarded by a large volume of research literature on NGO activities, that the NGO programmes bring social change through their activities at the grassroots level. These targeted rural development programmes to the poor, especially women, aimed at alleviating poverty act as a mechanism to reduce social conservatism and help in decision-making about health and reproduction through facilitating women autonomy and empowering women.

# Chapter 16: An Overview of the Trends and Determinants of Current Contraceptive Use

## 16.1 Macro Trends in Current Contraceptive Use and the Family Planning Programme

The analysis in the previous four chapters (chapters 12-15) identified some of the factors of the current contraceptive use behaviour using time series and cross sectional data from two areas of Matlab and the national rural area. The analysis is essentially a micro level but the results have been interwoven with those of macro and community contextual environment of the society. For example, the effect of macro level survivorship on the micro level women's current contraceptive use is through number of surviving children. Similarly, son preference, a macro and community level factors effect the micro contraceptive use behaviour of the women through her number of living sons. These macro and community levels factors affect the individual behaviour for a particular event while the micro level behaviours aggregate produces demographic parameters (Watkins 1991). Pool (1999) suggested that each of these levels is dynamic and interlinked; they are affected by changes occurring in either or both of the other levels.

The present analysis attempts to identify the determinants of the trends in current contraceptive use of the women of Bangladesh by exploring these three levels of change. At the macro level, these are, demographic change especially survivorship, social and economic transformation, socio-cultural expectation, and Government policies on health and population. At the community level, they are service structure of family planning, development programmes provided by Government and Non Government Organizations, education and occupation and land inheriting system at the community level (including *bari*). These factors of change revolve around the micro level, biosocial factors, women age and number of surviving children and sons; and socio-economic factors, occupation of women and husband, possession of land and other economic assets, education, cultural factors, spousal communication about family and fertility control, demand for children, gender preference of the family, programme and knowledge related factors, knowledge about contraceptive and the sources of contraceptive supply.

As noted earlier the present study is a micro level analysis, so the next few sections will highlight the micro level determinants of the current use of contraceptives, although macro and community level factors have an influence on them. But before discussing the determinants of contraceptive use behaviour, macro level trends in contraceptive use will be highlighted here.

The analysis in chapter eight reveals that the overall current contraceptive use was very low all over the country until 1975 (7.7 percent). In the pre intervention period at Matlab, contraceptive use was minimal in both areas of Matlab and lower than the national level but slightly higher in the control area. But with the introduction of contraceptive distribution at the door of the women through CDP in half of the Matlab HDSS area, rises the contraceptive prevalence to 18 percent of all reproductive women within three months indicating a demand for no additional children in the society. It then reduced to 12 percent within a year, the reasons being the side effects of contraceptives and the lack of knowledge of both distributors and users. The CDP had been launched without any technical backup support to the rural women. But within one year, after the introduction of the FPHS programme in the intervention area with technical backup and a small component of curative MCH services, contraceptive use rose to 33 percent. Such a rapid rise again reconfirmed the existing demand for no additional children in the society but the contraceptive use rate at the national level had become only 13 percent.

The basic services delivery programme in the early 1970s was the same all over the country including Matlab. In 1975, Matlab CDP intervention area introduced home delivery of the oral pill and condoms but no technical support backup and after the assessment of CDP, Matlab adopted a Cafeteria approach in 1977 whereas the national programme continued with its programme of popularising a single method. The comparison of the two programmes (national and Matlab) reveals that Matlab FPHSP was the more appropriate strategy for the rural women. By 1979, the national programme had changed its service strategy. But despite an existing demand for fertility control among the women and efforts from the government to meet this demand for fertility control, as chapter two and four reveals, the strength of the programme was still inadequate and in some cases inconsistent to cover the whole population (Phillips et al. 1994).

However, the level of contraceptive knowledge was reasonably adequate in the early 1970s and almost universal by 1994/1996. The same was true about the knowledge of the sources of contraceptives.

## 16.2 Demand for No Additional Children and Current Contraceptives Use

As would be expected, analysis of the demand for additional children and current contraceptive use (chapter 12) shows that at the early stage, current use of contraceptives started among the women who wanted no more children but with increasing maturity of the programme, women who wanted additional children also started using contraceptives. Contraceptive use was substantially higher among women who reported to have no demand for additional children in the three areas. It was the highest in the intervention area in 1994. However, the demand for additional children is higher in both areas of Matlab than at the national rural level .

## 16.3 Factors Related With Current Contraceptive Use

An examination of the biosocial, economic and socio cultural factors reveals that there was a strong positive relationship between current contraceptive use and biosocial and socio-cultural factors.

### 16.3.1 Biosocial Factors

The examination of biosocial factors indicates a strong relationship between current contraceptive use with woman's age and number of surviving children. The relationship is even stronger when number of living sons is considered. This is true over the whole study period for the three areas.

Analysis of the relationship between current contraceptive use and women's age reveals that at the early stages of fertility transition (I treat the national and the

Matlab control of the year 1983/1984 as the early stage as it has the lowest current contraceptive use), the middle segment of the women's age who have at least two living children are using contraceptives. It seems that the number of children is more important than age. Current contraceptive use among very old (40+ years) and very young (<20 years) women is low in these two areas (national and control). But the case of the intervention area is different. The current contraceptive use in this area is high for women in all age groups having at least one child.

In the later stage, that is, 1994/1996, the analysis reveals, that the pattern of current contraceptive use has changed radically. Virtually, women of all age strata or living children in the three areas, except those who have no children, have started to use contraceptives. Even women who have no living children are using contraceptives in the national area, an indication that a considerable number of women are using contraceptives to delay their first birth. This is a radical shift in a patriarchal society like Bangladesh where most of the couple in earlier times wanted to have a baby as soon as possible after marriage (Jones 1982; Khan 1984). However, both areas of Matlab seem to lag in behind the national rural level in terms of current contraceptive use among women who have no children. In both areas of Matlab, current contraceptive use seems low among the women who have no children, an indication that the demand for children is higher in the Matlab areas.

Analysis was carried out to assess the impact of age separating the effect of education of women. The relationship between current contraceptive use and age when education is controlled is not clear cut. Each age group showed a different relationship between current contraceptive use and education. At the national rural level, women's age shows an independent J shape relationship with current contraceptive use irrespective of education during the whole study period. In the intervention area, in 1984, the effect of age on current contraceptive use irrespective of level of education appears clearly at the later stage of reproductive life. Current contraceptive use is relatively similar among the illiterate women aged less than 30 years and then it starts to rise. Among the women with primary education, in general, current contraceptive use increases with increasing age but not as consistently as in the national rural area. In 1994 in the intervention area, current contraceptive use shows an unstable positive relationship with age among the illiterate women, and a linear positive relationship with age among the women with primary and secondary education. In the intervention area, age shows a positive relationship with current contraceptive use among the illiterate young women aged less than 30 years but flattens at the older ages. Among women with primary education, it is unbent J shape, and among the secondary educated women it shows a J shape distribution. In the control area in 1994, when education is controlled, current contraceptive use shows a linear positive relationship with women's age irrespective of level of education. In general, current contraceptive use is high among women with secondary education irrespective of age and area. On the other hand, current contraceptive use increases with increasing age in all the three areas though the use among women aged 40 over was low.

### 16.3.2 Economic factors

Economic factors do have an association with current contraceptive use though the expected relationships are not strong. Women's paid work has an impact on current contraceptive use and the relation is stronger during the study period but the proportion of women engaged in paid work is very low in Matlab. The household economic factor, occupation of husband reveals that the women whose husband is engaged in daily skilled and unskilled labour are the lowest current users. The higher users are the women whose husband is either engaged in business, service or working on his own farmlands. This trend continued for the whole study period in all the three areas.

### 16.3.3 Social factors

***Education***

Social development in terms of education shows a variable effect on current contraceptive use. All the education types, women's education, husbands education and education of the household head shows a strong positive relationship with current contraceptive use in all the three areas in the 1983/1984 period. The relationship between current contraceptives use and education is examined for age, number of living children and living sons.

In the national rural level, in 1983 and 1996, when age has been considered, education appears to have a linear positive relationship with current contraceptive use irrespective of age but the strong linear positive relationship between current contraceptive use and education among all age groups had flattened and the difference in current contraceptive use between women of primary and secondary education reduced in 1996.

In the intervention area, in 1984, a linear positive relationship between women's education and current contraceptive use is evident among the women in their late twenties and above. Among the <20 year olds it is inversed, and among early twenties, a U shape distribution appears between current contraceptive use and education. In 1994, the impact of education on current contraceptive use has almost been neutralized and in some cases unexpected (age less than 24 years).

In the control area, in 1984, current contraceptive use demonstrates a positive relationship with education irrespective of age, but the relationship is less strong for the older age group greater than 29 years. But this relationship had changed in 1994. The relationship between current use of contraceptives and education turned into reverse among the young women aged less than 20 years. A slightly positive relationship between current contraceptive use and education appears among the women aged 25-29 years and aged 40-49 years but it is an inverted U among the women of age 30-39 years.

In general, it appears that education has the expected positive relationship with current contraceptives use irrespective of age at the early stage of fertility decline, but that the effect of education has reduced or in some cases, reversed, during the study period.

Analysis of the mediating effect of other biosocial factors on education for influencing the current contraceptive use pattern illustrates that in all the three areas, the positive effect of education on current contraceptive use is substantial irrespective of  number of living children or living sons in 1983/1984 period. However this positive relationship between women's education and current contraceptive use by biosocial factors changed during the study period. At the national level, the positive effect of education on current contraceptive use, after controlling the effect of biosocial factors, reduced but was not neutralized. But in both areas of Matlab, the positive effect of women's education on current contraceptive use after controlling the effect of biosocial factors of women was not only reduced, but in some living sons groups especially among the young and women with fewer living children or sons, has not only reduced but reversed.

The comparison of three data sets over the period demonstrates the same pattern of relationship between current contraceptive use and husband's education as it was demonstrated by women education in 1983/1984 and 1994/1996. The positive relationship between current contraceptive use by husbands education at the national level is true in 1996 but to a lesser degree. The same is true for couple's education. Literate couples have a higher rate of contraceptive use than the other three groups but the relationship is less strong in 1996. As discussed earlier husband's education was not available for the 1984 Matlab data and therefore there is no information on couples' education for Matlab. The 1994 data for Matlab does not show any relationship between husband education and current contraceptive use and neither does couple education. The household head's education though shows a consistent positive relationship with women's current contraceptive use in 1984-1994 period, but the impacts were reduced in 1994. The education environment of *bari,* represented by percent of literate household heads in *bari,* shows an expected relation with current contraceptive use of women. But the difference in current use between women living under literate and illiterate household heads in both areas is not large. The same is true for religious education of household head in a *bari*.

### 16.3.4 Cultural factors

*Sex Composition of Family*

A major breakthrough is evident in the relationship between current contraceptive use and some cultural phenomena, in particular, sex composition of children, and spousal communication. Analysis reveals that the most women started using contraceptives when they had their desired number of living children, especially living sons. In 1983/1984, the current use of contraceptives in all the three areas was the highest among those women who had more than two children and had a large number of sons. The second highest users varied in three areas. The second highest current use of contraceptive appears to be those who have two children, one of each sex. But the difference in current use of contraceptives between those who have more than two children with more sons than daughters, and those who have two children one of each sex are not large. In 1996, this small difference in current contraceptive use between those women who have more than two children having more sons than daughters and those who have two children having one from each sex is reversed signifying that women are rapidly moving towards two children with a balanced sex composition of the family.

In two areas of Matlab in 1984, the highest current use clearly manifested among women who have more than two living children and more sons than daughters, followed by the women who have more than two living children. During the study period, as mentioned earlier, current contraceptive use by sex composition has changed in all the three areas, especially among the young women and women who have less than three children. Despite these changes, in contrast to the national level, the highest current use of contraceptives appears among women who have more than two children and more sons than daughters in both areas of Matlab, followed by the other women group who have more than two children in the intervention area. In the control area, however, it is the women who have two children one of each sex, who comes up as the second highest users. In general, the current contraceptive use is higher in the intervention area, among all the categories of sex composition of children than other two areas. Analysis of the relationship between current contraceptive use and sex composition of the children by age and education of women, and examination of changes over time by these factors illustrates that the women of both areas of Matlab wanted a larger number of children than at the national level but son preference is still strong in all the three areas but stronger in both areas of Matlab though changing slowly.

Analysis also reveals that despite a family planning and contraceptive programme like the national programme in the control area, contraceptive use is low in the control area especially among women who have less than three children irrespective of sex composition. On the other hand, despite an existence of strong family planning programme in the Matlab intervention area, contraceptive use among the women who have less than three children has similar trend (not in magnitude) as is at the national level. It may due to the fact that Matlab population wanted larger number of children than the rest of Bangladesh, the programme have no effect on the cultural aspect, that is, preference for son, of the society.

Exploration of the three data sets on son preferences supports the son preference hypothesis of this society. In 1983/1984, in all the three areas, current contraceptive use was low among women who had no living sons. During the study period, current contraceptive use increased among all the living sons groups including those who have no living sons but there are differences in use between those who have no living sons and those who have at least one. In all the three areas, there is a noticeable change in the number of sons women wanted. In 1983/1984, women having one living son started using contraceptives. Use increases when they had two sons but having more than two sons did not systematically increase the current use level. In 1994/1996, in the national rural area, the same situation arises when women had only one son. In both areas of Matlab, however, the positive relationship between current contraceptive uses with living sons is still same and strong.

### *Spousal Communication*

A strong relationship appeared between current contraceptive use and spousal communication. Matlab statistics 1984 and 1994, and later BDHS-96 in the analysis demonstrate, a high level of spousal communication between husband and wife in all three areas. The contraceptive use among women in all the areas who discuss family planning or who believe that their husband approves of family planning is very high compared to those who do not or who think their husband disapproves family planning. This trend continues for the whole study period, that is, 1983 to 1996.

The effect of age and education on current use of contraceptives by these three spousal communication factors has also been analysed. The difference in contraceptive use by these groups is large irrespective of age and education.

Finally, during the study period, there was a radical shift in current contraceptive use among women who had less communication with husband or thought that their husband disapproved of family planning. Two trends are apparent. The first, the overall number of women who reported less communication with husband or thought their husband disapproved family planning has declined. The second, those who have less communication with their husbands or thought their husband disapproved family planning also stated using contraceptives. This is true among all women in the intervention area and among older women in other two areas. The last points to note is, number of women who reported that they 'don't know' their husband's attitude was large in the early study period (1983/1984 period), but this number had largely reduced in the later stages in 1994/1996.

Having discussed the micro level determinants of current contraceptive use, a few factors, which have direct community contextual element, are listed below.

### 16.3.5 Community Contextual factors

***Women Autonomy***

Women's freedom of movement, a community contextual factor, reflects the social conservatism of Bangladesh. Autonomy and freedom of movement of women in Bangladesh are slowly growing. Both the Matlab and the national data demonstrate that high autonomy or freedom of movement is positively related with current use of contraceptives. As expected, women who have a high or medium level of autonomy have a higher rate of contraceptive use than those who have a low level of autonomy.

The impact of age on the relationship between current contraceptive use and women freedom of movement, when education was controlled, had a J shaped relationship in most of the subset of women freedom of movement variables. But like the spousal communication variables, the relationship between current contraceptive use and women's freedom of movement was in most cases linear in all the three areas when woman's age was controlled. The overall current contraceptive use was low among the younger and older age women irrespective of level of movement allowed. Education of women showed a positive relationship with current contraceptive use among all categories of women's level of movement allowed at the national level but not at Matlab.

### *NGO Membership*

NGO programme, a macro level programme works at the community level has influence on the current use of contraceptives. The NGO activities and programmes, which involved women in different social and economic activities, have a consistent positive relationship with current contraceptive use. Current contraceptive use is high among the women of the three areas who had NGO membership but the stronger relationship is evident in the control area than in the other two areas.

Despite differences, current contraceptive use was high among NGO members in all the three areas. While the contraceptive use at the national level and its association with women's NGO membership, education and age was relatively consistent, the relationship between current contraceptive use and NGO membership, age and education in both areas of Matlab is unstable and variable, more so in the intervention area. However, some of its unstable relationship may also be related with small number of cases in some groups.

### 16.6.6 Programme Factor

***Family Planning Worker's Visitations***

Another macro level programme with community level implication is the family planning worker's visitation. Analysis shows that the use of contraceptives in all the three areas is highly influenced by the family planning worker's visitation. It reveals that the greater the frequency of visits, the higher the current use of contraceptives in all the three areas during 1983-1996.

***Other community factors***

The other community contractual factors used in the analysis are several *bari* level characteristics. These are occupation of majority household heads, education of the majority household head and number of religiously educated household heads in the Matlab area. Results show that both education and occupation of household heads in a bari have positive relationship with current contraceptive use but that the religious education of the household head in a bari did not have an impact on current contraceptive use .

However, all these analyses were carried out using the bivariate distribution. While the bivariate distribution provides a useful understanding of the relationship between the dependant variables and its covariates, it could not control the effects of other variable. In order to examine the true impact of the independent variables on dependant variable, a multivariate analysis will be carried out controlling for the effect of other variables. This will be presented in the next section

# PART IV: MULTIVARIATE ANALYSIS

# Chapter 17: Cultivariate Analysis of the Demand for Additional Children

## 17.1 Introduction

The macro level trends in demand for no additional children and current contraceptive use and bivariate distribution of the relationship of these two variables with a host of biosocial, bio-cultural, socio-cultural, and economic factors at individual, household, *bari* and community levels were examined and discussed in Part II and Part III. In the previous chapters, (chapter 11 and chapter 16), summary findings of the demand for additional children and current contraceptive use at the macro and bivariate micro level were brought to the forefront. The macro level analysis (chapters four & eight) illustrates high fertility and a large number of surviving children among women in the 1950s and 1960s and an explicit demand for fertility control while a mechanism to control fertility was largely absent in the rural area of Bangladesh, including Matlab.

Matlab earlier data discussed in chapter eight provided ample evidence that the use of fertility control methods was largely constrained by socio-cultural factors, such as, restrictions on women movement, spousal communication, and other patriarchal cultural factors, and a lack of macro level economic development like inaccessible road communication. Bivariate analysis of the data in Parts II and III reveals that individual biosocial factors, age of women, number of living children and living sons; the economic factors, women employment; the socio-cultural factors, education of women, sex composition of the family, and the household and bari level factors, husband education, household education and education level of bari are the important determining factors of demand for additional children and current contraceptive use. At the community level, membership in a Non Government Organization (NGO) and freedom of movement also shows an expected positive relationship with demand for additional children and current contraceptive use.

But the results of the bivariate analysis are inconclusive because of the confounding effect of some variables with other variables. The bivariate analysis in the previous chapters provides a useful insight into the relationship between the dependent variables 'demand for additional children' and 'the current contraceptive use' with independent variables, but the analysis did not control the impact of other independent variables. Thus, in order to examine the relationship between dependent variables 'demand for additional children' and 'current contraceptive use' with various independent biosocial, economic and cultural factors controlling the effect of other variables, a multivariate logistic regression based on the concept of repeated cross sectional surveys has been performed. General details of the method of analysis were described in chapter six, but more specific details of the method of analysis that relate to the present chapter will be presented here.

### 17.2 Data and Definition of Variables

In the present study, data from two surveys data from each area, national rural area (CPS-1983 & BDHS-1996) and Matlab areas (KAP-1984 & MDHS-1994) have been pooled into one data set in which Year of Survey is a covariate. The Years of Surveys (Time) for the national rural area are 1983 and 1996 and for areas of Matlab, 1984 and 1994. In the regression model, these Year of Surveys variables are coded dummy, treating 1983 for national rural area and 1984 for both areas of Matlab as reference categories. The coefficients of these Year of Surveys variables have been used in the interaction to measure the change in the effect of some of the variables, which are thought to be important determinants in the Bangladeshi socio-cultural environment for 'demand for additional children' and 'current contraceptive use'. These variables are women's age, education and sex composition of the family. The interactions of these variables with Year of Survey will demonstrate whether their impact has increased or decreased during the study period. The number of variables collected for both areas of Matlab was larger than those for the national rural area. Thus, a separate analysis has been conducted for the national rural area and Matlab where in the Matlab model, area of intervention has been treated as an independent variable. In order to give a clear picture of the dependent and independent variables used in the analysis, a description of the variables is given in Table 17.1.

**Table.17.1. List of variables available in Two data sets.**

| **Dependant variables** | **Independent variables** |
|---|---|
| a. Demand for additional children<br>b. Current contraceptive use | **Common in three areas.**<br>Year of survey (Time).<br>Area of intervention.(Matlab)<br>Biosocial: Women age, number of children died.<br>Economic: employment status of women, Possession of land by household<br>Socio cultural: education of women, sex composition of children, religion,<br>Knowledge and access to contraceptives<br>Programme variable: family planning workers visitation.<br>**Common in the intervention and control areas (Matlab) only**<br>Spousal communication factors: Discussion of family planning matters with husband,<br>Women's perception of husband's approval of family planning.<br>Women's perception of husband's agreed number of children |

However, as mentioned in Chapter six, the 1994/1996 national and Matlab Surveys collected a wider range of data including information on spousal communication, women's freedom of movement and involvement of women in NGO activities. Thus, a simple logistic regression model for the national rural area for the year 1996 and both areas of Matlab for the year 1994 has also been carried out incorporating those variables to see their effect on demand for additional children and current contraceptive use.

The two dependent variables in the analysis are' demand for additional children' and 'current contraceptive use'. Detailed information about these two dependent variables was presented in chapter 5. For logistic regression, both are coded as dichotomous with demand for additional children 'Yes' as 1 else '0' and current contraceptive use 'Yes' as 1 else '0'. For both dependent variables, unknown cases have been excluded. While the analysis of the demand for additional children is presented in this chapter, the analysis of the current contraceptive use will be presented in chapter 18. However the independent variables used in the multivariate analyses for both demand for additional children and current contraceptive use, will be described in this chapter.

Several groups of independent variables are used in the analysis. Time (Year of Survey) and area of intervention are dichotomous variables with Years 1983 and 1984 as reference categories, area of intervention (for Matlab model only) with MCH-FP area as reference category. Two biosocial variables, women age and number of dead children have been used in the analysis. These variables are categorical with five categories for age and four categories for the variable, number of dead children. The women aged <20 and women with no dead children have been treated as reference categories. Other biosocial factors, used in the bivariate analysis, number of living children and number of living sons, have been found to be correlated with another bio-cultural factor, sex composition of the children. Considering the importance of cultural values of children, the variable, sex composition of the family has been retained in the analysis and the number of surviving (living) children and the number of surviving (living) sons have been excluded. Virtually the variable sex composition of the family is a combination of these two variables (number of living children and living sons) and has been used to capture the impact of the two. There are five categories in the sex composition of the family with the variable, two children one of each sex, as the reference category.

Only two economic variables collected in the national survey for both periods, have been included in the analysis. These are employment of women and possession of land by the households. Both variables are dichotomous, with women's housework and non-possession of land by the household as reference categories. In Matlab, however, the number of economic variables collected in the surveys is large. The variables used in the bivariate analysis are, women and husband's occupation, possession of land by the household, materials used in house construction, possession of consumer durables by the household, members of the household living outside the HDSS area and a specially calculated household wealth index. In the multivariate analysis, only employment of women and possession of consumer durables, radio and watch have been included in the demand for additional children model. However, woman and husband's employment are used in the current contraceptive use model. Employment of women and possession of consumer variables are dichotomous with women's housework and non-possession of those consumer durables as reference categories. However, husband's occupation has four categories with the occupation of farmer as the reference category. The other economic variables added into the model are excluded, as they did not improve the model's explanatory power.

The next block of variables related to the socio-cultural aspects of the demand for additional children and current contraceptives use used in the analysis are, education of women, education of husband and household heads, proportion of head educated and the presence of religiously educated household heads in a *bari*. Again for the same reason, that is, non-significant contribution to model fit, proportion of educated heads and the presence of religiously educated household heads in a *bari* have been excluded from the analysis. Religious faith of the women has also been included in the model. A second important socio-cultural variable included in the analysis is the sex composition of the family. All the socio-cultural variables are categorical and dummy coded. Women's education has three categories and husbands or household head's education has 4 categories with illiterate groups as the reference category for both. The religion is dichotomous with Muslims as reference category.

While all the socio-cultural variables used in the analysis are common in both national and Matlab data sets, another set of variables related with social-cultural issues like spousal communication are only in the Matlab data. These variables are, discussion of family planning matters with husband, women's perception of husband's approval of family planning and women's perception of agreed number of expected children with husband. These three variables are dichotomous, with women not discussing family planning matters with husband, their perception of their husbands disapproval of family planning, and their perception of their husband's wanting the same or less children as reference categories.

The last variable is related with family planning programme performance; whether the visit of family planning programme worker can influence the demand for additional children or can increased the contraceptive use among the women of both rural Bangladesh and Matlab. Like the other variables, the programme variable is categorical and dummy. It has three groups with least or never visits as reference category. Finally, as we are interested to examine whether there was a change in the effect of some independent variables over time, that is, during the study period, an interaction between time (Year of Surveys) and some variables have been added into the model. The selection of those variables is on the basis of the literature reviews presented in chapter four and chapter six

However, as the model selection processes differ for the dependent variables, demand for additional children and current contraceptive use, this chapter will cover only the analysis of demand for additional children, while the next chapter will cover current contraceptive use.

### 17.3 Statistical models

Multivariate logistic regression analysis has been selected as a method of analysis, as the dependent variable, demand for additional children, is dichotomous. In the model, the dependent variable is the log of the odds of demanding additional children over not demanding additional children. Each of the groups of independent variables has been added into the model sequentially. Inclusion or exclusion of the variables is conditional to the empirical results found in other studies or in the bivariate analysis. The inclusion of different combinations of dependent variables helps to explain how the biosocial, economic and socio-cultural factors of the women affect reproductive decision making which is expressed in the form of demand for additional children. The elimination of variables and selection of final model have been conducted on the basis of relative weight of each of the variables to model fit. Two statistics have been used to determine the best model fits. These are –2 Log Likelihood statistics and Raftery 's (1995) Baysian Information Criterion (BIC). Details of the selection procedure have been discussed in chapter five.

***Regression decomposition***

The coefficients of the preferred models and year specific sample means for national rural and Matlab areas (Means of all categories are presented appendix Table A-7a and Table A-7b respectively while the figures used in the decomposition are presented in the respective tables) have been used to make inferences about the relative causal importance of each of the variables to explaining changes in the demand for additional children between the two survey years. The regression decomposition yield estimates of the impact of changes in each independent variable on the predicted change of demand for additional children.

## 17.4 Results

### 17.4.1 National rural area

In the present chapter, tables of the results of the multivariate analysis for the national rural area and Matlab have been produced separately for convenience. Table 17.2 presents eight different models to examine the impact of different biosocial, economic and socio-cultural factors on demand for additional children from 1983 to 1996 for the national rural area. The table presents the model fits statistics, the –2 Log Likelihood statistics, and the Raftery 's (1995) Baysian Information Criterion (BIC) for evaluating the logistic regression models of the demand for additional children. The coefficients of model one measure only the main effect of the Year of Survey. Model 2 includes the main effect of the women's economic characteristics. Model 2 has, expectantly a better explanatory power than Model 1 by both measures of fits signifying that the economic factors of the women affected the demand for additional children during 1983-1996.

The main effects of the socio-cultural factors have been incorporated through Model three and Model 4 to evaluate two types of social and cultural features of the women. The first model examines the social development in the form of education of women and husband and the religious composition of the rural society represented by religion. The second model deals with a deeply rooted bio-cultural phenomenon, preference for children, especially sons, represented by the

**Table 17.2. Fits statistics of logistic regression models of the demand for additional children, national rural level, 1983-96**

| Models Descriptions | -2Log Likelihood | DF | BIC |
|---|---|---|---|
| **Model 1**: Year | 13968.8 | 10426 | -82494.2 |
| **Model 2:** Year; Economic, Employment of women, Possession of land | 13925.60 | 10424 | -82518.9 |
| **Model 3:** Year; Economic, Employment of women, possession of land; social, women's and husband's education, religion | 13814.2 | 10418 | -82574.7 |
| **Model 4:** Year; Economic, Employment of women, possession of land; social, women's and husband's education, religion & sex composition of the family | 9979.8 | 10414 | -86372.1 |
| **Model 5** Year; Economic, Employment of women, possession of land; social, women's and husband's education, religion & sex composition of the family; biosocial, women's age & # of children died | 9119.7 | 10407 | -87167.5 |
| **Model 6** Year; Economic, Employment of women, possession of land; social, women's and husband's education, religion & sex composition of the family; biosocial, women's age & # of children died, FPW Visit | 9095.5 | 10405 | -87173.2 |
| **Model 7** Year; Employment of women, possession of land; social, women's and husband's education, religion & sex composition of the family; biosocial: women's age, & # of children died, FPW Visit; interaction effect, Year X women education | 9072.1 | 10403 | -87178.1 |
| **Model 8** Year; Employment of women, possession of land; social, women's and husband's education, religion & sex composition of the family; biosocial: women's age, # children died; FP worker's visit, Interaction effect, Year X women education, Year X women age | 9053.1 | 10399 | -87160 |
| **Model 9** Year; Employment of women, possession of land; social, women's and husband's education, religion & sex composition of the family; biosocial: women's age, # children died; FP worker's visit, Interaction effect, Year X women education, Year X women age, Year X sex composition of the family. | 9020.7 | 10395 | -87155.4 |

variable sex composition of the family. Both measures of fit demonstrate that these two models are superior to the earlier two models but model of fit is the largest when sex composition of the family is incorporated into the model. This finding indicates that the most important factor of demand for additional children is the sex composition of the family.

Women's biosocial factors, women age and number of dead children have been added into the model through Model 5. Both fit statistics show that inclusion of biosocial factors greatly improves the model fit and is the second largest improvement over all other models. The last main effect model incorporates

(Model 6) the impact of family planning programme on demand for additional children represented by the family planning worker's visits. Both fit statistics provide evidence of improvement of the model when family planning worker's visitation is included. So Model 6, which captures only the main effect of the covariates, is the first preferred model.

Several interaction variables have been introduced into the model on the basis of substantive and theoretical considerations. These are women employment, education, age and sex composition of the family and family planning worker's visits. Only the interaction between Year of Survey and women's education through Model 7 significantly decreases the –2 Log Likelihood and increases the BIC level. Improvement of Model 7 over Model 6 (BIC=-5) reveals that there is a significant change in the impact of women's education on demand for additional children during the 1983 to 1996 period. Another two interaction factors, women's age and sex composition of the family, that have significant effects on demand for additional children have been added into Model 8 The inclusion of these two interactions decreases the –2 Log likelihood but also decreases the BIC statistics significantly. We depend on both statistics to select a variable for the model in most cases but in some cases when an independent variable significantly affects the dependent variable and significantly changes one of the fit statistics, it is necessary that we retain that variable. Models 8 and 9 are therefore excluded and Model 7 is our second preferred model. The coefficients of these two preferred models, Models 6 and seven will be used to estimate the total contribution of each biosocial, economic, socio-cultural and programmatic variables', and the changing effect of these variables on demand for additional children of the rural women of Bangladesh during 1983-1996.

Table 17.3 presents the coefficients of the two preferred models. These coefficients represent the log odds of demand for having an additional child over not having an additional child. The Year of Survey coefficient in the two models shows that there was a significant reduction in the demand for additional children in 1996. The economic factors, that is, women's employment and possession of land by the household, show the expected direction of relationship but only the women in paid employment variable shows a significant inverse relationship with demand for additional children. The odds ratio of reducing demand for additional children among the women who have paid employment is 0.84 in Model 6. The coefficients of the socio-cultural factors also showed a consistent relationship with demand for additional children. Both women's and husband's education have an inverse relationship with demand for additional children but only husband's secondary and higher-level education show a significant inverse relationship with women's demand for additional children. The odds of reducing demand for additional children among women having a husband with secondary and higher secondary education are 0.81 and 0.60 respectively. In terms of religious belief, Hindus show a significantly lower demand for additional children.

The coefficients of the sex composition of the family, which contributed the largest explanatory power to the model, show both positive and negative relationship with demand for additional children when each of the sex composition of the family categories is examined. The results are consistent with other studies conducted on sex composition of the family (Rahman at al. 1992; Bairagi & Dutta 2001) The demand for additional children is significantly high if the women have less than three children of the same sex regardless of male or female, and the highest if they have daughters only. The odds ratios for demanding additional children among these groups (women having two children of same sex) are more than four times higher among women who have one or two boys, and more than seven times higher among women who have one or two daughters, than the reference category. Demand for additional children declines significantly among women who have more than two children. It declines more among the women who have more sons than daughters. The odds of having an additional child among women who have more sons than daughters are diametrically opposite to the odds for women who have sons only. The odds ratio of demand for additional children among the women who have both sons and daughters but more sons than daughters is 0.43 (2.32 times) while it was 0.93 among the women who have more daughters than sons. The coefficients of the sex

**Table 17.3: Coefficients of the variables of two preferred logistic regression models of the demand for additional children, national rural level, 1983-1996**

| | Main effect model (Model 6) | | | Interaction model (Model 7) | | |
|---|---|---|---|---|---|---|
| Variables | Co-efficient | S.E. | Odds Ratio | Co-efficient | S.E. | Odds ratio |
| **Constant** | 1.159*** | 0.119 | 3.188 | 1.240*** | 0.121 | 3.456 |
| **Year of Survey** | | | | | | |
| 1983 | -- | | | -- | | |
| 1996 | -0.845*** | 0.063 | 0.43 | -1.008*** | 0.076 | 0.365 |
| **Employment status of women** | | | | | | |
| Paid employment | -0.173* | 0.067 | 0.841 | -0.165** | 0.068 | 0.848 |
| Housework | -- | | | -- | | |
| **Possession of land, household** | | | | | | |
| No | -- | | | -- | | |
| Yes | 0.004 | 0.058 | 1.004 | -0.004 | 0.058 | 0.996 |
| **Education of women** | | | | | | |
| No education | -- | | | | | |
| 1-5 years | -0.036 | 0.067 | 0.965 | -0.180** | 0.091 | 0.835 |
| 6 or more years | 0.116 | 0.113 | 1.123 | -0.539*** | 0.183 | 0.584 |
| **Education of husband** | | | | | | |
| No education | --- | | | --- | | |
| 1-5 years | -0.111 | 0.069 | 0.895 | -0.111 | 0.069 | 0.895 |
| 6-9 years | -0.203* | 0.089 | 0.816 | -0.204** | 0.089 | 0.815 |
| 10 or more years | -0.502*** | 0.109 | 0.606 | -0.448*** | 0.110 | 0.639 |
| **Religion:** Islam | -- | | | -- | | |
| Hindus | -0.19* | 0.087 | 0.827 | -0.194** | 0.087 | 0.824 |
| **Sex composition, of family** | | | | | | |
| One son & one daughter | -- | | | --- | | |
| 1-2 son only | 1.454*** | 0.089 | 4.279 | 1.457*** | 0.089 | 4.292 |
| 1-2 daughter only | 2.028*** | 0.098 | 7.597 | 2.026*** | 0.098 | 7.585 |
| Children >2 but son=>daughter | -0.844*** | 0.089 | 0.43 | -0.842*** | 0.090 | 0.431 |
| Children >2 but daughter>son | -0.077 | 0.088 | 0.926 | -0.066 | 0.088 | 0.936 |
| **Age of women:** <20 | -- | | | -- | | |
| 20-24 | -0.605*** | 0.099 | 0.546 | -0.609*** | 0.099 | 0.544 |
| 25-29 | -1.047*** | 0.104 | 0.351 | -1.055*** | 0.104 | 0.348 |
| 30-39 | -1.883*** | 0.112 | 0.152 | -1.906*** | 0.113 | 0.149 |
| 40-49 | -3.482**** | 0.162 | 0.031 | -3.516*** | 0.163 | 0.030 |
| **# of dead children** | | | | | | |
| None | -- | | | -- | | |
| 1 | 0.056 | 0.066 | 1.058 | 0.057 | 0.066 | 1.059 |
| 2 | -0.066 | 0.098 | 0.937 | -0.070 | 0.098 | 0.932 |
| 3 or more | 0.14 | 0.108 | 1.15 | 0.127 | 0.108 | 1.135 |
| **CHW and FPW visit** | | | | | | |
| In month | -0.239** | 0.089 | 0.787 | -0.232*** | 0.089 | 0.793 |
| Once in six months | -0.288*** | 0.064 | 0.749 | -0.289*** | 0.064 | 0.749 |
| More than 6 months/never | -- | | | -- | | |
| **Interaction: Year X Women's education** | | | | | | |
| Year of Survey X Primary education | | | | 0.288** | 0.122 | 1.334 |
| Year of Survey X Secondary education | | | | 0.901*** | 0.195 | 2.461 |

*** P<01, **p<05, *p<10; – Reference categories.
CHW= Community Health Worker , FWA=Family Welfare Assistant

composition of the family in the model reaffirm previous findings that the women in this society did have a strong demand for a son strongly but conversely: that they also wanted a daughter (Rahman 1992).

The biosocial factors, which show a strong relationship with demand for additional children in most fertility transitions, also have a strong relationship with demand for additional children in rural Bangladesh. Demand for additional children decreases significantly with increasing women age. The relative odds of having an additional child is 0.55 (1.8 times) among the women aged 20-24 years, decreases to 0.35 among women aged 25-29 years, and further decreases to 0.15 (6.7 times) among women aged 30-39 years. The relative odds of having an additional child is only 0.03 among the older women aged 40-49 years.

The family planning worker visits, the only programme variables added in the model, also show an inverse relationship with demand for additional children. The more frequently the family planning worker visits, the less the demand for additional children. The odds ratio of having another child reduces at a rate of 0.75, if the women are visited by the family planning workers at least once in six months, and 0.79 if she is visited by the family planning workers once a month.

The second preferred model, Model 7 is used to examine whether there was any significant change in the effect of any of the above variables during 1983-1996. For this purpose, the interaction between Year of Survey and some independent variables has been explored. The meaning of the interaction between year and other independent variables needs careful explanation. The explanation of the interaction between time (Year of Survey) and the independent variables as described by Firebaugh (1997) explains that if the coefficient of interaction variables shows the same sign as the coefficient of main effect of the same variable, this signifies that the impact of this particular variable has increased during the time period. The opposite is true if the sign of the coefficient of main effect and interaction effect of the same variable is different (Firebaugh 1997). As discussed earlier, several interaction variables, such as, women's employment, education, age, and sex composition of the family have been added into the model to examine whether there were any changes in the impact of these variables during

1983-1996. But only the coefficient of the first interaction variable, that is, women's education, changed the sign of coefficient and significant. None of the other variables has changed when the interaction was computed telling us that the impact of these variables did not change during the 1983-1996 period.

***Decomposition of the Change in effect of Different Variables***

The intention of the present analysis is to compute the effect of each of the variables and the change in the effect of these variables on demand for additional children during 1983-1996. Thus a decomposition of the variables has been computed using the coefficient of preferred model presented in Table 17.3. The coefficients of the two preferred models presented in the Table 17.3 and the sample means have been used to estimate the impact of each causal factor measured in the models. For illustrative purpose, taking the coefficient of women's paid employment from Model 7 of Table 17.3 and the sample mean from appendix (Table A-7a), the percentage contribution of each variable to the total trends in demand for additional children can be computed. The sample mean for the paid employment in 1983 was 0.08; multiplying the coefficients (-0.173) by the sample mean, yields a product of –0.014. The same coefficient is then multiplied by the women's paid employment mean of year 1996 (0.377*-0.173) to get the second product, -0.065. Subtracting the first product from the second yields a value of -.05, that is, the estimated effect (in logits) that change in the women's paid employment has on the likelihood of having an additional child from 1983 to 1996. The same type of computation for the main effect of each of the independent variables is used to obtain the estimated effect of each of the variable. But the computation of the estimated effect of the interaction variables is slightly different. In order to compute the effect of the interaction term, which is the effect of change in variables during 1983-1996, the coefficients of the variables for 1983 have to be computed before computing the estimated change in interactions. The procedure to capture the effect of the variable and the change effect of the same variables over time is to add the coefficients of the main effect and the interaction effect of the same variable before multiplying with the mean of the variables of 1996 but the mean of the variables of 1983 will be multiplied with only the main effect coefficient of the same variable before subtracting the last from the first.

**Table 17.4a Decomposition of main effect model for explaining the change in demand for additional Children, national rural level, 1983-1996**

| Variables | Mean 1983 | Mean-1996 | Co-efficient | Mean83 * co-efficient. (A) | Mean96 * coefficients (B) | change (B-A) | % of change Explained |
|---|---|---|---|---|---|---|---|
| **Year of interview:** | | | | | | | |
| 1996 | | | -0.8450 | | | -0.84 | -1.14 |
| **Employment status of women** | | | | | | | |
| Paid employment | 0.081 | 0.377 | -0.1729 | -0.0140 | -0.0652 | -0.05 | -0.07 |
| Housework | 0.919 | 0.623 | | | | | |
| **Possession of land , HHold** | | | | | | | |
| Yes | 0.708 | 0.611 | 0.0042 | 0.0030 | 0.0025 | 0.00 | 0.00 |
| **Education of women** | | | | | | | |
| 1-5 years | 0.243 | 0.297 | -0.0357 | -0.0087 | -0.0106 | 0.00 | 0.00 |
| 6 or more years | 0.053 | 0.152 | 0.1158 | 0.0061 | 0.0176 | 0.01 | 0.02 |
| **Education of husband** | | | | | | | |
| 1-5 years | 0.179 | 0.276 | -0.1106 | -0.0198 | -0.0305 | -0.01 | -0.01 |
| 6-9 years | 0.125 | 0.142 | -0.2028 | -0.0253 | -0.0288 | 0.00 | 0.00 |
| 10 or more years | 0.098 | 0.124 | -0.5016 | -0.0492 | -0.0622 | -0.01 | -0.02 |
| **Religion** | | | | | | | |
| Hindus | 0.107 | 0.105 | -0.1900 | -0.0203 | -0.0200 | 0.00 | 0.00 |
| **Sex composition of family** | | | | | | | |
| 1-2 son only | 0.159 | 0.185 | 1.4537 | 0.2311 | 0.2689 | 0.04 | 0.05 |
| 1-2 daughter only | 0.15 | 0.17 | 2.0277 | 0.3042 | 0.3447 | 0.04 | 0.05 |
| Children >2 but son=> daughter | 0.356 | 0.288 | -0.8437 | -0.3003 | -0.2430 | 0.06 | 0.08 |
| Children >2 but daughter >son | 0.247 | 0.219 | -0.0771 | -0.0190 | -0.0169 | 0.00 | 0.00 |
| **Age of women** | | | | | | | |
| 20-24 | 0.224 | 0.221 | -0.6051 | -0.1355 | -0.1337 | 0.00 | 0.00 |
| 25-29 | 0.207 | 0.249 | -1.0469 | -0.2167 | -0.2607 | -0.04 | -0.06 |
| 30-39 | 0.256 | 0.3 | -1.8828 | -0.4820 | -0.5648 | -0.08 | -0.11 |
| 40-49 | 0.169 | 0.107 | -3.4819 | -0.5884 | -0.3726 | 0.22 | 0.29 |
| **# of dead children** | | | | | | | |
| 1 | 0.263 | 0.223 | 0.0564 | 0.0148 | 0.0126 | 0.00 | 0.00 |
| 2 | 0.132 | 0.086 | -0.0655 | -0.0086 | -0.0056 | 0.00 | 0.00 |
| 3 or more | 0.14 | 0.049 | 0.1400 | 0.0196 | 0.0069 | -0.01 | -0.02 |
| **CHW and FWA visit** | | | | | | | |
| In month | 0.147 | 0.057 | -0.2393 | -0.0352 | -0.0136 | 0.02 | 0.03 |
| Once in six months | 0.135 | 0.361 | -0.2885 | -0.0389 | -0.1041 | -0.07 | -0.09 |
| **Total change** | | | | | | -0.74 | -1.00 |

CHW= Community Health Worker
FWA=Family Welfare Assistant

**Table 17.4b: Decomposition of interaction model for explaining the change in demand for additional Children, national rural level, 1983-1996.**

| Variables | Mean 1983 | Mean-1996 | Co-efficient | Mean83 * co-efficient. (A) | Mean96 * coefficients (B) | change (B-A) | % of change Explained |
|---|---|---|---|---|---|---|---|
| **Year of Survey:** | | | | | | | |
| 1996 | | | -1.01 | | | -1.01 | -1.34 |
| **Employment status of women** | | | | | | | |
| Paid employment | 0.081 | 0.377 | -0.17 | -0.0134 | -0.0622 | -0.05 | -0.07 |
| **Possession of land, HHold** | | | | | | | |
| Yes | 0.708 | 0.611 | 0.00 | -0.0027 | -0.0023 | 0.00 | 0.00 |
| **Education, women** | | | | | | | |
| 1-5 years | 0.243 | 0.297 | -0.18 | -0.0437 | -0.0534 | | |
| 6 or more years | 0.053 | 0.152 | -0.54 | -0.0285 | -0.0819 | | |
| **Education, husband** | | | | | | | |
| 1-5 years | 0.179 | 0.276 | -0.11 | -0.0198 | -0.0306 | -0.01 | -0.01 |
| 6-9 years | 0.125 | 0.142 | -0.20 | -0.0255 | -0.0290 | 0.00 | 0.00 |
| 10 or more years | 0.098 | 0.124 | -0.45 | -0.0439 | -0.0555 | -0.01 | -0.02 |
| **Religion** | | | | | | | |
| Hindus | 0.107 | 0.105 | -0.19 | -0.0207 | -0.0203 | 0.00 | 0.00 |
| **Sex composition of family** | | | | | | | |
| 1-2 son only | 0.159 | 0.185 | 1.46 | 0.2316 | 0.2695 | 0.04 | 0.05 |
| 1-2 daughter only | 0.15 | 0.17 | 2.03 | 0.3039 | 0.3445 | 0.04 | 0.05 |
| Children >2 but son=> daughter | 0.356 | 0.288 | -0.84 | -0.2998 | -0.2426 | 0.06 | 0.08 |
| Children >2 but daughter> son | 0.247 | 0.219 | -0.07 | -0.0162 | -0.0144 | 0.00 | 0.00 |
| **Age of women** | | | | | | | |
| 20-24 | 0.224 | 0.221 | -0.61 | -0.1363 | -0.1345 | 0.00 | 0.00 |
| 25-29 | 0.207 | 0.249 | -1.05 | -0.2184 | -0.2627 | -0.04 | -0.06 |
| 30-39 | 0.256 | 0.3 | -1.91 | -0.4879 | -0.5718 | -0.08 | -0.11 |
| 40-49 | 0.169 | 0.107 | -3.52 | -0.5941 | -0.3762 | 0.22 | 0.29 |
| **# of dead children** | | | | | | | |
| 1 | 0.263 | 0.223 | 0.06 | 0.0150 | 0.0127 | 0.00 | 0.00 |
| 2 | 0.132 | 0.086 | -0.07 | -0.0093 | -0.0060 | 0.00 | 0.00 |
| 3 or more | 0.14 | 0.049 | 0.13 | 0.0178 | 0.0062 | -0.01 | -0.02 |
| **CHW and FWA visit** | | | | | | | |
| In month | 0.147 | 0.057 | -0.23 | -0.0341 | -0.0132 | 0.02 | 0.03 |
| Once in six months | 0.135 | 0.361 | -0.29 | -0.0390 | -0.1044 | -0.07 | -0.09 |
| **Interaction factors** | | | | | | | |
| **Year X women's education** | | | | | | | |
| Year X women primary education | | | 0.29 | | | 0.08 | 0.10 |
| Year X women secondary education | | | 0.90 | | | 0.08 | 0.11 |
| **Total Change** | | | | | | -0.75 | -1.00 |

**Table 17.4b: Decomposition of interaction model for explaining the change in demand for additional Children, national rural level, 1983-1996. (decomposition of interaction)**

| Decomposition of interaction variables | I | C | I+C | Mean 1983 | Mean -1996 | Mean83 *co-eff (A) | Mean96* Co-eff (B) | Change (B-A) |
|---|---|---|---|---|---|---|---|---|
| Year X women education | | | | | | | | |
| Year X women primary education | 0.29 | -0.18 | 0.11 | 0.24 | 0.30 | -0.04 | 0.03 | 0.08 |
| Year X women secondary education | 0.90 | -0.54 | 0.36 | 0.05 | 0.15 | -0.03 | 0.06 | 0.08 |

CHW= Community Health Worker
FWA=Family Welfare Assistant

The results of the decomposition of the two preferred model are presented in Tables 17.4a and 17.4b. Table 17.4b demonstrates that economic factors alone decrease the log odds of demand for additional children by seven percent, husband's education decrease it a further three percent. Although women's education has an overall negative impact on demand for additional children in 1983 (Table 17.4a), during the study period, the impact of women education on demand for additional children has reduced. By 1996, women's education does not have any impact on demand for additional children (Table 17.4b.). Sex composition of the family on demand for additional children still has the highest impact and continues to be the positive force for demand for additional children. The major reduction on the demand for additional children is evident from women's age. Women's age has significant inverse relationship with demand for additional children. This negative impact of women's age on demand for additional children continued during the study period and explains 17 percent of the total change. But because of the compositional change among the older age group of 40-49, the total contribution of this age group to the model has reduced by 29 percent despite the negative relationship of this group with demand for additional children (Table 17.4b).

### 17.4.2 Matlab

Logistic regressions for both areas of Matlab run in one model where Area of intervention is a covariate. Fit statistics of the logistic regression models for Matlab are presented in Table 17.5. This table presents 11 different models to examine the impact of different biosocial, economic and socio-cultural factors on demand for additional children from 1984 to 1994 for Matlab. It also presents the fit statistics, the –2 Log Likelihood statistics, and Raftery 's (1995) Baysian Information Criterion (BIC) for evaluating the logistic regression models of the demand for additional children. The coefficients of Model 1 measure only the main effect of the Year of Survey, that is, time. Model 2 includes the main effect of the area of intervention. Model 2 has better explanatory power than Model 1 by both measures of fit statistics. The parallel socio-economic information of Matlab with National data, employment of women and possession of land by the household have been included in Model 3. Although inclusion of these variables reduces the –2 Log likelihood, it does not improve the BIC level. Several other economic variables have been included and BIC has been calculated. None of the variables improve the model's explanatory power and are therefore excluded. Only husband occupation and possession of modern consumer durables by the household have been retained in the model as both fit statistics showed an improvement in the model's explanatory power with the addition of these two variables. The higher explanatory power of this model signifies that the economic factors of husband and household have more influence on women then the women's economic status represented by women employment on demand for additional children during 1984-1994.

The main effects of the socio-cultural factors have been incorporated through Models 5 to 7 to evaluate three types of social and cultural features of the women as well as of the society. The first model examines the social development in the form of education of women and husband and the religious composition of the rural society represented by religion. The second model deals with a deeply rooted bio-cultural phenomenon, preference among children, especially sons, represented by the variable sex composition of the family. The last model includes women's perception of agreed number of expected children. Both measures of fit demonstrate that the addition of these socio-cultural variables through these three models significantly increases the explanatory power of the model. These three models are superior to the earlier models, but the model of fit is the highest when sex composition of the family is incorporated into the model. The finding indicates that the most important factor in the reduction of demand for additional children is the sex composition of the family.

**Table 17.5: Fits statistics of logistic regression Models of demand for additional children in both areas of Matlab, 1984-1994**

| Models Descriptions | Minus 2Log Likelihood | DF | BIC |
|---|---|---|---|
| **Model 1**: Year | 8304.6 | 6106 | -44922.6 |
| **Model 2**: Year, Area of intervention | 8295.0 | 6105 | -44923.5 |
| **Model 3**: Year, Area of intervention; economic: women employment, Possession of land by household | 8279.0 | 6101 | -44904.6 |
| **Model 4:** Year; Area of intervention Economic, husband occupation watch and radio | 8251.2 | 6101 | -44932.4 |
| **Model 5** Year; Area of intervention; Economic: husband occupation, watch and radio; Social; women education, Head's education, religion | 8145.7 | 6095 | -44985.6 |
| **Model 6** Year; Area of intervention; Economic: husband occupation, watch and radio; Social; women education, Head's education, religion Sex composition of the family | 5512.5 | 6091 | -47583.9 |
| **Model 7** Year; Area of intervention; Economic: husband occupation, watch and radio; Social; women education, Head's education, religion Sex composition of the family, spouse's agreed # of expected child | 5435.1 | 6090 | -47652.6 |
| **Model 8** Year; Area of intervention; Economic: husband occupation, watch and radio; Social; women education, Head's education, religion Sex composition of the family, spouse's agreed # of expected child; biosocial: women age, # of children died | 4831 | 6083 | -48195.7 |
| **Model 9** Year; Area of intervention; Economic: husband occupation, watch and radio; Social; women education, Head's education, religion Sex composition of the family, spouse's agreed # of expected child; biosocial: women age, # of children died, FPW visits | 4830.7 | 6081 | -48178.5 |
| **Model 10** Year; Area of intervention; Economic: husband occupation, watch and radio; Social; women education, Head's education, religion Sex composition of the family, spouse's agreed # of expected child; biosocial: women age, # of children died; interaction: Year and sex composition of the family | 4817 | 6079 | -48174.8 |
| **Model 11** Year; Area of intervention; Economic: husband occupation, watch and radio; Social; women education, Head's education, religion Sex composition of the family, spouse's agreed # of expected child; biosocial: women age, # of children died; interaction: Year and sex composition of the family, Year & spouse's agreed # of child; | 4804.7 | 6078 | -48178.4 |

Women's biosocial factors, women age and number of dead children have been added to Model 8. Similar to the national rural area, both fit statistics demonstrate that the inclusion of these biosocial factors greatly improves the model's fit and is the second highest improvement over all other models. The last main effect model (Model 9) incorporates the impact of family planning programme on demand for additional children represented by the Community Health Worker/Family Welfare

Assistant (CHW/FWA) visits. But in contrast to the national data, both fit statistics show that the inclusion of FWA visitation in the model does not improve the model's explanatory power. The –2 Log likelihood decreases slightly but BIC statistics do not improve rather they reduce from the earlier value. The variable itself is not significant. Thus Model 8 is chosen to be the first preferred model.

The adding in of interactions starts from Model 10. The interactions between Year of Survey and any other variables have been selected on the basis of substantive and theoretical information. Similar to model selection at the national rural data, several interaction variables have been introduced into the model. These are women employment, education, women's age and sex composition of the family and family planning worker's visitations. Only the interaction between Year and women perception of agreed number of expected children with husband significantly decreases the –2 Log Likelihood and increases the BIC level. The improvement of Model 10 over Model 8 (BIC=-4) shows that there was a significant change in the impact of women's perception of their husband's agreed number of expected children on demand for additional children during the 1984 to 1994 period. Another interaction variable worthy of retention in the model is sex composition of the family. The inclusion of this variable in the model decreases the –2Log Likelihood statistics, and at the individual categorical level, two of the five categories are highly significant. The variable, sex composition of family is computed on the basis of the number of living children and living sons a woman has. Each of these categories has its own significance. Thus we keep the interaction between Year of Survey and sex composition of the family in the model and the Model 11 becomes the second preferred model.

On substantive grounds, several variables have been incorporated into the model as interactions with Year of Survey to evaluate whether any change in these variables affected the change in demand for additional children during 1984-1994 in Matlab. These variables are women's employment, women education and age, and family planning worker's visits. None of them improve the –2 Log Likelihood or the BIC and are therefore they are excluded from the second preferred model. Thus the coefficients of the second preferred model, Model 11, will be used to estimate the total contribution of each biosocial, economic, socio-cultural and programmatic variable on demand for additional children of the women in both areas of Matlab.

But before estimating the total change by decomposition during the 1984-1994, the effect of each of the variables on demand for additional children has been analysed. Table 17.6 presents the coefficients of the two preferred models, Model 8 and Model 10. These coefficients represent the log odds of demand for having an additional child over not having an additional child. The Year coefficient in the model shows a significant negative change in the demand for additional children in both areas of Matlab. Unexpectedly, the control area shows a lower demand for additional children. The relative odds of wanting another child are 0.78 percent lower in the control area. The economic factors, husband's occupation and possession of modern household consumer durables show an expected direction of relationship The demand for additional children appears significantly higher among women whose husbands were engaged in fishing. The demand for additional children among women, whose husbands were in other occupations, though in the expected direction, is not significant. The same is true for modern consumer durables of the household.

The coefficients of the socio-cultural factors also show a consistent relationship with demand for additional children. Both the education of women and the education of household heads though showing an inverse relationship with demand for additional children are not significant with the exception of the heads with the highest education. The odds ratio of wanting an additional child among the women whose household heads have 10 or more years of education is 0.72 percent. In contrast to national trends, demand for additional children among Hindus is similar to that of Muslims

The coefficients of the sex composition of the family, which provide the highest explanatory power to the model show a similar positive and negative relationship with demand for additional children as found at the national level when each of the sex composition categories is examined. The results are consistent with other studies conducted on sex composition of the family and fertility (Rahman at al. 1992; Bairagi and Dutta 2001). There is a clear-cut division in the trends in demand for additional children similar to national rural area. The demand for additional children is high among women who have two or less children and low among women who have more than two children. The demand for additional children is significantly high if the women have two children of same sex and highest if they have daughters only. The odds ratio of demanding an additional child among these groups (women having two children of same sex) is 2.8 times higher among women who have one or two boys, and more than 7 times higher among women who have one or two daughters than the reference category. Demand for additional children declines significantly among women who have more than two children. It declines more among the women who have more sons than daughters. The relative odds of having an additional child among women who have more than two children having more sons than daughters is 0.21 percent (approximately about 5 times), while it is 0.72 percent among the women who have more daughters than sons.

The trends in the coefficients of the sex composition of the family had a strong demand for a son in the model reaffirm the previous findings that the women in this society wanted sons strongly but they also wanted a daughter, and that this demand for sons is stronger in Matlab than in the national rural area. The spousal communication factor, that is, women's perception of their husband's agreed number of expected children also shows a significant relationship with demand for additional children. The odds ratio of wanting another child is significantly high (1.59 times) among women who thought their husband wanted more children than them or that they do not know their husband's expected number of children.

Similar to the national rural area, the biosocial factors, which show a strong relationship with demand for additional children in most fertility transition, have a strong relationship with demand for additional children in both areas of Matlab. Demand for additional children decreases significantly an increase in the women's age. The odds ratio of wanting an additional child is 0.36 among the women aged 20-24 years, decreased to 0.23 among women aged 25-29 years and further decreases to 0.07 among women aged 30-39 years. The demand for additional child among the older women of age 39-49 years is virtually nil (odds ratio .01).

**Table 17.6: Coefficients of the two logistic regression models on demand for additional children in both areas of Matlab, 1984-94.**

| Variables | Main effect model (Model 8) | | | Interaction model (Model 11) | | |
|---|---|---|---|---|---|---|
| | Co-efficient | S.E. | Odds ratio | Co-efficient | S.E. | Odds ratio |
| **Constant** | 2.294*** | 0.30 | 9.91 | 2.079*** | 0.31 | 8.00 |
| **Year of Surveys** | | | | | | |
| 1984 | | | | | | |
| 1994 | -1.014*** | 0.09 | 0.36 | -0.568*** | 0.21 | 0.57 |
| **Area of intervention** | | | | | | |
| MCH-FP | | | | | | |
| Control | -0.234*** | 0.08 | 0.79 | -0.243*** | 0.08 | 0.78 |
| **Occupation of husband** | | | | | | |
| Farmers | | | | | | |
| Labourers, skilled & unskilled | 0.03 | 0.09 | 1.03 | 0.03 | 0.09 | 1.03 |
| Business & professional | -0.16 | 0.11 | 0.85 | -0.14 | 0.11 | 0.87 |
| Fisherman | 0.482** | 0.20 | 1.62 | 0.51* | 0.20 | 1.66 |
| **Possession of consumer durables, radio & watch** | | | | | | |
| None | | | | | | |
| At least one | -0.03 | 0.08 | 0.97 | -0.02 | 0.08 | 0.98 |
| **Education of women** | | | | | | |
| No education | | | | | | |
| 1-5 years | -0.02 | 0.08 | 0.98 | -0.03 | 0.08 | 0.97 |
| 6 or more years | -0.12 | 0.15 | 0.89 | -0.14 | 0.15 | 0.87 |
| **Education of household head** | | | | | | |
| No education | | | | | | |
| 1-5 years | -0.13 | 0.09 | 0.88 | -0.12 | 0.09 | 0.89 |
| 6-9 years | -0.01 | 0.13 | 0.99 | 0.00 | 0.13 | 1.00 |
| 10 or more years | -0.334* | 0.17 | 0.72 | -0.33* | 0.17 | 0.72 |
| **Religion** | | | | | | |
| Islam | | | | | | |
| Hindus | 0.10 | 0.12 | 1.11 | 0.11 | 0.13 | 1.12 |
| **Sex composition of family** | | | | | | |
| One son & one daughter | | | | | | |
| 1-2 son only | 1.05*** | 0.14 | 2.85 | 0.92*** | 0.17 | 2.52 |
| 1-2 daughter only | 1.98*** | 0.17 | 7.20 | 2.48*** | 0.28 | 11.92 |
| Children >2 but son=>daughter | -1.57*** | 0.12 | 0.21 | -1.48*** | 0.15 | 0.23 |
| Children >2 but daughter>son | -0.33*** | 0.12 | 0.72 | -0.19 | 0.15 | 0.83 |
| **Women's perception of agreed number of expected children with husband** | | | | | | |
| Same or less | | | | | | |
| More and unknown | 0.47*** | 0.08 | 1.59 | 0.63*** | 0.09 | 1.87 |
| **Age of women** | | | | | | |
| <20 | | | | | | |
| 20-24 | -0.972*** | 0.27 | 0.36 | -0.972*** | 0.27 | 0.38 |
| 25-29 | -1.445*** | 0.27 | 0.23 | -1.445*** | 0.28 | 0.24 |
| 30-39 | -2.535*** | 0.28 | 0.08 | -2.535*** | 0.28 | 0.08 |
| 40-49 | -4.238*** | 0.32 | 0.01 | -4.238*** | 0.32 | 0.01 |

Table continued

**Table 17.6(Cont.): Coefficients of the two logistic regression models on demand for additional children in both areas of Matlab, 1984-94.**

| Variables | Main effect Model (Model 8) | | | Interaction model (Model 11) | | |
|---|---|---|---|---|---|---|
| | Co-efficient | S.E. | Odds ratio | Co-efficient | S.E. | Odds ratio |
| **# Of dead children** | | | | | | |
| None | | | | | | |
| 1 | -0.15 | 0.09 | 0.87 | -0.14 | 0.09 | 0.87 |
| 2 | 0.07 | 0.13 | 1.07 | 0.07 | 0.13 | 1.08 |
| 3 or more | -0.24 | 0.16 | 0.78 | -0.24 | 0.16 | 0.79 |
| **Interaction factors** | | | | | | |
| **Year X sex composition of family** | | | | | | |
| Year X 1-2 son only | | | | 0.18 | 0.28 | 1.20 |
| Year X 1-2 daughter only | | | | -0.963*** | 0.36 | 0.38 |
| Year X Children >2 but son=>daughter | | | | -0.23 | 0.26 | 0.80 |
| Year X Children >2 but daughter>son | | | | -0.436+ | 0.24 | 0.65 |
| **Women's perception of agreed number of expected children with husband** | | | | | | |
| More and unknown | | | | -0.628*** | 0.18 | 0.53 |

*** P<01, **p<.05, *p<10; – Reference categories.

The meaning of the interaction between year and other factors has been described in the previous section. In Matlab, the addition of two interaction variables, sex composition of the family and women's perception of their husband's agreed number of expected children with husband into Model 11, improves its fit. When sex composition of the family is considered, Model 11 of the table shows the same signs in the main effect and interaction effect of those categories of sex composition of the family, which related with more than two children. This same signs in the main effect and interaction effect of these categories means that the demand for additional children among these women has decreased even further. But it is important to point out that the demand for children among women who have only daughters has also reduced in a society reported to have a strong son preference. The changed sign of coefficient of interaction between Year of Survey and women who have daughters only in Model 11 signifies that the demand for additional children has decreased during 1984-1994 among the women who have daughters only.

The second interaction variables, that is, women's perception of their husbands agreed number of expected children with husband also shows an up side down of the coefficient. This significant positive variable has changed in the same magnitude with changing the sign of the coefficient meaning that whatever effect this variable had in 1984 has reduced to a minimum. However, the simple coefficients do not provide the percent change that each variable contributes to the total change explained by the model. The next table presents the proportion that each variable contributes to the total change explained by these variables.

***Decomposition of the Change in effect of Different Variables***

Results presented in Table 17.7a and 17.7b show the percent each variable contributes to the total change in demand for additional children in both areas of Matlab. The largest factor contributing to the decline in demand for additional children is women's age. The total logit change accrued from women's age on demand for an additional child is 0.20. The impact of age is stable during the study period as revealed by the inclusion of this variables in the interaction model. It is important to note that the inclusion of interaction variables, Year of Survey and women's age do not improve the model. This implies that the effect of women age did not been change during the study period but because of the change in women age composition during 1984-1994, the effect of women's age has a logit of 20. The same is true for economic factors, especially, husband's occupation as business or services. Table (17.7b) shows despite an inverse relationship between demand for additional children and husband occupation, as business or service, the total logit change is positive at a value of 0.04. Demand for additional children reduces by another two logits by social factors, that is, education of women and education of household head.

The impact of the sex composition of the family on demand for additional children varies with varying types of sex composition of the family. It was highly positive in 1983. But during the study period, model with interaction presented in Table 17.7b shows that the direction of relationship between sex composition of the family and additional children changed. The positive effect of one of the categories of sex composition, that is, the category of women who have only sons, on demand for additional children did not change but the effect of all other types of sex composition of the family on demand for additional children shows a change. The effect of having only daughters on demand for additional children has reduced and the effect of sex composition on demand for additional children among women who have more than two children has reduced further. The overall logit change due to a change in the relationship between sex composition of the family and demand for additional children is –0.17 in 1994, which explains 20 percent of the total reduction.

**Table 17.7a: Decomposition of main effect model for explaining change in demand for children in both areas of Matlab during 1984-94.**

| Variables | Mean 1983 | Mean-1996 | Co-efficient | Mean83* co-eff | Mean96 *co-eff | Change | % of change Explained |
|---|---|---|---|---|---|---|---|
| **Year of Surveys:** 1994 | | | -1.01 | | | -1.01 | -1.28 |
| **Area of intervention** | | | | | | | |
| Control | 0.39 | 0.45 | -0.23 | -0.09 | -0.10 | -0.01 | -0.02 |
| **Occupation of husband** | | | | | | | |
| Labourers, skilled & unskilled | 0.32 | 0.61 | 0.03 | 0.01 | 0.02 | 0.01 | 0.01 |
| Business & professional | 0.27 | 0.06 | -0.16 | -0.04 | -0.01 | 0.03 | 0.04 |
| Fisherman | 0.05 | 0.03 | 0.48 | 0.03 | 0.01 | -0.01 | -0.02 |
| **Possession of consumer durables, radio & watch** | | | | | | | |
| At least one | 0.33 | 0.67 | -0.03 | -0.01 | -0.02 | -0.01 | -0.01 |
| **Education of women** | | | | | | | |
| 1-5 years | 0.37 | 0.34 | -0.02 | -0.01 | -0.01 | 0.00 | 0.00 |
| 6 or more years | 0.07 | 0.15 | -0.12 | -0.01 | -0.02 | -0.01 | -0.01 |
| **Education of household head** | | | | | | | |
| 1-5 years | 0.31 | 0.31 | -0.13 | -0.04 | -0.04 | 0.00 | 0.00 |
| 6-9 years | 0.11 | 0.13 | -0.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 or more years | 0.06 | 0.09 | -0.33 | -0.02 | -0.03 | -0.01 | -0.01 |
| **Religion** | | | | | | | |
| Hindus | 0.12 | 0.13 | 0.10 | 0.01 | 0.01 | 0.00 | 0.00 |
| **Sex composition of family** | | | | | | | |
| 1-2 son only | 0.14 | 0.16 | 1.05 | 0.15 | 0.17 | 0.02 | 0.03 |
| 1-2 daughter only | 0.12 | 0.15 | 1.97 | 0.24 | 0.29 | 0.04 | 0.05 |
| Children >2 but son=> daughter | 0.39 | 0.35 | -1.57 | -0.61 | -0.56 | 0.05 | 0.07 |
| Children >2 but daughter> son | 0.26 | 0.24 | -0.33 | -0.08 | -0.08 | 0.01 | 0.01 |
| **Women's perception of agreed number of expected children with husband** | | | | | | | |
| More and unknown | 0.44 | 0.27 | 0.47 | 0.21 | 0.12 | -0.08 | -0.10 |
| **Age of women** | | | | | | | |
| 20-24 | 0.24 | 0.21 | -1.02 | -0.25 | -0.22 | 0.03 | 0.04 |
| 25-29 | 0.21 | 0.25 | -1.49 | -0.32 | -0.38 | -0.06 | -0.07 |
| 30-39 | 0.34 | 0.32 | -2.57 | -0.87 | -0.82 | 0.05 | 0.07 |
| 40-49 | 0.17 | 0.13 | -4.29 | -0.72 | -0.57 | 0.15 | 0.19 |
| **# of dead children** | | | | | | | |
| 1 | 0.27 | 0.21 | -0.15 | -0.04 | -0.03 | 0.01 | 0.01 |
| 2 | 0.13 | 0.08 | 0.07 | 0.01 | 0.01 | 0.00 | 0.00 |
| 3 or more | 0.10 | 0.04 | -0.24 | -0.03 | -0.01 | 0.02 | 0.02 |
| **Total Change** | | | | | | -0.79 | -1.00 |

**Table 17.7b: Decomposition of interaction model for explaining the change in demand for additional children in both areas of Matlab, 1984-1994**

| Variables | Mean 1983 | Mean-1996 | Co-efficient | Mean83* Co-eff | Mean96 *co-eff | Change | % of change Explained |
|---|---|---|---|---|---|---|---|
| **Year of survey 1994** | | | -0.57 | | | -0.57 | -0.68 |
| **Area of intervention:** | | | | | | | |
| Control | 0.39 | 0.45 | -0.24 | -0.09 | -0.11 | -0.01 | -0.02 |
| **Occupation of husband** | | | | | | | |
| Labourers, skilled & unskilled | 0.32 | 0.61 | 0.03 | 0.01 | 0.02 | 0.01 | 0.01 |
| Business & professional | 0.27 | 0.06 | -0.14 | -0.04 | -0.01 | 0.03 | 0.04 |
| Fisherman | 0.05 | 0.03 | 0.51 | 0.03 | 0.01 | -0.01 | -0.02 |
| **Possession of consumer durables, radio & watch** | | | | | | | |
| At least one | 0.33 | 0.65 | -0.02 | -0.01 | -0.01 | -0.01 | -0.01 |
| **Education of women** | | | | | | | |
| 1-5 years | 0.37 | 0.34 | -0.03 | -0.01 | -0.01 | 0.00 | 0.00 |
| 6 or more years | 0.07 | 0.15 | -0.14 | -0.01 | -0.02 | -0.01 | -0.01 |
| **Education of household head** | | | | | | | |
| 1-5 years | 0.31 | 0.31 | -0.12 | -0.04 | -0.04 | 0.00 | 0.00 |
| 6-9 years | 0.11 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10 or more years | 0.06 | 0.09 | -0.33 | -0.02 | -0.03 | -0.01 | -0.01 |
| **Religion** | | | | | | | |
| Hindus | 0.12 | 0.13 | 0.11 | 0.01 | 0.01 | 0.00 | 0.00 |
| **Sex composition of family** | | | | | | | |
| 1-2 son only | 0.14 | 0.16 | 0.92 | 0.13 | 0.15 | | |
| 1-2 daughter only | 0.12 | 0.15 | 2.48 | 0.31 | 0.36 | | |
| Children >2 but son=>daughter | 0.39 | 0.35 | -1.48 | -0.57 | -0.53 | | |
| Children >2 but daughter>son | 0.26 | 0.24 | -0.19 | -0.05 | -0.04 | | |
| **Women's perception of agreed number of children with Husband** | | | | | | | |
| More and unknown | 0.44 | 0.27 | 0.63 | 0.28 | 0.17 | | |
| **Age of women** | | | | | | | |
| 20-24 | 0.24 | 0.21 | -0.97 | -0.24 | -0.21 | 0.03 | 0.03 |
| 25-29 | 0.21 | 0.25 | -1.45 | -0.31 | -0.37 | -0.06 | -0.07 |
| 30-39 | 0.34 | 0.32 | -2.54 | -0.85 | -0.80 | 0.05 | 0.06 |
| 40-49 | 0.17 | 0.13 | -4.24 | -0.72 | -0.57 | 0.15 | 0.18 |
| **# of dead children** | | | | | | | |
| 1 | 0.27 | 0.21 | -0.14 | -0.04 | -0.03 | 0.01 | 0.01 |
| 2 | 0.13 | 0.08 | 0.07 | 0.01 | 0.01 | 0.00 | 0.00 |
| 3 or more | 0.10 | 0.04 | -0.24 | -0.02 | -0.01 | 0.01 | 0.02 |

| Interaction factors | I | C | I+C | Mean83*co-eff | Mean96*co-eff | Change | % of change Explained |
|---|---|---|---|---|---|---|---|
| **Year X sex composition of family** | | | | | | | |
| Year X 1-2 son only | 0.18 | 0.92 | 1.107 | 0.13 | 0.18 | 0.05 | 0.06 |
| Year X 1-2 daughter only | -0.96 | 2.48 | 1.515 | 0.31 | 0.22 | -0.09 | -0.10 |
| Year X Children >2 but son=> daughter | -0.23 | -1.48 | -1.709 | -0.57 | -0.61 | -0.03 | -0.04 |
| Year X Children >2 but daughter>son | -0.44 | -0.19 | -0.624 | -0.05 | -0.15 | -0.10 | -0.12 |
| **Women's perception of agreed number of expected children with husband** | | | | | | | |
| Same or less | | | | | | | |
| More and unknown | -0.63 | 0.63 | -0.001 | 0.28 | 0.00 | -0.28 | -0.33 |
| **Total Change** | | | | | | -0.84 | -1.00 |

I= Interaction, C= Coefficients, co-eff= Coefficients

A silent change appears among the women who thought that their husband wanted more children than them or that they did not know whether their husband wanted the same number of additional children as they wanted. The result of the main effect of this variable shows that the demand for additional children is high among those women. The relative odds of wanting an additional child are 1.87 times higher among these women. Inclusion of this variable as interaction with Year of Survey reveals that the positive relationship between demand for additional children, and the variables husband wanted more children or do not know whether their husband wanted the same number of additional children as them became almost zero during 1984-1994. In 1994, there is no significant difference in demand for additional children between women who thought their husbands wanted the same or a lesser number of additional children than them and those who thought their husband wanted more or they did not know their husbands expected number of additional children. The total logit change due to this factor is –28, which explains the 33 percent of the total reduction of demand for additional children.

## 17.5 A Separate Analysis of Recent data for National Rural and Matlab areas

Two separate logistic regression analyses, one for national data for the year 1996 and one for Matlab data for the year 1994 have been performed incorporating the new information that not included in the pooled data as this information was not collected in the 1983/1984 surveys. The variables used in the pooled data are also included in the analyses. The results of the new independent logistic regression confirmed that the effect of the variables that are used in the pooled data is similar.

The results of the logistic regression for national data for the year 1996 are presented in Table 17.8. The table shows that the new spousal communication variable included in the national data for the year 1996 has a significant relationship with demand for additional children. The demand for additional

**Table 17.8: Coefficients of the independent logistic regression model of the demand for additional Children, national rural level, 1996**

| Variables | Co-efficient | S.E. | Odds Ratio |
|---|---|---|---|
| Constant | -0.70*** | 0.23 | 0.50 |
| **Employment, women** | | | |
| Paid employment | -0.08 | 0.09 | 0.93 |
| Housework | -- | | |
| **Possession of land, HHold** | | | |
| No | -- | | |
| Yes | 0.04 | 0.10 | 1.04 |
| **Occupation, husband** | | | |
| Farmer | -- | | |
| Skilled and unskilled labour | 0.02 | 0.11 | 1.02 |
| Professional and business | 0.01 | 0.13 | 1.01 |
| **Possession of modern household consumer durables: Watch, Radio** | | | |
| None | -- | | |
| At least one | -0.08 | 0.11 | 0.92 |
| **Education, women** | | | |
| No education | -- | | |
| 1-5 years | 0.15 | 0.11 | 1.16 |
| 6 or more years | 0.44*** | 0.17 | 1.55 |
| **Education, husband** | | | |
| No education | -- | | |
| 1-5 years | -0.04 | 0.11 | 0.96 |
| 6-9 years | 0.00 | 0.15 | 1.00 |
| 10 or more years | -0.02 | 0.18 | 0.98 |
| **Sex composition, children** | | | |
| One son & one daughter | -- | | |
| 1-2 son only | 2.15*** | 0.14 | 8.54 |
| 1-2 daughter only | 2.75*** | 0.15 | 15.65 |
| Children >2 but son=>daughter | -1.91*** | 0.18 | 0.15 |
| Children >2 but daughter>son | -0.49*** | 0.15 | 0.61 |
| **Women's perception of agreed number of expected children with husband** | | | |
| Same or less | -- | | |
| More or unknown | 2.10*** | 0.12 | 8.20 |
| **Freedom of movement, women** | | | |
| Alone | -0.04 | 0.13 | 0.96 |
| With children or other people | -0.11 | 0.11 | 0.90 |
| With Husband | 0.20 | 0.15 | 1.22 |
| Not allowed to go out. | -- | | |
| **Membership in NGO** | | | |
| No | -- | | |
| Yes | -0.20* | 0.11 | 0.82 |
| **Exposure to Media** | | | |
| Radio/Television | -0.17* | 0.10 | 0.84 |
| None | -- | | |

Table continued

**Table 17.8(cont): Coefficients of the independent logistic regression model of the demand for additional Children, national rural level, 1996.**

| Variables | Co-efficient | S.E. | Odds Ratio |
|---|---|---|---|
| **Number of time prayed in a day** | | | |
| Non faith | -0.01 | 0.14 | 0.99 |
| 0--2 | -0.24** | 0.11 | 0.78 |
| 2+ | -- | | |
| **Age, women** | | | |
| <20 | -- | | |
| 20-24 | -0.71*** | 0.15 | 0.49 |
| 25-29 | -1.29*** | 0.15 | 0.27 |
| 30-39 | -2.12*** | 0.18 | 0.12 |
| 40-49 | -3.81*** | 0.35 | 0.02 |
| **# of dead children** | | | |
| None | -- | | |
| 1 | 0.05 | 0.11 | 1.05 |
| 2 | 0.04 | 0.19 | 1.04 |
| 3 or more | 0.31 | 0.25 | 1.37 |
| **CHW and FPW visit** | | | |
| In month | 0.11 | 0.19 | 1.12 |
| once in six months | -0.02 | 0.09 | 0.98 |
| more than 6 months/never | -- | | |

*** P<01, **p<05, *p<10 – Reference categories
CHW Community Health Worker
FWA Family Welfare Assistant

children is significantly high among women who reported that they do not know whether their husbands want the same number of children as them. The odds ratio is 8 times larger among the women who reported that their husband wanted more or that they do not know whether their husband wanted the same number of children as them than for the women who reported that their husbands wanted the same or a less number of children than them. Two variables related with religious and social conservatism of the population were added to the model. These two variables are women's freedom of movement and number of times prayed in a day. The table shows that relationship between demand for children and these two variables are in the expected direction but only the number of times a woman prayed has a positive relationship with demand for additional children. Thus religious conservatism has a significant negative impact on demand for additional children. The logit of the variable 'women prayed 0-2 times a day' is, -0.24, which yields an odds ratio of 0.78.

Another important variable is the NGO's socio-economic development programme activities in the rural area. The impact of the NGO's socio-economic activities is measured by the variable, women's membership in the NGO

**Table 17.9: Coefficients of the independent logistic regression model of demand for additional children computed for both areas of Matlab, 1994.**

| Variables | Co-efficients | S.E. | Odds ratio |
|---|---|---|---|
| **Constant** | 2.40*** | 0.50 | 11.00 |
| **Area of intervention** | | | |
| MCH-FP | -- | | |
| Control | -0.22 | 0.17 | 0.81 |
| **Employment, women** | | | |
| Paid employment | -0.05 | 0.25 | 0.95 |
| Housework | -- | | |
| **Possession of land, household** | | | |
| No land | -- | | |
| <0.50 | 0.35 | 0.69 | 1.42 |
| 0.50+ | -0.08 | 0.16 | 0.92 |
| **Occupation, husband** | | | |
| Farmers | -- | | |
| Labourers, skilled & unskilled | -0.15 | 0.17 | 0.86 |
| Business & professional | -0.40 | 0.34 | 0.67 |
| Fisherman | 0.41 | 0.45 | 1.51 |
| **Possession of consumer durables, radio & watch** | | | |
| None | -- | | |
| At least one | 0.06 | 0.16 | 1.06 |
| **Education, women** | | | |
| No education | | | |
| 1-5 years | 0.08 | 0.17 | 1.08 |
| 6 or more years | -0.44* | 0.24 | 0.65 |
| **Education, household head** | | | |
| No education | -- | | |
| 1-5 years | -0.38** | 0.17 | 0.68 |
| 6-9 years | -0.16 | 0.23 | 0.85 |
| 10 or more years | -0.03 | 0.29 | 0.97 |
| **Religion** | | | |
| Islam | -- | | |
| Hindus | 0.14 | 0.22 | 1.15 |
| **Sex composition, children** | | | |
| One son & one daughter | -- | | |
| 1-2 son only | 1.03*** | 0.22 | 2.81 |
| 1-2 daughter only | 1.47*** | 0.24 | 4.36 |
| Children >2 but son=>daughter | -1.76*** | 0.23 | 0.17 |
| Children >2 but daughter>son | -0.67*** | 0.22 | 0.51 |
| **Women's perception of agreed number of expected children with husband** | | | |
| Same or less | -- | | |
| More and unknown | -0.06 | 0.16 | 0.94 |
| **Freedom of movement, women** | | | |
| Can move alone | -0.56*** | 0.21 | 0.57 |
| Move with children or relatives | -0.38* | 0.21 | 0.68 |
| Not allowed to move | -- | | |

Table continued

**Table 17.9(Cont.): Coefficients of the independent logistic regression model of demand for additional children computed for both areas of Matlab, 1994.**

| Variables | Co-efficients | S.E. | Odds ratio |
|---|---|---|---|
| **Membership in NGO** | | | |
| No | -- | | |
| Yes | -0.34* | 0.20 | 0.71 |
| **Most known women use contraceptives** | | | |
| Yes | -- | | |
| No | 0.62** | 0.25 | 1.86 |
| Unknown | 0.06 | 0.26 | 1.06 |
| **Listen to Radio and Television** | | | |
| No | -- | | |
| Yes | 0.14 | 0.146 | 1.15 |
| **Age, women** | | | |
| <20 | -- | | |
| 20-24 | -1.11*** | 0.37 | 0.33 |
| 25-29 | -1.66*** | 0.38 | 0.19 |
| 30-39 | -2.66*** | 0.40 | 0.07 |
| 40-49 | -5.02*** | 0.71 | 0.01 |
| **# of dead children** | | | |
| None | -- | | |
| 1 | -0.20 | 0.18 | 0.82 |
| 2 | -0.12 | 0.31 | 0.88 |
| 3 or more | 0.11 | 0.51 | 1.12 |
| **CHW visitation** | | | |
| Once in a month | -0.23 | 0.20 | 0.80 |
| Once in six months | -0.16 | 0.17 | 0.85 |
| Before six months or never | -- | | |

*** P<01, **p<05, *p<10; --Reference categories
CHW Community Health Worker

organization. Results show that the membership of an NGO significantly decreases the demand for additional children. The logit of the variable is –0.20, which yields an odds ratio of 0.82. The last data used in the model is with diffusion of knowledge through exposure to the media. The logit of the variable shows that the women exposed to the media have significantly lower demand for additional children at the national level. The logit of demand for additional children among women who listen to television and radio is 0.17, which yields an odds ratio of .84.

The results of the logistic regression for Matlab areas for 1994 are presented in Table 17.10. The coefficients of the variables used in the pooled data produced similar results in the new model for Matlab too. The table shows a significant negative relationship between women with high or medium autonomy and demand for additional children. The logits of wanting additional children are -0.56

and –0.38 among women who have high or medium autonomy to move outside the village yielding odds ratios of 0.57 and 0.68 respectively. The membership of an NGO also has significant negative impact on demand for additional children. But in contrast to the national data, the diffusion of knowledge through the media has not affected the demand for additional children in both areas of Matlab. However, new information related to diffusion contraceptive knowledge was collected in Matlab during DHS-1994 survey and is included in the present analysis. This is information about whether most known women are using contraceptives. Several writers emphasized on this diffusion process (Rahman 1984; Watkins 1991). The coefficient of the variable shows that the women who do not know whether other women are using contraceptives or not, has significant positive relationship with demand for additional children.

### 17.6 Summary and conclusion

Studying the demand for additional children at the national rural level and both areas of Matlab has revealed some common features of the trends and some reasons for changes in the demand for additional children. The multivariate analysis of the demand for additional children reveals that most important common determinants of the demand for additional children have been women's age and sex composition of the family. This is revealed both in the explanatory power of the models and in the individual level impact of the variables.

The commonality of these two factors on demand for additional children in the national rural area and both areas of Matlab reaffirms that the rural society is homogeneous and not different from other societies, both developed and developing, in terms of age of the women (Pool et al. 1999; Knodel et al. 1984). Further more, this is not different from other societies in Southeast, South and West Asian countries in terms of the preference for a son (Freedman 1995; Cleland et al. 1994; Lavine 1987; Mason et al. 1987; Das Gupta 1987; Johansson and Nygren 1991). However, a notable change has been observed in the effect of sex composition of the family on demand for additional children. It appears that the preference for a son was stronger in both areas of Matlab than national rural area at the initial stage of fertility transition, that is, in 1984. In 1994, this preference for son had reduced in both areas of Matlab.

This shifts in the demand for additional children in a society where gender preference is strong without any visible change in quality of life is surprising and raises the question that there might have been a rapid social change at the grass roots level that has not been captured by any traditional macro level indicators. Empirical studies, however, have found this type of shift in other similar society (Freedman et al 1977, 1982, 1995). Most transition theorists have been doubtful of fertility decline in Bangladesh, as most research has shown, that women still desired a family composition of two sons and a girl (Koenig et al 1987; Bairagi and Dutta 2001). However, the results of the present analysis provide evidence that contraceptive use has increased and fertility has reduced further with this preference in the ratio of 2:1

The impact of economic factors, especially, women employment, though significant, is not strong in the national rural area and not significant in both areas of Matlab as would be expected from the theory. The impact of other economic factors especially the possession of land is even weaker in all the three areas. Insignificant role of the possession of land in the demand for additional children is not unexpected. Empirical evidence of the significant relationship between possession of land and reproductive behaviour as a whole is not very clearly expressed in the literature. The reason of this insignificant relationship between demand for additional children and possession of land may lies in the present state of possession of land in the rural areas which is discussed in chapter two, four and ten in detail. In fact, these chapters reveal that a clear-cut stratification of the rural society by possession of land is not a strong feature of the society anymore. Scarcity of land in the rural area with a complex land inheritance and distribution system produced a large number of landless families. On the other hand, the average landholding size per household is not very high. As a result, the socio-economic status of the two groups might be very close to each others and thus have similar attitude in all respects including attitude towards family formation and family building aspects.

The same is true about social development represented by women's, husband's and household heads' education. Only the higher education of the husband (national) and household heads (Matlab) have a significant inverse relationship with demand for additional children among women, though the magnitude of the effect is not as large as was in the case of women's age and sex composition of the family. The national data show that the education of women had a significant impact on the demand for no children at the early stage of transition, education is no longer a determinants factors in the demand for no additional children. The present analysis reveals that an educated environment (education of husband for household heads) as cited in Caldwell (1980) may influence the reproductive choice more than individuals women's education among the rural women of Bangladesh. However, the total influence is small.

An even weaker relationship in evident relating to the programme factor (family planning worker's visits). Though the demand for additional children has an inverse relationship with programme factors at the national level, the latest data with more variables, analysed separately show that the programme had no impact on the demand for additional children. In both areas of Matlab, the present study found no relationship between the demand for additional children and MCH-FP intervention. These results in both the national and Matlab studies coincide with the results found in Koenig et al. (1987) and Phillips et al. (1996).

The other cultural factors, three forms of spousal communication about family planning and family formation were available only for Matlab data. Two of the three spousal communication factors, discussion about family planning or husband's approval of the family planning programme did not influence the wife's demand for no additional children of which means that women have developed an independent perspective towards family building and family formation. However, wife's perception of the husband's agreed number of desired children appears to have a significant impact on the demand for additional children at the beginning of the period studied. This impact, however, reduced notable during the study period.

This degree of change in demand for additional children by spousal communication is remarkable for any society and more remarkable in Bangladesh where society is patriarchal and the status of women is low. These changes in attitude may be related to macro level social development at the grass roots level initiated by the government and Non Government rural poverty eradication programmes for empowering poor and women. However, it is difficult to assess the change in the effect of these programmes, as the longitudinal data for these variables are not available. An analysis of the recent data set, that is, national data 1996, and Matlab 1994 does reveal that women's freedom of movement and membership in an NGO has a significant inverse relationship with the demand for additional children.

In conclusion, it can be said that important common factors of the demand for no more children are women's age and sex composition of the family. Economic and social factors have a weak impact on generating a demand for no more children and their effect even reduced as transition proceeded. The educational environment seems to be more important than women own education. The same is true about spousal communication. Finally one factor that has a significant positive impact on demand for no additional children and it is evident that, as transition proceeded (at a later stage as in Matlab intervention) higher autonomy among women has played a significant positive role on the demand for no additional children.

# Chapter 18: Multivariate analysis of current contraceptive use in rural Bangladesh

## 18.1 Introduction

This chapter will analyse and discuss the multivariate logistic regression analysis of current contraceptive use. A multivariate logistic regression analysis of the demand for additional children has been carried out and presented in chapter 17. The data definition and categories of the variables for both dependent variables, demand for additional children, and current contraceptive use, have been discussed in chapter 17. Most of the variables are common for both analyses. The method of analysis and selection of models are also the same. But for the analysis of current contraceptive use, as discussed in chapter seven and chapter 13, currently married and fecund women of reproductive age, not pregnant at the time of interview is selected.

The bivariate distribution of current contraceptive use discussed in Part III illustrates that in all three areas, the factors associated with current contraceptive use from the biosocial side are women's age, number of living children, number of living sons, and the number of dead children; from the socio-economic side, women's employment, possession of land at the national rural level. In Matlab, the factors associated with rapid rise in current contraceptive use are, at the individual level, women's occupation; at the household level, husband occupation, possession of land and possession of modern household consumer durables, household wealth index, economic migration in the household; and at the *bari* level, occupation of the majority household heads in a *bari*.

The socio-cultural factors accounting for rises in current contraceptive use are, education of women and husband, sex composition of the family, religion and religiosity. However, while husband's education was used for the national data, household heads' education was used for the Matlab data. Additional socio-cultural factors used for the Matlab data, which shows a strong relationship with current use of contraceptives, are three spousal communication factors. They are whether spouses discussed family planning matters, women's perception of their husbands' support of family planning and women's perception of agreed number of expected children with their husband. One of the socio-cultural factors influencing current contraceptive use at the *bari* level in Matlab is the proportion of household heads educated in a *bari*.

Both national and Matlab data show that current contraceptive use is high among women who have more knowledge about contraceptives and the sources of contraceptive supply. In addition, family planning workers visits greatly increase the current use of contraceptives. The definitions of all the independent variables, especially the categories used in the multivariate analysis were discussed in chapter 17. Two variables not used in the demand for additional children analysis but used in the analysis of current contraceptive use are knowledge of contraceptives and the sources of contraceptive supply. These two variables are dichotomous with knowledge of more than three methods and knowledge of at least one source of contraceptives supply as reference categories. For the sources of contraceptives supply known, recoding is different because of the different recoding systems used in the two datasets. In the national data, the question asked was whether the women knew at least one. It is a 'Yes' or 'No' answer. In the Matlab data, the question was open. Most women knew several sources of contraceptive supplies, the women who knew of only one source of supply was very low.

## 18.2 Statistical models

Current contraceptive use, similar to the demand for additional children is dichotomous and thus multivariate logistic regression has been selected as a statistical model to analyse both national and Matlab data. In the logistic regression model, the dependent variable is the log of odds of currently using contraceptives, over not currently using them. The independent variables are added sequentially into the model in groups. Inclusion of these variables is conditional on the empirical results found in other studies or in the bivariate analysis in part III. The inclusion of different combinations of dependent variables helps to explain in what ways the biosocial, economic and socio-cultural factors of the women affect the current use of contraceptives. Similar to demand for additional children, the elimination of variables and the selection of the final model has been made on the basis of relative weight of each of the variables in relation to model fit. The same two fit statistics –2 Log Likelihood statistics and Raftery's (1995) Baysian Information Criterion (BIC) have been used to determine the best model fit. Details of their selection procedure have been discussed in chapter 5. In the model selection process, variables that did not improve the model fit by these two fit statistics have been excluded despite their theoretical base for inclusion. If the variables improve one of the fit statistics and are significant at the individual level, they have been kept in the model. Similar to the demand for additional children analysis, the interaction between Year of Survey and some important variables has been examined to explore whether there is a change in the effect of these variables on the current use contraceptives over the study period, 1983-1996. The interaction variables have been selected on the basis of important theoretical and social implications. These interaction variables are, year and women occupation, women education, women's age sex composition of the family, spousal communication, sources of contraceptive supply known, and visits of the family planning workers.

***Regression decomposition***

The coefficients of the preferred model and year specific sample means for national rural and Matlab areas (Means of all categories are presented in appendix, Tables A-8a and Table A-8b respectively, have been used to make inferences about the relative causal importance of each of the variables to explaining changes in the current use of contraceptives between two the survey years at the national rural level and two areas of Matlab. The regression decomposition yields estimates of the impact of changes each independent variable has on the predicted change of current use of contraceptives.

## 18.3 Results

### 18.3.1 National Rural Area

Similar to the demand for additional children, the results of the multivariate analysis of the current contraceptive use for the national rural area and Matlab have been produced in separate tables for convenience. Table 18.1 presents ten different models to select two best fitting models to examine the impact of different biosocial, socio-economic and cultural factors and knowledge of contraceptives and family planning programme factors on current use of contraceptives from 1983 to 1996 for the national rural area. The table presents the fit statistics, the –2Log Likelihood statistics, and Raftery's (1995) Baysian Information Criterion (BIC) for evaluating the explanatory power of the logistic regression models of the current contraceptive use. The coefficients of Model-1 measure only the main effect of the variable, Year of Survey. Model 2 includes the main effect of the women's economic characteristics. Model 2 has better explanatory power than Model 1 by both measures of fit, signifying that the economic factors significantly affect the level of contraceptive use.

The next group of models, Models 3 and 4, explore the main effects of the socio-cultural factors on current use of contraceptives. Two types of social and cultural features of the women have been entered into the analysis through these models. Model 3 examines the social development in terms of education of women, husbands and the religious composition of the rural society represented by religion. Model 4 deals with a deeply rooted bio-cultural phenomenon, preference for sons. Similar to the demand for additional children, gender preference especially, preference for sons has been measured by the variable sex composition of the family. The inclusion of this variable into the model greatly improves both measures of fit. It is interesting to note that the model fit is the second highest when sex composition of the family is included for both national rural area and Matlab. This demonstrates that the most important deciding factor of current contraceptive use is sex composition of the family.

**Table 18.1: Fits statistics of logistic regression Models of Current use of contraceptives, National level (rural), 1983-1996.**

| Models Descriptions | -2Log Likelihood | D.F | BIC |
|---|---|---|---|
| **Model 1**: Year of survey | 14547.567 | 12194 | -100183 |
| **Model 2:** Year of Survey, Economic: Employment of women, possession of land; | 14438.99 | 12192 | -100273 |
| **Model 3:** Year; Economic, Employment of women, possession of land; social, women's and husband's education, religion | 14225.366 | 12186 | -100430 |
| **Model 4:** Year of Survey; Economic, Employment of women, possession of land; social, women's and husband's education, religion & sex composition of the family | 13546.689 | 12181 | -101062 |
| **Model 5:** Year of Survey; Economic, Employment of women, possession of land; social, women's and husband's education, religion & sex composition of the family; biosocial, women's age & # of children died | 13408.38 | 12174 | -101134 |
| **Model 6:** Year of Survey; Economic, Employment of women, possession of land; social, women's and husband's education, religion & sex composition of the family; biosocial, women's age & # of children died, FPW Visit, knowledge family planning methods, Sources of the family planning methods known | 12659.045 | 12170 | -101846 |
| **Model 7** Year of Survey; Employment of women, possession of land; social, women's and husband's education, religion & sex composition of the family; biosocial: women's age, & # of children died, FPW Visit; interaction effect, Year X women education Year X woman age, Year X women occupation | 12607.524 | 12163 | -101831 |
| **Model 8** Year of Survey; Employment of women, possession of land; social, women's and husband's education, religion & sex composition of the family; biosocial: women's age, & # of children died, FPW Visit; **interaction effect:** Year X women education Year X woman age, Year X sex composition | 12604.36 | 12159 | -101797 |
| **Model 9** Year of Survey; Employment of women, possession of land; social, women's and husband's education, religion & sex composition of the family; biosocial: women's age, & # of children died, FPW Visit; **interaction effect:** Year X women education Year X woman age, Year X Women occupation, Year X FPW visit, Knowledge of Family planning methods, sources of family planning methods known | 12520.925 | 12159 | -101880 |
| **Model 10** Year of Survey; Employment of women, possession of land; social, women's and husband's education, religion & sex composition of the family; biosocial: women's age, & # of children died, FPW Visit; **interaction effect:** Year X women education Year X woman age, Year X Women age, Year X FPW visit, sources of family planning methods known | 12521.782 | 12160 | -101889 |

Model 5 adds in women's biosocial factors, women's age and number of dead children. Both fit statistics show that inclusion of biosocial factors greatly improves the model fit. In the last main effect model, that is, Model 6, three factors related with the family planning programme are included. These are the frequency of family planning worker's visits to women, knowledge of contraceptives and the sources of contraceptives known to the women. Both fit statistics demonstrate the greatest improvement of the model after inclusion of these variables. Thus Model 6 is the preferred model with main effect.

The first set of interaction variables, Year of Survey and women occupation, women education and women's age has been added into the model through Model 7. Inclusion of these two interaction variables decreases the –2 Log Likelihood statistics by a product of 51 and is significant at the individual level but does not improve the BIC statistics. Considering these two factors, that is, reduction of –2Log Likelihood statistics and the level of significance of the variables in the model, we decided to keep them in the model. The interaction between Year of Survey and sex composition of the family has been inserted into Model 8. The inclusion of this interaction variable neither decreases the –2 Log Likelihood statistics nor improves the BIC and at the individual level interaction itself is not significant, thus indicating that the impact of sex composition of the family did not change during 1983-1996 in the rural area of Bangladesh. Thus this interaction variable has been omitted from the subsequent models. In the next model, three interaction variables related with knowledge of contraceptives and sources of contraceptives known and the programme factor, family planning workers' visits to the women have been included. Inclusion of these interaction variables significantly decreases the –2 Log Likelihood statistics and improves the BIC statistics. The –2 Log Likelihood reduces by a product of 84 and the BIC improves by a product of -49. Two of these three interaction variables are significant at the individual level. The next model has been run without the interaction variable that was not significant in the last model, that is, knowledge of contraceptives. Deletion of this interaction variable improves the BIC level by -09. As one of the primary objectives of the present analysis is to identify the types of changes during 1983-1996 period that affect the current contraceptive use behaviour of the rural women of Bangladesh, Model 10 is treated as the second preferred model (model with interaction). This model includes, besides the main effect, interaction between Year of interview and the socio-economic and biosocial factors, women's occupation, education and age, family planning programme factor, and the contraceptive knowledge factors: family planning workers visits to the women and sources of contraceptives known to the woman respondent.

The coefficients of these two preferred models (Model 6 and Model 10) are used to estimate the total contribution of each biosocial, economic, socio-cultural and programmatic factor to the changing trends and differentials in current use of contraceptives among the rural women of Bangladesh.

However, before calculating the total change during the study period, that is 1983-1996, and the impact of each of the variables on the current contraceptive use pattern will be examined. In describing the effect of the independent variables, I will use the figures from the main effect model for the main effect covariates, and figures from the interaction model for the interaction variables. Table 18.2 presents the coefficients of Model 7 and Model 10. These coefficients represent the log odds of the current use of contraceptives over not using them. In both models, the year coefficient shows a significant rise in current contraceptive use among the rural women of Bangladesh in 1996. The economic factors, that is, employment of women and possession of land by the household, show the expected direction of relationship. The paid employment of women has a significant positive relationship with current use of contraceptives. Current use of contraceptives is 42 percent higher among women who are in paid work than women who are engaged in household work. The possession of agricultural land by the household has an inverse relationship with women's current contraceptive use. The odds ratio of a decrease in current use of contraceptives among the women who belong to households possessing farmland is 0.91.

The coefficients of the socio-cultural factors added into Model 6 and Model 10 also show a significant relationship with current use of contraceptives. Women's secondary education and husband's high education, that is, 10 or more years of schooling have a significant positive relationship with current use of contraceptives. The logit of using contraceptives among the women who have primary education is 0.17, which produced an odds ratio of 1.19. The logit of current use of contraceptives among women who have secondary education is

**Table 18.2: Logistic regression coefficients of current contraceptive use of two preferred models (model 6 without interaction and model 10 with interaction), national level (rural), 1983-1996**

| Variables | Main effect model (6) | | | Interaction model (10) | | |
|---|---|---|---|---|---|---|
| | Co-efficient | S.E. | Odds ratio | Co-efficient | S.E. | Odds ratio |
| **Constant** | -1.06*** | 0.111 | 0.345 | -1.22*** | 0.14 | 0.30 |
| **Year of Surveys** | | | | | | |
| 1983 | -- | | | -- | | |
| 1996 | 1.06*** | 0.054 | 2.890 | 1.21*** | 0.14 | 3.37 |
| **Employment, women** | | | | | | |
| Paid employment | 0.36*** | 0.052 | 1.428 | 0.61*** | 0.11 | 1.84 |
| Housework | -- | | | | | |
| **Possession of land, Hhold** | | | | | | |
| No | -- | | | -- | | |
| Yes | -0.09* | 0.048 | 0.914 | -0.09* | 0.05 | 0.91 |
| **Education, women** | | | | | | |
| No education | -- | | | -- | | |
| 1-5 yrs | 0.17*** | 0.055 | 1.187 | 0.05 | 0.08 | 1.06 |
| 6 or more years | 0.40*** | 0.090 | 1.498 | 0.68*** | 0.15 | 1.97 |
| **Education, husband** | | | | | | |
| No education | -- | | | -- | | |
| 1-5 yrs | -0.10* | 0.057 | 0.901 | -0.10* | 0.06 | 0.91 |
| 6-9 yrs | -0.01 | 0.072 | 0.988 | -0.01 | 0.07 | 0.99 |
| 10 or more years | 0.36*** | 0.089 | 1.435 | 0.32*** | 0.09 | 1.38 |
| **Religion** | | | | | | |
| Islam | -- | | | -- | | |
| Hindus | 0.54*** | 0.068 | 1.724 | 0.53*** | 0.07 | 1.69 |
| **Sex composition, children** | | | | | | |
| One son & one daughter | -- | | | -- | | |
| 1-2 son only | -0.12 | 0.103 | 0.891 | -0.40*** | 0.09 | 0.67 |
| 1-2 daughter only | -0.45*** | 0.107 | 0.639 | -0.75*** | 0.09 | 0.47 |
| Children >2 but son=> daughter | -0.11 | 0.095 | 0.895 | -0.10 | 0.08 | 0.91 |
| Children >2 but daughter> son | -0.30*** | 0.096 | 0.743 | -0.28*** | 0.08 | 0.76 |
| No living children | -1.60*** | 0.117 | 0.201 | -1.52*** | 0.12 | 0.22 |
| **Age women** | | | | | | |
| <20 | -- | | | -- | | |
| 20-24 | -0.08 | 0.082 | 0.922 | 0.37*** | 0.13 | 1.45 |
| 25-29 | 0.06 | 0.090 | 1.060 | 0.60*** | 0.13 | 1.82 |
| 30-39 | 0.47*** | 0.095 | 1.594 | 1.01*** | 0.13 | 2.75 |
| 40-49 | 0.14 | 0.109 | 1.147 | 0.36** | 0.15 | 1.43 |
| **# of children died** | | | | | | |
| None | -- | | | -- | | |
| 1 | -0.48*** | 0.092 | 0.618 | -0.22*** | 0.06 | 0.80 |
| 2 | 0.12 | 0.076 | 1.130 | -0.34*** | 0.08 | 0.71 |
| 3 or more | 0.04 | 0.076 | 1.038 | -0.56*** | 0.09 | 0.57 |

**Table 18.2 (cont): Logistic regression coefficients of current contraceptive use of two preferred models (model 6 without interaction and model 10 with interaction), national level (rural), 1983-1996.**

| Variables | Main effect model (Model 6) | | | Interaction Model (Model 10) | | |
|---|---|---|---|---|---|---|
| | Coefficients | S.E | Odds ratio | Coefficients | S.E | Odds ratio |
| **FWA visit** | | | | | | |
| In month | 0.67*** | 0.074 | 1.960 | 0.45*** | 0.09 | 1.57 |
| Once in six months | 0.75*** | 0.051 | 2.113 | 0.34*** | 0.10 | 1.41 |
| More than 6 months/never | -- | | | -- | | |
| **Knowledge of contraceptives** | | | | | | |
| Knows <4 methods | -0.73*** | 0.060 | 0.483 | -0.74*** | 0.06 | 0.48 |
| 4 or More | | | | | | |
| **Sources of contraceptives Known** | | | | | | |
| Less than one source | -1.15*** | 0.100 | 0.315 | -0.67*** | 0.12 | 0.51 |
| More than one | -- | | | -- | | |
| **Interactions** | | | | | | |
| **Year X women occupation** | | | | | | |
| Year X women engaged in paid work | | | | -0.35*** | 0.12 | 0.70 |
| **Year X women education** | | | | | | |
| Year X 1-5 yrs schooling | | | | 0.16 | 0.10 | 1.17 |
| Year X 6 or more years schooling | | | | -0.45*** | 0.16 | 0.64 |
| **Year X women age** | | | | | | |
| Year X 20-24 | | | | -0.48*** | 0.16 | 0.62 |
| Year X 25-29 | | | | -0.50*** | 0.16 | 0.61 |
| Year X 30-39 | | | | -0.40*** | 0.15 | 0.67 |
| Year X 40-49 | | | | 0.28 | 0.18 | 1.32 |
| **Year X FW a visit** | | | | | | |
| Year X In month | | | | 0.66*** | 0.17 | 1.94 |
| Year X once in six months | | | | 0.61*** | 0.11 | 1.84 |
| **Year X Sources of contraceptives Known** | | | | | | |
| Year X More than one | | | | -1.29*** | 0.21 | 0.28 |

*** p<01, **p<05, *p<10; -- Reference categories

0.40, which gives an odds ratio of 1.5. The odds ratio among women whose husbands have 10 or more years of education is 1.43. A significantly higher proportion of Hindus are using contraceptives compared to the Muslims. The odds ratio of increasing current use among the Hindu women is 1.71.

The coefficients of the sex composition of the family, which contributed the second largest explanatory power to these models, show a very interesting outcome. The odds ratio of not using contraceptives among women who have no children is 0.21, that is, about five times higher than the reference category. The same table shows that current use of contraceptives is significantly low among women who have two or less daughters only, or among women who have more than two children but who have more daughters than sons. Even the current use is lower, though not significantly, among women who have more than two children and more of sons than daughters. The interaction model (Model 10) demonstrates this relationship more clearly. There is a obvious preference for more sons, but there is also a desire for daughters. This finding is consistent with the findings of other studies conducted on sex composition of family (Rahman et al. 1992)

The most important biosocial factor, women's age, has a positive relationship with current contraceptive use but the effect of age is even stronger during the study period. The main effect model (Model 6) shows that women in the 30-39 years age group have a significant positive relationship with current contraceptive use. The logit of currently using contraceptives is 0.47, which means that women aged 30-39 years have 1.59 times higher current use of contraceptives than the reference categories.

The information related with knowledge about contraceptives and family planning programme has been added in the last main effect model, Model 6. The results presented in Table 18.3 show that knowledge of contraceptives; sources of contraceptives supply known to the women and the family planning worker visits have significant positive effects on the current use of contraceptives of the national rural women. The odds ratio of currently using contraceptives in the main effect model is 0.48 percent (2 times) lower among women who know fewer than four contraceptive methods. The odds ratio is even lower (0.32) among women who know of only one source of contraceptive supply. The logit of currently using contraceptives is 0.67 (odds ratio 1.96) among women who were visited once in a month by the family planning workers and 0.75 (odds ratio 2.13) among women who were visited within six months.

The changing effect of the variables has been explored in the interaction models. The logic behind using interaction between Year of Survey and other independent variables for explaining the changing effect of the variables has been explained in chapter five and chapter 17. In the interaction models, three interaction variables from socio-economic and biosocial characteristics appear to have changed during the study period. These are, women's occupation, education, and age. The impact of another two variables related with knowledge of contraceptives and family planning programme appear to have changed during 1983-1996. These are sources of contraceptives supply known to the women and the family planning worker's visits to the women.

The coefficient of the first interaction variable, that is, women's occupation, has changed its sign of coefficient and has had a significant negative impact on current contraceptive use. This indicates that the effect of women's employment, though significant at the initial level of current contraceptive use, reduced significantly during 1983-1996. The logit of the main effect of women paid employment in the interaction model is 0.61 and the odds ratio is 1.84 but the logit of the interaction between Year of survey and women employment in the same model is –0.35 with an odds ratio of 0.70. This indicates there was a strong positive relationship between women in paid employment and current contraceptive use but the impact reduced significantly during the study period. The same is true for women's education. In the main effect model (Model 6), women's education manifests a strong positive relationship with current use of contraceptives among women. But when the interaction between Year of Survey and women education is added in Model 10, the signs of the main effect of primary education in both models (Model 6 & 10) are positive. This implies that the impact of primary education on current contraceptive use has increased during the study period. However the change in logit from positive to negative for the women's secondary education in the interaction model implies that the impact of secondary education though significantly positive at the initial stage of fertility decline, has decreased during the study period.

The biosocial factor, the effect of women's age, also decreased during the study period. The logit coefficients of the women's age groups in the main effect model (Model 6) reveal that only the women's age 30-39 years had a significant positive relationship with current use of contraceptives. The cause of such an outcome in the relationship between age and current contraceptives use is clearly demonstrated in the later model, that is, in the model with interactions. The main effects of the women's age on current use of contraceptives in the interaction model suggest a significant positive relationship in 1983. But these relationships seem to have changed during the study period. The negative sign of the logit coefficients of Year of Survey and women's age interaction and their significant inverse relationship with current contraceptives use suggest that at the initial stage in 1983, current use of contraceptives was dependent on age, and that younger women were less likely to use contraceptives. These trends changed over the study period and presently it appears that most women are using contraceptive irrespective of age, though the women of 30-39 years are still significantly the highest users.

The last two interactions relate to knowledge of contraceptives and the effect of the family planning programme. These variables are sources of contraceptive supply known to the women and the frequency of the family planning worker visits. The main effect of the variables in the main effect model (Model 6) shows a significant positive relationship between family planning worker's visitation and current use of contraceptives. In the interaction model (Model 10), the sign for both the main effect and interaction effect of this variable is same, which means that the positive impact of family planning workers visits on current use of contraceptives has further increased during the study period of 1983-1996. The same is true with women's knowledge of the sources of contraceptive supply. The main effect model suggests that current use of contraceptives is significantly low among women who do not have knowledge of the sources of contraceptives supply. The fact that this variable has the same sign in both the main effect and interaction effect coefficient suggests that the effect of the knowledge of the sources of supply has increased during the study period.

In the present table, the strength of relationship and impact of the variables and their changing effect on current contraceptive use has been identified. The total change and contribution of each of these variables on the total change of current contraceptive use will be examined next.

**Table 18.3a: Decomposition of the main effect model for explaining change in Current contraceptive use, in the national rural area during 1983-1996**

| Variables | Mean 1983 | Mean 1996 | Co-efficient | Mean83 *co-eff | Mean96 *co-eff | Change | Group change | % of changeExplained |
|---|---|---|---|---|---|---|---|---|
| 1996 | | | 1.06 | | | 1.06 | 1.06 | 0.57 |
| **Employment, women** | | | | | | | | |
| Paid employment | 0.09 | 0.37 | 0.36 | 0.03 | 0.13 | 0.10 | 0.10 | 0.05 |
| **Possession of land, Hhold** | | | | | | | | |
| Yes | 0.70 | 0.61 | -0.09 | -0.06 | -0.06 | 0.01 | 0.01 | 0.00 |
| **Education, women** | | | | | | | | |
| 1-5 yrs | 0.24 | 0.29 | 0.17 | 0.04 | 0.05 | 0.01 | | |
| 6 or more years | 0.05 | 0.16 | 0.40 | 0.02 | 0.06 | 0.04 | 0.05 | 0.03 |
| **Education, husband** | | | | | | | | |
| 1-5 yrs | 0.18 | 0.27 | -0.10 | -0.02 | -0.03 | -0.01 | | |
| 6-9 yrs | 0.13 | 0.15 | -0.01 | 0.00 | 0.00 | 0.00 | | |
| 10 or more years | 0.09 | 0.12 | 0.36 | 0.03 | 0.04 | 0.01 | 0.00 | 0.00 |
| **Religion** | | | | | | | | |
| Hindus | 0.12 | 0.11 | 0.54 | 0.06 | 0.06 | 0.00 | 0.00 | 0.00 |
| **Sex composition, children** | | | | | | | | |
| 1-2 son only | 0.13 | 0.15 | -0.12 | -0.01 | -0.02 | 0.00 | | |
| 1-2 daughter only | 0.11 | 0.13 | -0.45 | -0.05 | -0.06 | -0.01 | | |
| Children >2 but son=> daughter | 0.33 | 0.28 | -0.11 | -0.04 | -0.03 | 0.01 | | |
| Children >2 but daughter> son | 0.22 | 0.20 | -0.30 | -0.07 | -0.06 | 0.01 | | |
| No children | 0.13 | 0.10 | -1.60 | -0.20 | -0.17 | 0.04 | 0.04 | 0.02 |
| **Age, women** | | | | | | | | |
| 20-24 | 0.20 | 0.20 | -0.08 | -0.02 | -0.02 | 0.00 | | |
| 25-29 | 0.19 | 0.22 | 0.06 | 0.01 | 0.01 | 0.00 | | |
| 30-39 | 0.24 | 0.29 | 0.47 | 0.11 | 0.14 | 0.02 | | |
| 40-49 | 0.16 | 0.12 | 0.14 | 0.02 | 0.02 | 0.00 | 0.02 | 0.01 |
| **# of children died** | | | | | | | | |
| 1 | 0.24 | 0.21 | -0.48 | -0.12 | -0.10 | 0.02 | | |
| 2 | 0.12 | 0.08 | 0.12 | 0.01 | 0.01 | 0.00 | | |
| 3 or more | 0.13 | 0.05 | 0.04 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 |
| **CHW and FWA visit** | | | | | | | | |
| In month | 0.14 | 0.05 | 0.67 | 0.10 | 0.03 | -0.06 | | |
| Once in six months | 0.13 | 0.32 | 0.75 | 0.10 | 0.24 | 0.14 | 0.08 | 0.04 |
| **Knowledge contraceptives** | | | | | | | | |
| Knows <4 methods | 0.57 | 0.09 | -0.73 | -0.42 | -0.07 | 0.35 | 0.35 | 0.19 |
| **Sources of contraceptives known** | | | | | | | | |
| None | 0.18 | 0.07 | -1.15 | -0.21 | -0.08 | 0.14 | 0.14 | 0.07 |
| **Total change** | | | | | | | 1.85 | 1.00 |

Co-eff = Coefficients

**Table 18.3b: Decomposition of interaction effect model for explaining change in current contraceptive use, national level (rural), 1983-1996**

| Variables | Mean 1983 | Mean 1996 | Co-efficient | Mean83 *co-eff (E) | Mean96* Co-eff (F) | Change (F-E) | Group change | % of change Explained |
|---|---|---|---|---|---|---|---|---|
| **Year of Survey** | | | | | | | | |
| 1996 | | | 1.22 | | | 1.22 | 1.22 | 0.60 |
| **Employment, women** | | | | | | | | |
| Paid employment | 0.09 | 0.37 | 0.61 | 0.05 | 0.23 | 0.17 | | |
| **Possession of land** | | | | | | | | |
| Yes | 0.70 | 0.61 | -0.09 | -0.06 | -0.05 | 0.01 | 0.01 | 0.00 |
| **women education** | | | | | | | | |
| 1-5 yrs | 0.24 | 0.29 | 0.05 | 0.01 | 0.02 | 0.00 | | |
| 6 or more years | 0.05 | 0.16 | 0.68 | 0.04 | 0.11 | 0.07 | | |
| **Husband's education** | | | | | | | | |
| 1-5 yrs | 0.18 | 0.27 | -0.10 | -0.02 | -0.03 | -0.01 | | |
| 6-9 yrs | 0.13 | 0.15 | -0.01 | 0.00 | 0.00 | 0.00 | | |
| 10 or more years | 0.09 | 0.12 | 0.32 | 0.03 | 0.04 | 0.01 | 0.00 | 0.00 |
| **Religion** | | | | | | | | |
| Hindus | 0.12 | 0.11 | 0.53 | 0.06 | 0.06 | 0.00 | 0.00 | 0.00 |
| **Sex composition, children** | | | | | | | | |
| 1-2 son only | 0.13 | 0.15 | -0.40 | -0.05 | -0.06 | -0.01 | | |
| 1-2 daughter only | 0.11 | 0.13 | -0.75 | -0.09 | -0.10 | -0.02 | | |
| Children >2 but son=> daughter | 0.33 | 0.28 | -0.10 | -0.03 | -0.03 | 0.00 | | |
| Children >2 but daughter> son | 0.22 | 0.20 | -0.28 | -0.06 | -0.06 | 0.00 | | |
| No children | 0.13 | 0.10 | -1.52 | -0.19 | -0.16 | 0.04 | 0.02 | 0.01 |
| **Age, women** | | | | | | | | |
| 20-24 | 0.20 | 0.20 | 0.37 | 0.07 | 0.08 | 0.00 | | |
| 25-29 | 0.19 | 0.22 | 0.60 | 0.11 | 0.13 | 0.02 | | |
| 30-39 | 0.24 | 0.29 | 1.01 | 0.24 | 0.29 | 0.05 | | |
| 40-49 | 0.16 | 0.12 | 0.36 | 0.06 | 0.04 | -0.01 | | |
| **# of children died** | | | | | | | | |
| One | 0.24 | 0.21 | -0.23 | -0.06 | -0.05 | 0.01 | | |
| Two | 0.12 | 0.08 | -0.34 | -0.04 | -0.03 | 0.01 | | |
| 3 or more | 0.13 | 0.05 | -0.56 | -0.07 | -0.03 | 0.05 | 0.07 | 0.03 |
| **CHW and FWA visit** | | | | | | | | |
| In month | 0.14 | 0.05 | 0.45 | 0.06 | 0.02 | -0.04 | | |
| Once in six months | 0.13 | 0.32 | 0.34 | 0.04 | 0.11 | 0.07 | | |
| **Knowledge of contraceptives** | | | | | | | | |
| Knows <4 methods | 0.57 | 0.09 | -0.74 | -0.43 | -0.07 | 0.36 | 0.36 | 0.17 |
| 4 or More | 0.43 | 0.91 | | | | | | |
| **Sources of contraceptives known** | | | | | | | | |
| Less than one source | 0.18 | 0.07 | -0.67 | -0.12 | -0.04 | 0.08 | | |

**Table 18.3b(cont.):Decomposition of interaction effect model for explaining change in current contraceptive use, national level (rural), 1983-1996.**

| Decomposition of interaction | I | C | I+C | Mean83 *co-eff | Mean96 *co-eff | Change (F-E) | group change | % of change Explained |
|---|---|---|---|---|---|---|---|---|
| **Year x women occupation** | | | | | | | | |
| Year x women paid employment | -0.35 | 0.61 | 0.26 | 0.05 | 0.10 | 0.04 | 0.07 | 0.04 |
| **Year x women education** | | | | | | | | |
| Year x 1-5 yrs schooling | 0.16 | 0.05 | 0.21 | 0.01 | 0.06 | 0.05 | | |
| Year x 6 or more years schooling | -0.45 | 0.68 | 0.23 | 0.04 | 0.04 | 0.00 | 0.05 | 0.02 |
| **Year X women age** | | | | | | | | |
| Year x 20-24 | -0.48 | 0.37 | -0.11 | 0.07 | -0.02 | -0.10 | | |
| Year x 25-29 | -0.50 | 0.60 | 0.10 | 0.11 | 0.02 | -0.09 | | |
| Year x 30-39 | -0.40 | 1.01 | 0.61 | 0.24 | 0.18 | -0.06 | | |
| Year x 40-49 | 0.28 | 0.36 | 0.64 | 0.06 | 0.08 | 0.02 | -0.23 | -0.11 |
| **Year X CHW/FPW visit** | | | | | | | | |
| Year x In month | 0.66 | 0.45 | 1.11 | 0.06 | 0.06 | -0.01 | | |
| Year X once in six months | 0.61 | 0.34 | 0.95 | 0.04 | 0.31 | 0.26 | 0.25 | 0.12 |
| **Year X Sources of contraceptives known** | | | | | | | | |
| More than one | -1.29 | -0.67 | -1.96 | -0.12 | -0.13 | -0.01 | 0.23 | 0.11 |
| **Total Change** | | | | | | | 2.04 | 1.00 |

I=Interaction, C=Co-efficients, Co-eff = Co-efficients

***Decomposition of the factors of current contraceptive use***

As noted earlier, the intention of the present analysis is to compute the effect of each of the variables and the change in the effect of these variables on current contraceptive use over time. Thus the decomposition of the two sets of regression coefficients of the preferred models has been estimated to examine the effect of these variables on the dependent variable, current contraceptive use. One of the two preferred models, Model 6 runs without interaction with time while the later model (model 10) contains interaction variables with time (Year of Surveys). The decomposition of variables has been computed using the coefficients of these two preferred models and the sample means in the appendix Table A-8a and the results are presented in Tables 18.3a & b.

The results presented in Table 18.3a and Table 18.3b illustrate a change in the predicted logit in current contraceptive use from 1983-1996. The total logit change found from main effect model (Model 6) is 1.85 but the total logit change found from the interaction model is 2.04. Out of these total logit changes, the largest factor contributing to the rise in current contraceptives is the knowledge of contraceptives, sources of contraceptive supply known to the women and the programme related factor, frequency of family planning worker's visitation. These logits of three variables total 0.84, 40 percent of the total change. Of the three variables, knowledge of contraceptives seems to have been the largest contributor of the rise in current contraceptive use. The total logit change accrued from knowledge of contraceptives in the interaction model is 36, which explains 17 percent of the rise in current contraceptive use. However, the effect of this variable does not change during the study period. The variable sources of contraceptive supply known to the women have a significant positive impact on current use of contraceptives at the beginning of the study. The logit change due to knowledge of the sources of contraceptive supply in 1983 (main effect model) is 0.14, which is 7 percent of the total change in the main effect model. The effect of this variable increased during the study period. In 1996, total logit change due to this variable is 0.23, that is, 11 percent of the total change explained by the interaction model. The last significant variable, family planning workers visits has a significant positive relationship with current use of contraceptive in 1983. The total logit rise due to this variable is .08 in the main effect model, which explains four percent of the total logit change of the main effect model. However, during the study period, the effect of family planning workers visit has significantly increased. The same sign and significance of the interaction variable (Year of Survey and family planning worker's visitation) suggests that the impact of this variable has further increased. The computed logit change due to this variable in the interaction model is 0.25, which explains 12 percent of a total logit change explained by the interaction model.

However, the logit changes due to socio-economic and biosocial and cultural factors are not as large as the knowledge and programme factors explained. The economic factor represented by women employment of the main effect model in Table 18.4a demonstrates that the 0.10 rise of the total logit in the model is due to women's employment. This impact reduced slightly during the study period. The same is true for women's education. The impact of the biosocial factor, that women's age shows a 0.02 logit change due to women's age in the main effect model. The interaction model suggests that the effect of women's age is higher in 1983 but the effect changed during the study period. It seems from the main effect of women's age at the interaction model is 0.7 in 1983, during the study period, the impact of women's age on current contraceptives use has significantly changed.

The effect of socio-cultural factors is relatively stable and did not reduce the logit during the study period. As reported earlier, the inclusion of sex composition in the interaction model did not increase the power of the interaction model and thus this factor was omitted from the interaction model. However, the total logit increase due to sex composition of the family in the main effect model is 0 .04, that is .02 percent, and in the interaction model it is .01 percent

### 18.3.2 Matlab

Logistic regressions for current contraceptive use for the both areas of Matlab are run in one model where area of intervention is treated as a covariate. The fit statistics of the logistic regression models for Matlab are presented in Table 18.4. In this table, 14 different models are presented to examine the impact of different biosocial, economic and socio-cultural factors on current use of contraceptives and to examine whether there is any change in the effect of these variables during 1984-1994 in Matlab. It also presents the fit statistics, the –Log likelihood statistics, and Raftery's (1995) Baysian Information Criterion (BIC) for evaluating the logistic regression models of the current use of contraceptives. The coefficient of the Model One measures only the main effect of time, that is, the Year of Survey. The main effect of the variable, area of intervention, has been entered into Model two.

The variables, employment of women and husband, have been included in Model three. Both fit statistics confirm that inclusion of these two variables improves the explanatory power of the model. It also signifies that while the economic factors of husband have an influence on women's contraceptive use dynamics, her own employment status has also had significant impact on current use dynamics of contraceptives in both areas of Matlab. Similar to the analysis of demand for

**Table 18.4: Fits statistics of logistic regression Models of current contraceptive use, both areas of Matlab, 1984-1994.**

| Models Descriptions | -2Log Likelihood | DF | BIC |
|---|---|---|---|
| **Model 1**: Year of Survey | 8799.00 | 12194 | -105931.68 |
| **Model 2:** Year of Survey, area of intervention | 8400.92 | 12193 | -106320.35 |
| **Model 3:** Year of Survey; area of intervention; Economic: Employment of women, employment of husband | 8348.83 | 12189 | -106334.81 |
| **Model 4:** Year of Survey; area of intervention, Economic: Employment of women, employment of husband; Social: women education and household head's education, religion | 8279.26 | 12183 | -106347.93 |
| **Model 5:** Year of Survey; area of intervention, Economic: Employment of women, employment of husband; Social: women education and household head's education, religion, sex composition | 7840.02 | 12178 | -106740.12 |
| **Model 6:** Year of Survey; area of intervention, Economic: Employment of women, employment of husband; Social: women education and household head's education, religion, sex composition; Biosocial: women age; | 7821.01 | 12174 | -106721.49 |
| **Model 7:** Year of Survey; area of intervention, Economic: Employment of women, employment of husband; Social: women education and household head's education, religion, sex composition; Biosocial: women age; Cultural: 3 spousal communication factors | 7109.86 | 12171 | -107404.42 |
| **Model 8:** Year of Survey; area of intervention, Economic: Employment of women, employment of husband; Social: women education and household head's education, religion, sex composition; Biosocial: women age; Cultural: 3 spousal communication factors; Knowledge and FP programme factors: knowledge of contraceptives, sources of contraceptives known, family planning workers visit. | 7028.05 | 12166 | -107439.18 |
| **Model 9:** Year of Survey; area of intervention, Economic: Employment of women, employment of husband; Social: women education and household head's education, religion, sex composition; Biosocial: women age; Cultural: 3 spousal communication factors; Knowledge and FP programme factors: sources of contraceptives known, family planning workers visit. | 7028.57 | 12167 | -107448.07 |
| **Model 10:** Year of Survey; area of intervention, Economic: Employment of women, employment of husband; Social: women education and household head's education, religion, sex composition; Biosocial: women age; Cultural: 3 spousal communication factors; Knowledge and FP programme factors: sources of contraceptives known, family planning workers visit, **interaction effect**: Year X woman age, | 7000.46 | 12163 | -107438.55 |
| **Model 11** Year of Survey; area of intervention, Economic: Employment of women, employment of husband; Social: women education and household head's education, religion, sex composition; Biosocial: women age; Cultural: 3 spousal communication factors; Knowledge and FP programme factors: sources of contraceptives known, family planning workers visit. **Interaction effect:** Year of Survey X woman age, Year of Survey X 2 spousal factors | 6930.42 | 12161 | -107489.77 |

**Table 18.4 (cont): Fits statistics of logistic regression Models of current contraceptive use, both areas of Matlab, 1984-1994.**

| Models Descriptions | -2Log Likelihood | DF | BIC |
|---|---|---|---|
| **Model 13** Year of Survey; area of intervention, Economic: Employment of women, employment of husband; Social: women education and household head's education, religion, sex composition; Biosocial: women age; Cultural: 3 spousal communication factors; Knowledge and FP programme factors: sources of contraceptives known, family planning workers visit. **Interaction effect:** Year of Survey X woman age, Year of Survey X 2 spousal factors, Year of Survey X availability | 6927.11 | 12159 | -107474.26 |
| **Model 14** Year of Survey; area of intervention, Economic: Employment of women, employment of husband; Social: women education and household head's education, religion, sex composition; Biosocial: women age; Cultural: 3 spousal communication factors; Knowledge and FP programme factors: sources of contraceptives known, family planning workers visit. **Interaction effect:** Year of Survey X woman age, Year of Survey X 2 spousal factors, Year of Survey X FPW visit | 6904.79 | 12159 | -107496.58 |

additional children, the parallel household socio-economic information of the women of Matlab with the women of the national rural area, such as, possession of land by the households has been included in Model three. Although inclusion of this variable slightly reduces the –2 Log likelihood, it does not improve the BIC level. Several other economic variables such as, household wealth index, materials used in the construction of house, possession of modern consumer durables like watch and radio, occupation of the majority household head in a *bari,* have been included and the BIC has been calculated. None of these socio-economic variables improves the model's explanatory power. The inclusion of all the models in the table might blur the models bearing significant results and thus are excluded from the Table 18.4.

The main effects of the socio-cultural factors have been incorporated through Model 4 and 5 and 7 to evaluate three types of social and cultural features. Model 4, the first, examines the social development in the form of education of women and education of household heads and the religious composition of the rural society represented by religion. Model 5 among these three deals with a deeply rooted bio-cultural phenomenon, that is, gender preference, especially preference for sons, represented by the variable sex composition of the family. Model 7, the last, among the three includes another socio-cultural factor, spousal communication. Both measures of fit statistics demonstrate that addition of these socio-cultural variables through these three models significantly increases the explanatory power of the model. These three models are superior to the earlier models but model of fit is the largest when sex composition of the family is incorporated indicating that the most important factor of current use of contraceptives is the sex composition of the family followed by spousal communication.

In order to make a parallel analysis with national rural data, women's biosocial factors, such as, women's age and number of dead children have been added to the model. Both fit statistics demonstrate that inclusion of these biosocial factors reduces the –2 Log Likelihood statistics and also reduces the BIC level by -43. However, women's age is an important factor in fertility reduction in any society. Thus in Model 6 only women's age has been entered. Exclusion of the variable, number of dead children, improves the model fit. Thus only women's age has been retained in the analysis. The last group of variables deals with the knowledge of contraceptives and the impact of family planning programmes on current use of contraceptives. The knowledge of contraceptives has been measured by the variables knowledge of contraceptives and sources of contraceptives supply known to the women and the impact of family planning programme has been measured by the family planning worker's visits. These three variables have been incorporated in Model 8. Inclusion of these three variables reduced the –2 Log Likelihood statistics by 81 but did not increase the BIC level. As the coefficient of the variable knowledge of contraceptive is not significant, the next model has been run excluding this variable. Exclusion of this variable significantly improves the BIC level. Thus in the final selection, knowledge of contraceptives has been excluded. Model 9 becomes the preferred main effect model. The coefficients of this models will be used to estimate the total contribution of each of the biosocial, economic, socio-cultural variables' trends and differentials in current use of contraceptive of the women Matlab.

Several variables on substantive grounds have been incorporated in the model as interactions with Year of Survey to evaluate whether there has been any change in the composition that might have affected the current use of contraceptives among women during 1984-1994 in Matlab. These variables are from economic factors, women employment; from social-cultural factors, women's education, sex composition of family, and spousal communication related with fertility control; and from biosocial factors, women's age, and finally, knowledge of contraceptives and impact of family planning programme. Biosocial factor, women's age retained in the model because of its substantive value and the value change in the –2 Log Likelihood statistics and its individual significant contribution to the model.

Among the economic and socio-cultural and biosocial factors, the inclusion of only two variables related with spousal communication improve the explanatory power of Model 11 by both fit statistics. These spousal communication factors are, discussion of family planning matters between spouses, and women's perception of their husband's approval the of family planning programme. Other interaction variables that neither improves the BIC level nor are significant at the individual level, even though they may slightly reduce the –2 Log Likelihood statistics, have been excluded from the model. The variables related with knowledge of contraceptives and family planning programme, interaction between Year of Surveys and the family planning workers visits, reduces the –2 Log Likelihood statistics and improve the BIC level (Model 14). As the primary objective of the present analysis is to examine what types of changes during 1984-1994 period affect the use of current use of contraceptive, Model 14 is treated as a preferred one with interaction to explain the change in the effect of some of these variables during the study period. The coefficients of the preferred models, Model 9 and Model 14 will be used to estimate the total contribution of each of the biosocial, economic, socio-cultural variables, and the changes that have occurred among these variables and their impact on current contraceptive use among the women of Matlab during the study period.

Table 18.5 presents the coefficients of the two preferred models. These coefficients represent the log odds of current use of contraceptives over not using them currently. The Year of Surveys coefficient in the model shows that there was a significant positive change in current contraceptive use in both areas of Matlab during 1984-1994. As would be expected, the control area shows a lower current use level than the MCH-FP area. The odds ratio of using contraceptives is

**Table 18.5. Logistic regression coefficients of current contraceptive use of two preferred models (model 9 main effect model, and model 14 interaction model), both areas of Matlab 1984-1994.**

| Variables | Main effect model (9) | | | Interaction model (14) | | |
|---|---|---|---|---|---|---|
| | Co-efficient | S.E. | Odds ratio | Co-efficient | S.E. | Odds ratio |
| **Constant** | 0.28 | 0.25 | 1.32 | 0.761*** | 0.277 | 2.141 |
| **Year of Survey** | | | | | | |
| 1984 | -- | | | -- | | |
| 1994 | 1.029*** | 0.079 | 2.798 | -0.340 | 0.290 | 0.712 |
| **Area of intervention** | | | | | | |
| MCH-FP | -- | | | -- | | |
| Control | -0.715*** | 0.083 | 0.489 | -0.708*** | 0.084 | 0.493 |
| **Employment. women** | | | | | | |
| Paid employment | 0.289** | 0.133 | 1.334 | 0.314** | 0.134 | 1.369 |
| Housework | -- | | | | | |
| **Occupation, husband** | | | | | | |
| Farming | -- | | | -- | | |
| Skilled and unskilled labour | -0.253*** | 0.071 | 0.776 | -0.248*** | 0.072 | 0.780 |
| Professional and Business | -0.119 | 0.088 | 0.888 | -0.130 | 0.089 | 0.878 |
| Fishermen | -0.465*** | 0.165 | 0.628 | -0.496*** | 0.168 | 0.609 |
| **Education, women** | | | | | | |
| No education | -- | | | -- | | |
| 1-5 yrs | -0.084 | 0.067 | 0.919 | -0.068 | 0.068 | 0.934 |
| 6 or more years | -0.037 | 0.120 | 0.964 | 0.032 | 0.121 | 1.033 |
| **Education, household head** | | | | | | |
| No education | -- | | | -- | | |
| 1-5 yrs | 0.073 | 0.068 | 1.076 | 0.064 | 0.069 | 1.066 |
| 6-9 yrs | 0.123 | 0.099 | 1.131 | 0.103 | 0.100 | 1.108 |
| 10 or more years | 0.464*** | 0.133 | 1.590 | 0.388*** | 0.134 | 1.474 |
| **Religion** | | | | | | |
| Islam | -- | | | -- | | |
| Hindus | 0.376*** | 0.099 | 1.457 | 0.387*** | 0.101 | 1.472 |
| **Sex composition, children** | | | | | | |
| One son & one daughter | -- | | | -- | | |
| 1-2 son only | -0.410*** | 0.136 | 0.664 | -0.408*** | 0.137 | 0.665 |
| 1-2 daughter only | -0.684*** | 0.145 | 0.505 | -0.667*** | 0.146 | 0.513 |
| Children >2 but son=>daughter | 0.314** | 0.124 | 1.369 | 0.296** | 0.125 | 1.344 |
| Children >2 but daughter>son | -0.091 | 0.128 | 0.913 | -0.101 | 0.130 | 0.904 |
| No living children | -2.125*** | 0.245 | 0.119 | -1.925*** | 0.248 | 0.146 |
| **Age, women** | | | | | | |
| <20 | -- | | | -- | | |
| 20-24 | -0.228 | 0.152 | 0.796 | -0.555** | 0.236 | 0.574 |
| 25-29 | -0.057 | 0.163 | 0.945 | -0.452* | 0.243 | 0.636 |
| 30-39 | 0.330* | 0.169 | 1.391 | -0.130 | 0.243 | 0.878 |
| 40-49 | 0.319* | 0.179 | 1.376 | -0.212 | 0.252 | 0.809 |

**Table 18.6(cont): Logistic regression coefficients of current contraceptive use of two preferred models (model 9 main effect model, and model 14 interaction model), both areas of Matlab 1984-1994**

| variables | B | S.E. | Exp(B) | B | S.E. | Exp(B) |
|---|---|---|---|---|---|---|
| **Discussion of family planning between spouses** | | | | | | |
| Yes | -- | | | -- | | |
| No | -0.949*** | 0.082 | 0.387 | -1.804*** | 0.137 | 0.165 |
| **Women perception of husband approval of family planning** | | | | | | |
| Approved | -- | | | -- | | |
| Disapproved | -1.259*** | 0.071 | 0.284 | -1.470*** | 0.083 | 0.230 |
| **Women perception of agreed number of expected children with husband** | | | | | | |
| Same or less | -- | | | -- | | |
| More or unknown | -0.56*** | 0.073 | 0.570 | -0.591*** | 0.075 | 0.554 |
| **Sources of contraceptives known** | | | | | | |
| Less than three | -0.62*** | 0.103 | 0.540 | -0.547*** | 0.106 | 0.579 |
| Three sources | -0.16* | 0.081 | 0.856 | -0.169** | 0.082 | 0.845 |
| More than three | -- | | | -- | | |
| **CHW and FWA visit** | | | | | | |
| In month | 0.514*** | 0.092 | 1.672 | 0.299*** | 0.112 | 1.348 |
| Once in six months | 0.422*** | 0.092 | 1.526 | 0.058 | 0.140 | 1.060 |
| More than 6 months/never | -- | | | -- | | |
| **Interaction** | | | | | | |
| **Year X women age** | | | | | | |
| Year X 20-24 | | | | 0.356 | 0.302 | 1.427 |
| Year X 25-29 | | | | 0.517* | 0.300 | 1.677 |
| Year X 30-39 | | | | 0.678** | 0.293 | 1.970 |
| Year X 40-49 | | | | 0.984*** | 0.317 | 2.676 |
| **Discussion of family planning between spouses** | | | | | | |
| Yes | | | | | | |
| No | | | | 1.438*** | 0.182 | 4.214 |
| **Women's perception of husband's approval of family planning** | | | | | | |
| Approved | | | | | | |
| Disapproved | | | | 0.439*** | 0.168 | 1.551 |
| **Year X FPW visit** | | | | | | |
| Year X In month | | | | 0.655*** | 0.157 | 1.926 |
| Year X once in six months | | | | 0.785*** | 0.182 | 2.191 |

*** p<01, **p<05, *p<10; -- Reference categories

0.49 among the women in the control area. The economic factors, women's employment and employment of husband, have a significant relationship with current use of contraceptives. The current use of contraceptives is significantly higher among women engaged in paid employment than among women engaged in house work. The logit of using contraceptives among women in paid employment is 0.29 producing an odds ratio of 1.33. The other economic factor, husband's occupation, is also significantly related with current use of contraceptives. The current contraceptive use is significantly lower among women whose husband is engaged in daily labour or in fishing than for those in the reference category.

The socio-cultural factors included in the model (Table 18.5) shows that the current use of contraceptives is significantly low among women who have less than three children of the same sex and significantly high among women who have more than two children where they had more sons than daughters than for the reference category. The odds ratio of currently using contraceptives among these groups (women having two children of same sex) is 0.66 among women who have one or two boys, and 0.51 among women who have one or two daughters than the reference category. The odds ratio is 1.36 for women who have more sons than daughters. The trends in the coefficients of the sex composition of the family in the model reaffirm the previous findings that the women in this society have a strong demand for sons but they also at the same time want a daughter (Rahman at al. 1992, Bairagi and Dutta 2001). Most women seem to be satisfied with one child of each sex.

All three spousal communication factors appear to have significant relationships with current use of contraceptives. The logit coefficient of not discussing family planning matters is –0.95, producing an odds ratio of 0.39. This figure indicates that the current use of contraceptives is 2.5 times higher among women who discussed family planning matters with their husband. The relationship is more than 3 times stronger between current contraceptives use and women perception of their husband's family planning approval. The logit of the variable is –1.26, yielding an odds ratio of 0.28. The last spousal communication factor, that is, women's perception of agreed number of children with husband also showed a significant relationship with current contraceptive use as well.

The education of household heads shows a significant positive relationship with current use of contraceptives, but only high school level or more schooling (10 years of more schooling). The odds ratio of currently using contraceptives among the women whose household heads have high school level or more schooling is 1.59. Unexpectedly, women's education is shown to have no effect on the current use of contraceptives among the women of both areas of Matlab. The Hindus appear to have a significantly higher level of current use of contraceptives than do Muslims in Matlab.

Among the biosocial factors, only women's age shows a positive relationship with current use of contraceptive. However, the only significant relationship is evident in women over 29 years only. The logit coefficient of currently using contraceptives is 0.33, producing an odds ratio of 1.39 among women of age 30-39 years. Similarly the logit coefficient of currently using contraceptives is 0.32 yielding an odds ratio of 1.38 among women of age 40-49 years.

Two out of three variables related with knowledge of contraceptives and family planning programme performances show a significant positive relationship with current contraceptive use. The odds ratio of not currently using contraceptives is significantly low among women who know fewer sources of contraceptive supply. The logit coefficient of currently not using contraceptives is –0.62 among women who know less than three sources and –0.16 among women who know 3 sources yielding odds ratios of 0.54 and 0.86 respectively. The last main effect variable included into the model is family planning workers visits. The logit coefficients of the variable show a significant positive relationship with current use of contraceptives. Current contraceptive use significantly increases with an increase in the number of family planning worker's visits. The odds ratio of using contraceptives is 1.53 among women who were visited by the family planning workers at least once in the previous six months, and increased to 1.67 times among women who were visited once a month.

As discussed earlier, several interaction variables with substantive background have been entered into model. But only the biosocial factor, women's age, cultural factors, the two spousal communication factors and the programme factor, family planning workers visits, significantly increase the model fit, indicating that a change in the effect of these variables occurred during the study period. In terms of the interaction between Year of Survey and women's age, the Table shows two different trends between younger and older aged women. In the main effect model, (Model 9) where the effects of two years, 1984 and 1994 are examined together, the logit coefficients of women's age groups show two opposite effects of women's age on current use of contraceptives. The women aged <30 years have an inverse relationship with current use of contraceptives and the reverse is true for the women aged 30 years plus. The interaction of Year of Survey and women's age separates the effect of the two periods. The main effect of women's age in the interaction model is the effect of women's age on current use of contraceptives in 1984, and the interaction of the Year of Survey and women's age is the effect of women's age on current use of contraceptives in 1994. The main effect of women's age on current use of contraceptives in the interaction model reveals that current use of contraceptives is significantly lower among the prime age group of age 20-29 than for the reference category of age <20 years in 1984. During the study period, there is a significant change in the trends in current use of contraceptives. The positive sign and the significance level of the logit coefficient of the interaction between Year of Survey and women's age imply that the negative impact of women's age seen in 1983 has greatly reduced during the study period. The positive sign of the interaction coefficient of young women aged 20-29 years implies that the inverse relationship between current contraceptive use and women's age of 20-29 has changed during the study period. Women aged 20-29 years are using contraceptives more than before. Among the older women aged 30 years and above, the significant positive sign of the interactions indicate that an increasing number of older women are currently using contraceptives.

The second set of interaction variables relate to spousal communication. The interaction variables, discussion of family planning matters with husband and women perception of their husband's approval of family planning programme, are both significant and have changed the sign of the logit. This indicates that the effect of husband's influence on family planning matters over their wife has reduced in Matlab.

The logit coefficients of these two variables in the main effect model are –0.94 and –1.26 respectively, and they increase to –1.80 and –1.47 in the interaction model. This suggests that the effects of these communication factors on women's current use of contraceptives have changed during the study period. The change of sign and significant level of the main effect and interaction effect of these variables in the interaction model affirm previous findings that the negative effect of spousal communication on women's current use of contraceptives has significantly reduced in both areas of Matlab.

The last but important interaction variables are those related with knowledge about contraceptives and impact of family planning workers visitation. As would be expected, the interactions between Year of Survey and knowledge of contraceptives and sources of contraceptives known to women are not as significant but the interaction between Year of Survey and family planning workers visitation is strongly positive. The same sign of the main effect and the interaction effect of this variable in the interaction model suggest that the effect of family planning worker's visits significantly increased during 1984-1994 in Matlab.

However, as noted earlier, the simple coefficients do not provide the percent change that each variable contributes to the total change explained by a particular model. The next table will present the proportion that each variable contributes to the total change of the preferred model.

***Decomposition of the trends and differentials of current contraceptive use***

Tables 18.6a and 18.6b present the decomposition of the two sets of regression coefficients. The results presented in Tables 18.6a and 18.6b demonstrate the percent that each variable contributes to the total change in the trends in current use of contraceptives in both areas of Matlab. The total logit change due to women's age in the main effect model (Model 9) is -.02 meaning that women's age accounts for only 2 percent of the total change explained by the model. This picture completely changes when Year of Survey and women's age are added into the interaction model. As noted earlier, the impact of age substantially changed

**Table 18.6a: Decomposition of main effect model for explaining change in current contraceptive use in Matlab during 1984-1994.**

| variables | Mean 1983 | Mean 1996 | Co-efficients | Mean83 *co-eff | Mean96 *co-eff | Change | Change in groups | % of change Explained |
|---|---|---|---|---|---|---|---|---|
| **Year of Survey** | | | | | | | | |
| 1994 | | | 1.03 | | | 1.03 | 1.03 | 0.91 |
| **Area of intervention** | | | | | | | | |
| Control | 0.38 | 0.45 | -0.72 | -0.27 | -0.32 | -0.05 | -0.05 | -0.05 |
| **Employment, women** | | | | | | | | |
| Paid employment | 0.04 | 0.08 | 0.29 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 |
| **Occupation, husband** | | | | | | | | |
| Skilled and unskilled labour | 0.32 | 0.62 | -0.25 | -0.08 | -0.16 | -0.08 | | |
| Professional and Business | 0.27 | 0.06 | -0.12 | -0.03 | -0.01 | 0.02 | | |
| Fishermen | 0.06 | 0.03 | -0.47 | -0.03 | -0.01 | 0.01 | -0.04 | -0.03 |
| **Education, women** | | | | | | | | |
| 1-5 yrs | 0.36 | 0.34 | -0.08 | -0.03 | -0.03 | 0.00 | | |
| 6 or more years | 0.07 | 0.16 | -0.04 | 0.00 | -0.01 | 0.00 | 0.00 | 0.00 |
| **Education, household head** | | | | | | | | |
| 1-5 yrs | 0.31 | 0.31 | 0.07 | 0.02 | 0.02 | 0.00 | | |
| 6-9 yrs | 0.11 | 0.13 | 0.12 | 0.01 | 0.02 | 0.00 | | |
| 10 or more years | 0.06 | 0.09 | 0.46 | 0.03 | 0.04 | 0.01 | 0.02 | 0.01 |
| **Religion** | | | | | | | | |
| Hindus | 0.14 | 0.13 | 0.38 | 0.05 | 0.05 | 0.00 | 0.00 | 0.00 |
| **Sex composition, children** | | | | | | | | |
| 1-2 son only | 0.12 | 0.13 | -0.41 | -0.05 | -0.05 | 0.00 | | |
| 1-2 daughter only | 0.11 | 0.11 | -0.68 | -0.07 | -0.08 | 0.00 | | |
| Children >2 but son=> daughter | 0.40 | 0.34 | 0.31 | 0.13 | 0.11 | -0.02 | | |
| Children >2 but daughter>son | 0.25 | 0.21 | -0.09 | -0.02 | -0.02 | 0.00 | | |
| No living children | 0.04 | 0.12 | -2.13 | -0.08 | -0.25 | -0.17 | -0.20 | -0.17 |
| **Age, women** | | | | | | | | |
| 20-24 | 0.23 | 0.21 | -0.23 | -0.05 | -0.05 | 0.01 | | |
| 25-29 | 0.20 | 0.22 | -0.06 | -0.01 | -0.01 | 0.00 | | |
| 30-39 | 0.34 | 0.30 | 0.33 | 0.11 | 0.10 | -0.02 | | |
| 40-49 | 0.18 | 0.14 | 0.32 | 0.06 | 0.05 | -0.01 | -0.02 | -0.02 |
| **Discussion of family planning between spouses** | | | | | | | | |
| No | 0.18 | 0.29 | -0.95 | -0.17 | -0.27 | -0.10 | -0.10 | -0.09 |
| **Women perception of husband approval of family planning** | | | | | | | | |
| Disapproved | 0.39 | 0.16 | -1.26 | -0.49 | -0.20 | 0.29 | 0.29 | 0.26 |
| **Women perception of agreed number of expected children with husband** | | | | | | | | |
| More or unknown | 0.41 | 0.16 | -0.56 | -0.23 | -0.09 | 0.14 | 0.14 | 0.12 |

**Table 18.6a(cont): Decomposition of main effect model for explaining change in current contraceptive use in Matlab during 1984-1994**

| variables | Mean 1983 | Mean 1996 | Co-efficients | Mean83 *co-eff | Mean96 co-eff | Change | change in groups | % of change Explained |
|---|---|---|---|---|---|---|---|---|
| **Sources of contraceptives known** | | | | | | | | |
| Less than three | 0.25 | 0.02 | -0.62 | -0.15 | -0.01 | 0.14 | | |
| Three sources | 0.21 | 0.14 | -0.16 | -0.03 | -0.02 | 0.01 | 0.15 | 0.13 |
| **CHW and FWA visit** | | | | | | | | |
| In month | 0.56 | 0.25 | 0.51 | 0.29 | 0.13 | -0.15 | | |
| Once in six months | 0.11 | 0.26 | 0.42 | 0.05 | 0.11 | 0.06 | -0.09 | -0.08 |
| **Total change** | | | | | | 1.14 | 1.14 | 1.00 |

during the study period. The total logit change due to women's age computed from the interaction model is 0.55, which explains 37 percent of the total change.

A quiet change has occurred in the relationship between spousal communication and current use of contraceptives among the women of both areas of Matlab. The total logit change due to three spousal communication factors in the main effect model accrued 0.33 which is 29 percent of the total logit change as explained by the model. However, the total logit change due to spousal communication factors accrued 0.77, which is 52 percent of the total logit change as explained by the interaction model. For individual spousal communication factors, logit change due to spousal discussion of family planning matter explains 14 percent of the total logit change. The logit change due to changes in women's perception of husband's approval of family planning explains 28 percent. Lastly, the logit change for change in women's perception of agreed number of expected children with husband explains 10 percent of the total change.

Important changes appear in the contribution of family planning workers visits to the women. Clearly, there is a strong positive relationship between current use of contraceptives and family planning workers visits since the beginning of the study period but the total logit change due to family planning workers visits appears to be minimal. But during the study period, the relationship between family planning workers visits and current contraceptive use has strengthened. The interaction model shows that family planning worker visitation contributes a total logit of 0.61, which explains 41 percent of the total change that this model can explain

**Table 18.6b: Decomposition of interaction effect model for explaining change in current contraceptive use in Matlab, 1984-1994.**

| Variables | Mean 83 | Mean 96 | Co-efficients | Mean83* co-eff | Mean96* co-eff | Change | Group change | % of change Explained |
|---|---|---|---|---|---|---|---|---|
| **Year of Survey** | | | | | | | | |
| 1994 | | | -0.34 | | | | -0.34 | -0.23 |
| **Area of intervention** | | | | | | | | |
| Control | 0.38 | 0.45 | -0.71 | -0.27 | -0.32 | -0.05 | -0.05 | -0.03 |
| **Employment, women** | | | | | | | | |
| Paid employment | 0.04 | 0.08 | 0.31 | 0.01 | 0.02 | 0.01 | 0.01 | 0.01 |
| **Occupation, husband** | | | | | | | | |
| Skilled and unskilled labour | 0.32 | 0.62 | -0.25 | -0.08 | -0.15 | -0.07 | | |
| Professional and Business | 0.27 | 0.06 | -0.13 | -0.03 | -0.01 | 0.03 | | |
| Fishermen | 0.06 | 0.03 | -0.50 | -0.03 | -0.01 | 0.02 | -0.03 | -0.02 |
| **Education, women** | | | | | | | | |
| 1-5 yrs | 0.36 | 0.34 | -0.07 | -0.02 | -0.02 | 0.00 | | |
| 6 or more years | 0.07 | 0.16 | 0.03 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| **Education, Household head** | | | | | | | | |
| 1-5 yrs | 0.31 | 0.31 | 0.06 | 0.02 | 0.02 | 0.00 | | |
| 6-9 yrs | 0.11 | 0.13 | 0.10 | 0.01 | 0.01 | 0.00 | | |
| 10 or more years | 0.06 | 0.09 | 0.39 | 0.02 | 0.03 | 0.01 | 0.01 | 0.01 |
| **Religion** | | | | | | | | |
| Hindus | 0.14 | 0.13 | 0.39 | 0.05 | 0.05 | 0.00 | 0.00 | 0.00 |
| **Sex composition, children** | | | | | | | | |
| 1-2 son only | 0.12 | 0.13 | -0.41 | -0.05 | -0.05 | 0.00 | | |
| 1-2 daughter only | 0.11 | 0.11 | -0.67 | -0.07 | -0.08 | 0.00 | | |
| Children >2 but son=>daughter | 0.40 | 0.34 | 0.30 | 0.12 | 0.10 | -0.02 | | |
| Children >2 but daughter>son | 0.25 | 0.21 | -0.10 | -0.03 | -0.02 | 0.00 | | |
| No living children | 0.04 | 0.12 | -1.93 | -0.07 | -0.23 | -0.16 | -0.18 | -0.12 |
| **Age, women** | | | | | | | | |
| 20-24 | 0.23 | 0.21 | -0.56 | -0.13 | -0.11 | 0.02 | | |
| 25-29 | 0.20 | 0.22 | -0.45 | -0.09 | -0.10 | -0.01 | | |
| 30-39 | 0.34 | 0.30 | -0.13 | -0.04 | -0.04 | 0.01 | | |
| 40-49 | 0.18 | 0.14 | -0.21 | -0.04 | -0.03 | 0.01 | | |
| **Discussion of family planning between spouses** | | | | | | | | |
| No | 0.18 | 0.29 | -1.80 | -0.32 | -0.52 | -0.20 | | |
| **Women perception of husband approval of family planning** | | | | | | | | |
| Disapproved | 0.39 | 0.16 | -1.47 | -0.57 | -0.23 | 0.34 | | |
| **Women perception of agreed number of expected children with husband** | | | | | | | | |
| More or unknown | 0.41 | 0.16 | -0.59 | -0.24 | -0.09 | 0.15 | 0.15 | 0.10 |
| **Sources contraceptives known** | | | | | | | | |
| Less than three | 0.25 | 0.02 | -0.55 | -0.13 | -0.01 | 0.12 | | |
| Three sources | 0.21 | 0.14 | -0.17 | -0.04 | -0.02 | 0.01 | 0.14 | 0.09 |

**Table 18.6b(cont): Decomposition of interaction effect model for explaining change in current contraceptive use in Matlab, 1984-1994.**

| Decomposition of interaction variables | I | C | I+C | Mean83 *coeff | Mean96 *coeff | Change (F-E) | group change | % of change Explained |
|---|---|---|---|---|---|---|---|---|
| **CHW and FPW visit** | | | | | | | | |
| In month | 0.56 | 0.25 | 0.30 | 0.17 | 0.08 | -0.09 | | |
| Once in six months | 0.11 | 0.26 | 0.06 | 0.01 | 0.02 | 0.01 | | |
| **Year X women age** | | | | | | | | |
| Year X 20-24 | 0.36 | -0.56 | -0.20 | -0.13 | -0.04 | 0.09 | | |
| Year X 25-29 | 0.52 | -0.45 | 0.06 | -0.09 | 0.01 | 0.11 | | |
| Year X 30-39 | 0.68 | -0.13 | 0.55 | -0.04 | 0.16 | 0.21 | | |
| Year X 40-49 | 0.98 | -0.21 | 0.77 | -0.04 | 0.11 | 0.15 | 0.55 | 0.37 |
| **Discussion of family planning between spouses** | | | | | | | | |
| No | 1.44 | -1.80 | -0.37 | -0.32 | -0.10 | 0.21 | 0.21 | 0.14 |
| **Women's perception of husband approval of family planning** | | | | | | | | |
| Disapproved | 0.44 | -1.47 | -1.03 | -0.57 | -0.16 | 0.41 | 0.41 | 0.28 |
| **Year X FPW visit** | | | | | | | | |
| Year X In month | 0.66 | 0.30 | 0.95 | 0.03 | 0.25 | 0.21 | | |
| Year X once in six months | 0.78 | 0.06 | 0.84 | 0.02 | 0.41 | 0.39 | 0.60 | 0.41 |
| Total change | | | | | | | 1.49 | 1.00 |

**I=Interaction, C=Co-efficients, Co-eff = Co-efficients**

The impact of sex composition of the family is relatively stable during the study period as revealed by the inclusion of interaction in the model. It has to be noted that the inclusion of interaction variable, Year of Survey and sex composition of the family does not improve the model, implying that the effect of this variable has not changed during the study period. The impacts of other variables on current use of contraceptives are minimal and the changes in the impact of these variables are also minimal.

## 18.4 A Separate Analysis of Recent Data for National Rural and Matlab areas

Two separate logistic regression analyses, one for national data for the year 1996 and one for Matlab data for the year 1994 have been performed incorporating the new information that has not been included in the pooled data due to the lack of this information in the two earlier surveys. The variables that have been used in the pooled data are also included in the analysis. The results of the new independent logistic regression reconfirm that the effect of the variables used in the pooled data are the same for both analyses.

**Table 18.7: Logistic regression coefficients of current contraceptive use, national Level (rural), 1996.**

| Variables | Coefficients | S.E. | Odds ratio |
|---|---|---|---|
| Constant | 0.51*** | 0.17 | 1.66 |
| **Employment of women** | | | |
| Paid employment | 0.22*** | 0.07 | 1.25 |
| Housework | -- | | |
| **Possession of land** | | | |
| No land | -- | | |
| Yes | 0.00 | 0.07 | 1.00 |
| **Husband occupation** | | | |
| Farmers | -- | | |
| Labourers, skilled & unskilled | -0.21** | 0.08 | 0.81 |
| Business & professional | 0.06 | 0.09 | 1.06 |
| **Women education** | | | |
| No education | -- | | |
| 1-5 yrs | 0.16** | 0.08 | 1.18 |
| 6 or more years | 0.02 | 0.12 | 1.02 |
| **Household head's education** | | | |
| No education | --- | | |
| 1-5 yrs | -0.19** | 0.08 | 0.83 |
| 6-9 yrs | -0.09 | 0.10 | 0.91 |
| 10 or more years | 0.23* | 0.13 | 1.26 |
| **# of time prayed in a day** | | | |
| Non faith | 0.32*** | 0.10 | 1.38 |
| < 3 times | -0.09 | 0.08 | 0.91 |
| More than 3 times | -- | | |
| **sex composition** | | | |
| One son & one daughter | -- | | |
| 1-2 son only | -0.20* | 0.12 | 0.82 |
| 1-2 daughter only | -0.58*** | 0.12 | 0.56 |
| Children >2 but son=>daughter | -0.21* | 0.11 | 0.81 |
| Children >2 but daughter>son | -0.35*** | 0.12 | 0.71 |
| No living children | -1.29*** | 0.16 | 0.28 |
| **Discussion of family planning matters with husband** | | | |
| Yes | -- | | |
| No | -1.59*** | 0.07 | 0.20 |
| **Women perception of their husband's family planning approval** | | | |
| Approved | -- | | |
| Disapproved | -1.05*** | 0.11 | 0.35 |
| **Women's perception of their husband's agreed number of children** | | | |
| Same or less | -- | | |
| More or unknown | -0.06 | 0.11 | 0.94 |

**Table 18.7(cont): Logistic regression coefficients of current contraceptive use, national Level (rural), 1996.**

| Variables | Coefficients | S.E | Odds ratio |
|---|---|---|---|
| **Women's Freedom of movement** | | | |
| Can move alone | 0.24** | 0.10 | 1.27 |
| Move with children or relatives | 0.10 | 0.08 | 1.10 |
| With husband | 0.10 | 0.11 | 1.11 |
| Not allowed to move | -- | | |
| **Membership in NGO** | | | |
| No | -- | | |
| Yes | 0.24*** | 0.08 | 1.28 |
| **Age, women** | | | |
| <20 | | | |
| 20-24 | 0.01 | 0.11 | 1.01 |
| 25-29 | 0.31** | 0.12 | 1.36 |
| 30-39 | 0.99*** | 0.13 | 2.69 |
| 40-49 | 1.21*** | 0.16 | 3.35 |
| **# of children died** | | | |
| None | -- | | |
| 1.00 | -0.15* | 0.08 | 0.86 |
| 2.00 | -0.44*** | 0.12 | 0.65 |
| 3 or more | -0.68*** | 0.16 | 0.51 |
| **Knowledge of contraceptives** | | | |
| <3 | -0.25** | 0.12 | 0.78 |
| 3 or more | -- | | |
| **Sources of contraceptives known** | | | |
| None | -1.36*** | 0.19 | 0.26 |
| At least one | --- | | |
| **Family planning worker's visitation** | | | |
| Once in a month | 1.00*** | 0.15 | 2.71 |
| Once in six months | 0.85*** | 0.07 | 2.33 |
| Before six months or never | -- | | |

*** p<01, **p<05, *p<10; -- Reference categories

The results of the independent logistic regression for national data for the year 1996 are presented in Table 18.7 The table shows that the two spousal communication variables have a significant relationship with current contraceptive use. The current use of contraceptives is significantly high among women who discuss family planning matters with their husband. The odds of using contraceptives are 5 times lower among women who did not discuss family planning matters with their husband. Similar to the above communication factors between spouses, women's perception of their husband's approval of family planning programmes significantly increases the current use of contraceptives among women. The odds of not using contraceptives are 0.32 and 0.48 among women whose husband disapproves of family planning or where the wife does not know their husband's attitude towards family planning.

Two variables related with religious and social conservatism of the population are added into the model. These two variables are women's freedom of movement and number of times prayed in a day by the women. The Table shows an inverse relationship between women freedom of movement with current use of contraceptives. However, a high level of autonomy, represented by the group 'women can move alone', has a significant positive relationship with current contraceptive use. But in contrast to demand for additional children, religious conservatism has not restricted women from using contraceptives.

Another important variable, which has been at the centre of discussion in recent times because of its involvement in the macro level social change at the grass root, is the NGO's socio-economic development programme activities in the rural area. The impact of the NGO's socio-economic activities is measured by the variable, women's membership in the NGO organization. Results show that the effect of NGO membership on current contraceptive use is significantly strong. The logit of the variable NGO membership is 0.24, which yield odds ratio of 1.27.

The results of the logistic regression for Matlab areas for the year 1994 are presented in Table 18.8. The coefficients of the variables that are used in the pooled data produced similar results in the new model too. The table shows that the new variables added to the model, that is, women as members of NGOs, and most known women of the respondent using contraceptives, a factor of diffusion through neighbourhood contact, are found to have a significant relationship with current use of contraceptives. A significant current use of contraceptives is evident among the members of NGOs. The logit of currently using contraceptives is 0.51 yielding an odds of 1.67 which means that the current use of contraceptives is 67 percent higher among the members of NGOs. Similarly, the women are significantly influenced by the neighbourhood contact. The logit of currently using contraceptives among women who know that the women they know are not using contraceptives or who report that they do not know whether the women they know are using contraceptives or not are -0.57 and –0.37 respectively yielding odds ratios of 0.56 and 0.69. But the relationship between current use of contraceptives and women's autonomy though consistent is not significant.

**Table 18.8: Logistic regression coefficients of current contraceptive use, both areas of Matlab, 1994.**

| Variables | Coefficients | S.E. | Odds ratio |
|---|---|---|---|
| Constant | 0.43 | 0.34 | 1.53 |
| **Area of intervention** | | | |
| MCH-FP | -- | | |
| Control | -0.51*** | 0.12 | 0.60 |
| **Employment, of women** | | | |
| Paid employment | 0.35* | 0.20 | 1.42 |
| Housework | --- | | |
| **Possession of land, Hhold** | | | |
| No land | -- | | |
| <0.50 | -0.22 | 0.13 | 0.80 |
| 0.50+ | -0.32** | 0.14 | 0.73 |
| **Occupation, husband** | | | |
| Farmers | -- | | |
| Labourers, skilled & unskilled | -0.31** | 0.12 | 0.73 |
| Business & professional | 0.19 | 0.26 | 1.20 |
| Fisherman | 0.09 | 0.36 | 1.09 |
| **Education, women** | | | |
| No education | -- | | |
| 1-5 yrs | -0.01 | 0.12 | 0.99 |
| 6 or more years | 0.06 | 0.19 | 1.07 |
| **Education, household head** | | | |
| No education | -- | | |
| 1-5 yrs | 0.05 | 0.12 | 1.05 |
| 6-9 yrs | 0.19 | 0.17 | 1.21 |
| 10 or more years | 0.37* | 0.22 | 1.45 |
| **Religion** | | | |
| Islam | -- | | |
| Hindus | 0.24 | 0.17 | 1.27 |
| **Sex composition, children** | | | |
| One son & one daughter | -- | | |
| 1-2 son only | -0.38* | 0.22 | 0.68 |
| 1-2 daughter only | -0.60** | 0.23 | 0.55 |
| Children >2 but son=>daughter | 0.25 | 0.20 | 1.29 |
| Children >2 but daughter>son | -0.24 | 0.21 | 0.79 |
| No living children | -1.77*** | 0.32 | 0.17 |
| **Discussion of family planning matter with husband** | | | |
| Yes | -- | | |
| No | -0.37*** | 0.12 | 0.69 |
| **Women perception of their husband's family planning approval** | | | |
| Approved | -- | | |
| Disapproved | -0.90*** | 0.17 | 0.41 |

**Table 18.8(cont): Logistic regression coefficients of current contraceptive use, both areas of Matlab, 1994.**

| Variables | Coefficients | S.E. | Odds ratio |
|---|---|---|---|
| **Women perception of their husband's agreed number of children** | | | |
| Same or less | -- | | |
| More and unknown | -0.39*** | 0.13 | 0.68 |
| **Freedom of movement, women** | | | |
| Can move alone | 0.23 | 0.16 | 1.26 |
| Move with children or relatives | 0.12 | 0.16 | 1.13 |
| Not allowed to move | -- | | |
| **Women as member of NGO** | | | |
| No | -- | | |
| Yes | 0.54*** | 0.15 | 1.71 |
| **Most known women use contraceptives** | | | |
| Yes | -- | | |
| No | -0.63*** | 0.18 | 0.53 |
| Unknown | -0.39** | 0.17 | 0.67 |
| **Age, women** | | | |
| <20 | -- | | |
| 20-24 | -0.29 | 0.20 | 0.75 |
| 25-29 | -0.02 | 0.23 | 0.98 |
| 30-39 | 0.43* | 0.25 | 1.54 |
| 40-49 | 0.69** | 0.28 | 1.99 |
| **# of children died** | | | |
| None | -- | | |
| 1 | 0.18 | 0.13 | 1.19 |
| 2 | 0.18 | 0.20 | 1.20 |
| 3 or more | 0.15 | 0.27 | 1.16 |
| **Knowledge of contraceptives known** | | | |
| <3 | -0.31 | 0.28 | 0.73 |
| 3 or more | -- | | |
| **Sources of contraceptives known** | | | |
| Less than three | 0.32 | 0.45 | 1.38 |
| Three sources | 0.23 | 0.24 | 1.26 |
| More than three | -- | | |
| **CHW/FWA visitation** | | | |
| Once in a month | 1.04*** | 0.14 | 2.84 |
| Once in six months | 0.88*** | 0.13 | 2.41 |
| Before six months or never | -- | | |

*** p<01, **p<05, *p<10; -- Reference categories.

## 18.5 Summary and Conclusion

In both the national rural area and the two areas of Matlab, the current contraceptive use has some common features. The multivariate analyses of both the national and the Matlab data demonstrate that the most important factors in using contraceptives, in all three areas, are biosocial and socio-cultural, and factors related with knowledge of contraceptives and family planning programme efforts. The biosocial factor are women's age and number of surviving children and the socio-cultural factors are sex composition of the family and three spousal communication factors. The knowledge of contraceptives produced different results for the national and the Matlab data, but the sources of contraceptives supply known to the women and the family planning workers visits to the women produced similar results for the national rural and both areas of Matlab. The contributions of other biosocial, economic and social factors in the model are minimal.

In the selection of best-fit models for analysing contraceptive use dynamics for both data sets, a different level of impact of the independent variables on dependent variables is evident in the national rural level and two areas of Matlab. At the national rural level, the highest explanatory power appears when knowledge of contraceptives and programme related factors are included, followed by sex composition of the family. The third highest power is gained when the other social factors, women's education, husband's education and religion, are added into the model. In Matlab, the highest explanatory power is gained by the inclusion of spousal communication factors, knowledge of contraceptives and programme related factors, followed by sex composition of the family. The third highest improvement in the explanatory power of the model appears when area of intervention is added into the model.

The different of the contribution of each of these factors is discernible because Matlab had a special successful MCH-FP programme running in half of the Matlab area, and the data on spousal communication was not available on the national rural level. However, the similar importance of the sex composition of the family in both the national and Matlab areas provides evidence that culturally, the rural society, including Matlab, is homogeneous though Matlab is slightly more pro-natal than the national rural area. The effect of sex composition of the family did not change during the period of study in any of the areas. In the national rural area, the current use of contraceptives is lower among all types of sex composition of the family than the reference category but is significantly lower among women who have one or two female children and those who have more than two children but more daughters than sons. In Matlab, the trends are similar with a preference for a slightly greater number of children.

The decomposition of the effect of sex composition of the family for the national rural area shows that, despite a significant inverse relationship between sex composition and current contraceptive use, the overall sex composition has a positive effect on the current use of contraceptives though it accounts for only one percent of the total change that this model explained. But in Matlab, the decomposition shows that the sex composition of the family has a negative effect on the current use of contraceptives. The finding of a strong relationship between sex composition of the family and current contraceptive use in Matlab is similar to the finding of other studies conducted in this region (Mitra et al. 1997; Cleland et al. 1994; Koenig et al. 1987).

The impact of women's age on current use of contraceptives also shows a slightly different pattern between the national rural level and Matlab. The coefficients of the two models for the national rural area reveal a shift in the trends in current use of contraceptives by women's age during the study period. It suggests that the women's age had a positive relationship with current use of contraceptives at the early stage of fertility decline. However, in the later stage, that is, in 1996, old women started using heavily and younger women had also started using contraceptives.

In Matlab, the coefficients of the two models reveal a shift in the trends in current use of contraceptives by women's age during the study period but in a slightly different pattern to the national rural area. The analyses suggest that at the beginning of the study both younger (<20 years) and older women (aged 30+ years) used contraceptives, but at the later stage of the study period there was a consistent positive relationship between women's age and current contraceptive use in Matlab, which explained 0.37 percent of changes in current contraceptive use in 1994.

The impact of the economic factors on current contraceptive use, similar to the demand for no more children, is weak in all three areas and weaker in the Matlab areas than the national rural area. Women's employment status in all three areas and husbands' employment in Matlab show a significant positive relationship with current use of contraceptives. However, the decomposition of the main effect model for national data reveals that the percent of change in current contraceptive use due to women's employment in the national rural area is only five percent of the total change explained by the model and this had reduced to four percent at the end of the study. On the other hand, the decomposition of the Matlab data documented a 0.01 percent change in current contraceptive use due to women's employment, with the impact of the husband's employment being even less. The impact of other economic factors is small. This weak relationship between women's employment and current use of contraceptives, though theoretically unexpected, can be explained by the lower number of women in paid employment in the rural areas in Bangladesh.

The same is true of social development represented by women's, husbands' and household heads' education. In the national rural area, the main effect model shows that women's education and husband's higher education (10 or more years) have a significant positive relationship with current use of contraceptives The main effect and interaction coefficients of women's education demonstrate that the impact of women's primary education has increased while the impact of women's secondary education has decreased during the period studied. The decomposition suggests that women's education explains 0.02 percent of the total change. The higher education of husbands though having a significant positive relationship with the current use of contraceptives, did not add any value to the total change that the model explained. The same is true for religion.

In Matlab, the impact of women's education on current use of contraceptives in both areas of Matlab is negative but not significant, and the impact of women's education in these areas did not change during the study period. The higher level of education of the household heads has a significant positive relationship with women's current use of contraceptives. However, the decomposition suggests that the total logit change due to women's or household heads' education is minimal. The same is true for religion. The present analysis reveals that in all three areas, education has a positive impact on current use of contraceptives but its effect reduces when fertility transition proceeds and might be minimal in the presence of other intervention programmes as was the case in Matlab.

The three factors related to knowledge and practice of contraceptives and family planning programmes that are common in both pooled data produce expected results. All three factors have a significant relationship with current use of contraceptive at the national rural level. As discussed in the previous chapters, knowledge of contraceptives was universal for a long time before the study began. Thus, the effect of contraceptive knowledge on current use did change during the study period. The number of contraceptive sources known to the women, and the FWA visit did have a significant positive relationship with the current use of contraceptives in 1983 and this relationship strengthened during the study period. The results of the decomposition suggest that the total contribution of the knowledge of contraceptives, knowledge of the sources of contraceptives supply and FWA visits explain 40 percent of the model explained.

The Matlab data show that number of contraceptive sources known and the CHW/FWA's visits have a significant positive relationship with current use of contraceptives, but that knowledge of contraceptives does not. As expected, the effect of the knowledge of the sources of contraceptive supply did not change during the study period in Matlab. In contrast, the CHW/FWA's visits had a significant positive effect on current use of contraceptives and this effect increased during the period of study. The results of the decomposition suggest that the together, the knowledge of the contraceptive sources of supply and CHW/FWA's visiting rounds explain 50 percent of the model's explanatory power.

The three forms of spousal communication about family planning and family formation used in the Matlab pooled data suggest a significantly strong positive relationship between these variables and current use of contraceptives. The current use of contraceptives is significantly high, at the early stage of contraceptive use, if women share opinion about family planning with their husband. This strong relationship between two of three spousal communications reduced during the study period. During the period under study, a change occurred in the current use behaviour among women who did not discuss family planning matters with their husband. The negative impact of non-discussion of family planning matters on current use of contraceptives greatly reduced. The same is true of women's perception of their husband's approval of family planning. Decomposition of these three variables suggests that these three spousal communications together explain 51 percent of the total logit explained by the model.

The present analysis suggests that spousal communication played a significant role in the current contraceptive use in the 1980s. In the 1990s, women's discussion of family planning matters with husbands reduced, but women's perception of their husband's approval of family planning has increased indicating, that the attitude of husbands changed during the study period and that women know of this change. As a result of these changes, in the 1990s, in the national rural area and both areas of Matlab, women were increasingly using contraceptives without discussing the matter with their husband, and also using contraceptives even when they thought their husband did not approve of family planning. This change in trend in current contraceptive use and its relation with spousal communication is remarkable.

One plausible explanation for the change, sample statistics of the present data indicate, is greater communication between husband and wife. It may be that this greater degree of communication between the spouses empowered women to make decisions about reproduction. These changes in attitude may also be related to the community level development initiated by government and non-government rural poverty eradication, and the women's empowerment programmes. An analysis of the recent data set, that is national data, 1996, and Matlab data, 1994, reveals that membership of NGO organizations has a significant positive relationship with the current contraceptive use. Women's freedom of movement, however, is not significant in Matlab while high autonomy has a significant positive relationship with current contraceptive use at the national level.

In summary it can be said that there are several important factors account for recent rise in contraceptive use. These are women's age, survival of the children, sex composition of the family, spousal communication, knowledge of contraceptives, and family planning programme (family planning workers' visits). While the women's age, surviving children, spousal communication and knowledge of contraceptives and programme factors all have a positive effect on the current use of contraceptive, the undesired sex composition of the family (more daughters) delays contraceptive use. Although the attitude towards having more sons is changing (chapter 17), in practice it is still lagging behind. It seems that both community level environment (household head's education, participation in the community level programme) and macro level social structure at the community (sex composition of the family) influence the use of contraceptives. The community level development has helped women to use contraceptives, while the macro social structure generating gender preference has delayed contraceptive use. Finally, given the rising demand for no more children, family planning programmes increasingly contribute to mitigate the demand for contraceptives.

# PART V: TOWARDS A CONCLUSION.

# Chapter 19: Synthesis and Conclusion

The thesis has examined the decline in total fertility rate in Bangladesh in the 1980s and 1990s. The focus has been on the analysis of survey data that would allow an assessment of the relative contributions at the level of rural women or couples of various determinants. These could then be placed alongside and allowed the author to elaborate, macro level analyses of change carried out in Part I.

The results presented in Parts II and III permitted the analysis of two major proximate determinants of reproductive change: demand for additional children and trends in current contraceptive use. The two proximate determinants have been analysed at both micro and community levels. The two sections (Parts II & III) met this need through time series analyses of survey data that used basically the same questions in both national and Matlab samples. The timing of these samples was also close enough to count them as relating to virtually the same period. In a sense, what was been followed here was an experimental design comparing rural Bangladesh with Matlab at two separate times as shown in table 19.1.

**Figure 19.1 Schematic outline of the structure of the analytical design in the thesis.**

| | **National** | **Matlab** | |
|---|---|---|---|
| **Time 1** | National survey | Matlab intervention survey | Matlab Control Survey |
| **Time 2** | National Surveys | Matlab intervention Survey | Matlab Control Survey |

Source: Figure 1.1.

Part II of the thesis comprised an analysis of the variable demand for additional children. Trends were shown to be primarily dependent on micro level biosocial factors such as the current age of women, the composition of their families, and the number of surviving children. But these operate in a context defined by socio-cultural factors, gender preference, women's freedom of movement, communication between spouses, and religious beliefs. In turn, these were influenced by macro-level social changes analysed in part I including rates of fertility, mortality and survivorship, economic crises (increasing landlessness and changed occupation structures), industrial (garment industries) and NGO development, and levels of education.

Current use of contraceptives is discussed in part III. As in the case of demand for additional children, this variable is also dependent on biosocial factors, noted above: the ages of women, family composition, numbers of surviving children, communication between spouses. These are mediated to a degree by knowledge about family planning and the sources of contraceptive supply and the macro level factors discussed above. In both cases, therefore, macro-level development can be seen to affect micro level characteristics through the community level environment. Some of these macro- level factors have community level analogues that influence micro-level behaviour, as for example, the family planning workers at the community level who implement government macro-level policy, and effect couples behavioural patterns. The reproductive changes, that is demand for no more children and the rapid increase in the current use of contraceptives which are together associated with an accelerated decline in the total fertility rate during the period studied, are taken as a given here - the problem was to explain how this has come about. In Part IV, a multivariate analysis identified major contributing factors and changes in these factors as they affected the recent declines in the demand for no more additional children and rises in current contraceptive use. This permitted the identification of key determinants and of their relative contribution to reproductive change.

The comparative study of the changes in reproductive behaviour in the Matlab areas and the rest of Bangladesh noted above have provided a sort of ex-post-facto experimental design. This demonstrates that a rise in the contraceptive prevalence rate in the national rural area had been preceded by an increment first in contraceptive prevalence in the Matlab intervention area. Yet all the three areas, national rural, Matlab intervention and Matlab control, had virtually the same desired family size in both pre-intervention and post-intervention period. This, therefore, requires some modifications of the conclusions noted above. At a micro-level biosocial factors have been critical, but programme interventions, as in the Matlab intervention area, can play some role as important mechanisms in two ways: through health intervention, and through reproductive health and family planning services. The present chapter, synthesises the analyses presented earlier in an attempt to provide an understanding of the recent trends in the reproductive behaviour of the rural women of Bangladesh and thus to test the postulates outlined in chapter one.

## 19.2 A Review of the Basic Postulates

Superficially, the nature of the rapid reproductive change in Bangladesh seems to challenge most conventional paradigms on reproductive changes, and is thus an interesting case-study requiring explanation. The present thesis began by stating four possible postulates of the changes in reproductive behaviour in Bangladesh. This chapter will explore those postulates using the results found in the present study. They were

i. That the family planning programme created a demand for fertility control and generated an ideational change and the family planning programme assured access to contraceptives. Or

ii. That both positive, and negative, social and economic changes at the macro, micro and community level, generated a change in demand for more children that predated fertility decline, and that the family planning programme might merely have ensured access to fertility control techniques. Or

iii. That mortality declines followed by fertility declines. Or

iv. That macro level development reduced demand for children and reduced fertility.

The empirical evidence presented in this study shows that changes in reproductive dynamics are complex phenomena and that none of the above propositions alone can explain such complex dynamics. The results of the analysis support the assumptions of the second and third, and to some extent the fourth. In the case of first postulate, this seems to be an over-simplification of a very complex situation. Initially, though it did seem to be the case. A programme related change in contraceptive use seems to have occurred in the Matlab intervention area, but it was built on a bed of attitudinal change that paralleled that elsewhere in Bangladesh. But nationwide changes in family size norms seem to have had their origin in earlier improvements in survivorship; in short, the situation was close to classical transition theory. Moreover, micro-level empirical analyses of both time series and recent data from all three areas (chapters 17 and 18) contradict the notion that family planning programmes can independently create both demand for fertility control and also act as a mechanism to ensure contraceptive supply. The results of the analysis do, however, support the latter part of the postulate: that the family planning programme ensured effective supply logistics to a demand driven population.

In Bangladesh, the national family planning programme was started in 1960 but contraceptive use was low (details in chapters two and four). It was in the late 1970s that the national family planning programme was reorganised and restructured, and from the early 1980s the programme adopted ICDDR,B's recommendations[1]. After the restructuring of the programme, fertility in the national rural area, including Matlab control, started to decline in the 1980s. The time series analyses documented that in all three areas, the fertility decline initially started among older women with a large number of surviving children or sons and educated women or women whose husband or household heads' had higher education. But during the study period, the time series data show that there was a change in the fertility trends in that the demand for no additional children and current contraceptive use spread across all strata of age, education and living children and living son groups. That said, however, older women and women with large numbers of living children were remained the highest users of contraceptives, a point of importance to which we will refer later in this chapter. Although, there had been strong cultural constraints against change in reproductive behaviour in the earlier periods of the study, these had also begun to diminish. In this regard, a programme factor, the family planning workers' visits, was found to have significant effect on current use of contraceptives, and this effect increased during the period studied.

Macro-level statistics both from the national rural area and two areas of Matlab (discussed in chapter eight) show a remarkable similarity in demand for additional

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[1] Adoption of ICDDR.B advice started in 1982.

children and desired family size in all these three areas prior to the rise in current contraceptive use. This is despite an existence of a health care programme (diarrhoea and related diseases) in the Matlab areas since 1962, and a maternal child health and family planning programme from the mid 1970s in the intervention area. As noted earlier, behavioural (as against attitudinal) changes had started a little earlier in the Matlab intervention area, but, in general, for much of the period covered in the central part of this thesis, similarity rather then divergence seems the dominant trend. Thus, the quasi-experimental design adopted in the present analysis showed that the demand for additional children and desired family size reduced substantially, but surprisingly, reduced equally across all the three areas during the study period. This remarkable similarity in the trends in the demand for no more children across rural Bangladesh prior to and post intervention may lie in the socio-economic and cultural homogeneity of the society discussed in chapter two. The key fact may be that any change will affect the country almost uniformly. By "uniformly" it is not implied here that changes have occurred equally and simultaneously in each and every village and/or *bari*. Instead, they occurred so randomly that systematic geographical differences in timing, velocity of change and outcome do not seem to have occurred. A possible explanation for this finding will be discussed later in this chapter.

Meanwhile, it is necessary to examine the fourth postulate, which basically is derived from the demographic transition theory. It is more troubling than postulates two and three. In the classical transition theory, the fundamental pre-requisite of reproductive change is social and economic development with industrialization, urbanization and increasing literacy levels, as took place in Europe and in Neo-Europes (European settlement elsewhere), but this pre-requisite was absent in Bangladesh, at least manifestly. The level of social and economic development (chapter four) in Bangladesh even after it has passed through a significant part of its fertility transition manifested still lags far behind that of the Latin American and East Asian countries (WB Reports, 1978-1999). However, there have been some macro level economic developments whose impact may have been more latent but also important. The growth of the manufacturing industrial sector (garment industries, discussed in chapter five) may have had enormous social and economic implications for community level impact on reproductive changes. In addition, empirical evidence in the present study (chapters 10, 14 and in the multivariate analysis in chapters 17 and 18) suggested that education at the community level (education of husband and household heads) has changed the reproductive behaviour of rural women.

The increase in population growth over in the last 70 years from 1920 because of improved survivorship, then the onset of fertility decline from, say, 1980s, provides evidence at a macro-level in favour of the third postulate that mortality decline is followed by fertility decline as argued by the demographic transition theory. Thus an earlier slow mortality decline predated the period covered by the data used for this study. The history of demographic evolution, both mortality and fertility, discussed in chapters two and four, has shown that after a high fertility and mortality regime, overall mortality started a gradual decline from 1920, with a possible interruption in the 1940s related to war, famine and struggle of independent, and turned what was virtually a stationary population into a rapidly growing population by 1950. After this improvement in survivorship had occurred, yet fertility levels remained high (discussed in chapters two and four). This situation continued for 25 to 30 years from 1950 (Schultz 1975; Mitra et al. 1993, 1997) and led to large birth cohorts surviving to adulthood.

These cohort flows had a three-stage momentum effect at the macro demographic level. Firstly, improved survivorship but high fertility produced large birth cohorts and their size remained intact for much of their adult years. Secondly, these large birth cohorts on reaching adulthood were large parental cohorts. This meant that even if the TFR were to drop, the size of birth cohorts would continue to be very large. Thirdly, fertility decline did occur in Bangladesh, so that the momentum impact was, however, marked, but less powerful than it would otherwise have been. Another factor supporting the third postulate is child survivorship, a covariate of the reproductive factors central to this thesis, improved survivorship seems to be a fundamental issue for generating demand for no additional children and use of contraceptives. Child survivorship is discussed in chapters nine and 12 and examined in the multivariate analyses in chapters 17 and 18. There is strong evidence there that demand for more children has been reducing and current contraceptive use has been increasing amongst reproductive women with increasing number of surviving children or sons, and thus continuously reducing the demand for more children and increasing contraceptive use during the period studied.

Thus disproportionate population growth and improved survivorship produced both positive and negative social changes at the macro, micro and community level, affecting the micro- level reproductive behaviour of the women. It is at this point that the second proposition relating to social change becomes critical. But most of these micro-level social changes are not adequately captured in the calculation of macro-level development indicators. Instead, the causal relationship between social change and reproductive behaviour seems to operate in the following way.

The development literature (discussed in chapters two and four and five) shows that both positive and negative changes have occurred in the rural areas of Bangladesh. The negative changes were economic crises coming from the fragmentation of small landholdings, created out of a complex land inheritance system as exacerbated by the growing numbers of surviving children. In turn, these were changed in the rural occupational structures and increased out-migration as large cohorts, originating from improved survival of rural cohorts in the past, reached active ages. Thus positive social development (improved survivorship) produced a large population base (negative effect) for its agricultural economy.

These population pressures changed the social and economic dynamics of the rural families. Many landed farmers became landless peasants over the span of one generation (discussed in chapters two and four) leaving only a few landholding families in the society, but they too had insufficient land for their year round survival and to ensure quality child rearing. Thus both groups (landed and landless) were subject to equal constraints against having a large number of children. This may have led to a reduction in the demand for additional children among the different social groups, albeit for different reasons, but had the overall effect of reducing the demand for additional children more or less equally across all social groups. This was evident in the empirical results in this thesis that show that across all the three areas, none of the household level economic indicators (possession of farmland or occupation of the woman's husband) had a significantly different relationship with demand for additional children. Finally, the pressures led to internal and international migration that had feedback effects on conjugal life and on family budgets. This then, is clearly a complex scenario.

An alternative simpler explanation put forward by a some writers that reproductive change in Bangladesh was driven by poverty seems rather less plausible. The overall nutrition level of the community, especially the children under five (discussed in chapter four), has been was improving, and as has just been noted the demand for additional children had reduced, and current contraceptive use had risen, equally across all strata irrespective of economic status. In addition, as noted earlier, most of the Bangladesh Institute of Development Studies (BIDS) analyses have reported stagnation, but not deterioration of the economy of Bangladesh (Sen, Internet edition 2002; Akash, Internet edition, 2001).

As was noted earlier in this chapter, at a micro-level, the changes in reproductive behaviour among the women of all three areas resulted primarily from biosocial factors. But they operate in a context produced by broader aspects of social change (discussed in chapter two, for example, land crises, community contextual factors, NGO programmes, macro manufacturing industries and their implications in a rural community context and other macro level social change) that has occurred over recent times.

In addition, another remarkable development appears in the field of migration. As noted in chapter four, there was an imbalance sex ratio of the active population in the rural area. Besides the internal migration, there has been large-scale international migration of Bangladeshi nationals to UK, to the Middle East and some other labour importing countries. This brought an enormous prospect of social and economic changes and to some extent change the power relationship of woman with the household because of the cash, her husband remits to the family from outside the country.

All these changes have affected both macro-level and community- level social structures that are related to those factors that shape the "patriarchy" (i.e. son preference, spousal communication, women's freedom of movement) and which in turn influence the proximate determinants of fertility, demand for no more children (or sons) and current contraceptive use. The results from the time series analysis in the present study demonstrated a change in some aspects of the normative social structure. The evidence for this was the changing effects of son preference, spousal communication and women's freedom of movement on the two proximate determinants: demand for no additional children and current use of contraceptives. Empirical results show that women having fewer children, and even having daughters alone, also have higher level of demand for no more children and are increasingly using contraceptives. Also, more and more women are using contraceptives even when they know that their husbands disapprove of family planning. Moreover, women with a higher level of autonomy or women having membership in any of the community development programmes have greater demand for no more children and elevated levels of current use of contraceptives, yet women who are practicing their religion are little different from those who practice less. Equally well, illiterate women have levels of demand for no more children equal to those of their educated counterparts.

These seemingly uniform changes in reproductive behaviour in all the three areas, national, and two areas of Matlab, were probably made possible because of the homogeneity of Bangladeshi society which allows for the more or less even diffusion of ideas. This result can be elaborated by reference to a similar study of reproductive change in Thailand (Knodel et al. 1987). They showed that

> Ideational change influencing reproductive behaviour and changing perceptions of the socio-economic environment encouraging small families can outpace the major socio-economic structural shifts conventionally associated with development. A broad-base fertility transition is taking place in Thailand while the population is still predominantly rural and agricultural...a general receptivity to the changes in reproductive patterns that are now taking place is also evident among most major segments of the population. Indeed, minimally low-income rural couples have been full participants in the fertility transition during the last decade and a half. Being urban relatively wealthy and better educated have not

clearly been prerequisites for adopting modern reproductive behavior in Thailand (p 201)

This critical analysis of the second to fourth postulates has offered no conclusive evidence in favour of any particular one. None was either strongly supported or strongly rejected in the present analysis. However, this is not an either/or situation. Rather it suggests that the trends to which they relate to complement each other. If anything, it reaffirms conclusions made Caldwell et al. (1999) that there have been rapid social changes and that most of the respondents of their study seemed to have perceived the same changes. However, while his findings highlighted the changes, further in-depth research with an aim to having a clearer understanding of the fertility decline in Bangladesh is needed, as was suggested by Caldwell et al. (1998).

Finally, there is a need to return to the first postulate. The results of the analysis in this thesis suggests that the family planning programme is an effective mechanism by which to address the demand for fertility control, but is not a determinant of trends.

In sum let us accept Caldwell's assumption (1976) that all human beings are rational, whether they were European or non-European. In this case we can say that when fertility started declining in Bangladesh three preconditions proposed by Ansley Coale (I973) were present. For a fertility decline to occur, he said, "fertility must be within the calculus of conscious choice....Reduced fertility must be advantageous...Effective techniques of fertility reduction must be available."

### 19.3 Policy Implication

The analysis of the present study reveals that a seemingly irreversible fertility transition is in place in Bangladesh. However, most recent studies have found several factors critical to policy concern. These are:

- Firstly, there is an observed plateau in the contraceptive prevalence and total fertility rates since the mid 1990s, in the national rural area, and from the early 1990s in the Matlab intervention area;

- Secondly, current use of contraceptives is low among women with no living children, while two thirds of the women who expressed no demand for additional children actually using contraceptives indicating a large unmet need for fertility control;
- Thirdly, gender preference, though starting to change, is still strong.

These factors need careful attention. The first two are interlinked while the last one is related to the culture.

Taking the cultural perspective first, the present study provides strong evidence that the demand for sons though decreasing is still quite strong. This strong preference for sons originates from both the existing social system and practical necessities. This cultural norm, embedded in the social system would be one of the most difficult to eliminate. It seems unlikely that social development in the form of rising education can reduce son preference in the society. A comprehensive and integrated effort to reduce the social inequality suffered by women might be needed to address this issue in line with the Cairo Declaration (ICPD-1994). In this regard, certain initiatives both at the macro and community-level, which have already underlying implications of significance for further social change, especially for women. These are the development of the manufacturing industries (apparel sector), and NGO initiatives for social development and women's empowerment. Within families and *bari* these developments may improve women's social and economic independence. This whole web of development activities may reduce this strong preference for sons, if not eliminate it. At least it probably affects power structure within the households.

Finally, turning to issues related to the reported plateau in current contraceptive use and total fertility rates, the present study demonstrates that despite increasing trends in current contraceptive use among younger women and among women with no living children over the latter period of the study, the prevalence rate is still relatively low in all the three areas for these categories of women. The analysis of the pattern of contraceptive use reveals that, at the national rural level among the women who reported no demand for additional children, only two thirds are using contraceptives. While 34 percent who have a demand for additional children were using contraceptives in 1996, these might well be those starting. Indeed data on the use dynamics, (chapter eight and BHDS surveys and Matlab demographic reports (Mitra et al. 1995, 1997, 2001; Bairagi, 2000a and 2000b; HDSS report 2001) have revealed a plateau in contraceptive prevalence and total fertility rates. This plateau in the current contraceptive use and total fertility rate is also reported from 1994 for the national rural area, and in Matlab, it became evident even before 1994. Thus the contraceptive prevalence rate plateaued at 54 percent in the national rural area and the total fertility rate plateaued at slightly above three in the year 2000. For the last 10 years from 1991, the TFR for the Matlab intervention area has been constant at about three birthsper woman, despite a rise in current contraceptive use to 69 percent. But against this, only half of the total women at reproductive age (46 percent) who reported demand for additional children, use contraceptives for spacing. This plateau in current contraceptive use and total fertility rates is clearly related to the patterns of timing and spacing of births among the young women in the three areas.

**Table 19.1: Percent of birth by woman of each age group in the three areas, 1983-1996.**

| Age groups | National | | Matlab Intervention | | Matlab control | |
|---|---|---|---|---|---|---|
| | 1984 | 1994 | 1984 | 1994 | 1984 | 1994 |
| | | | **Fertility per woman** | | | |
| <30 years | 4.0 | 2.6 | 2.5 | 2.0 | 3.0 | 2.6 |
| 30+ | 2.1 | 0.8 | 1.5 | 0.9 | 2.1 | 1.2 |
| TFR | 6.1 | 3.4 | 4.0 | 3.0 | 5.1 | 3.8 |
| | | | **Percent of TFR** | | | |
| <30 years | 67 | 76 | 72 | 70 | 59 | 68 |
| 30+ | 33 | 24 | 28 | 30 | 41 | 32 |
| TFR | 6.1 | 3.4 | 4.0 | 3.0 | 5.1 | 3.8 |
| | | | **Percent using contraceptives** | | | |
| <30 | 17.8 | 46.7 | 34.3 | 53.9 | 12.1 | 30.0 |
| 30+ | 23.1 | 63.5 | 48.3 | 77.1 | 22.8 | 53.4 |

Notes, 5x ($ASFR_{15-19}$ + $ASFR_{20-249}$ + $ASFR_{25-29}$) =Local total fertility rate (LTFR); Percent of TFR= LTFR/TFR.

This can be seen be looking at the percentage distributions of age specific fertility rates calculated for the women of the three areas during the study period (Table

19.1). This shows that 60 to 65 percent of births in the national rural and control area and a slightly higher percent (72 percent) of births in the intervention area had occurred among the younger women aged less than 30 years. The percentage of births contributed to the total fertility rate by the younger women did not decrease, but increased during the study period, whereas the percent of births contributed by older women decreased. At present, more than 70 percent of births are occurring among the younger married women of Bangladesh.

Perhaps more importantly, the "local" (i.e. age specific) total fertility rate at ages below 30 has declined to a far lesser degree, particularly in the Matlab zones, that had led in the fertility decline. In contrast, over 30 years rates have plummeted.

Data on the contraceptive use by age show why this has happened. Bangladesh has been successful in increasing the contraceptive prevalence at older ages for the purpose of limitation, but less successful at younger ages for timing, especially. For women under age 20 (all of who are married and thus exposed to risk), level of contraceptive use is notably low. This pattern of birth structure by age has contributed to the sustained plateau in the overall fertility level in all the three areas and to population momentum. Of course, Bangladeshi women have followed the usual pattern of fertility decline seen in most other countries at the first stages of transition, that is, older women and women having a large number of children are limiting their fertility. But Bangladesh is now at a later stage in its fertility transition. At this stage, an upward shift of birth structure by women age is essential if there are to be further declines in fertility level.

Despite government measures to delay the timing of births, early exposure to risk of pregnancy still seems to be the norm. A greater focus on policies to delay the timing of births through greater use of contraceptives at the start of marriage, and to encourage spacing, may produce further fertility decline further. This will also play a role in improving the reproductive health of women, by decreasing levels of foetal loss and in reducing maternal mortality, both of which are at high levels in Bangladesh. This policy would also fit well with the 1994 Cairo Declaration on the reproductive health of women clearly. This issue needs to be addressed forcefully in policy planning and fertility research in the future.

## Appendix

**Table A-1: Total Fertility Rate, Infant Mortality Rate and childhood (1-4) mortality Rate of some selected years at the national level in the last hundred years.**

| Year | TFR | IMR | Child 1-4 |
|---|---|---|---|
| 1911[a] | -- | 205 | -- |
| 1930[a] | -- | 179 | -- |
| 1951[a] | -- | 168 | -- |
| 1953[a] | 7.4 | | -- |
| 1956-57[b] | 6.2 | ---- | 20 |
| 1961-62[c] | 7.6 | --- | 18 |
| 1961[a] | -- | 144 | -- |
| 1965[d] | 7.0 | --- | -- |
| 1970-72[a] | | 158 | -- |
| 1974[a] | 4.8[e] | 153 | -- |
| 1979 | 6.2 | -- | 19[m] |
| 1980 | 6.8[e] | -- | 20[m] |
| 1981 | 5.6[n] | 129[f] | -- |
| 1982 | 6.4[e] | 122[f] | 19[m] |
| 1983 | 6.1[e] | 118[f] | 19[m] |
| 1984 | 5.9[e] | 122[f] | 18[m] |
| 1985 | 5.5[e] | 112[f] | 18[m] |
| 1986 | 5.1[e] | 116[f] | -- |
| 1987 | 4.8[e] | 113[f] | 13.1[g] |
| 1988 | 4.9[e] | 116[f] | 14.1[g] |
| 1984-88 | 5.1[j] | -- | -- |
| 1989 | 4.1[h] | 98[f] | 14.3[g] |
| 1990 | 4.2[h] | 94[g] | 14.2[g] |
| 1992 | -- | 91[g] | 14.0[g] |
| 1993 | -- | 88 | 12.9[g] |
| 1991-1993 | 3.4[j] | 79[g] | 12.5[g] |
| 1994-96 | 3.3[j] | 82[g] | -- |
| 1997 | -- | 60[k] | -- |
| 1998 | -- | 57[k] | -- |

Sources: [a] UN, 1981 page, 51; [b] Schultz, 1972; [c] Obaidullah, 1966; [d] Population Growth Estimates (PGE), Cleland et al. 1994; [e] Bangladesh Fertility Surveys-1989(BFS-1989); [f] Vital registration system, BBS; [g] Bangladesh Sample Registration System, BBS; [h] CPS-1991; [j] BDHS-1996. [k] BBS internet addition, date 16[th] June 02 ; [m] WB Reports. [n] CPS-83

**Table A-2: Total Fertility Rate, Infant Mortality Rate and Child (1-4 years) mortality rate in Matlab intervention and control areas, 1966-1996.**

| Year | TFR | | IMR | | Child Mortality 1-4 | |
|---|---|---|---|---|---|---|
| | Intervention | Control | Intervention | Control | Intervention | Control |
| 1966-67[2a] | 6.7 | 6.7 | 110.7 | 110.7 | 24.9 | 24.9 |
| 1967-68[a] | 6.3 | 6.3 | 125.4 | 125.4 | 29.4 | 29.4 |
| 1968-69[a] | 6.1 | 6.1 | 123.8 | 123.8 | 23.8 | 23.8 |
| 1970-71[a] | 6.4 | 6.4 | 131.3 | 131.3 | 27.9 | 27.9 |
| 1974[b] | 6.5 | 6.5 | 137.8 | 137.8 | 25.6 | 25.6 |
| 1975[c] | 4.5 | 4.4 | 156.0 | 171.2 | 36.5 | 34.7 |
| 1976[c] | 6.4 | 7.0 | 108.9 | 108.4 | 30.2 | 33.4 |
| 1977*[c] | 5.3 | 5.8 | 108.9 | 105.6 | 17.7 | 18.2 |
| 1978[c] | 4.2 | 5.8 | 106.3 | 121.3 | 23.4 | 22.4 |
| 1979[c] | 4.6 | 6.4 | 116.1 | 122.5 | 18.3 | 25.6 |
| 1980[c] | 5.1 | 6.7 | 88.6 | 114.4 | 18.9 | 25.0 |
| 1981[c] | 5.0 | 6.3 | 106.6 | 113.4 | 17.9 | 23.9 |
| 1982[c] | 5.2 | 6.3 | 108.1 | 120.1 | 18.7 | 25.8 |
| 1983[c] | 4.9 | 6.0 | 98.1 | 113.3 | 22.4 | 34.8 |
| 1984[c] | 4.3 | 5.2 | 112.0 | 125.2 | 23.7 | 38.7 |
| 1985[c] | 4.5 | 5.7 | 87.3 | 118.2 | 16.1 | 24.4 |
| 1986[d] | 4.3 | 5.5 | 81.8 | 92.7 | 13.4 | 20.7 |
| 1987[d] | 4.2 | 5.4 | 78.4 | 94.4 | 9.9 | 15.0 |
| 1988[d] | 3.8 | 5.4 | 80.8 | 96.6 | 7.6 | 14.4 |
| 1989[d] | 3.4 | 4.9 | 74.3 | 90.7 | 6.4 | 11.5 |
| 1990[d] | 3.4 | 5.0 | 75.2 | 87.5 | 5.3 | 9.3 |
| 1991[d] | 3.0 | 4.3 | 80.0 | 114.9 | 7.0 | 9.1 |
| 1992[d] | 3.0 | 4.0 | 80.5 | 90.2 | 5.9 | 10.4 |
| 1993[d] | 2.9 | 3.8 | 63.1 | 99.3 | 5.9 | 10.0 |
| 1994[d] | 3.0 | 3.8 | 63.7 | 87.2 | 5.3 | 7.0 |
| 1995[d] | 2.9 | 3.6 | 51.1 | 78.6 | 6.7 | 8.4 |
| 1996[d] | 2.7 | 3.5 | 66.2 | 67.0 | 6.0 | 8.0 |
| 1997 | 2.8 | 3.4 | 49.5 | 78.6 | 4.5 | 7.0 |
| 1998 | 3.0 | 3.6 | 50.6 | 70.0 | 4.7 | 5.8 |
| 1999 | 2.9 | 3.3 | 44.5 | 60.8 | 4.1 | 7.5 |

INT=Intervention , CON= Control
Sources: [a] Curlin et al. 198? [b] UN monograph series no .8, 1981; [c] Phillips et al. 1996; [d] DSS Annual report, 1997.

[2] From 1966 to 1974 computation was not done separately by area. It is assumed that both areas were equal.

**Table A-3a: Percent of women wanting no additional children by sex composition of the family women's age and education, national level (rural) and two areas of Matlab, 1983/1984**

| | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National --1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Woman's age <20** | | | | | | |
| **Sex composition of family** | | **Education of woman: None** | | | | |
| One Son & one daughter | 39.0 | 41 | 0.0 | 2 | 100.0 | 1 |
| 1-2 son only | 8.4 | 225 | 5.9 | 17 | 0.0 | 19 |
| 1--2 daughter only | 5.4 | 203 | 0.0 | 19 | 0.0 | 18 |
| Total>2 and son>=daughter | 50.0 | 10 | 0.0 | 1 | 100.0 | 1 |
| Total>2 and daughter>son | 20.0 | 10 | | | 0.0 | 0 |
| **Sex composition of family** | | **Education of woman: 1-5 years** | | | | |
| One Son & one daughter | 38.9 | 18 | 33.3 | 3 | 100.0 | 1 |
| 1-2 son only | 5.8 | 86 | 0.0 | 18 | 9.1 | 11 |
| 1--2 daughter only | 8.0 | 88 | 0.0 | 20 | 12.5 | 8 |
| Total>2 and son>=daughter | | | 50.0 | 2 | 0.0 | 0 |
| Total>2 and daughter>son | 66.7 | 3 | 0.0 | 0 | 0.0 | 0 |
| **Sex composition of family** | | **Education of woman: 6 or more years** | | | | |
| One Son & one daughter | 75.0 | 4 | 0.0 | 0 | 0.0 | 0 |
| 1-2 son only | 7.7 | 26 | 0.0 | 3 | 0.0 | 2 |
| 1--2 daughter only | 3.6 | 28 | 0.0 | 4 | 0.0 | 3 |
| Total>2 and son>=daughter | 0.0 | 1 | 0.0 | 0 | 0.0 | 0 |
| Total>2 and daughter>son | 50.0 | 2 | 0.0 | 0 | 0.0 | 0 |
| **Woman's age <20-24** | | | | | | |
| **Sex composition of family** | | **Education of woman: None** | | | | |
| One Son & one daughter | 31.7 | 145 | 18.4 | 49 | 25.0 | 48 |
| 1-2 son only | 19.6 | 199 | 5.2 | 96 | 9.5 | 63 |
| 1--2 daughter only | 8.2 | 182 | 1.1 | 90 | 0.0 | 62 |
| Total>2 and son>=daughter | 55.3 | 141 | 58.1 | 31 | 76.9 | 13 |
| Total>2 and daughter>son | 33.3 | 78 | 26.1 | 23 | 22.2 | 9 |
| **Sex composition of family** | | **Education of woman: 1-5 years** | | | | |
| One Son & one daughter | 47.8 | 69 | 23.2 | 69 | 41.9 | 31 |
| 1-2 son only | 17.5 | 80 | 8.2 | 97 | 15.2 | 46 |
| 1--2 daughter only | 14.7 | 68 | 4.7 | 85 | 0.0 | 41 |
| Total>2 and son>=daughter | 63.8 | 58 | 57.1 | 14 | 72.7 | 11 |
| Total>2 and daughter>son | 48.1 | 52 | 35.0 | 20 | 16.7 | 12 |
| **Sex composition of children** | | **Education of woman: 6 or more years** | | | | |
| One Son & one daughter | 46.2 | 13 | 40.0 | 15 | 25.0 | 4 |
| 1-2 son only | 28.2 | 39 | 8.3 | 24 | 0.0 | 9 |
| 1--2 daughter only | 11.8 | 17 | 0.0 | 27 | 9.1 | 11 |
| Total>2 and son>=daughter | 100.0 | 8 | 50.0 | 6 | 0.0 | 1 |
| Total>2 and daughter>son | 50.0 | 4 | 20.0 | 5 | 28.6 | 7 |
| **Woman's age <25-29** | | | | | | |
| **Sex composition of family** | | **Education of woman: None** | | | | |
| One Son & one daughter | 38.5 | 65 | 33.3 | 42 | 11.5 | 26 |
| 1-2 son only | 25.8 | 62 | 25.5 | 47 | 20.6 | 34 |
| 1--2 daughter only | 7.6 | 79 | 6.7 | 30 | 7.7 | 26 |
| Total>2 and son>=daughter | 65.4 | 289 | 65.3 | 95 | 69.9 | 83 |
| Total>2 and daughter>son | 44.1 | 227 | 22.1 | 68 | 44.9 | 49 |

**Table A-3a(cont): Percent of women wanting no additional children by sex composition of the family women's age and education, national level (rural) and two areas of Matlab, 1983/1984**

| Variables | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National --1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| One Son & one daughter | 34.5 | 29 | 36.0 | 25 | 40.0 | 5 |
| 1-2 son only | 42.9 | 21 | 14.7 | 34 | 30.0 | 10 |
| 1--2 daughter only | 18.2 | 22 | 20.0 | 20 | 7.1 | 14 |
| Total>2 and son>=daughter | 80.4 | 102 | 59.7 | 77 | 68.3 | 41 |
| Total>2 and daughter>son | 51.1 | 94 | 24.2 | 62 | 38.5 | 39 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| One Son & one daughter | 20.0 | 5 | 50.0 | 8 | 66.7 | 3 |
| 1-2 son only | 62.5 | 16 | 12.5 | 8 | 0.0 | 4 |
| 1--2 daughter only | 40.0 | 15 | 25.0 | 4 | 0.0 | 5 |
| Total>2 and son>=daughter | 86.4 | 22 | 87.5 | 16 | 83.3 | 6 |
| Total>2 and daughter>son | 78.9 | 19 | 26.7 | 15 | 50.0 | 2 |
| **Woman's age 30-39** | | | | | | |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 68.4 | 38 | 37.5 | 16 | 35.3 | 17 |
| 1-2 son only | 45.9 | 37 | 41.7 | 12 | 44.4 | 9 |
| 1--2 daughter only | 37.8 | 37 | 0.0 | 6 | 11.1 | 9 |
| Total>2 and son>=daughter | 81.4 | 533 | 82.3 | 254 | 86.0 | 214 |
| Total>2 and daughter>son | 72.0 | 325 | 63.1 | 157 | 73.2 | 123 |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| One Son & one daughter | 50.0 | 8 | 62.5 | 8 | 50.0 | 2 |
| 1-2 son only | 27.3 | 11 | 35.7 | 14 | 33.3 | 3 |
| 1--2 daughter only | 40.0 | 5 | 0.0 | 3 | 0.0 | 5 |
| Total>2 and son>=daughter | 82.5 | 160 | 88.3 | 213 | 88.7 | 97 |
| Total>2 and daughter>son | 85.5 | 124 | 61.5 | 104 | 77.6 | 76 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| One Son & one daughter | 0.0 | 2 | 50.0 | 2 | 50.0 | 2 |
| 1-2 son only | 0.0 | 2 | 66.7 | 3 | 0 | 0 |
| 1--2 daughter only | 0.0 | 1 | 0.0 | 1 | 0.0 | 2 |
| Total>2 and son>=daughter | 100.0 | 19 | 91.4 | 35 | 100.0 | 8 |
| Total>2 and daughter>son | 81.3 | 16 | 41.7 | 12 | 83.3 | 6 |
| **Woman's age 40-49** | | | | | | |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 83.3 | 18 | 66.7 | 3 | 0.0 | 0 |
| 1-2 son only | 91.7 | 12 | 80.0 | 5 | 66.7 | 3 |
| 1--2 daughter only | 66.7 | 21 | 0.0 | 1 | 0.0 | 2 |
| Total>2 and son>=daughter | 98.5 | 390 | 96.9 | 160 | 97.6 | 123 |
| Total>2 and daughter>son | 93.1 | 260 | 91.2 | 113 | 96.0 | 75 |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| One Son & one daughter | 100.0 | 3 | 33.3 | 3 | 100.0 | 1 |
| 1-2 son only | 100.0 | 4 | 0.0 | 0 | 0 | 0 |
| 1--2 daughter only | 60.0 | 5 | 0.0 | 0 | 0.0 | 2 |
| Total>2 and son>=daughter | 93.2 | 88 | 97.3 | 74 | 97.4 | 38 |
| Total>2 and daughter>son | 90.9 | 55 | 95.2 | 63 | 88.5 | 26 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| One Son & one daughter | 0 | 0 | 100.0 | 1 | 0.0 | 0 |
| 1-2 son only | 0 | 0 | 0.0 | 0 | 0.0 | 0 |
| 1--2 daughter only | 0 | 0 | 0.0 | 0 | 0.0 | 0 |
| Total>2 and son>=daughter | 100.0 | 12 | 100.0 | 8 | 100.0 | 4 |
| Total>2 and daughter>son | 100.0 | 3 | 100.0 | 3 | 0.0 | 0 |

Table A-3b: **Percent of women wanting no additional children by sex composition of children women's age and education, national level (rural) and two areas of Matlab, 1994/1996**

| Variables | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab -1994 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **Woman's age <20** | | | | | | |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 75.9 | 29 | 0.0 | 2 | 100.0 | 1 |
| 1-2 son only | 13.7 | 124 | 0.0 | 23 | 18.2 | 11 |
| 1--2 daughter only | 8.3 | 144 | 5.6 | 18 | 6.7 | 15 |
| Total>2 and son>=daughter | 50.0 | 2 | 0.0 | 0 | 0.0 | 0 |
| Total>2 and daughter>son | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| One Son & one daughter | 72.2 | 18 | 0.0 | 0 | 0.0 | 0 |
| 1-2 son only | 13.6 | 103 | 0.0 | 19 | 5.9 | 17 |
| 1--2 daughter only | 8.0 | 112 | 0.0 | 12 | 22.2 | 9 |
| Total>2 and son>=daughter | 100.0 | 1 | 0.0 | 0 | 0.0 | 0 |
| Total>2 and daughter>son | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| One Son & one daughter | 70.0 | 10 | 0.0 | 0 | 0.0 | 1 |
| 1-2 son only | 14.6 | 48 | 12.5 | 8 | 0.0 | 4 |
| 1--2 daughter only | 3.5 | 57 | 0.0 | 8 | 0.0 | 10 |
| Total>2 and son>=daughter | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| Total>2 and daughter>son | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| **Woman's age <20-24** | | | | | | |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 71.7 | 145 | 50.0 | 20 | 29.4 | 17 |
| 1-2 son only | 22.2 | 171 | 8.3 | 24 | 16.0 | 25 |
| 1--2 daughter only | 20.4 | 142 | 23.1 | 26 | 13.3 | 15 |
| Total>2 and son>=daughter | 75.3 | 73 | 63.6 | 11 | 83.3 | 12 |
| Total>2 and daughter>son | 64.8 | 71 | 62.5 | 8 | 36.4 | 11 |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| One Son & one daughter | 66.7 | 78 | 38.5 | 13 | 44.4 | 18 |
| 1-2 son only | 29.2 | 113 | 16.0 | 25 | 20.0 | 30 |
| 1--2 daughter only | 21.0 | 100 | 7.7 | 26 | 6.3 | 16 |
| Total>2 and son>=daughter | 83.9 | 31 | 66.7 | 3 | 100.0 | 5 |
| Total>2 and daughter>son | 73.0 | 37 | 100.0 | 3 | 50.0 | 6 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| One Son & one daughter | 67.6 | 34 | 75.0 | 4 | 66.7 | 6 |
| 1-2 son only | 21.6 | 88 | 14.3 | 21 | 21.4 | 14 |
| 1--2 daughter only | 18.8 | 69 | 18.2 | 22 | 18.5 | 27 |
| Total>2 and son>=daughter | 100.0 | 7 | 100.0 | 1 | 0.0 | 0 |
| Total>2 and daughter>son | 40.0 | 5 | 0.0 | 0 | 0.0 | 0 |
| **Woman's age <25-29** | | | | | | |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 81.4 | 118 | 47.8 | 23 | 45.5 | 11 |
| 1-2 son only | 50.9 | 108 | 30.4 | 23 | 30.0 | 10 |
| 1--2 daughter only | 34.1 | 82 | 15.4 | 13 | 0.0 | 5 |
| Total>2 and son>=daughter | 88.9 | 235 | 83.8 | 37 | 86.0 | 50 |
| Total>2 and daughter>son | 73.4 | 192 | 67.7 | 31 | 73.5 | 34 |

**Table A-3b(cont): Percent of women wanting no additional children by sex composition of family, women's age and education, national level (rural) and two areas of Matlab, 1994/1996**

| Variables | Demand for no additional children | | | | | |
|---|---|---|---|---|---|---|
| | National --1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| Onc Son & one daughter | 70.8 | 72 | 47.1 | 17 | 40.0 | 5 |
| 1-2 son only | 37.3 | 59 | 38.5 | 13 | 50.0 | 2 |
| 1--2 daughter only | 15.8 | 57 | 23.1 | 13 | 30.0 | 10 |
| Total>2 and son>=daughter | 93.7 | 95 | 85.0 | 40 | 86.4 | 22 |
| Total>2 and daughtcr>son | 77.8 | 90 | 60.0 | 25 | 62.5 | 32 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| Onc Son & one daughter | 73.1 | 52 | 100.0 | 9 | 50.0 | 8 |
| 1-2 son only | 34.6 | 52 | 62.5 | 8 | 28.6 | 7 |
| 1--2 daughter only | 31.7 | 41 | 41.7 | 12 | 16.7 | 6 |
| Total>2 and son>=daughter | 100.0 | 31 | 100.0 | 6 | 100.0 | 3 |
| Total>2 and daughter>son | 72.4 | 29 | 40.0 | 5 | 50.0 | 6 |
| **Woman's age 30-39** | | | | | | |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 77.1 | 70 | 58.3 | 12 | 100.0 | 3 |
| 1-2 son only | 59.5 | 42 | 60.0 | 10 | 75.0 | 4 |
| 1--2 daughter only | 35.9 | 39 | 16.7 | 6 | 50.0 | 4 |
| Total>2 and son>=daughter | 94.1 | 423 | 89.8 | 88 | 94.6 | 92 |
| Total>2 and daughter>son | 88.9 | 316 | 86.6 | 67 | 90.6 | 53 |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| One Son & one daughter | 80.0 | 40 | 50.0 | 6 | 0.0 | 1 |
| 1-2 son only | 50.0 | 28 | 40.0 | 5 | 66.7 | 3 |
| 1--2 daughter only | 45.5 | 22 | 0.0 | 1 | 0 | 0 |
| Total>2 and son>=daughter | 96.2 | 209 | 97.0 | 66 | 97.9 | 48 |
| Total>2 and daughter>son | 89.3 | 159 | 87.5 | 32 | 86.2 | 29 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| One Son & one daughter | 95.0 | 40 | 83.3 | 12 | | |
| 1-2 son only | 60.7 | 28 | 50.0 | 4 | 100.0 | 1 |
| 1--2 daughter only | 22.2 | 18 | 0 | 0 | 0.0 | 1 |
| Total>2 and son>=daughter | 96.6 | 89 | 100.0 | 20 | 100.0 | 13 |
| Total>2 and daughter>son | 88.1 | 59 | 88.9 | 18 | 100.0 | 8 |
| **Woman's age 40-49** | | | | | | |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 64.3 | 14 | 100.0 | 1 | 100.0 | 2 |
| 1-2 son only | 57.1 | 7 | 0 | 0 | 0 | 0 |
| 1--2 daughter only | 77.8 | 9 | 100.0 | 1 | 0 | 0 |
| Total>2 and son>=daughter | 97.7 | 219 | 98.1 | 53 | 100.0 | 45 |
| Total>2 and daughter>son | 96.3 | 134 | 100.0 | 29 | 96.6 | 29 |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| One Son & one daughter | 83.3 | 6 | 100.0 | 3 | 0 | 0 |
| 1-2 son only | 80.0 | 5 | 0 | 0 | 0 | 0 |
| 1--2 daughter only | 100.0 | 1 | 0 | 0 | 50.0 | 2 |
| Total>2 and son>=daughter | 98.8 | 82 | 100.0 | 29 | 100.0 | 26 |
| Total>2 and daughter>son | 97.9 | 47 | 100.0 | 15 | 100.0 | 9 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| One Son & onc daughter | 100.0 | 1 | 0 | 0 | 0 | 0 |
| 1-2 son only | 100.0 | 1 | 0 | 0 | 0 | 0 |
| 1--2 daughter only | 33.3 | 3 | 0.0 | 0 | 0 | 0 |
| Total>2 and son>=daughter | 100.0 | 21 | 100.0 | 8 | 100.0 | 2 |
| Total>2 and daughter>son | 100.0 | 16 | 100.0 | 2 | 0 | 0 |

**Table A-4a: Percentage distribution of women currently using contraceptives by women's education and no. dead children, National level (rural) and two areas of Matlab, 1983/1984.**

| Variables | National -1983 | | Matlab -1984 Intervention | | Matlab -1984 Control | |
|---|---|---|---|---|---|---|
| | % | N | % | N | % | N |
| **Education of woman** | **No. of dead children: None** | | | | | |
| Illiterate | 16.3 | 1989 | 40.9 | 668 | 14.7 | 421 |
| 1-5 years | 21.2 | 821 | 40.2 | 622 | 14.2 | 260 |
| 6 or more years | 43.9 | 253 | 51.9 | 154 | 30.2 | 63 |
| **Education of woman** | **No. of dead children: One** | | | | | |
| Illiterate | 18.9 | 1054 | 38.9 | 422 | 23.5 | 319 |
| 1-5 years | 22.8 | 347 | 42.9 | 287 | 16.6 | 151 |
| 6 or more years | 25.9 | 54 | 48.8 | 41 | 13.3 | 15 |
| **Education of woman** | **No. of dead children: Two** | | | | | |
| Illiterate | 20.5 | 565 | 39.4 | 216 | 16.0 | 162 |
| 1-5 years | 27.5 | 153 | 48.8 | 127 | 23.1 | 78 |
| 6 or more years | 30.0 | 10 | 66.7 | 6 | 50.0 | 2 |
| **Education of woman** | **No. of dead children: Three or more** | | | | | |
| Illiterate | 16.7 | 610 | 44.8 | 183 | 19.2 | 167 |
| 1-5 years | 20.7 | 135 | 39.3 | 61 | 14.9 | 47 |
| 6 or more years | 40.0 | 10 | 62.5 | 8 | 33.3 | 3 |

**Table A-4b: Percentage distribution of women currently using contraceptives by women's education and no. dead children, National level (rural) and two areas of Matlab, 1994/1996**

| Variables | National -1996 | | Matlab -1994 Intervention area | | Matlab -1994 Control | |
|---|---|---|---|---|---|---|
| | % | N | % | N | % | N |
| **Education of woman** | **No. of dead children: None** | | | | | |
| Illiterate | 50.1 | 1987 | 64.7 | 397 | 40.1 | 279 |
| 1-5 years | 56.8 | 1296 | 58.9 | 297 | 42.9 | 240 |
| 6 or more years | 57.1 | 816 | 56.1 | 173 | 29.8 | 124 |
| **Education of woman** | **No. of dead children: one** | | | | | |
| Illiterate | 55.7 | 829 | 71.3 | 143 | 47.3 | 146 |
| 1-5 years | 56.6 | 348 | 75.3 | 89 | 53.3 | 60 |
| 6 or more years | 66.2 | 130 | 78.3 | 23 | 50.0 | 26 |
| **Education of woman** | **No. of dead children: two** | | | | | |
| Illiterate | 47.9 | 357 | 74.1 | 58 | 47.9 | 71 |
| 1-5 years | 55.4 | 121 | 86.7 | 15 | 33.3 | 21 |
| 6 or more years | 53.3 | 30 | 100.0 | 4 | 100.0 | 1 |
| **Education of woman** | **No. of dead children: Three or more** | | | | | |
| Illiterate | 45.8 | 214 | 70.4 | 27 | 45.0 | 40 |
| 1-5 years | 44.8 | 58 | 83.3 | 12 | 53.3 | 15 |
| 6 or more years | 50.0 | 8 | 100.0 | 1 | 0.0 | 1 |

**Table A-5a: Percentage distribution of women using contraceptives by sex composition of family women's age and education, national level (rural) and two areas of Matlab, 1983/1984**

| Variables | current contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National --1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **Women age <20** | | | | | | |
| **Sex composition of family** | | **Women Education: None** | | | | |
| One Son & one daughter | 14.3 | 42 | 50.0 | 2 | 0.0 | 1 |
| 1-2 son only | 8.0 | 213 | 60.0 | 15 | 0.0 | 16 |
| 1--2 daughter only | 4.3 | 184 | 22.2 | 18 | 0.0 | 14 |
| Total>2, son => daughter | 8.3 | 12 | 0.0 | 1 | 0.0 | 1 |
| Total>2, daughter>son | 18.2 | 11 | | | | |
| No children | 4.4 | 362 | 0.0 | 7 | 0.0 | 8 |
| **Sex composition of family** | | **Women education: 1-5 years** | | | | |
| One Son & one daughter | 31.6 | 19 | 100.0 | 3 | 0.0 | 1 |
| 1-2 son only | 10.5 | 86 | 37.5 | 16 | 22.2 | 9 |
| 1--2 daughter only | 17.9 | 78 | 30.0 | 20 | 0.0 | 7 |
| Total>2, son => daughter | | | 50.0 | 2 | 0 | 0 |
| Total>2, daughter>son | 50.0 | 2 | | | 0.0 | 0 |
| No children | 5.3 | 170 | 16.7 | 6 | 0.0 | 4 |
| **Sex composition of family** | | **Women education: 6 or more years** | | | | |
| One Son & one daughter | 33.3 | 3 | | | 0.0 | 0 |
| 1-2 son only | 24.0 | 25 | 33.3 | 3 | 0.0 | 1 |
| 1--2 daughter only | 28.6 | 28 | 25.0 | 4 | 50.0 | 2 |
| Total>2, son => daughter | 100.0 | 1 | 0.0 | 0 | 0.0 | 0 |
| Total>2, daughter>son | 100.0 | 2 | 0.0 | 0 | 0.0 | 0 |
| No children | 38.5 | 39 | | | | |
| **Women age <20-24** | | | | | | |
| **Sex composition of family** | | **Women Education: None** | | | | |
| One Son & one daughter | 28.8 | 153 | 41.3 | 46 | 9.3 | 43 |
| 1-2 son only | 13.6 | 177 | 35.3 | 85 | 0.0 | 51 |
| 1--2 daughter only | 9.7 | 155 | 28.2 | 71 | 6.3 | 48 |
| Total>2, son => daughter | 20.3 | 153 | 45.2 | 31 | 21.4 | 14 |
| Total>2, daughter>son | 22.4 | 85 | 9.5 | 21 | 0.0 | 8 |
| No children | 4.5 | 66 | 4.8 | 21 | 0.0 | 11 |
| **Sex composition of family** | | **Women education: 1-5 years** | | | | |
| One Son & one daughter | 27.0 | 63 | 34.8 | 66 | 10.7 | 28 |
| 1-2 son only | 21.4 | 70 | 30.1 | 83 | 8.3 | 36 |
| 1--2 daughter only | 18.3 | 60 | 19.5 | 77 | 2.9 | 34 |
| Total>2, son => daughter | 27.6 | 58 | 37.5 | 16 | 0.0 | 10 |
| Total>2, daughter>son | 17.6 | 51 | 40.0 | 20 | 16.7 | 12 |
| No children | 10.5 | 19 | 5.9 | 17 | 0.0 | 8 |
| **Sex composition of family** | | **Women education: 6 or more years** | | | | |
| One Son & one daughter | 40.0 | 10 | 50.0 | 14 | 25.0 | 4 |
| 1-2 son only | 56.8 | 37 | 36.8 | 19 | 11.1 | 9 |
| 1--2 daughter only | 33.3 | 15 | 41.7 | 24 | 12.5 | 8 |
| Total>2, son => daughter | 12.5 | 8 | 50.0 | 6 | 100.0 | 1 |
| Total>2, daughter>son | 0.0 | 4 | 60.0 | 5 | 14.3 | 7 |
| No children | 15.4 | 13 | 0.0 | 5 | 0.0 | 4 |

**Table A-5a(cont): Percentage distribution of women using contraceptives by sex composition of family women's age and education, national level (rural) and two areas of Matlab, 1983/1984**

| | current contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National --1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Women age <25-29** | | | | | | |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 23.5 | 68 | 26.2 | 42 | 4.5 | 22 |
| 1-2 son only | 18.3 | 60 | 22.0 | 41 | 16.1 | 31 |
| 1--2 daughter only | 13.2 | 68 | 27.3 | 22 | 9.5 | 21 |
| Total>2, son => daughter | 28.1 | 317 | 43.0 | 107 | 25.3 | 95 |
| Total>2, daughter>son | 18.2 | 236 | 27.7 | 65 | 19.6 | 51 |
| No children | 3.8 | 26 | 0.0 | 4 | 0.0 | 0 |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| One Son & one daughter | 31.0 | 29 | 39.1 | 23 | 0.0 | 4 |
| 1-2 son only | 25.0 | 20 | 29.6 | 27 | 0.0 | 8 |
| 1--2 daughter only | 5.3 | 19 | 15.8 | 19 | 0.0 | 11 |
| Total>2, son => daughter | 36.8 | 106 | 54.8 | 84 | 17.4 | 46 |
| Total>2, daughter>son | 21.6 | 102 | 41.3 | 63 | 19.4 | 36 |
| No children | 11.1 | 9 | 0.0 | 0 | 0.0 | 1 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| One Son & one daughter | 40.0 | 5 | 57.1 | 7 | 66.7 | 3 |
| 1-2 son only | 62.5 | 16 | 50.0 | 8 | 0.0 | 2 |
| 1--2 daughter only | 30.8 | 13 | 25.0 | 4 | 0.0 | 4 |
| Total>2, son => daughter | 53.8 | 26 | 52.6 | 19 | 50.0 | 8 |
| Total>2, daughter>son | 43.8 | 16 | 60.0 | 15 | 0.0 | 2 |
| No children | 12.5 | 8 | 0.0 | 0 | 0.0 | 1 |
| **Women age 30-39** | | | | | | |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 18.6 | 43 | 41.2 | 17 | 35.7 | 14 |
| 1-2 son only | 19.5 | 41 | 18.2 | 11 | 30.0 | 10 |
| 1--2 daughter only | 9.1 | 33 | 0.0 | 4 | 0.0 | 7 |
| Total>2, son => daughter | 28.8 | 580 | 51.4 | 313 | 24.8 | 234 |
| Total>2, daughter>son | 29.4 | 340 | 40.8 | 179 | 17.8 | 135 |
| No children | 0.0 | 16 | 20.0 | 10 | 0 | 0 |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| One Son & one daughter | 33.3 | 6 | 25.0 | 8 | 0.0 | 2 |
| 1-2 son only | 8.3 | 12 | 27.3 | 11 | 50.0 | 2 |
| 1--2 daughter only | 0.0 | 2 | 0.0 | 2 | 0.0 | 5 |
| Total>2, son => daughter | 35.0 | 177 | 51.8 | 251 | 23.2 | 112 |
| Total>2, daughter>son | 31.7 | 123 | 52.1 | 117 | 19.3 | 83 |
| No children | 0.0 | 9 | 100.0 | 1 | 0 | 0 |
| **Sex composition of family** | **Education of woman:6 or more years** | | | | | |
| One Son & one daughter | 0.0 | 1 | 100.0 | 2 | 0.0 | 2 |
| 1-2 son only | 33.3 | 3 | 100.0 | 2 | 0 | 0 |
| 1--2 daughter only | 100.0 | 1 | 0 | 0 | 0.0 | 2 |
| Total>2, son => daughter | 66.7 | 21 | 59.5 | 42 | 58.3 | 12 |
| Total>2, daughter>son | 40.0 | 15 | 75.0 | 12 | 42.9 | 7 |
| No children | 0.0 | 1 | 0.0 | 0 | 0 | 0 |

**Table A-5a(cont): Percentage distribution of women using contraceptives by sex composition of family women's age and education, national level (rural) and two areas of Matlab, 1983/1984**

| | current contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National --1983 | | Matlab -1984 | | | |
| | | | Intervention | | Control | |
| Variables | % | N | % | N | % | N |
| **Women age 40-49** | | | | | | |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 10.5 | 19 | 0.0 | 2 | 0.0 | 0 |
| 1-2 son only | 7.7 | 13 | 0.0 | 4 | 0.0 | 3 |
| 1--2 daughter only | 4.3 | 23 | 0.0 | 1 | 0.0 | 2 |
| Total>2, son => daughter | 14.4 | 423 | 52.8 | 212 | 25.4 | 142 |
| Total>2, daughter>son | 12.5 | 280 | 41.9 | 136 | 19.8 | 86 |
| No children | 0.0 | 19 | 0.0 | 1 | 0.0 | 1 |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| One Son & one daughter | 0.0 | 3 | 33.3 | 3 | 0.0 | 1 |
| 1-2 son only | 0.0 | 4 | 0 | 0 | 0 | 0 |
| 1--2 daughter only | 0.0 | 5 | 0 | 0 | 0.0 | 1 |
| Total>2, son => daughter | 21.3 | 89 | 43.8 | 89 | 28.3 | 46 |
| Total>2, daughter>son | 23.7 | 59 | 47.9 | 73 | 17.2 | 29 |
| No children | 0.0 | 6 | 0.0 | 0 | 0.0 | 0 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| One Son & one daughter | 0.0 | 0 | 0.0 | 1 | 0.0 | 0 |
| 1-2 son only | 0.0 | 0 | 0 | 0 | 0.0 | 0 |
| 1--2 daughter only | 0.0 | 0 | 0 | 0 | 0.0 | 0 |
| Total>2, son => daughter | 46.2 | 13 | 66.7 | 9 | 25.0 | 4 |
| Total>2, daughter>son | 0.0 | 3 | 62.5 | 8 | 0.0 | 0 |
| No children | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |

**Table A-6b: Percentage distribution of women using contraceptives by sex composition of family women's age and education, national level (rural) and two areas of Matlab, 1994/1996.**

| Variables | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab -1994 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **Women age <20** | | | | | | |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 42.3 | 26 | 50.0 | 2 | 50.0 | 2 |
| 1-2 son only | 33.3 | 111 | 68.2 | 22 | 42.9 | 7 |
| 1--2 daughter only | 40.1 | 137 | 64.7 | 17 | 21.4 | 14 |
| Total>2, son => daughter | 0.0 | 2 | | | 0 | 0 |
| Total>2, daughter>son | | | | | 0.0 | 0 |
| No children | 13.9 | 137 | 6.3 | 16 | 6.3 | 16 |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| One Son & one daughter | 47.1 | 17 | | | 0.0 | 0 |
| 1-2 son only | 55.9 | 93 | 68.4 | 19 | 35.3 | 17 |
| 1--2 daughter only | 42.1 | 107 | 50.0 | 12 | 25.0 | 8 |
| Total>2, son => daughter | 100.0 | 1 | | | 0 | 0 |
| Total>2, daughter>son | | | | | 0 | 0 |
| No children | 21.6 | 153 | 11.1 | 27 | 8.3 | 24 |
| **Sex composition of family** | **Education of woman:6 or more years** | | | | | |
| One Son & one daughter | 50.0 | 10 | | | 0.0 | 1 |
| 1-2 son only | 55.8 | 43 | 62.5 | 8 | 0.0 | 4 |
| 1--2 daughter only | 56.1 | 57 | 37.5 | 8 | 0.0 | 10 |
| Total>2, son => daughter | | | | | 0 | 0 |
| Total>2, daughter>son | | | | | 0.0 | 0 |
| No children | 32.2 | 115 | 21.7 | 23 | 14.3 | 28 |
| **Women age <20-24** | | | | | | |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 52.7 | 146 | 76.2 | 21 | 41.2 | 17 |
| 1-2 son only | 44.8 | 165 | 44.0 | 25 | 32.0 | 25 |
| 1--2 daughter only | 36.9 | 122 | 50.0 | 22 | 15.4 | 13 |
| Total>2, son => daughter | 36.0 | 75 | 46.2 | 13 | 58.3 | 12 |
| Total>2, daughter>son | 37.5 | 72 | 25.0 | 8 | 27.3 | 11 |
| No children | 13.2 | 53 | 11.1 | 9 | 0.0 | 6 |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| One Son & one daughter | 67.1 | 79 | 45.5 | 11 | 62.5 | 16 |
| 1-2 son only | 65.4 | 107 | 52.4 | 21 | 32.1 | 28 |
| 1--2 daughter only | 45.1 | 91 | 45.8 | 24 | 21.4 | 14 |
| Total>2, son => daughter | 29.0 | 31 | 100.0 | 3 | 40.0 | 5 |
| Total>2, daughter>son | 52.5 | 40 | 100.0 | 3 | 40.0 | 5 |
| No children | 15.6 | 32 | 14.3 | 7 | 0.0 | 9 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| One Son & one daughter | 63.9 | 36 | 75.0 | 4 | 60.0 | 5 |
| 1-2 son only | 53.6 | 84 | 47.4 | 19 | 18.2 | 11 |
| 1--2 daughter only | 65.0 | 60 | 72.2 | 18 | 40.0 | 25 |
| Total>2, son => daughter | 57.1 | 7 | | | 0 | 0 |
| Total>2, daughter>son | 33.3 | 6 | 100.0 | 1 | 0.0 | 0 |
| No children | 20.7 | 58 | 7.1 | 14 | 0.0 | 11 |

**Table A-6b(cont): Percentage distribution of women using contraceptives by sex composition of family women's age and education, national level (rural) and two areas of Matlab, 1994/1996.**

| Variables | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab -1994 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 64.0 | 125 | 66.7 | 24 | 41.7 | 12 |
| 1-2 son only | 59.6 | 114 | 55.0 | 20 | 23.1 | 13 |
| 1--2 daughter only | 41.3 | 75 | 30.0 | 10 | 0.0 | 6 |
| Total>2, son => daughter | 53.7 | 231 | 79.5 | 39 | 52.8 | 53 |
| Total>2, daughter>son | 48.2 | 193 | 46.9 | 32 | 35.3 | 34 |
| No children | 11.1 | 27 | 50.0 | 2 | 0.0 | 1 |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| One Son & one daughter | 67.6 | 68 | 76.9 | 13 | 66.7 | 3 |
| 1-2 son only | 71.2 | 52 | 66.7 | 12 | 100.0 | 1 |
| 1--2 daughter only | 35.3 | 51 | 83.3 | 12 | 37.5 | 8 |
| Total>2, son => daughter | 65.3 | 101 | 70.7 | 41 | 59.3 | 27 |
| Total>2, daughter>son | 61.7 | 94 | 58.3 | 24 | 38.7 | 31 |
| No children | 18.2 | 11 | 0.0 | 0 | 100.0 | 1 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| One Son & one daughter | 66.0 | 50 | 55.6 | 9 | 62.5 | 8 |
| 1-2 son only | 53.1 | 49 | 83.3 | 6 | 42.9 | 7 |
| 1--2 daughter only | 64.1 | 39 | 88.9 | 9 | 50.0 | 6 |
| Total>2, son => daughter | 72.4 | 29 | 100.0 | 6 | 66.7 | 3 |
| Total>2, daughter>son | 65.5 | 29 | 40.0 | 5 | 40.0 | 5 |
| No children | 20.0 | 15 | 66.7 | 3 | 0.0 | 0 |
| **Women age 30-39** | | | | | | |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 68.2 | 88 | 69.2 | 13 | 50.0 | 4 |
| 1-2 son only | 55.4 | 56 | 50.0 | 10 | 42.9 | 7 |
| 1--2 daughter only | 41.9 | 43 | 40.0 | 5 | 40.0 | 5 |
| Total>2, son => daughter | 64.0 | 492 | 77.7 | 112 | 60.3 | 116 |
| Total>2, daughter>son | 62.6 | 337 | 82.1 | 78 | 44.1 | 59 |
| No children | 17.4 | 23 | 0.0 | 0 | 50.0 | 2 |
| **Sex composition of family** | **Education of woman :1-5 years** | | | | | |
| One Son & one daughter | 75.5 | 49 | 40.0 | 5 | 0.0 | 1 |
| 1-2 son only | 54.8 | 31 | 50.0 | 6 | 100.0 | 3 |
| 1--2 daughter only | 50.0 | 18 | 0.0 | 1 | 0 | 0 |
| Total>2, son => daughter | 73.2 | 235 | 78.7 | 75 | 63.9 | 61 |
| Total>2, daughter>son | 68.0 | 175 | 77.1 | 35 | 55.2 | 29 |
| No children | 25.0 | 4 | 0.0 | 0 | 0.0 | 0 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| One Son & one daughter | 90.2 | 41 | 58.3 | 12 | 0.0 | 0 |
| 1-2 son only | 74.2 | 31 | 50.0 | 4 | 100.0 | 1 |
| 1--2 daughter only | 16.7 | 18 | 0.0 | 1 | 0.0 | 1 |
| Total>2, son => daughter | 81.8 | 99 | 86.4 | 22 | 62.5 | 16 |
| Total>2, daughter>son | 75.4 | 61 | 83.3 | 18 | 42.9 | 7 |
| No children | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |

**Table A-6b(cont): Percentage distribution of women using contraceptives by sex composition of family women's age and education, national level (rural) and two areas of Matlab, 1994/1996.**

| Variables | Current contraceptive use | | | | | |
|---|---|---|---|---|---|---|
| | National -1996 | | Matlab -1994 | | | |
| | | | Intervention | | Control | |
| | % | N | % | N | % | N |
| **Women age 40-49** | | | | | | |
| **Sex composition of family** | **Education of woman: None** | | | | | |
| One Son & one daughter | 45.5 | 22 | 100.0 | 3 | 0.0 | 2 |
| 1-2 son only | 50.0 | 12 | 100.0 | 1 | 0.0 | 0 |
| 1--2 daughter only | 41.7 | 12 | 50.0 | 2 | 0.0 | 0 |
| Total>2, son => daughter | 59.7 | 300 | 79.5 | 78 | 46.0 | 63 |
| Total>2, daughter>son | 60.0 | 180 | 87.5 | 40 | 47.2 | 36 |
| No children | 9.1 | 11 | 0.0 | 1 | 0.0 | 0 |
| **Sex composition of family** | **Education of woman: 1-5 years** | | | | | |
| One Son & one daughter | 66.7 | 9 | 66.7 | 3 | 0.0 | 0 |
| 1-2 son only | 28.6 | 7 | 0.0 | 0 | 0.0 | 0 |
| 1--2 daughter only | 50.0 | 2 | 0.0 | 0 | 0.0 | 2 |
| Total>2, son => daughter | 58.9 | 107 | 84.2 | 38 | 56.3 | 32 |
| Total>2, daughter>son | 58.6 | 58 | 61.9 | 21 | 27.3 | 11 |
| No children | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| **Sex composition of family** | **Education of woman: 6 or more years** | | | | | |
| One Son & one daughter | 100.0 | 1 | 0.0 | 0 | 0.0 | 0 |
| 1-2 son only | 100.0 | 1 | 0.0 | 0 | 0.0 | 0 |
| 1--2 daughter only | 33.3 | 3 | 0.0 | 0 | 0.0 | 0 |
| Total>2, son => daughter | 70.8 | 24 | 77.8 | 9 | 100.0 | 3 |
| Total>2, daughter>son | 66.7 | 18 | 100.0 | 2 | 0.0 | 0 |
| No children | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |

**Table A-7a: Sample means for the variables used in the decomposition for explaining change in the demand for additional children, national level (rural), 1983-96**

| Variables | Mean 1983 | Mean-1996 |
|---|---|---|
| **Employment status of women** | | |
| Paid employment | 0.081 | 0.377 |
| Housewife® | 0.919 | 0.623 |
| **Possession of land, household** | | |
| Yes® | 0.708 | 0.611 |
| No | 0.292 | 0.389 |
| **Education of women** | | |
| None® | 0.704 | |
| 1-5 years | 0.243 | 0.297 |
| 6 or more years | 0.053 | 0.152 |
| **Education of husband** | | |
| None® | 0.598 | 0.458 |
| 1-5 years | 0.179 | 0.276 |
| 6-9 years | 0.125 | 0.142 |
| 10 or more years | 0.098 | 0.124 |
| **Religion** | | |
| Muslims® | 0.893 | 0.895 |
| Hindus | 0.107 | 0.105 |
| **Sex composition of family** | | |
| One son & one daughter® | 0.088 | 0.138 |
| 1-2 son only | 0.159 | 0.185 |
| 1-2 daughter only | 0.150 | 0.170 |
| Children >2 but son=>daughter | 0.356 | 0.288 |
| Children >2 but daughter>son | 0.247 | 0.219 |
| **Age of women** | | |
| <20® | 0.154 | 0.123 |
| 20-24 | 0.224 | 0.221 |
| 25-29 | 0.207 | 0.249 |
| 30-39 | 0.256 | 0.300 |
| 40-49 | 0.169 | 0.107 |
| **# of children died** | | |
| None ® | 0.465 | 0.642 |
| 1 | 0.263 | 0.223 |
| 2 | 0.132 | 0.086 |
| 3 or more | 0.14 | 0.049 |
| **CHW and FWA visit** | | |
| In month | 0.147 | 0.057 |
| Once in six months | 0.135 | 0.361 |
| Before sex months or never® | 0.618 | 0.582 |

CHW= Community Health Worker FWA=Family Welfare Assistant

® indicate reference categories

**Table A-7a: Sample means for the variables used in the decomposition for explaining change in The demand for additional children, both areas of Matlab, 1984-94.**

| Variables | Mean 1983 | Mean-1996 |
|---|---|---|
| **Area of intervention** | | |
| MCH-FP® | 0.61 | 0.55 |
| Control | 0.39 | 0.45 |
| **Occupation of husband** | | |
| Farmers® | 0.35 | 0.30 |
| Labourers, skilled & unskilled | 0.32 | 0.61 |
| Business & professional | 0.27 | 0.06 |
| Fisherman | 0.05 | 0.03 |
| **Possession of consumer durables, radio & watch** | | |
| None ® | 0.67 | 0.35 |
| At least one | 0.33 | 0.65 |
| **Education of women** | | |
| None ® | 0.56 | 0.51 |
| 1-5 years | 0.37 | 0.34 |
| 6 or more years | 0.07 | 0.15 |
| **Education of Household head** | | |
| None ® | 0.52 | 0.47 |
| 1-5 years | 0.31 | 0.31 |
| 6-9 years | 0.11 | 0.13 |
| 10 or more years | 0.06 | 0.09 |
| **Religion** | | |
| Muslims® | 0.88 | 0.87 |
| Hindus | 0.12 | 0.13 |
| **Sex composition of family** | | |
| One son & one daughter® | 0.09 | 0.10 |
| 1-2 son only | 0.14 | 0.16 |
| 1-2 daughter only | 0.12 | 0.15 |
| Children >2 but son=>daughter | 0.39 | 0.35 |
| Children >2 but daughter>son | 0.26 | 0.24 |
| **Women's perception of agreed number of expected children with husband** | | |
| Same or less® | 0.56 | 0.73 |
| More and unknown | 0.44 | 0.27 |
| **Age of women** | | |
| <20® | 0.04 | 0.08 |
| 20-24 | 0.24 | 0.21 |
| 25-29 | 0.21 | 0.25 |
| 30-39 | 0.34 | 0.32 |
| 40-49 | 0.17 | 0.13 |
| **# of children died** | | |
| None® | 0.50 | 0.67 |
| 1 | 0.27 | 0.21 |
| 2 | 0.13 | 0.08 |
| 3 or more | 0.10 | 0.04 |

**® indicate reference categories**

**Table A-8a: Means of the variables used in the analysis of current contraceptive use, national rural data, 1983-1996.**

| Variables | Mean 1983 | Mean 1996 |
|---|---|---|
| **Employment, women** | | |
| Paid employment | 0.09 | 0.37 |
| Housework® | 0.91 | 0.63 |
| **Possession of land, Hhold** | | |
| No® | 0.30 | 0.39 |
| Yes | 0.70 | 0.61 |
| **Education, women** | | |
| No education® | 0.70 | 0.55 |
| 1-5 yrs | 0.24 | 0.29 |
| 6 or more years | 0.05 | 0.16 |
| **Education, husband** | | |
| No education® | 0.60 | 0.46 |
| 1-5 yrs | 0.18 | 0.27 |
| 6-9 yrs | 0.13 | 0.15 |
| 10 or more years | 0.09 | 0.12 |
| **Religion**: Islam ® | 0.88 | 0.89 |
| Hindus | 0.12 | 0.11 |
| **Sex composition, children** | | |
| One son & one daughter® | 0.08 | 0.12 |
| 1-2 son only | 0.13 | 0.15 |
| 1-2 daughter only | 0.11 | 0.13 |
| Children >2 but son=>daughter | 0.33 | 0.28 |
| Children >2 but daughter>son | 0.22 | 0.20 |
| **Age, women** | | |
| <20® | 0.21 | 0.16 |
| 20-24 | 0.20 | 0.20 |
| 25-29 | 0.19 | 0.22 |
| 30-39 | 0.24 | 0.29 |
| 40-49 | 0.16 | 0.12 |
| **# of children died** | | |
| None® | 0.51 | 0.66 |
| 1 | 0.24 | 0.21 |
| 2 | 0.12 | 0.08 |
| 3 or more | 0.13 | 0.05 |
| **CHW/FWA visit** | | |
| In month | 0.14 | 0.05 |
| Once in six months | 0.13 | 0.32 |
| More than 6 months/never® | 0.73 | 0.63 |
| **Knowledge of contraceptives** | | |
| Knows <4 methods | 0.57 | 0.09 |
| 4 or More ® | 0.43 | 0.91 |
| **Sources of contraceptives known** | | |
| One source | 0.18 | 0.07 |
| More than one® | 0.82 | 0.93 |

**Table A-8b: Mean of the variables for current contraceptive use, both areas of Matlab,1984-1994**

| Variables | Mean 1983 | Mean 1994 |
|---|---|---|
| **Area of intervention** | | |
| MCH-FP ® | 0.62 | 0.55 |
| Control | 0.38 | 0.45 |
| **Employment, women** | | |
| Paid employment | 0.04 | 0.08 |
| Housework® | 0.96 | 0.92 |
| **Occupation, husband** | | |
| Farming® | 0.35 | 0.30 |
| Skilled and unskilled labour | 0.32 | 0.62 |
| Professional and Business | 0.27 | 0.06 |
| Fishermen | 0.06 | 0.03 |
| **Education, women** | | |
| No education® | 0.57 | 0.50 |
| 1-5 yrs | 0.36 | 0.34 |
| 6 or more years | 0.07 | 0.16 |
| **Education, household head** | | |
| No education® | 0.52 | 0.47 |
| 1-5 yrs | 0.31 | 0.31 |
| 6-9 yrs | 0.11 | 0.13 |
| 10 or more years | 0.06 | 0.09 |
| **Religion** | | |
| Islam® | 0.86 | 0.87 |
| Hindus | 0.14 | 0.13 |
| **Sex composition, children** | | |
| One son & one daughter® | 0.08 | 0.08 |
| 1-2 son only | 0.12 | 0.13 |
| 1-2 daughter only | 0.11 | 0.11 |
| Children >2 but son=>daughter | 0.40 | 0.34 |
| Children >2 but daughter>son | 0.25 | 0.21 |
| No living children | 0.04 | 0.12 |
| **Age, women** | | |
| <20® | 0.04 | 0.14 |
| 20-24 | 0.23 | 0.21 |
| 25-29 | 0.20 | 0.22 |
| 30-39 | 0.34 | 0.30 |
| 40-49 | 0.18 | 0.14 |
| **Discussion of family planning between spouses** | | |
| Yes® | 0.82 | 0.71 |
| No | 0.18 | 0.29 |
| **Women perception of husband approval of family planning** | | |
| Approved® | 0.61 | 0.84 |
| Disapproved | 0.39 | 0.16 |

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