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**INTERNAL MIGRATION IN TONGA, 2001-2011:
A REVIEW OF MIGRANT FLOWS AND CHARACTERISTICS**

A thesis
submitted in fulfilment
of the requirements for the degree
of
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by
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Abstract

This thesis examines Tonga's internal migration between 2001 and 2011. Firstly, it provides an analysis of Tonga's internal migration during that period and secondly it establishes whether the 'drift south' of Tonga's population that was found in the 1970s is still the dominant flow.

The Tonga Censuses of Population and Housing in 2006 and 2011 are the sources of data for the study. The analysis is presented in two parts: the spatial characteristics of Tonga's internal migration between 2001 and 2006 and between 2006 and 2011, and the demographic characteristics of migrants during the same two periods. The spatial analysis explores four patterns of migration with reference to the major administrative divisions in Tonga: within and between districts, within and between divisions, rural-urban migration, and migration between the Northern islands and Tongatapu to the south (the 'drift south'). Five demographic characteristics: - age and sex, marital status, education and qualifications, and occupation - are examined for migrants and non-migrants.

The analysis of internal migration in this thesis is the first substantive assessment of internal migration in Tonga for many years. There has been a much stronger focus on international migration than internal migration in the Pacific region over the past two decades. The findings from the study are important in the context of an on-going debate about the scale and pace of urbanisation in Pacific countries. The research finds that there has been considerable stability in the patterns of population movement between the different administrative units in Tonga and that while urbanisation of the population continues, some of the major demographic changes linked with internal migration are occurring in rural Tongatapu.

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Chapter 1: Introduction

Traditional attitudes to kin, rank and land have helped Tonga to meet the problems associated with population growth and movement with little social distress. This is true of the past, it is still true today, but it is not certain that it will be true of the future
A. C. Walsh (1970).

Fifty years ago Emeritus Professor Crosbie Walsh completed a Master's thesis on internal migration and urbanisation in the Kingdom of Tonga (Walsh, 1964). This thesis remains a basic reference for the study of population movement in Tonga – a country where access to and use of the land – fonua – remains at the heart of social, economic and political life and power. The Kingdom of Tonga is the only Pacific island state that was never colonised in a formal sense by a European power in the 19th century (Campbell, 2001). Tongan society in the second decade of the twenty first century remains anchored in the traditional attitudes to kin, rank and land that Walsh refers to above even though approximately 70 percent of the Kingdom's population now lives on Tongatapu where the country's only large town, Nuku'alofa, is, and the equivalent of Tonga's current population (103,000 in 2011) is now resident overseas in towns and cities on the Pacific rim.

Despite this continuity in culture and society, the Tonga of 2016 is a very different place from the country Walsh carried out his research on internal migration and urbanisation in during the early 1960s. This thesis captures the essence of some of this continuity and change with reference to the process that attracted Walsh to Tonga 50 years ago – internal migration. This is a process that has not attracted much attention in recent years because of a national as well as regional, indeed global, preoccupation with international migration. Given some innovations in Tonga's recent census enumerations which are discussed in Chapter 3, it is timely to revisit the themes of internal migration and urbanisation in this Polynesian archipelago.

Forty years ago Shryock and Siegel (1976) observed that internal migration has tended to receive less attention than international migration. This certainly has been the case for Tonga in since the widespread interest in internal migration and

urbanisation in the Pacific at the height of the “modernisation” era in the 1960s (Connell and Lea, 1995 and 2002)

The capacity to quantify internal migration flows also depends on the availability of data at appropriate spatial scales and, in the case of Tonga, such data have not been routinely collected until relatively recently. The problem of inadequate data is not unique to Tonga, but has broader relevance among less developed countries. Meng (2010), for example, has noted the difficulty of collecting data on migrant populations in developing countries. Key challenges include a lack of good administrative procedures, complications in registering migrants, and the mobile nature of the populations in these countries. These challenges have been discussed extensively in the literature, and have been the subject of extensive review by statisticians in Pacific countries with the support of the Secretariat of the Pacific Community’s Statistics for Development Division (<http://sdd.spc.int/en/>). Tonga’s latest Census of Population and Housing (2011), which is the major source of the data analysed in this thesis, was scoped and implemented with the support of staff in the SPC’s Statistics for Development Division.

Aim and Research Questions

This thesis provides the first substantive statistical analysis of internal migration in Tonga between 2001 and 2011 using data from the national population and housing census. The overall objective is to provide a detailed spatial analysis of patterns of internal migration during the focal period, married with a descriptive account of the demographic characteristics of migrants. Two main questions are addressed:

1. What are the spatial patterns and dominant flows of internal migration in Tonga? (And to what extent does the historical “drift south” pattern of internal migration still exist?)
2. What are the demographic characteristics of the Tongan migrants and how do they differ from those of non-migrant ‘stayers’?

This is the first time that data have been available to address these questions with reference to recent flows of people within Tonga. There is a need to clarify the extent to which recent internal migration is contributing to population growth (or decline) in different parts of the Kingdom, and to establish more clearly characteristics of the people who are recent movers. Tongans are renowned for being a mobile Polynesian people internationally, but little is known beyond very broad assessments about their mobility within the Kingdom. This thesis seeks to address this gap using data from the last two censuses in 2006 and 2011.

In order to situate this study within a broader historical and demographic context, the remainder of this chapter provides a concise overview of the Kingdom's history, followed by a description of its geographic and socio-economic characteristics and an introduction to the content of the following chapters.

The National Population Census

In many countries around the world, and particularly in small island states such as Tonga, the national population census is the pre-eminent source of data about the populace. Widely promoted by the United Nations as an essential tool of governance, the census provides vital information about a country's size, spatial distribution and socio-demographic characteristics (Kukutai et al. 2015). The first Tongan census was undertaken in 1956 and then every decade thereafter until 2006 (Tonga Department of Statistics & Secretariat of the Pacific Community, 2008). The 2011 Census was the first population census to be conducted after an interval of five years. The 2006 and 2011 censuses were chosen as the key data sources for this study because they are the only censuses that include questions on place of usual residence on the census night and place of usual residence one and five years earlier. These questions make it possible to analyse internal migration by place of birth (village or country of birth, including overseas), current usual residence, place of residence five years ago, and place of residence one year ago prior to census night. The introduction of the questions on usual residence one and five years ago match questions asked in several other censuses for Pacific Island populations. The SPC's Statistics for Development Division has been pushing

for more effective use of national censuses in Pacific countries to collect information on internal migration for many years, in line with an international concern to better understand the dynamics of population movement within countries (see, for example, Bilsborrow, 1996).

Background to Tonga: History and Contemporary Situation

Tonga is a constitutional monarchy and the current King, Tupou VI, is the sixth ruler in a 3rd line dynasty (Tu'i Kanokupolu), established in the mid-nineteenth century by King Tupou I, who united the islands of Tonga. Since the adoption of the Constitution in 1875, Tonga has been a Kingdom under the monarch whose heirs are entitled to continuous succession to the throne. According to an introductory note by the King Taufa'ahau Tupou IV on Latukefu's Constitution: "It was through battles such as those of Velata, Pea, and Ngele'ia which enabled His Majesty King George Taufa'ahau Tupou I to achieve supremacy and the rank of king of all Tonga" (Latukefu, 1975, p. xiii). Tonga is the only remaining kingdom in the South Pacific. Although it was never colonised, Tonga was a British Government protectorate from 1900 to 1970 (Latukefu, 1975; Morton, 1999; Ratcliffe & Dillion, 1982).

There are various accounts of the geographic origins of Tonga's original ancestors. Writing in the late 1960s the cultural anthropologist Claessen described studies of the period predating the 1820s as 'vague and contradictory' (1968, p. 505). Likewise, Campbell (2001) describes the origins of the first Polynesians as very uncertain. In terms of timing, most historians consider that the first ancestors arrived on the islands of Tonga around 3,000 years ago. In an early brief history and geography for Tonga, Wood (1972) traced the route of Polynesian ancestors from south-east Asia, where they were often referred to as the Malay-Polynesian race, through the East Indian archipelago. From there they navigated from island to island, seeking new homes until they reached their present home. Neither Wood nor others (see, for example Latukefu, 1975) think it plausible that Polynesians migrated from southeast Asia through Papua and the Melanesian groups, where the languages, myths, and customs are very different from those of Polynesian peoples. Most academic researchers are more convinced by the

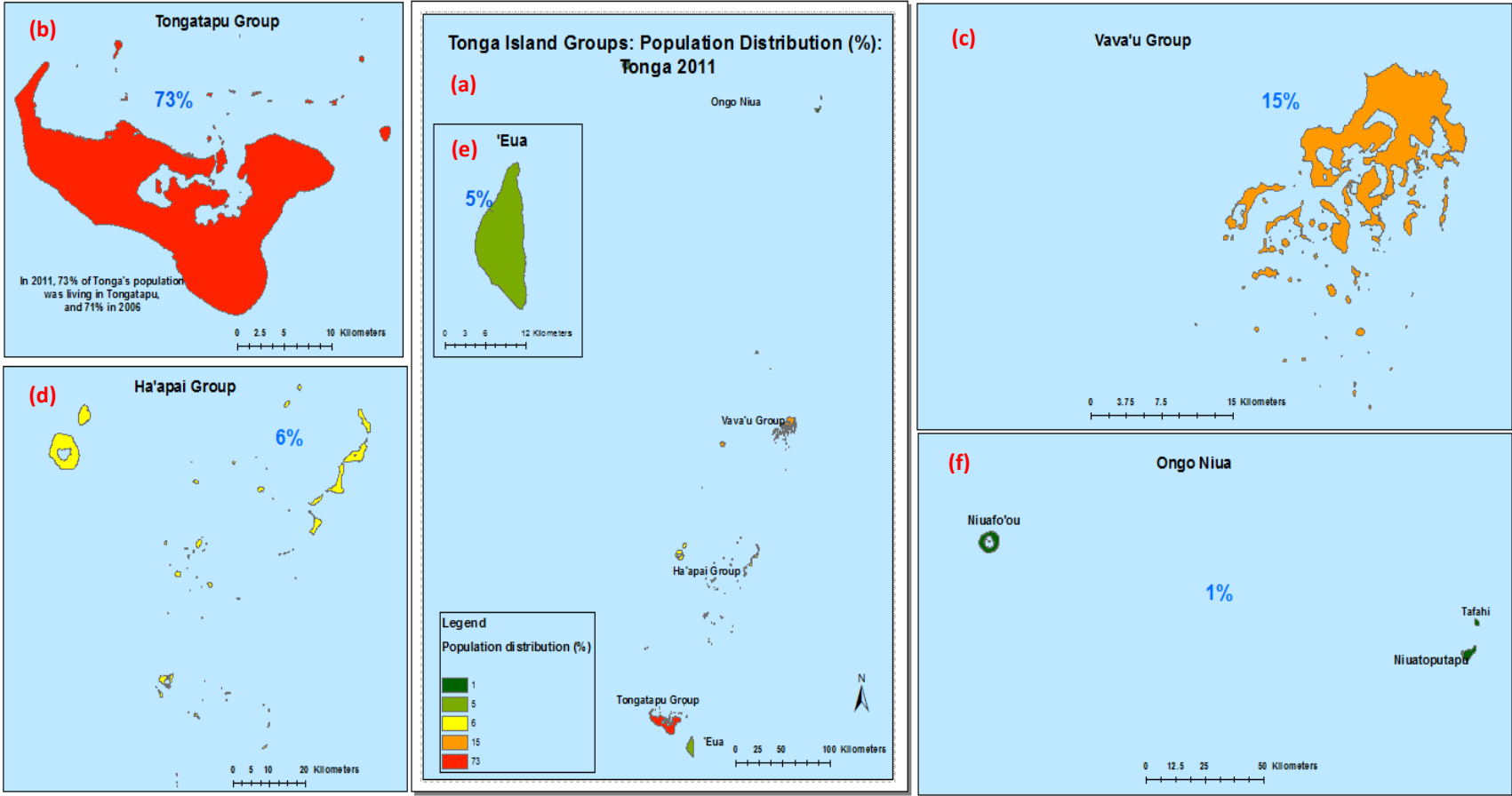
archaeological findings relating to the physical and material evidence of Tonga's pre-history. Recently archaeologists from the Simon Fraser University, led by Professor David Burley, reported that the first Polynesian settlers sailed to Tonga between 2,830 and 2,846 years ago. The techniques used by the researchers enabled them to date ancient materials with 'unbelievable precision', for example, within a range of 16 years for artefacts that are almost 3,000 years old (LiveScience, 2012). Their findings support the theory that the Lapita people, the ancestors of modern-day Pacific Islanders, first sailed from coastal New Guinea roughly 5,000 years ago, reaching the Solomon Islands around 3,100 years ago and gradually expanded further east towards what is now the Tonga archipelago (LiveScience, 2012).

According to Burley, Nukuleka village (Map A1 in Appendix 1), located east of Nuku'alofa, was the very first site of settlement in Polynesia (Burley et al., 2012). This recent research runs counter to the long-held claim that Samoa was the 'cradle of Polynesia'. Fiji's Sigatoka dunes were also thought by some to be the birthplace of Polynesia but settlement in Samoa and Fiji now appears to have occurred several centuries after settlement in Tonga. According to Burley, within a century of establishing Nukuleka, the first Polynesians had settled the whole of Tonga, then a thousand years later they moved eastwards to eastern Polynesia (World, 2009).

Geography of Tonga and Population Distribution

The archipelago that comprises Tonga covers an area of 360,000 km², between latitude 15° S and 23° S and longitude 173° W and 177° W. Around 650-749 km² of this is the total land area of Tonga, which is distributed over 172 islands, 40 of which are now inhabited (Tonga Department of Statistics & Secretariat of the Pacific Community, 2014). There are three main island groups: Tongatapu, Ha'apai and Vava'u. The Ongo Niua (two islands of Niua-Niuatoputapu and Niuafo'ou) are situated as outliers to the north while 'Eua is geographically a very close neighbour of the Tongatapu Island group, but is separate from it (see, for example Map 1 (a) and Map A2 in Appendix 1).

Map 1: Population distribution by Island division (%), Tonga: 2011



Source: Data and shape file adapted from Tonga Department of Statistics & Secretariat of the Pacific Community, 2008 & 2014. Map created by author using ArcMap 10.2.

Tongatapu, is the most populous island division, followed by Vava’u, Ha’apai, and ‘Eua. The outlying islands to the north, Ongo Niua, have a small population (see Map 1 (f)). Not all islands in Tonga are inhabited, and the calculation of total land area is based on the permanently inhabited islands during the census enumeration (see Table 1)¹. The main island of Tongatapu and its immediate neighbouring small islands are where 40% of the land is. Vava’u comprises 19%, Ha’apai 17%, Eua 13% and Ongo Niua covers only 11% of the total land area (Tonga Department of Statistics, 2013). Two types of landforms comprise the Tongan landmass and form the main three island groups. The volcanic islands run north–northeast from ‘Ata in the south to Tafahi in the north. The chain of raised coral limestone islands runs more or less parallel to the east of the volcanic chain and include the main groups of Tongatapu, Ha’apai, and Vava’u. The islands of ‘Eua and Niuatoputapu fall into neither of these categories, being a mix of volcanic and raised coral formation (Crane, 1979; Ratcliffe & Dillion, 1982) . (Also see Map A2 in the Appendix 1).

In 1875, King George Tupou I selected Nuku’alofa as the site for his new capital (Ratcliffe & Dillion, 1982; Crane, 1979). It was known that Mu’a village was the ancient capital of Tonga (see Map A1 on the Appendix 1). Nearly a century ago Gifford (1985) wrote that Cook called Mu’a, the permanent residence of the tu’i tonga, a ‘village’, and that Nuku’alofa was a seasonal or temporary residence of Tu’i Kanokupolu (Walsh, 1970). Since 1875, Nuku’alofa has been the capital, and the centre for the principal government administration, non-government organisations, churches, businesses, and most tertiary education. Nuku’alofa is currently the only officially designated urban area of the Kingdom of Tonga (Tonga Department of Statistics & Secretariat of the Pacific Community 2008 & 2014).

The population distribution of Tonga is shown on Map 1 (b-f). In 2011, Tongatapu contained 73% of Tonga’s total population. The share of population living in Vava’u was 15%, with 6% in the island group of Ha’apai, 5% on the island of ‘Eua and 1% in Ongo Niua (Tonga Department of Statistics & Secretariat of the Pacific

¹ *Figures and percentages in Table 1 are based on Table G4 of Tonga 2011 Census of Population and Housing, Vol.1 (2013).*

Community, 2014). The distribution of population in relation to land area is very unbalanced, as can be seen in Table 1.

Table 1: Population distribution in relation to their size of land, Tonga Census 2011

Division / Region	Total population	Area (km.sq.)	Density per km.sq.	% of pop. Share	% of land share
Tongatapu	75,416	260	290	73.0	40.1
Urban	24,229	11	2,123	23.5	1.8
Greater Nuku'alofa	36,045	35	1,035	34.9	5.4
Tongatapu Rural	51,187	249	206	49.6	38.3
Vava'u	14,922	121	123	14.5	18.6
Ha'apai	6,616	109	61	6.4	16.8
'Eua	5,016	87	58	4.9	13.4
Ongo Niua	1,282	72	18	1.2	11.1
Total Rural Area	79,023	639	124	76.5	98.4
Total Island Division	103,252	649	159	100	100

Source: Data adapted from 2011 Census of Population and Housing, Tonga Department of Statistics, 2013.

Economy

Like many small Pacific island nations, Tonga is extremely vulnerable to natural disaster, with a small land area in relation to its ocean and exclusive economic zone (EEZ). Tonga has a minute economy with locally fragmented markets and is remote from overseas markets. These challenges, coupled with scarce resources, contribute to the high inflation and high cost of living in the country (Ministry of Finance and National Planning, 2015a). Nearly two decades ago the late 'Epeli Hau'ofa wrote in his celebrated essay, *Our sea of Islands*, that “all of Polynesia and Micronesia, are much too small, too poorly endowed with resources, and too isolated from the centre of economic growth for their inhabitants ever to be able to rise above their present condition of dependence on the largesse of wealthy nations” (Hau'ofa, 1994 p. 150).

However, despite its smallness, remoteness, and vulnerability to natural hazards and climate change, Tonga leverages human capacity, technology and infrastructure to utilise its limited resources in an inclusive and sustainable

manner (Ministry of Finance and National Planning, 2015 (a)). The main resources of Tonga are invested in human capital, that is, the people.

In 2013/14 the primary sector (agriculture, forestry and fisheries) accounted for 18% of total Gross Domestic Product (GDP), but the share was expected to be less in 2015 due to drought in the second half of 2014 (Ministry of Finance and National Planning, 2015b). According to the International Monetary Fund (IMF) Tonga's economy is predicted to grow by 3.1% in 2016 (Kaniva, 2016). The Reserve Bank of Tonga reported that the Kingdom experienced 2.5% real GDP growth in 2015 and could expect growth of 3.3% in the 2016 financial year (Kaniva, 2016). According to the Asia Development Bank Outlook, GDP was TOP 880.4 million (USD 434 million) in 2014/2015. Economic growth is due mainly to activities in construction and manufacturing as well as the primary sector (Ministry of Finance and National Planning, 2015b).

It has been widely noted that the fair and equitable distribution of national development resources in Tonga would help to reduce inequities between rural and urban-dwellers, rich and poor, educated and uneducated, privileged and underprivileged. In a recent address to the UN General Assembly, the Prime Minister of Tonga noted that it was imperative for those in privileged positions to "leave no one behind".² Notwithstanding structural and other constraints, there is a sense of optimism in Tonga. One of the expected outcomes from the 2015-2016 Budget Statement is that there will be more inclusive, sustainable and balanced urban and rural development across island groups (Ministry of Finance and National Planning, 2015 c). One of the aims of the Government's policy is to enable people to have more access to, and greater participation in, economic development. The statement emphasises the necessity of sustainable

² *Address of the Prime Minister of Tonga to the General Debate of the 70th session of the UN General Assembly (2015, Oct 4)*. When the Prime Minister of Tonga addressed to the general Debate of the 70th session of the UN General assembly on 5 October 2015 – part of his speech says: "it is the language of morality that speaks to the privileged with the imperative, you must leave no one behind." These words reflect those of the UN Secretary General, Ban Ki-moon at the opening of the UN Summit for the 2030 Development Agenda in which he said Sustainable Development Goals (SDGs) will leave "no one behind".

development in order to discourage the ongoing migration of people from outer islands and rural areas to Nuku'alofa. This sentiment, coupled with the new data afforded by the quinquennial census, provides a timely opportunity to investigate the dynamics of internal migration in Tonga with an eye to the implications for future policy affecting sustainable development.

Health and Standard of Living

According to the UN Human Development Index (HDI), Tonga is characterised as a developing country along with other Pacific Island countries including the Solomon Islands, Tuvalu, and Vanuatu. Tonga's HDI increased from 0.6 in the late 20th century to 0.7 in 2014. Health and other indicators are a stumbling block for Tonga to accomplish a higher rank. However, at the same time, Tonga scores highly in adult literacy (99.4%), as well as in the school enrolment rate for both primary and secondary education (99% and 75% respectively). Life expectancy at birth is estimated to be 72.8 years although there is a claim that this has declined recently (Tonga Department of Statistics & Secretariat of the Pacific Community, 2014; UNDP, 2015; Australian Department of Foreign affairs and Trade (n.d.)).

The standard of living in Tonga is comfortable due to the strength of kinship ties and inter-relationships that provide for mutual support. Poverty, as measured by national poverty lines, tends to be lower in Polynesian countries, notably the Cook Islands, Samoa and Tonga, compared to other Pacific Island countries (Abbott & Pollard, 2004). Asia Development Bank (2014) recently reported that one-fifth of the Tongan population lives below the poverty line. This is mainly due to jobs being scarce and lack of access to basic services. Only around 51% of the population aged 15 and above is employed. Both urban and rural areas experience hardship because of lack access to essential basic services and lack of employment opportunities (Asia Development Bank, 2014).

According to the Ministry of Health, life expectancy in Tonga is declining due to the increase in people suffering from non-communicable diseases (NCDs), especially diabetes. In 1973, 7% of the population had diabetes; by 2004 the proportion had increased to 18% and by 2016 just over one third (34%) have

diabetes (BBC News, 2016). NCDs, and diabetes especially, are an increasing problem in Tonga. These diseases are associated with changes in lifestyle and diet and have become a major public health problem in developing countries (Colagiuri et al., 2002), including Tonga.

Many middle- and low-income countries, such as Tonga for example, have more people under the age of 60 with diabetes compared to the world average. The growing problem of diabetes in Tonga is largely related to obesity, due to reduction or lack of physical activities and adoption of unhealthy diets which are high in calories.

The Tonga Strategic Development Framework (TSDF) 2011-2014 recommends “improved health of the people, by promoting healthy lifestyle choices with particular focus on addressing non-communicable diseases, and providing quality, effective and sustainable health services” (Ministry of Finance and National Planning, 2011 p. 7). Again, the country’s national vision is “to create a society in which all Tongans enjoy higher living standards and better quality of life through governance, equitable ... and improved education, health standards and cultural development” (Ministry of Information & Communication, (n/d)).

New Democratic Government

Tonga’s contemporary government is the outcome of a long and challenging journey of the democratic movement taking over three decades. Tongans anticipated democratic change and this expectation exploded in riots on November 16, 2006³. Liava’a (2007) calls this the beginning of a new chapter in the history of Tonga. In July 2008, three days before his coronation, King George Tupou V declared that he would surrender most of his political power and be guided by his Prime Minister’s recommendations to meet the democratic aspirations of his people (BBC, 2008).

Under the 2010 constitution, Tonga is a constitutional monarchy and a parliamentary democracy with a unicameral Legislative Assembly (or a single-

³ The political unrest took place on that day

chamber parliament) consisting of 26 members, nine of whom are representative of the country's 33 hereditary nobles, while the other 17 represent the rest of the 100,000 people of Tonga (The Commonwealth, 2016). Prior to 2010, the Tongan parliament had an equal number of people's representatives and noble representatives, each with nine seats.

Within the new system, a general election must take place at intervals of no longer than four years. The Prime Minister is chosen by the Legislative Assembly and appointed by the King. The Prime Minister selects his cabinet, who are then appointed by the King. The Prime Minister may nominate up to four ministers from outside the Assembly and on appointment they become members of the Assembly (Tonga - Attorney General's Office - Act 2010). As reported by the Prime Minister's Office Web site, the Honourable Samiuela 'Akilisi Pohiva became Tonga's second Prime Minister in the new Democratic Government in December 2014, and Tonga's 16th Prime Minister (Prime Minister's Office, 2015a and 2015b). Metuamate (2015) emphasises also that Pohiva is the first democratically elected prime minister in Tonga's history, reported by the East Asia Forum.

However, according to Freedom House (2016), Tonga rates as an "electoral democracy" under the criteria of Freedom House, since 2011, mainly because 17 elected people's representatives out of 26 members are the majority of the house, with 9 nobles elected (or appointed) by their peers.

Population Growth

Tongans have long been amongst the most mobile people of the central Pacific (Walsh, 1970), and population growth was probably was one of the reasons for their high level of mobility. The redistribution of population from the small islands in Ha'apai and Vava'u to Nuku'alofa and overseas destinations has been due, in the main, to the incapacity of those places to support rapid population growth (Walsh, 1970).

Population growth is multifaceted, caused by three demographic processes: fertility, mortality and migration. There are two types of growth: 1) natural

increase or the balance of births over deaths in the population; and, 2) population growth which takes into account migration into and out of the population (Haupt & Kane, 1998; Tonga Department of Statistics & Secretariat of the Pacific Community, 2014). (Also refer to Figure 1, Tonga's population from 1901 until 2011). As Figure 1 below shows, Tonga has experienced major shifts in population growth over the last two centuries (note, the periods shown are of uneven duration). From 1800 to about the 1920s, growth was negative or low due to the impact of European disease including measles and influenza (see, for example McArthur, 1968). Population growth then recovered and was rapid, as it was in much of the island Pacific, in the immediate post-Second World War years.

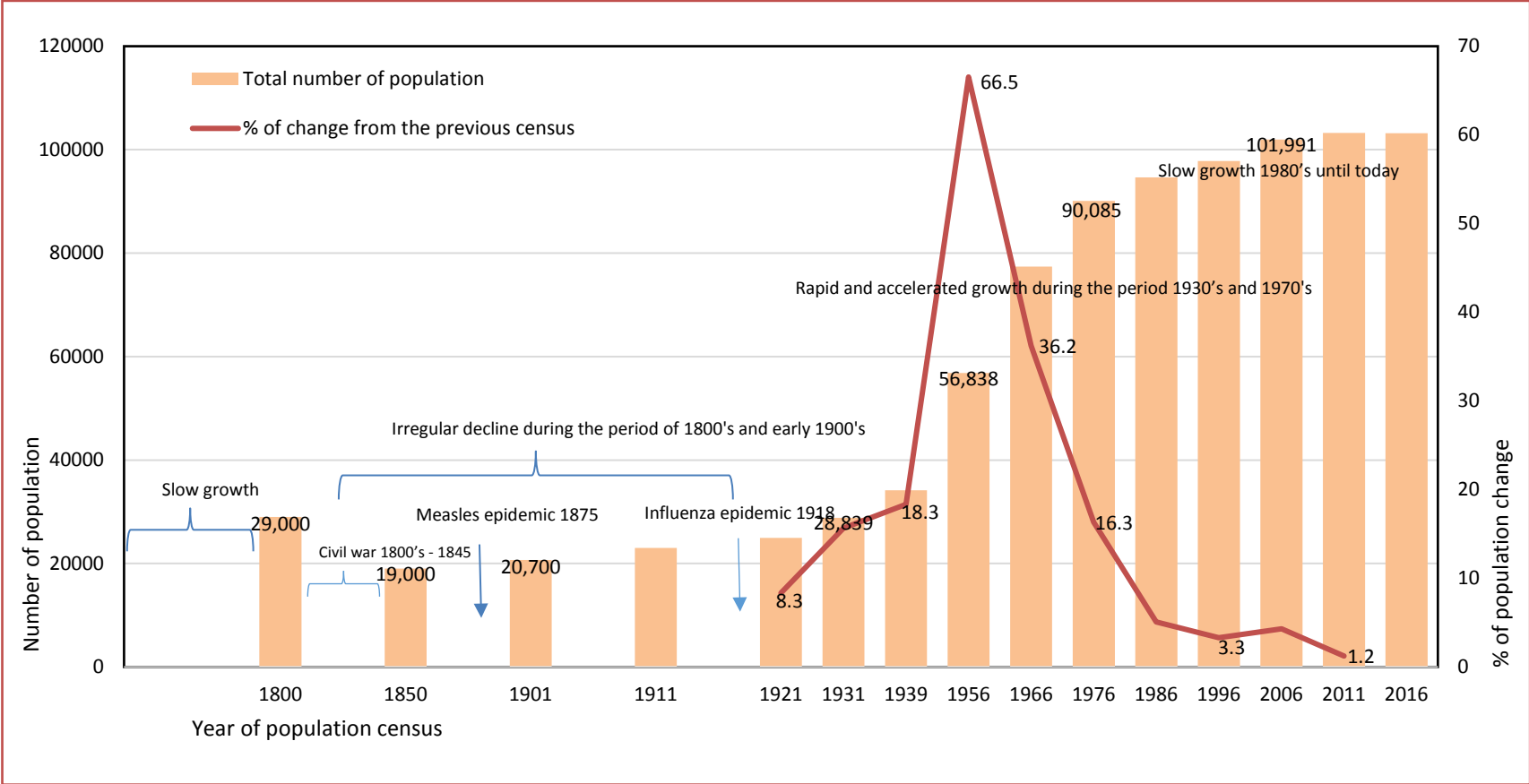
Around the time Walsh did his study of urbanisation in the 1960s, international migration to New Zealand from Tonga was beginning to accelerate (Mahina-Tuai, 2012). International migration, especially to New Zealand and the United States (often via the Mormon Church which became prominent in Tonga from the 1970s) accelerated through the latter part of the twentieth century and this had the effect of dampening the effects of natural increase in Tonga. Fertility decline, although occurring, has not played a major role in the slowing the rate of population growth until relatively recently; much more significant has been international migration.

Tonga's overall growth rate between the 2006 and 2011 censuses was 0.2% per annum. The annual population growth of 0.2% is the result of a relatively high natural increase counterbalanced by high emigration rates. The natural growth is the result of high fertility, with a Total Fertility Rate of around 3.9 in 2011 (Tonga Department of Statistics & Secretariat of the Pacific Community, 2014; United Nations Population Division, 2016). This compares to an estimated TFR of 4.6 in 1990 and 5.9 in 1970. In the 2000s, international migration plays a major role in Tonga's population growth by offsetting the high fertility.

Tonga's population growth has varied significantly by island division. As Figure 2 shows, Tongatapu is the only island that has experienced positive growth since 1996; all other divisions experienced negative growth. Between 1996 and 2006 the population of Tongatapu increased by 0.2 percent between 2006 and 2011.

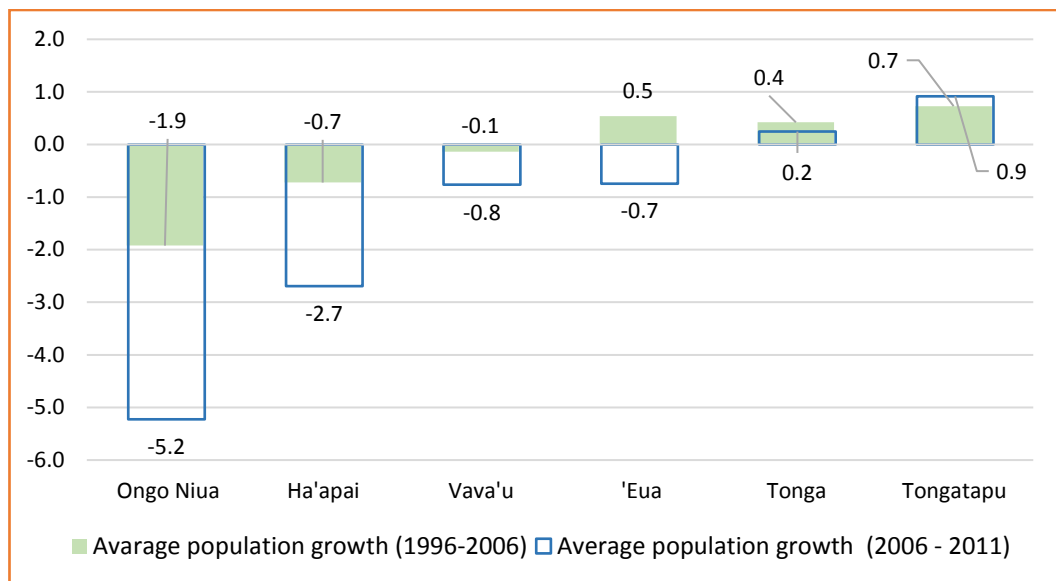
The decline of the population in the outer islands has accelerated in recent years, with stronger negative growth between 2006 and 2011 compared to the 1996 to 2006 intercensal period (Tonga Department of Statistics & Secretariat of the Pacific Community, 2014). The trend of population growth from both intercensal periods points to rural-urban migration and/or the “drift south” as the main factor. Understanding the magnitude and underlying drivers of this migration is a key objective of this study.

Figure 1: Total population size, growth and change, Tonga 1800 - 2016



Source: Data adapted from Walsh (1964), Crane (1979), and Tonga Department of Statistics & Secretariat of the Pacific Community, 2014.

Figure 2: Average annual population growth rate (%) by division, Tonga: 1996-2006 and 2006-2011



Source: Data adapted from Tonga Department of Statistics & Secretariat of the Pacific Community, 2014.

Thesis Structure

The rest of this thesis is divided into five chapters. Chapter 2 reviews relevant literature on internal migration in Tonga. Chapter 3 deals with methodology; it describes the data used, the sources and limitations, and the methods that were implemented in the analysis of the census migration data.

The analysis of the data is presented in two main parts. Chapter 4 examines the spatial characteristics of Tongan internal migration with reference to administrative units such as the division, the district and the urban and rural areas. The second part of the analysis, which illustrates the demographic characteristics of the migrants and non-migrants, is contained in Chapter 5. Chapter 6 contains a summary of the key findings from the research.

Chapter 2: Migration Theory and Internal Migration in Tonga – Literature Review

Introduction

This chapter contains a brief review of literature on migration theory, with particular reference to internal migration. The first section addresses the theory of migration in general and provides a framework for the study of internal migration in Tonga. This is followed by a short discussion of the interrelationships between internal and international migration given that both processes are very important in the context of Tonga's demographic development. The third section addresses a specific issue in Tonga - the new electoral constituency boundaries - with reference to internal migration. The fourth section defines the terms urban and rural and reviews the process of urbanisation in the Tongan context and abroad. The final section contains a consideration of push and pull factors in migration to Tongatapu – the well-established “drift south” in Tonga's population distribution.

Background and the Theory of Migration

Migration within Tonga has been part of Tongan life ever since the Lapita people arrived in the island chain thousands of years ago. There is evidence to indicate that population movement is not a new phenomenon in Tonga and elsewhere in the Pacific. Walsh (1970, pp. 27-28) observed that “Tongans have long been amongst the most mobile of the people of the central Pacific; the pace, direction and character of population movement may have changed, but movement and change are in themselves not new phenomena”. Hagen-Zanker (2008) expressed the same idea in a more general context when noting that migration is as old as humanity itself, and theories about migration are not new and still developing. Migration involves spatial movement which can take a dizzying array of forms in terms of the routes taken, methods used, duration and length of movement, and underlying motivations. In recent decades one of the most prevalent forms of population movement in all countries, including Tonga, has been migration from

rural to urban areas (Connell, 1990). In the case of Tonga this has involved what Crane (1969) and others have called the 'drift south' – the movement from all islands to Tongatapu where the Kingdom's only urban area of any size, Nuku'alofa, is located.

Migration, like history, is "doomed to repeat" (Kindleberger, 1965, p. 64). Bedford, Hugo and Didham (2011), amongst others, have shown that migration initially tends to be circular, often seasonal and of short duration (see also Ahlburg & Levin, 1987; Bedford, 1973, 1980; Bedford and Hugo, 2013; Chapman, 1981; Prothero & Chapman, 1984; Skeldon, 2012). Connell (1984), drawing on ideas from Prothero and Chapman (1984), observed that most migration in the Pacific region involves a circulation of people rather than a one-way flow of people from rural to urban areas. One of the reasons for this, according to Skeldon (2012), is that circular migration is linked with the kinds of work migrants get at their destinations. Skeldon (2012) went on to observe that the study of rural-to-urban migration in the 1970s in the Pacific placed considerable emphasis on patterns of circulation. This has also been the case in Tonga where circular migration is a form of internal migration that becomes increasingly common as people move in search for a better life.

Not all movement is circular however and evidence from Shankman (1976), Connell (1983, 1984) and Macpherson (1985) shows that migration over long distances, both internally as well as between countries in the Pacific, involves movers in long-term stays at their destinations (cited by Ahlburg & Levin, 1987). Hagen-Zanker (2008) citing Zipf's (1946, p. 4) gravity model, explained migration between two places as a function of the sizes of the populations in the origin and destination, and the distance between them. It is important to note that while Hagen-Zanker considered that distance of travel was important, it was not the core explanation of migration. Hagen-Zanker (2008) acknowledged that migration is the temporary or permanent move of individuals or groups of people from one geographic location to another for a variety of reasons.

When defining what constitutes a move that can be termed 'migration', Bedford & Wilson (1979, p. 2) concluded that:

In order to give some meaning to the term 'migration', the process must be identified in terms of certain maximum and minimum limits along a continuum which incorporate all forms of spatial mobility. Unlike the other demographic processes, it is very difficult to define migration in manner which has applicability in a wide range of spatial, temporal and cultural contexts. There is neither a biological referent nor any inherent uniformity in population movement".

This issue of how to define migration in the Tongan context is addressed more fully in Chapter 3.

Internal and International Migration

Tonga, unlike neighbouring Pacific Island countries, was never colonised. Notwithstanding this difference with neighbours like Samoa, Fiji, Niue and the Cook Islands, Tonga shares a common recent history of extensive out-migration to New Zealand, Australia and the United States. This means that by 2011 there were more Tongans living overseas than in Tonga. The most basic question that arises is: 'Why do Tongans leave?'. Although the international migration of Tongans is not examined in depth in this thesis, the next section discusses some of reasons that motivate Tongans to migrate to other countries. Castles (2000, p. 12) suggested that the movement is linked to the integration of local communities and national economies into global relationships, or the so-called global network. Trends and patterns of internal and international migration in Tonga are closely linked (Skeldon, 1997, 2003).

Connell (1984, p. 175) has emphasised that migration, "both internal and international, is the *major regulator* of demographic change in many of the small Pacific Nations" (emphasis added). Tonga is no exception. Bedford (1985) demonstrates this clearly in a study of population movement in a small island periphery in eastern Fiji where he found population movement was a major regulator of demographic as well as social and economic change. When seeking to understand migration behaviour at all scales it is useful to recall the well-known

saying 'think globally, act locally' in the sense that big movements or changes often started with smaller moves and events at a local scale.

Internal and international migration are rarely considered together (DeWind & Holdaway, 2005). Skeldon (2003) noted that when they are considered together, it is generally in the context of internal migration leading to or presenting an alternative to international migration, or when return migration or strong transnational ties prompt those studying international migration to follow their subjects back home (cited by DeWind & Holdaway, 2005, p. 3; also see Castles, 2000; Skeldon, 1997).

The literature on internal migration in Tonga suggests that push factors, linked with the impact of growing populations on rural environments and economies, have encouraged migration from the outer islands to Tongatapu. Migration from Tonga to overseas countries often commences from Nuku'alofa, and the town then becomes a staging point for international migration. Opportunities for Tongans to move overseas increased during the second half of the twentieth century with the demand for cheap labour in New Zealand and the United States. In this regard, Liava'a's (2007, p.12) captured the situation well when he observed that "the last half of the 20th century was certainly the 'age of migration' in the Pacific, especially in Polynesia".

One of the problems facing researchers interested in examining internal migration in Tonga is that until very recently there have not been appropriate census data available. When Walsh (1964) did his research for his Master's thesis on urbanisation and in-migration in Nuku'alofa and Tonga, he noted that "the absence of reliable records created another problem for research" (Walsh, 1964, p. iii). For instance, there is no system for recording internal migration in the country. At least in the case of international migration there are arrival and departure cards that are potential sources of data. The United Nations Manual on Methods of Measuring Internal Migration states that "census data have been and still are the major source of information on internal migration in most countries of the world" and that "until the time when more countries are able to set up

efficient systems of population registration, it is likely that censuses will remain the best source of such information” (United Nations, 1970, cited in Bedford & Wilson, 1979, p. 1; also see Connell 1987).

Furthermore, it must also be pointed out that the impact of internal migration in Tonga has not been addressed clearly in the country’s migration literature. From a materialistic point of view, remittances play a major role of income of families and households in Tonga. One of the examples of this is an indication from the 2006 Census that 24% of households in Tonga received remittances from within and outside Tonga, and 5% of all households received remittances from within Tonga only (Tonga Department of Statistics & Secretariat of the Pacific Community, 2008). In other words, in 2006, around 30 percent of households in Tonga received income from remittances. International migration is not the only source of remittance income received by households in Tonga. It is also important to keep in mind that some households, especially in Tongatapu, which have received remittances from overseas, have shared these with other parts of the extended family in the outer islands. DeWind and Holdaway (2005, p. 3) concluded that “internal and international migration have many things in common in terms of their causes and origins, the processes involved, and their impact and outcomes”.

Internal Migration and the New Electoral and Constituency Boundaries

In 2009, the Royal Constituency Boundaries Commission provided boundaries for constituencies to be used for the first time in elections for a more democratic process for electing people’s representatives to the Legislative Assembly in and after 2010. The eligibility criteria for voters included such characteristics as age, nationality and place of residence. Most people within a given electoral area can qualify as having residence if they have been there, or plan to be there for more than six months for employment purposes⁴. In section 17.3.4, it states that they can be registered or assigned to vote in that village (current usual residence) or

⁴ Such as church minister and officials or civil servants and other non-government organisation employees.

their village of origin or place of birth (Royal Constituency Boundaries Commission, 2010).

There are three important issues from the Commission in relation to internal migration: the first is to identify most of the migrants through their current usual residence and place of birth (origin); the second concerns the classification of the Tongan population by particular areas for the purpose of defining electorate boundaries. Finally, the goal of classification is to achieve the same total voter population for each constituency, and the main source of this information comes from the census, although the population enumerated in the census is a de facto one. It appears that discrepancies may arise between the weighting of the population for each constituency based on the de facto count of the census, and the populations registered there on the basis of usual residence⁵. There can be a gap between the original weighting of the population per constituency on the basis of census data and the total voter register for each constituency.

Before the new system was introduced in 2010, Tongan citizens were free to be registered and vote in their village of origin or place of birth, where they have their land, parents, relatives and the like. The new boundary system⁶ introduced the residency basis, or what Hau'ofa (1977) calls 'regionalism'. Most people are not in favour of new system. There is a concern that the system weakens links to place of origin and that it fails to recognise financial and in-kind contributions to home communities, while marginalising the representation of the people who actually reside in the area. Fraenkel, Koloamatangi and Kefu⁷ pointed out that in the 2008 election (Table 2), almost 52% of the total votes cast for the people's representative for the Ongo Niua electorate were actually in Tongatapu, as were 41% of the votes cast for Ha'api, 29% cast for 'Eua and 22% of the votes cast in Vava'u (Royal Constituency Boundaries Commission, 2010). The impact of migrants and internal migration in the voting system is significant. It is also

⁵ It is stated in Section 17.3.4 that a person can be registered or assigned to vote in that village the "ordinary residence" or village of origin.

⁶ The new regulation for voter registration introduced by the boundary and electoral commission in order to suit the needs of the new system of elections and to reduce the disparity of the number of voters in the islands and for those registered but whose residence is in Tongatapu or elsewhere in Tonga, because the number of voters registered from Tongatapu dominate the final counts of the election.

⁷ The Official Election Observation Team, May 3 2008

important to consider the number of people in Tongatapu who cast their vote for the outer islands' constituency representatives because they were in Tongatapu during the Election Day for short-term purposes.

Table 2: Percentage of Votes cast in Tongatapu for other island division constituencies during elections between 2005 and 2014

	2005	2008	2010	2014
Vava'u	21.0	22.1	8.9	16.4
Ha'apai	39.5	41.2	15.7	27.0
'Eua	23.6	28.7	14.9	17.4
Ongo Niua	44.0	51.7	36.8	43.6

Source: Data from the office of Electoral Commission (Also note that only people 21 years of age and above are qualified to vote during the election).

Urban and Rural Distinctions and Urbanisation

Urban and Rural: Background

Rural and urban are new categories in Tonga's Census. It was not until the 2006 Census of Population and Housing that urban and rural areas were fully incorporated into the census tabulation and analysis. This was the first time parts of Tonga were defined as urban in order to distinguish them from rural areas. The definition was solely based on the size of village population; villages with a population of at least 5,000 were defined as urban (Tonga Department of Statistics & Secretariat of the Pacific Community, 2008, 2014) (See Table 3). Only three villages qualified and these were all on Tongatapu comprising the core of the only sizeable town in the country, Nuku'alofa.

Table 3: Three villages with 5,000 or more residents that are qualified to be defined as urban areas, 1996–2011 census

Urban-village (Nuku'alofa)	1986	1996	2006	2011
Kolofo'ou	10,044	9,220	8,969	8,860
Kolomotu'a	6,415	7,097	7,442	7,514
Ma'ufanga	4,924	6,083	7,247	7,855
Urban (Nuku'alofa)	21,383	22,400	23,658	24,229

Source: Tonga Department of Statistics & Secretariat of the Pacific Community, 2008 & 2014.

Nuku'alofa was defined in the Town Regulation Act of 1903 as all places and grounds of residence at Kolofo'ou, Kolomotu'a and Ma'ufanga (cited in Walsh, 1964, p. 44). Before 2006, the definition of urban was based on a description of Nuku'alofa. In order to make a comparison with previous censuses, data from 1986 and 1996 censuses were grouped into urban villages. The 5,000 threshold only applies to Kolofo'u and Kolomotu'a in 1986; Ma'ufanga village had a population just below this in that year, as shown in Table 3. The current population-based definition of urban is only applicable to censuses taken between 1996 and 2011.

More than fifty years ago Walsh stated that, compared with other Pacific towns, Nuku'alofa was probably the "... least urban and its inhabitants the least different from those of the rural villages" (1964, p. 1). Given the sparse literature on internal migration and urbanisation of Tonga, Walsh's study stands out as the earliest comprehensive piece of academic research on urbanisation and the process of in-migration to Nuku'alofa. Before examining Walsh's study in depth, it is helpful to first consider how the UN's Principles and Recommendations for Population and Housing Census deal with the term "urban":

Because of national differences in the characteristics that distinguish urban from rural areas, the distinction between the urban and the rural population is not yet amenable to a single definition that would be applicable to all countries or for the most part, even to the countries within a region. (UN, 2008, p. 124).

In the past it was assumed that urban areas usually had a higher standard of living than rural areas. However, the distinction based on living standard is not relevant to many industrialised countries, because sometimes the gap between the rural and urban is minimal. In many developing countries, including Tonga, however, differences between rural and urban in terms of way of life and living standards remain important. Walsh's (1964) comments about the similarities between Nuku'alofa and other rural village in the 1960s suggests that the differences were not great until quite recently.

In defining an urban area, Walsh adopted a definition proposed by the Urbanisation Advisory Committee of the South Pacific Commission (Secretariat of the Pacific Community). The criteria are listed below (Walsh, 1964, pp. 19-20):

1. A noticeably heavy concentration of population by comparison with the surrounding areas;
2. An occupational distribution differing from the surrounding areas, with a larger proportion engaged in non-farming pursuits; and
3. A form of local government different from that in rural areas, as being more suited to the provision of the additional services required in urban areas or made possible by greater concentration and financial potential.

The foregoing criteria were based on 1956 census data and, according to Walsh, only three towns met the first two criteria: Nuku'alofa, Pangai-Hihifo in Ha'apai, and Neiafu in Vava'u. Walsh used the criteria as a model to define urban territory more thoroughly and with appropriate contextual meaning to be applied to other small island states.

It is very important to assemble a complete definition in order to get the whole picture of Tonga's urban areas. The complete definition would qualify using all three criteria, not only to extend the boundary of urban areas to include towns in the outer islands and other part of Tongatapu (known as Greater Nuku'alofa⁸), but also for consideration of other socio-economic and cultural elements. However, there is no official document (or Act) from the government as to when, where or how they define Nuku'alofa as an urban area.

⁸ Greater Nuku'alofa is a combination of Kolomotu'a and Kolofo'ou district

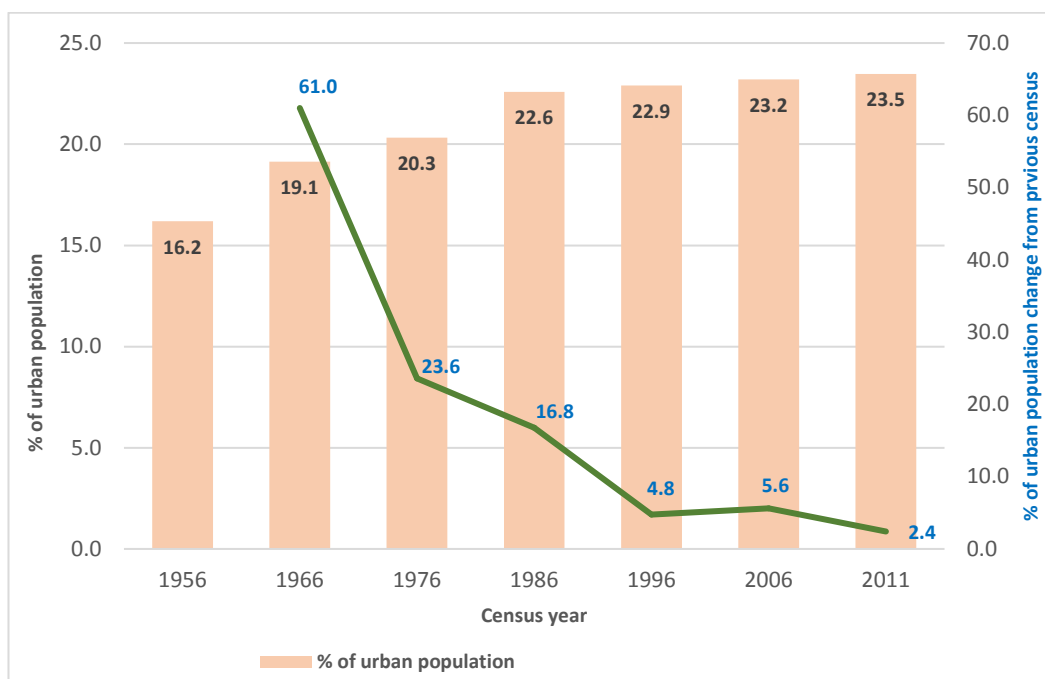
Table 4 shows the urban and two rural populations: the outer islands rural and the Tongatapu rural. It is apparent that the growth of the urban population between 1956 and 2011 is far greater than in either of the two rural areas. It is widely known from the literature that the growth of urban population has come from three main areas: natural increase (excess of births over deaths), internal migration from the rural areas, and immigration from abroad. In the absence of more birth, death and migration data that can be specified for the urban area of Nuku'alofa, it is difficult to disaggregate the contributions that natural increase, internal migration and international migration make to urban population change. Some indication of the contribution made by internal migration is given in Chapter 4 when discussing migration between different divisions and districts in the country.

Table 4: Some characteristics of the populations of three key regions: urban, outer islands rural, and Tongatapu, 1956-2011

Census year	Population			Percentage of the total population			Percentage change from the last census		
	Urban (Nuku'alofa) population	Outer Island rural population	Tongatapu rural population	Urban population	Outer Island rural population	Tongatapu rural population	Urban population	Outer Island population	Tongatapu rural population
1956	9,202	25,574	22,062	16.2	45.0	38.8			
1966	14,816	29,509	33,104	19.1	38.1	42.8	61.0	15.4	50.0
1976	18,312	32,674	39,099	20.3	36.3	43.4	23.6	10.7	18.1
1986	21,383	30,855	42,411	22.6	32.6	44.8	16.8	-5.6	8.5
1996	22,400	30,805	44,579	22.9	31.5	45.6	4.8	-0.2	5.1
2006	23,658	29,946	48,387	23.2	29.4	47.4	5.6	-2.8	8.5
2011	24,229	27,836	51,187	23.5	27.0	49.6	2.4	-7.0	5.8

Source: Tonga Department of Statistics, Census of Population and Housing Data, 1956-2011.

Figure 3: Percentage population change, total and urban population



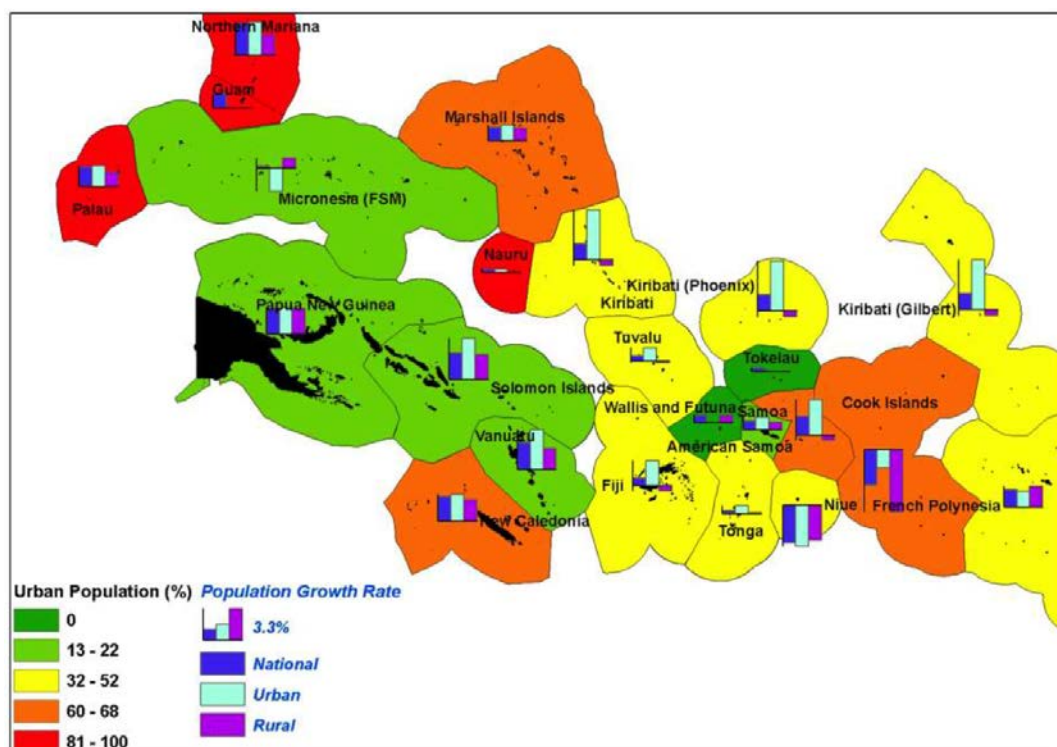
Source: Tonga Department of Statistics, Census of Population and Housing Data, 1956-2011.

Challenges: Urbanisation and the Growing Youthful Population

In a paper presented at the 17th Biennial Conference of the New Zealand Population Association, Bedford (2014) offered a panoramic view of migration and urbanisation in the Pacific, now and in the coming decades. The challenges identified by Bedford and colleagues included urbanisation with no industrialisation; how to accommodate a rapidly increasing number of youth in urban areas; the future of families in towns without much formal sector; and the purpose and nature of education and the connection to labour markets and employment. It is evident that urbanisation will continue to be a challenge to any government of the day of the Pacific Island states. As seen from Map 2, urban population growth is exceeding the national growth rate in every Pacific country. The Pacific region varies widely with respect to urbanisation rates (Bedford, 2012). According to Map 2 and Figure 4, Guam, Nauru and Palau have 100 percent of their populations living in urban areas, most Polynesian countries are at around

50 percent, and several Melanesian countries have less than 20 percent. Yet, with few exceptions, urbanisation has tended to be viewed as a negative process to be discouraged, as governments focus on rural development (Bedford, 2014). One of the most important concerns nowadays is the current trend of urbanisation and internal migration and the impact of the climate change and how the small island states accommodate or address these concerns.

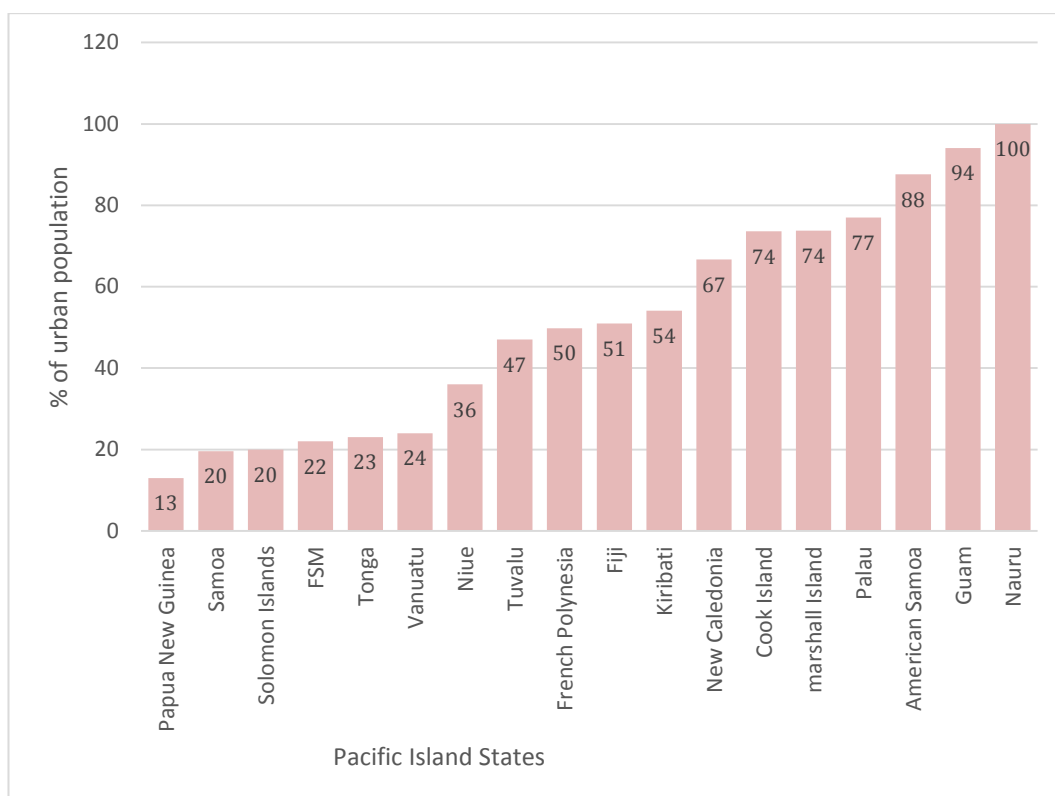
Map 2: Tonga compared to the Pacific by the urban population (%) and the population growth rate



Source: Bedford (2014).

It is clear that most urban population growth in the Pacific Islands is exceeding the national growth rate in most countries. Connell (1990) emphasised that Melanesian countries did not have much opportunity for international migration while they were under colonial rule. This is why, in a post-colonial context, internal migration continues to dominate population movement in those countries.

Figure 4: Pacific island states, percentage the population that is urban



Source: Data adapted and exported from Secretariat of the Pacific Community – National development Indicators Online Regional Mapping.

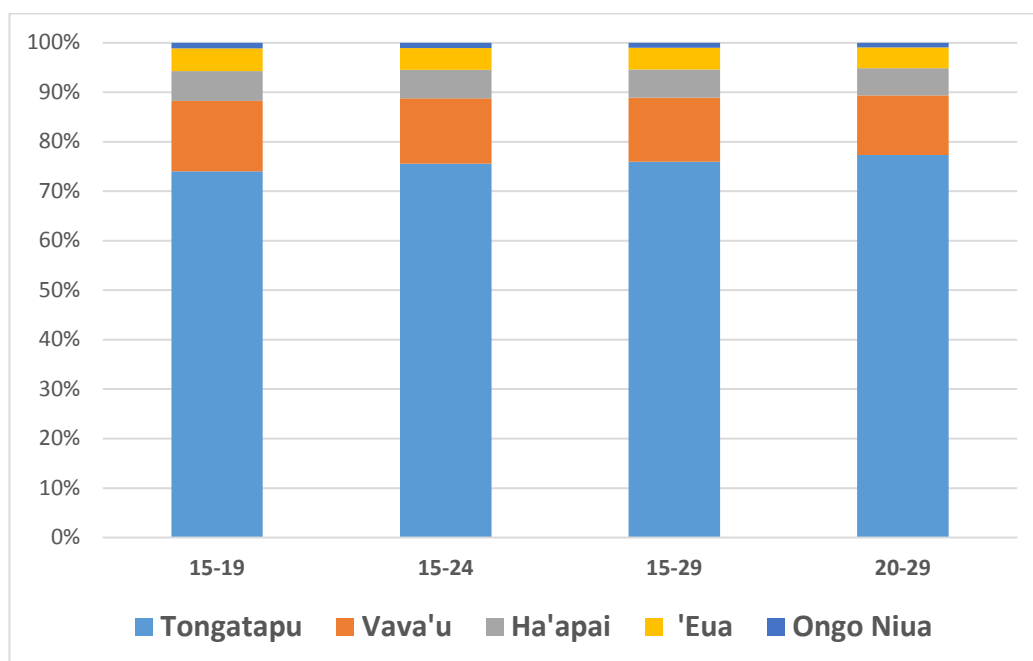
Urbanisation development in Europe and Polynesia and Micronesia share common features that have accompanied international migration (Bedford 2014). Emigration from Tonga is significant; the net migration rate estimated in the 2006 census was 18 per 1,000 population, which equals a loss of 150 people per month during the intercensal period 1996-2006 (Tonga Department of Statistics & Secretariat of the Pacific Community, 2008). This loss increased to 164 per month during the inter-census period 2006-2011. The net migration loss from Tonga during the two intercensal periods runs counter to the trend of national and urban population growth.

Bedford, Hugo and Didham (2011, p. 15) point out some common features from western Melanesia about the growing youthful populations who find their livelihoods in rural areas or increasingly in town. In Tonga's 2011 census, the

highest proportion of youth (15-24) was in Tongatapu (76 percent) which is not surprising given that around 70 percent of the population live on Tongatapu. The lowest proportion was in Ongo Niuva (1 percent) where only 2 percent of the population live.

Figure 5 shows the percentage of the population in selected age groups in each island division. Tongatapu dominates the distribution of the working age population with the highest percentage aged 20-29 years residing in Tongatapu. Since the government started high schools in all outer island divisions in the last two decades, there has been a move towards measuring the youth age group up to age 19 or 20 and above.

Figure 5: Percentage in selected youth and young adult age groups, by division, 2011



Source: Data adapted from 2011 Census of Population and Housing, Tonga Department of Statistics & Secretariat of the Pacific Community, (2014).

Overview of Push and Pull Factors in Internal Migration

The impact of social-economic conditions on migration has long been recognised as important, especially with regard to access to education, employment, health services, living standards and so forth (Connell, 1999; Howlett, 1982). A lack of

higher education facilities, employment opportunities and basic development in the rural areas and outer islands, and the greater availability of these opportunities in urban areas of Tongatapu, together constitute important 'push' and 'pull' factors. Migration from the rural villages on outer islands has encouraged interest in investigating the characteristics of internal migrants, both in sending and receiving areas, either rural or urban.

In some industrial countries, Hagen-Zanker (2008, p. 6) finds that internal migration occurs as a result of geographical differences in the supply and demand of labour, mostly between the rural traditional agricultural sector and the urban modern manufacturing sector (also see Massey et al., 1994). Geographical differences in economic and social conditions are the main reason for internal migration, whether this is in an industrial country or a small Island country in the Pacific. In addition, Smith and Zopf (1970) argue that the role of internal migration in the increase or decrease of population in a given area, is frequently much greater than the role of natural increase. Recently, Tonga is one of the countries where in-migration and out-migration have become the principal drivers of population change in many areas.

Internal Migration in the 1960s and 1970s

Around the 1960s and 1970s, researchers like A. C. Walsh, E. A. Crane, 'Epeli Hau'ofa, and others were interested in the changing spatial distribution of the population in Tonga. The most apparent sign that internal migration was playing a major role in this was the intensification of settlement in Nuku'alofa and the adjacent areas. Similarly, Bedford (1985, p. 333) writes that since the 1960s, the major determinant of population change in the small island periphery in the eastern part of Fiji has been net out-migration. The direct impact of out-migration from outer islands and rural areas has implications for population growth in Tongatapu, especially in the urban areas of Nuku'alofa. In the 1970s Hau'ofa (1977) expressed the following concern with regard to population growth and environmental change in Tonga:

In the 1950's Nuku'alofa was a small, sleepy town. Today it is still a sleepy town but no longer a small one; it sprawls in all directions, absorbing in its

expansion a lot of former agricultural lands, and even altering the environment of our inland lagoon. Our people have been filling up the mangrove swamps that skirt the lagoon and destroying the mangrove trees for the sake of building houses; some are even reclaiming the lagoon itself for their dwellings (Hau'ofa, 1977, p. 3).

This reflects a consequence of overexploitation due to increasing population and accompanies extended settlement through reclaiming large parts of swamp area and inland lagoons. Mobility in Tonga has been assisted by the availability of land, and Hau'ofa (1977, p. 11) noted that a person could move from one part of the country to another part because it was possible to acquire a block of land to occupy and then pass down to heirs. Similarly, Walsh argued that “population pressure, limited or unevenly developed resources, and a new demand for money have induced many Tongans to resettle where the prospect seems more tolerable” (1970, p. 27).

During 1960s and 1970s researchers were concerned about the impact of population movement (resettlement), urbanisation and overpopulation, especially in the area of Nuku'alofa. Yet, at the same time there was no incorporation of these concerns with those of other stakeholders in the government. Bedford & Wilson (1979, p. 1) point out “the most fundamental question is whether it is relevant to collect data specifically related to the migration process in a census enumeration in the first place” and that “resolving this issue is essentially the job of the planner than the academic...”. While there has been discussion of this issue in the literature, there is no real link with census data collection.

It interesting to speculate on why the Statistics Department and the Census of Population and Housing did not move to introduce questions on internal migration before 2006. Census and other forms of official data collection should follow the needs of other stakeholders and also connect with areas of wider research and concerns. It is apparent that, over the years, there were no connections made between relevant research and literature, and the selection of statistics produced from the Statistics Department.

One of the impacts of migration on rural areas is related to health situations due to the lack of health personnel. Connell (2007) points out that the movement, usually from rural areas and from relatively poor regions to relatively rich regions, is equivalent to the structure of international migration. As a result, he argues that internal migration tends to show the 'inverse care law'⁹, in that skilled health workers tend to be less available in areas of greatest need. This reflects the real difficulties of shortages of health personnel in order to meet the diverse needs of people living in remote places.

Shortages of skilled health care in remote places are very common. The question is whether the shortages of skilled workers happened before or after migration. Health professionals and facilities, especially in the case of Tonga, are solely provided to remote islands only by government services or other service providers. It is very uncommon to access available skilled and professional people in these places unless they are provided by the government. This is important to note because, in the case of Tonga, there is no logical connection between internal migration and the lesser availability of skilled workers in remote areas; they were never there in the first place. The loss of farmers and fishers from these areas is a real concern as they were always been part of the population and economy.

Due to the higher costs of travel and settlement, overseas emigrants tend to originate from wealthier households and wealthier areas. By contrast, poorer households tend to opt for rural–rural or rural–urban migration, and therefore receive lower remittance flows (Lacroix, 2013). Lacroix argued that, due to the scarce and limited financial support, internal migration is more likely to keep the rural population in a state of dependence on urban areas. McKenzie and Yang (2010) suggest that decisions are not solely based on financial support but there are other factors to consider. Thus, individuals and households decide whether or not to migrate – and whether or not to send remittances if they do migrate based

⁹ The **inverse care law** is the principle that the availability of good medical or social care tends to vary inversely with the need of the population served. Proposed by Julian Tudor Hart in 1971, the term has since been widely adopted.

on a range of factors including their skills, wealth, risk preference, ambition, drive family ties, and so forth.

Lacroix's (2013) approach tends to put too much emphasis on the cost of travel and settlement in explaining migration flows. First of all, in Tonga migration is not primarily determined by financial situations alone. There are other factors that support migration, such as kinship, cultural occasions (attending funerals and weddings) and religious activities. Secondly, out-migration is not only from wealthier areas; Connell (1987) argues that migrants tend to come from relatively poor rural areas although the migrants themselves may not be the poorest people in those areas. Some of those who move are more educated and hence migration can be seen as a skill or brain drain. The kinship system, as well as extended families, provide assistance to individuals or families especially in the case of financial support and other assistance. As Walsh (1970 p. 45) concluded many years ago, "traditional attitudes to kin, rank, and land have helped Tongan to meet the problems associated with population growth and movement with little social distress".

Conclusion

This chapter has provided a range of contextual information, drawn from the literature, to inform the analysis of flows and characteristics of migrants in Tonga during the first decade of the 21st century. Tonga's history of internal migration is not unique – it mirrors trends in many parts of the eastern Pacific, especially island countries where the populations have access to temporary and long-term migration overseas. In Tonga, as in Samoa, the Cook Islands and Niue, extensive emigration overseas has resulted in relatively low levels of urbanisation within the country. The main urban concentrations of Tongans, Samoans, Cook Islanders and Niueans are in Auckland, Sydney, Brisbane, Los Angeles and Honolulu (Bedford and Hugo, 2012). Yet while international migration has resulted in a form of arrested domestic urban development in Tonga and other parts of Polynesia, rural-urban migration has been on-going, especially since the 1950s.

In the next chapter the data and methods used to examine flows and characteristics of Tongan internal migrants are reviewed. There are some strengths and weaknesses associated with data on internal migration drawn from censuses and these need to be discussed before examining the evidence relating to recent flows of Tongans within the Kingdom.

Chapter 3: Data Sources and Methodological Issues

To investigate the spatial and demographic characteristics of internal migration in Tonga between 2001 and 2011 in the context of the research questions posed in Chapter 1, data have been drawn from the 2006 and 2011 Tonga Censuses of Population and Housing. Like most other Pacific Island countries, Tonga does not have official population register which could be used to track movements in the population. The Electoral Commission Roll contains a limited amount of information on migration between electoral regions but it is not set up to record all changes in residence of the population. This chapter addresses the way the census defines a 'migration' and a 'migrant' and outlines the methods that are used to describe migration flows and characteristics in the analysis contained in Chapters 4 and 5.

Definition of Migration and Migrant Characteristics

Of all the three components of population change – fertility, mortality and migration – the most difficult to define is migration, especially internal migration. In the classic methodological statements on the subject the United Nations (1970) and Shryock and Siegel (1976) point out that all definitions of population movement in space involve the imposition of arbitrary boundaries and periods. Whereas births and deaths are pretty clearly defined events in a person's life, an event called a 'migration' requires specification of some minimum conditions to be met before the move is counted.

In the case of Tonga, internal migration can be defined in several ways in spatial terms – movement within a community; movement between communities; movement across an administrative boundary; movement between islands; movement from rural to urban areas, amongst others. It can also be defined in different ways linked with the duration of residence in particular places – the relationship between the place of usual residence at the time of the census and the person's place of birth ('lifetime migration'); the relationship between the place of usual residence at the time of the census and the place of usual residence at some specified time in the past (recent migration) and so on. There is nothing

absolute about a 'migration' aside from the fact that the person has moved from one place to another.

Lewis (1982, cited by Parr, 1988, p. 25) emphasises that all kind of territorial movements, both temporary and permanent, involve traversing distance in a spatial context. Siegel et al. (2004) define migration as a move across a relevant political or administrative boundary within the country. While the spatial dimension of a move that is termed 'migration' needs to be specified, so does the duration of the move. In a lot of the migration literature 'migration' is associated with the notion of a permanent change in residence (see for example, Lewis (1982), Clarke (1986) and Lee (1966)). However, the notion of 'permanence' is very difficult to establish, especially when using census data to analyse migration.

The nearest one can get to establishing that a move involves a change in residence, rather than a short-term absence from home, is to talk in terms of moves between places of usual residence. How long the person intends staying in their place of usual residence at the time of the census is not known though – that place just happens to be where they usually live at that time. In the light of the fact that 'permanence' of residence is an intention rather than a condition at a particular time, it is best not to associate 'migration' with the notion of 'permanent change in residence'. What is considered to be 'migration' in a census is particular types of spatial relocations that are defined retrospectively with reference to arbitrary time periods. In the case of Tonga's recent censuses, these arbitrary time periods are: time since birth; the five years before the census; one year before the census. Moves termed 'migration' are defined in terms of the relationship between the place of usual residence at the time of the census, and the place of usual residence one year and five years before the census (recent migration), or the place of usual residence at the time of birth (lifetime migration).

Some understanding of the spatial mobility of a population is essential when seeking to explain changes over time in the spatial distribution of the population and the changing demographic characteristics of the population in different parts of the country. Internal migration is a critical determinant of the distribution of

people within a country, while international migration addresses the flows of people in and out of a country. The distinction between internal and international migration can be quite arbitrary as well, especially in continents comprising several countries between which people are free to move. In the case of Tonga, internal and international migration are reasonably discrete processes, given all people entering and leaving Tonga need to have a passport and to complete arrival and departure documentation. In this thesis the focus is just on internal migration – movement within and between islands that are inside the national boundary of the Kingdom.

According to the definition of migration above, a migrant population can be characterised as persons who cross a boundary within the country in order to change their place of usual residence¹⁰. From the point of view of census that was different from the place where they were living five years ago (or one year ago in some censuses) or where they were born (UN, 1970).

Tonga Census of Population and Housing Data Sources

National Census data is the only source of information that is used in this study. The author was on the staff of the Tonga National Statistics Office when the last Census of Population and Housing was carried out in 2011. The thesis uses data from this census as well as from the one held in 2006. The 2011 census is the first to be held at a five-year interval in Tonga – up to 2006 censuses were held every 10 years. The 2006 census was the first census to collect information on place of usual residence one year and five years before the census. The 2006 and 2011 censuses are the only two in Tonga that contain information on contemporary internal migration. Earlier censuses had information on lifetime migration which was determined for each Tongan by a comparison of place they were living at the time of the census and the place where their family members were living at the time the person was born.

¹⁰ More than six months in a place of enumeration, and they are not visitors or temporary residents. Only people who are usually resident qualify to be termed migrants in this study.

Among the census questions which have always been used in migration analysis, that on 'place of birth' is perhaps the most common (UN, 1970). Using 'place of birth' to define lifetime migration has been valuable but it is not sufficient for understanding contemporary patterns of internal migration or the characteristics of migrants. Rates of internal migration (in and out migration) have increased in recent decades and other ways of assessing migration, such as comparing place of residence at the census with place of residence five years earlier have become more common.

There are also weaknesses in relying on place of birth as a reference point when defining migration. There are inconsistencies between data produced by the Ministry of Health and Justice (responsible for registered births) and the Statistics Department which conducts the census. The Ministry of Health issues certificates for live births and these are certified by the Ministry of Justice. These certificates specify the geographic unit in which the birth actually took place, and this could be where a hospital is located.

This is quite different from the definition that the Statistics Department and Census used when collecting information from households and the individual during the census. Here the UN Census definition is used. Section 2.8 of the UN Census Recommendation states that:

The place of birth is the civil division in which the person was born or, for those born in other countries, the country of birth. For persons born in the country where the census is taken (the native-born population), the concept of place of birth usually refers to the geographical unit of the country in which the mother of the individual resided at the time of the person's birth. (Principles and Recommendations for Population and Housing Census Revision 2, 2008, p. 120).

Place of birth is valuable in terms of individual identity because it is a link to the place of origin. The influence of an individual's place of origin has a great impact on other activities in the country: for instance, registration for the electoral roll (which will be discussed in the next chapter).

As already noted, the use of place of usual residence five years before the census as a reference point for defining who is a migrant in a census is very common to

other Pacific Island countries and, indeed, in most countries in the world. Parr (1988) notes that five years is seen as the optimum period, while longer periods produce recall problems, and a one-year period may provide insufficient evidence of sustained usual residence. However, there are some complications with the five year period including failing to account for additional moves within the five years, or defining when, during the five years, the move actually occurred. In addition, children under five are not counted, and also migrants who died or migrated overseas cannot be identified.

Data Processing

Data processing for both the 2006 and 2011 Censuses of Population and Housing in Tonga made use of the Census and Survey Processing System (CSPro System). Only basic tables on internal migration were produced in the published census report (see Table A1 – A2 in Appendix 3), and data on flows were only produced at the divisional level. For the purposes of this study, it was necessary to derive more detailed tables which could not be produced using CSPro. The unit record data were exported from the CSPro System and reformatted into Excel spreadsheets in order to produce more tables, graphs and charts. The unit record data was also re-formatted for use in ArcGIS and ArcMap to produce maps of the spatial distribution of migrants and the population in general. Unit record data for both censuses were exported and tabulated separately.

During the process of exporting the data and data processing, it was necessary to introduce new codes to create migrant and non-migrant universes. This problem arose because of the lack of filtering or contingency questions in the internal migration questionnaire. This complication was later sorted out in the exported Excel database by inserting a column to identify and code 'yes' for internal migrants (in- and out- for whatever duration), 'no' for non-migrants (or stayers), 'O' for in-migration from abroad or overseas, 'NB' for not yet born (for those aged under 5 years, and finally 'NS' for those who did not provide the information required to determine their migrant/non-migrants status.

The new coding of data made the tabulation much easier and more accurate across all groups in the population. This was essential when the analysis was being conducted for different administrative and geographic units (e.g. districts, islands, rural and urban areas). The current and revised questionnaire for internal migration can be found in Appendix 2. The changes to the data that have been used to analyse internal migration in this thesis will improve the quality of migration data in the future for Tongan census data.

Published Tables

Basic tables published from the 2006 and 2011 census data for internal migration were too general and quite difficult to follow for the majority of the users, especially for those who are new to the concept of migration flow. (Published tables from both censuses are shown in Appendix 3). The major problem with the published data on internal migration is that they do not differentiate clearly between who are non-movers, who are movers within the division (intra-division migrants) and who are movers between divisions (the inter-division migrants). (Also see Table A3 – A8 in Appendix 3). All residential addresses used in the migration analysis that were collected during the enumeration of the population, were recorded at the village level. Tables on internal migration between large administrative or geographical units (e.g. divisions) conceal the information on migration between smaller administrative or geographical units (e.g. districts).

Despite some limitations with census data, the information collected during a full census enumeration provides the most complete coverage of the total households and individuals within a country. There are no sampling errors associated with the measures derived from census data – the information relates to the total population (barring some people who were not counted, and all censuses have some under-enumeration). Bedford (1985, p. 33) claims that cross-sectional information derived from census data is critical for analysing migration and the redistribution of population. In addition, as Zachariah (1977, cited in Parr, 1989, p.31) noted, census data has “enormous potential for preparing detailed cross-

classification of migration data with other demographic and socio-economic characteristics normally obtained in censuses”.

Migrant Population

Tonga’s population is very homogenous in terms of its ethnicity. According to the 2006 and 2011 censuses, almost 97% of the population is of Tongan origin. Less than two percent of the population is of an ethnic origin other than Tongan or part-Tongan. However, the proportion of other ethnic origins is slightly higher in the urban areas, where 5% are not Tongan or are part-Tongan, 2% are of Chinese origin, 1% of European origin, and 0.4% are other Asians (Tonga Department of Statistics & Secretariat of the Pacific Community, 2008 & 2014). Therefore, minority ethnic groups do not affect the populations defined as migrants or non-migrants. This study acknowledges the importance of ethnic minorities: they are not only in the urban areas but also in rural Tongatapu and in the outer islands (see Map 3). Because of their small numbers though they are not differentiated in this analysis – the total usually resident population in the country at the time of the census is included in the analysis of migration flows and the classification of migrant/non migrants groups.

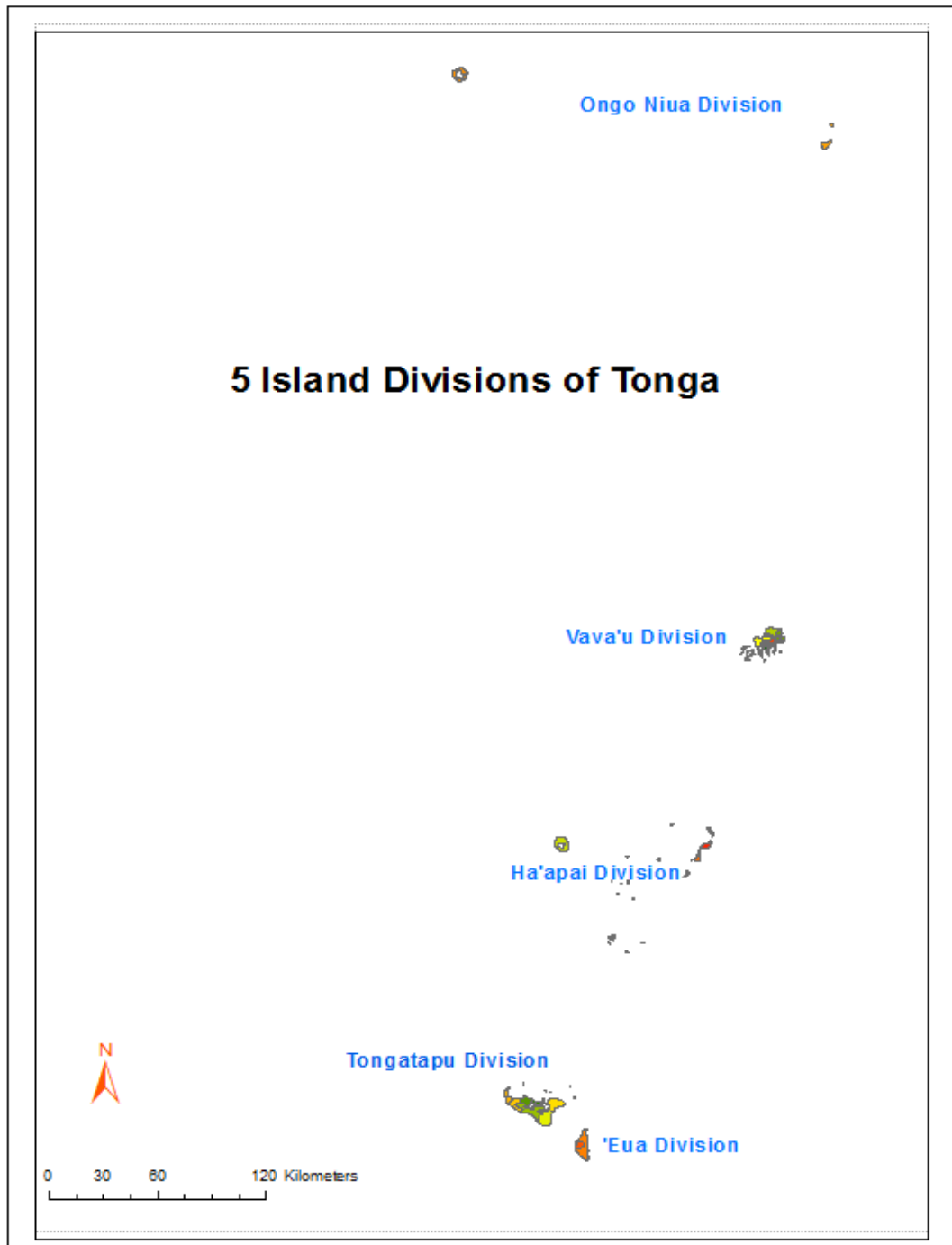
This study takes into account the importance of comparing people’s place of birth and residence five years prior to the census with the place of residence during the census enumeration. This comparison is made to obtain the data on flows and characteristics of migrants. One of the questions included in the census aims to distinguish between those who permanently live in the village from those whose presence is temporary (refer to Appendix 1 for further explanation). The distinction between being a resident and a temporary visitor is sometimes difficult to make, but the definition delivered during the census enumeration is clear and reasonable. Therefore, residence while undertaking temporary visiting during the census enumeration is excluded from the analysis of migration in this study.

The distribution of Tonga’s resident population in Tables 5 and 6 illustrates the three key geographical units that are used in Tonga -- the division, the district and the urban and rural areas. Changes in population distribution at these three

geographic levels, especially between 2001 and 2011, is at the heart this study of spatial characteristics of internal migration in Tonga. It is clearly evident that the population of Tonga is unevenly distributed throughout the country. Also shown in Tables 5 and 6 are in-migrants from abroad or overseas, the population that was not yet born five years ago, and the residence 'not specified' population. They are important when accounting for the total population of each area but are not discussed further in the study.

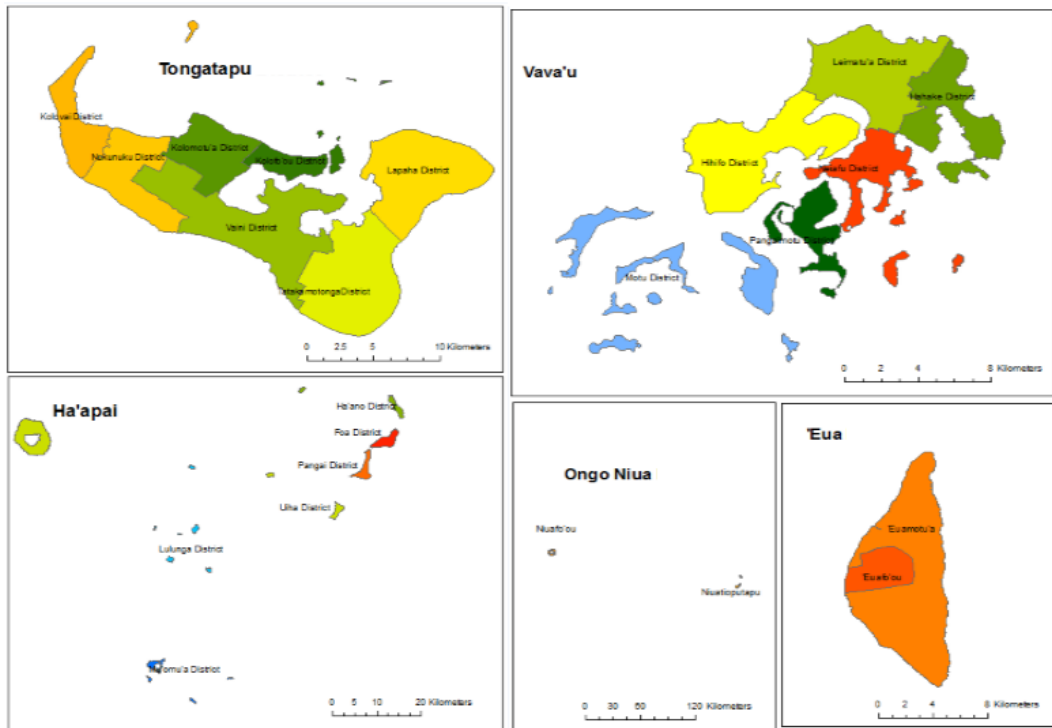
At the time of the 2011 census, 50% of the population lived in rural administrative areas on Tongatapu. The other fifty percent was shared between the outer island rural administrative areas (27%), and the urban administrative areas on Tongatapu (23%). (See Maps 3 – 5).

Map 3: Map of the five island divisions of Tonga for the study



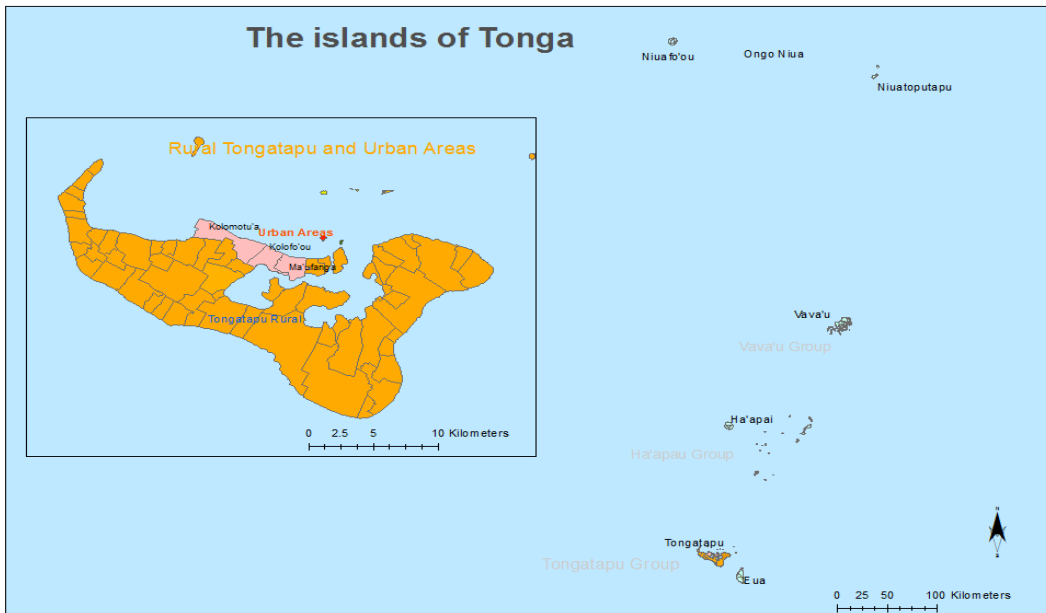
Source: Data and shape file adapted from Tonga Department of Statistics & Secretariat of the Pacific Community, 2008 & 2014. Map created by author using ArcMap 10.2.

Map 4: District boundaries of Tonga as distributed among five divisions of Tonga



Source: Data and shape file adapted from Tonga Department of Statistics & Secretariat of the Pacific Community, 2008 & 2014. Map created by author using ArcMap 10.2.

Map 5: The urban areas of Tonga and rural of Tongatapu



Source: Data and shape file adapted from Tonga Department of Statistics & Secretariat of the Pacific Community, 2008 & 2014. Map created by author using ArcMap 10.2.

The analysis of spatial characteristics of Tonga's internal migration focuses on two main migrant populations. The first includes Tonga's inter-divisional migrants and the second includes the outer island migrants who migrate to urban areas. The analysis required that, for both groups of migrants, individuals were aged five years and over, and their place of residence five years ago was different from the one at the time of enumeration.

There are three major groups in the population: the inter-division migrants, the intra-division migrants and the non-migrant population. The non-migrants were living in the same village of usual residence at the time of the census enumeration that they were living in five years earlier or, in the lifetime migration analysis, at birth.

Data for the Analysis of Migrant Characteristics

The analysis of migrant characteristics was restricted to the 2011 census, and focussed on the following demographic variables: sex and age, marital status, education, and occupation. These variables are defined as follows:

Age: - Age measured at last birthday, the date of birth (day, month and year).

Marital status: - There are five marital statuses defined in the censuses of 2006 and 2011:

- *Never married* applies to a person who is not now and never has been married.
- *Married* applies to a person who is presently married, and who normally lives with the spouse. The census is not trying to find out who is legally married and who is not. No distinction should be made between couples whose marriage has been sanctioned by Church or State and those couples living together as husband and wife.
- *Widowed* is for a person, male or female, who has been married but whose spouse has died.
- *Divorced/Separated* is for a person who has been married but has been divorced or is separated, either legally or by custom, and no longer thinks of the former partner as a spouse. A person whose spouse is temporarily absent but who intends to return should be shown as married.

- Any other type of Marital Status apart from what has been explained is categorised as *other*.

Education Qualification: - The qualification is taken to measure the level of education of individuals at the time of the census enumeration. The question asked individuals to specify the highest level of qualification they had at that time.

Occupation: - Data on occupation relates to persons aged 15 and above. Occupation refers to the kind of work or job a person had during the reference week. Only the main or principal occupation was to be specified – the one that the person devoted most of his or her time to, or the full-time or part-time job.

Three regions were selected for the analysis of migrant characteristics: those were the outer island divisions, and the Tongatapu rural and urban areas. The importance of these areas for Tonga's population distribution in 2011 is highlighted below:

- The outer island division contained 26.9% of the population
- Tongatapu Rural contained 49.6% of the population
- Tongatapu Urban had 23.5% of the population
- Together they accounted for the total population of Tonga in 2011, and 13% of the total migrant population as defined using the place of usual residence five years before the 2011 census method.

The contribution of the three regions to population distribution and internal migration of Tonga is significant. The outer island rural region is the main source of out-migration from different divisions while Tongatapu Rural and Urban are the main areas of in-migration. The most interesting region is the administrative urban areas composed of the three villages of Kolomotu'a, Kolofo'ou and Ma'ufanga. The total area is only 11.41 km² with estimated population of 20,734 (see Map 5). Tongatapu Rural is a predominantly rural population, while the populations of the outer islands are classified as being entirely rural for this study (see Map 5).

Tools of Demography for the Analyses of Migration

This study could not be undertaken without utilising some tools of demography to study internal migration. Haupt and Kane (1998) define the basic measures as:

count, rate, ratio, proportion, constant, and period of measure. The use of migration rates, ratios and proportions allows for the derivation of indicators that can be used to compare different groups in the population under study.

Migration Rates

Migration rates that were calculated in this study were adopted from the Tonga Census Report 2011 (2014), Parr (1988), UN (1970), Haupt and Kane (1998), Poston and Bouvier (2010) and Rowland (2003). They include the following:

Rate of in-migration: $M.i / P.i * K$

*(Number of in-migration/total population at destination * 1000)*

Rate of out-migration: $M.o. / P.o. * K$

*(Number of out-migration/total population at origin * 1000)*

Rate net migration: $(M.i - M.o. / P.i) * K$

*(Number of in-migration - Number of out-migration/total population * 100)*

The absolute number of net migrants is measured as the difference between the number of in-migrants minus the number of out-migrants between the geographical areas during a certain time period. When net migration is positive, it means that the number of in-migrants is higher than the number of out-migrants. On the other hand, if net migration is negative, the number of out-migrants is higher than the in-migrants.

Rate of gross migration: $(M.i + M.o. / P.i * K)$

*(Number of in-migration + Number of out-migration/total population * 100)*

Here we consider area,

in-migration: $(M.i = \sum_j Mji)$

out-migration: $(M.o. = \sum_j Mij)$

Pi = can be mid-year population or end of the year population

K = can be 100 or 1000

Migration effectiveness ratio

After migration rates, a broadly applied summary measure of internal migration is the migration effectiveness ratio. It usually derives from census or survey data on internal migration and the migration effectiveness is the ratio of net migration to gross migration. The lower the ratio, the less the effectiveness of migration as a process of population redistribution (Shyrock & Siegel, 1976; Parr, 1988, Rowland, 2003, p. 400).

Migration effectiveness **ratio** = $\frac{\text{in-migration} - \text{out-migration (net migration)}}{\text{in-migration} + \text{out-migration (gross migration)}} * 100$

The advantage of the effectiveness ratio is that it provides a clear distinction of migration flows as well as counter-flows between two areas, which may result in net migration gains or losses which may change from one period to another.

Sex Ratio

The sex ratio is the ratio of males to females in a given population, usually expressed as the number of males for every 100 females.

Sex ratio_i = $\frac{\sum \text{males}_i}{\sum \text{females}_i} * 100$

Number of males (particular age group)/Number of females (particular age group) * 100

Population Pyramid and age-sex structure

In the analysis of the age-sex structure of the Tongan migrant and non-migrant population during at the time of the 2011 census, age-sex pyramids were designed in order to compare the structures of different migrant group populations as well as regional populations. A population pyramid is constructed to display the distribution by sex and age.

Age-specific migration rate

Age-specific migration data helps in understanding how the occurrence or frequency of migration contrasts over time. Age and other characteristics of population are the main factors to determine in migration. The formula of age-specific migration rates refers to a particular age group and their state of mobility.

ASMR = Number of migrants for age group X, X+N/Population age group X, X+N * 1,000 or

Age specific migration rate = number of migrants aged X at the end of the period/end-of-period population aged X * 1,000.

Conclusion

This chapter has reviewed the major sources of data that are discussed in chapters 4 (migrants flows) and 5 (migrant characteristics). Tonga's recent censuses have included questions that have enabled flows and characteristics of recent migrants to be analysed using a number of conventional rates and ratios. The focus of the next two chapters is on describing the major patterns in contemporary population movement within Tonga and the main features of migrants and non-migrant populations at the time of the 2011 Census of Population and Housing.

Table 5: Population distribution by geographic location, for migrants, non-migrants and other groups in the population, 2011

Division level	Total population enumerated in census 2011	Place of resident somewhere else last 5 years (2006)	% of place of resident somewhere else last 5 years (2006)	Non-migrants or no change place of resident	% of non-migrants or no change place of resident	In-migrants from abroad	Not yet born	Not specified
Tongatapu	75,416	9,406	12.5	52,708	69.9	3,179	9,982	141
Vava'u	14,922	1,865	12.5	10,699	71.7	413	1,907	38
Ha'apai	6,616	1,229	18.6	4,451	67.3	96	831	9
Eua	5,016	783	15.6	3,448	68.7	110	648	27
Ongo Niua	1,282	213	16.6	930	72.5	8	131	0
Total	103,252	13,496	13.1	72,236	70.0	3,806	13,499	215
District Level								
Kolofo'ou	18,957	2,379	12.5	13,019	68.7	1,086	2,384	89
Kolomotu'a	17,088	2,628	15.4	11,506	67.3	763	2,158	33
Vaini	12,949	1,586	12.2	9,161	70.7	479	1,721	2
Tatakamotonga	7,233	858	11.9	5,089	70.4	260	1,026	0
Lapaha	7,380	645	8.7	5,492	74.4	179	1,064	0
Nukunuku	7,733	852	11.0	5,551	71.8	276	1,054	0
Kolovai	4,076	458	11.2	2,890	70.9	136	575	17
Neiafu	5,774	837	14.5	3,891	67.4	272	737	37
Pangaimotu	1,325	147	11.1	980	74.0	32	166	0
Hahake	2,297	227	9.9	1,768	77.0	31	271	0
Leimatu'a	2,436	230	9.4	1,823	74.8	39	344	0
Hihifo	2,105	226	10.7	1,585	75.3	25	269	0
Motu	985	198	20.1	652	66.2	14	120	1
Pangai	2,410	414	17.2	1,717	71.2	47	229	3
Foa	1,359	175	12.9	955	70.3	17	206	6
Lulunga	1,055	268	25.4	631	59.8	7	149	0
Mu'omu'a	609	127	20.9	372	61.1	16	94	0
Ha'ano	511	118	23.1	322	63.0	3	68	0
Uiha	672	127	18.9	454	67.6	6	85	0
Eua Motu'a	2,852	447	15.7	1,923	67.4	77	378	27
Eua Fo'ou	2,164	336	15.5	1,525	70.5	33	270	0
Niuatoputapu	759	117	15.4	559	73.6	5	78	0
Niuafo'ou	523	96	18.4	371	70.9	3	53	0
Total	103,252	13,496	13.1	72,236	70.0	3,806	13,499	215
Greater Nuku'alofa & Tongatapu								
Greater Nuku'alofa	36,045	5,007	13.9	24,525	68.0	1,849	4,542	122
Rest of Tongatapu	39,371	4,399	11.2	28,183	71.6	1,330	5,440	19
Total of Tongatapu	75,416	9,406	12.5	52,708	69.9	3,179	9,982	141
Urban & Rural								
Urban	24,229	3,164	13.1	16,555	68.3	1,440	2,970	100
Tongatapu Rural	51,187	6,242	12.2	36,153	70.6	1,739	7,012	41
Outer island Rural	27,836	4,090	14.7	19,528	70.2	627	3,517	74
Total	103,252	13,496	13.1	72,236	70.0	3,806	13,499	215

Source: Data adopted from 2011 Census of Population and Housing, Tonga Department of Statistics & Secretariat of the Pacific Community, 2014.

Table 6: Population distribution by geographical location, for migrants, non-migrants and other groups in the population, 2006

Division level	Total population enumerated in census 2006	Place of resident somewhere else last 5 years (2001)	% of place of resident somewhere else last 5 years (2001)	Non-migrants or no change place of resident	% of non-migrants or no change place of resident	In-migrants from abroad	Not yet born	Not specified
Tongatapu	72,045	9,340	13.0	49,234	68.3	3,372	9,783	316
Vava'u	15,505	1,606	10.4	11,368	73.3	404	2,106	21
Ha'apai	7,570	1,500	19.8	4,955	65.5	133	957	25
Eua	5,206	885	17.0	3,427	65.8	135	757	2
Ongo Niua	1,665	349	21.0	1,124	67.5	13	179	
Total	101,991	13,680	13.4	70,108	68.7	4,057	13,782	364
District Level								
Kolofo'ou	18,463	2,872	15.6	11,845	64.2	1,192	2,414	140
Kolomotu'a	15,848	2,197	13.9	10,668	67.3	914	2,050	19
Vaini	12,594	1,596	12.7	8,772	69.7	425	1,745	56
Tatakamotonga	6,969	772	11.1	4,992	71.6	216	961	28
Lapaha	7,255	751	10.4	5,266	72.6	185	1,051	2
Nukunuku	6,820	653	9.6	4,931	72.3	217	979	40
Kolovai	4,096	499	12.2	2,760	67.4	223	583	31
Neiafu	5,787	721	12.5	4,071	70.3	240	751	4
Pangaimotu	1,412	135	9.6	1,022	72.4	36	215	4
Hahake	2,422	268	11.1	1,779	73.5	50	324	1
Leimatu'a	2,742	173	6.3	2,155	78.6	31	382	1
Hihifo	2,267	152	6.7	1,770	78.1	20	319	6
Motu	875	157	17.9	571	65.3	27	115	5
Pangai	2,967	532	17.9	1,991	67.1	69	371	4
Foa	1,479	295	19.9	950	64.2	30	200	4
Lulunga	1,075	228	21.2	690	64.2	14	140	3
Mu'omu'a	630	155	24.6	383	60.8	5	81	6
Ha'ano	619	113	18.3	421	68.0	10	74	1
Uiha	800	177	22.1	520	65.0	5	91	7
Eua Motu'a	2,949	582	19.7	1,865	63.2	83	417	2
Eua Fo'ou	2,257	303	13.4	1,562	69.2	52	340	
Niuaotuputu	1,019	221	21.7	686	67.3	8	104	
Niuafo'ou	646	128	19.8	438	67.8	5	75	
Total	101,991	13,680	13.4	70,108	68.7	4,057	13,782	364
Greater Nuku'alofa & Tongatapu								
Greater Nuku'alofa	34,311	5,069	14.8	22,513	65.6	2,106	4,464	159
Rest of Tongatapu	37,734	4,271	11.3	26,721	70.8	1,266	5,319	157
Total of Tongatapu	72,045	9,340	12.9	49,234	68.6	3,372	9,783	316
Urban & Rural								
Urban	23,658	3,397	14.4	15,529	65.6	1,569	2,970	148
Tongatapu Rural	48,387	5,943	12.3	33,705	69.7	1,803	7,012	168
Outer island Rural	29,946	4,340	14.5	20,874	69.7	685	3,517	48
Total	101,991	13,680	13.4	70,108	68.7	4,057	13,499	364

Source: Data adopted from 2006 Census of Population and Housing, Tonga Statistics Department Census & Secretariat of the Pacific Community, 2008.

Chapter 4: Spatial Characteristics of Internal Migration

This chapter analyses spatial characteristics of Tonga's internal migration for the period 2001 – 2011. Three types of spatial re-distribution are considered: the patterns and flows of movement between divisions (inter-division migration), population movement between districts on Tongatapu (intra-division migration), and some specific inter-division and inter-district flows and patterns associated with rural-urban movement and the 'drift south' as illustrated on the map (see Maps A3 – A12 in Appendix 4 and Maps A13 – A26 in Appendix 5). Migration flows between 2001 and 2006 are compared with flows between 2006 and 2011 using the data obtained from the 2006 and 2011 censuses on place of residence five years before the census.

The first section analyses the flows between geographical units – districts and divisions. In addition to examining the actual flows into and out of these units, net migration rates are calculated to identify the overall gains and losses to population caused by internal migration. The second part examines migration from rural to urban areas and vice versa during the two intercensal periods. The last section reviews the drift south or migration from the northern islands to Tongatapu.

In this chapter the focus is on flows of people who were living at a different 'usual' residence five years before the 2006 and 2011 censuses from the ones they were living at when these censuses were held. As noted earlier, a migrant is defined as a person whose residence at the census date differs from his residence at a specified prior date, or in the case of Tonga, five years earlier (UN, 1970, p. 19). The five-year interval is commonly used in censuses in the Pacific and many other parts of the world.

Inter-division Migration and Changes in Population Distribution

During Periods Between Censuses

There are three spatial levels at which internal migration in Tonga can be examined using census data: between villages, between administrative districts and between administrative divisions. Xu-Doeve (2006, p.4) notes that spatial

movements by people have two elementary dimensions, namely of the decision whether to move or stay and, if moving, the path from origin to destination. In Tonga, internal migration is usually analysed with reference to moves between divisions, the largest administrative unit with a clearly defined boundary. But movement between villages and districts plays a major role the relocation of people in the country. Migration between divisions reflects a national pattern of population redistribution, while movement between villages and districts is more localised – often within particular divisions.

Table 7 summarises the distribution of people by migrant category in Tonga’s divisions at the time of the 2006 and 2011 censuses. Both parts of the table reveal that the largest group comprises non-migrants or those who had remained in the same place of usual residence at the time of both census enumerations. The share of the population that was non-migrant at the time of the 2011 census was almost 10 percent smaller than it was at the time of the 2006 census. However, the absolute number of non-migrants had increased by 2,128 in 2011 as a result of natural increase in the population.

Table 7: Total population by residential status on census night compared with census five years prior, 2006 and 2011

Residential status	2006 census		2011 census	
	number	%	number	%
1. Non-migrants	70,108	79.5	72,236	70.0
2. Intra-division migrants	7,805	8.8	7,617	7.4
3. In-migrants from other divisions	5,875	6.7	5,879	5.7
4. In-migrants from abroad	4,057	4.6	3,806	3.7
5. Not yet born	13,782	13.5	13,499	13.1
6. Not specified	364	0.4	215	0.0
Total population	101,991	100	103,252	100

Source: Data adapted from 2006 & 2011 Census of Population and Housing, Tonga Statistics Department Census & Secretariat of the Pacific Community, 2008 & 2014.

In general, inter-division migration increased slightly between the two intercensal periods. On the other hand, intra-division migration decreased by 2.4 percent between the same intervals. When combined, both intra- and inter-division migration between 2001-2006 and 2006-2011 show a decline in numbers of migrants by 1.3 percent. This will be discussed further in the next section (i.e., the pattern of inter-division migrants).

The largest group of migrants for both censuses comprised people who changed their place of residence within the division. These intra-division movers make up respectively about 9 percent and 7 percent of the populations of the 2006 and 2011 censuses. They are a component of the migrant population in Tonga that has been rarely analysed and discussed in Tonga before. When comparing intra- and inter-division migration, intra-division migration is higher by almost 2 percent.

This is not the case in all divisions though, because the spatial distribution of population, across divisions, is quite uneven. For instance, Tongatapu division is home 71 percent (2006) and 73 percent (2011) of the total population of Tonga, and therefore it has a more dominant role in influencing migration patterns (I will further discuss intra-division migration in the next section). The other point to consider is that the five-year time frame used when defining a move limits the amount of migration and population redistribution that is counted. If we combine those who changed their residence in last five years – i.e. the intra- and the inter-division movers - then migrants make up almost 16 and 14 percent respectively of the populations in 2006 and 2011. It can be seen from this quantitative analysis of the two types of migration flow that the majority of the migrants move over rather short migration distances within divisions rather than longer distances associated with inter-division migration.

Tongans also migrate back to Tonga from overseas in what is usually called 'return migration', whether short term, long term or permanent. It can be seen from the figures in Table 7 that quite significant numbers of return migrants were present in both censuses. It is important to acknowledge the numbers of migrants from abroad who contribute to the total de facto population of Tonga at each census.

It is also important to acknowledge the very small growth in the total population of Tonga between the two censuses – only 1,261 or just over 1 percent (Table 7). This is a clear reflection of the on-going significance of emigration from Tonga, especially given that natural increase in the population continues to be over 3 percent per annum.

Inter-division Migration and Population Re-distribution

Tables 8 and 9 summarise inter-division (in-and out-migrants) migration for the two five year periods, 2001 - 2006 and 2006 - 2011.

Table 8: Inter-division migration in Tonga, by division of residence in 2001 and 2006

Division of Residence in 2006	Division of Residence in 2001					In-migration 2001-2006
	Tongatapu	Vava'u	Ha'apai	Eua	Ongo Niuva	
Tongatapu	* ¹¹	1,341	1,013	524	385	3,263
Vava'u	705	*	102	32	39	878
Ha'apai	705	100	*	30	19	854
Eua	484	60	54	*	9	607
Ongo Niuva	176	51	26	20	*	273
Out-migration 2001-2006	2,070	1,552	1,195	606	452	5,875

Source: Data adapted from 2006 Census of Population and Housing, Tonga Statistics Department Census & Secretariat of the Pacific Community, 2008.

Row 1 of Table 8 gives the in-migrant streams to the Tongatapu division between 2001 and 2006 by their division of origin (i.e., the residence in 2001). More than 3,200 migrants came to Tongatapu between 2001 and 2006, and of those 1,341 were living in Vava'u division in 2001, around 1,000 in the Ha'apai division, 500 in 'Eua, and about 385 in Ongo Niuva.

¹¹ Intra-division migration (migration within the division; intra-and inter-district or inter-village migration).

As seen from column 1 of the table, the out-migrants from Tongatapu were around 2,000 total persons for the same inter-census period. About 700 of these went to Vava'u, same as for Ha'apai, about 484 to 'Eua and finally about 176 migrants went to Ongo Niua. As a result of these movements, the Tongatapu division had a net gain of 1,193 (3,263-2,070) migrants. The following section will discuss net migration and rate in greater detail. (Also see the Appendix 4, Map A3 – A7 for percentage of in-and out-migration from each division, 2001-2006).

Table 9: Inter-divisional migrants in Tonga by division of residence in 2006 and division of residence in 2011

Division of Residence in 2011	Division of Residence in 2006					In-migration 2006-2011
	Tongatapu	Vava'u	Ha'apai	Eua	Ongo Niua	
Tongatapu	* 1	1,433	942	528	290	3,193
Vava'u	755	*	128	91	70	1,044
Ha'apai	688	98	*	43	15	844
Eua	532	65	33	*	8	638
Ongo Niua	93	31	12	24	*	160
Out-migrants 2006-2011	2,068	1,627	1,115	686	383	5,879

Source: Data adapted from 2011 Census of Population and Housing, Tonga Statistics Department Census & Secretariat of the Pacific Community, 2014.

Table 9 has the same migration pattern as Table 8, where Tongatapu dominates the in-migrant streams from the other divisions of residence between 2006 and 2011. Around 3,200 migrants came to Tongatapu between 2006 and 2011: 1,433 were living in Vava'u in 2006, more than 900 in Ha'apai, about 500 in 'Eua, and more than 200 in Ongo Niua. The out-migrants from Tongatapu were more than 2,000 between 2006 and 2011. About 755 of these went to Vava'u, 688 to Ha'apai, and 532 to 'Eua and finally only 93 migrants went to Ongo Niua. (Also see Appendix 4, Maps A11 - A15 for percentage of in-and out- migration from each division, 2006-2011).

In both censuses only the Tongatapu division had a net gain in population as a result of inter-division internal migration between 2001 and 2011. The total number of inter-division migrants in each period increased by only 4 migrants – from 5,875 in 2001-2006 to 5,879 in 2006-2011 (Tables 8 and 9). These small differences indicate that the pattern of inter-division migration is fairly consistent. The direction and magnitude of flows during the two inter-census periods were largely consistent, with the outer island divisions losing population and Tongatapu gaining population (Tonga Department of Statistics & Secretariat and Pacific and Community, 2014). For both five-year periods the largest flows were between Tongatapu on the one hand and Vava’u and Ha’apai on the other. The flows between Vava’u and Ha’apai seem to indicate a significant consistent connection. The Ongo Niua division, comprising the small far-north islands, had the smallest flows, even though migrants comprise a larger share of their population by comparison with other divisions. Both Tables 8 and 9 show a sizeable migration flow between ‘Eua and Tongatapu. Because of proximity much of the movement between these islands is likely to be cyclical (two-way flow and short-term migration). By contrast, there is a large probability of a one-way flow between the more distant northern outer islands and Tongatapu.

Inter-division Migration with Three Residences

According to the UN *Methods of Measuring Internal Migration* (1970), cross-classifying place of birth by place of residence 5 years ago greatly increases the analytical potential of the data. However, from a statistical point of view, there is little real value gained from including of place of birth of a person in the sort of analysis that is being carried out here, because place of birth tells us is nothing about mobility in a real sense – just where a person happened to be born. Place of birth acts simply as a nominal value, a reference point for the onset of a person’s migratory history.

Tables 10 and 11 provide cross tabulations of three reference points for each person which are: division of current residence; division of residence five years before the census; and the last one is the division where the person was born.

Row one of Table 10 shows the people born in Tongatapu who changed their division of residence in the five years before the census in 2006. From a total of 7,730 born in Tongatapu Division, 3,976 did not move outside of the division but they could have moved around within the villages and districts on Tongatapu division. A total of 3,617 migrants (local movement) were resident in Tongatapu in 2006, and most of the in-migrants showed their place of birth as being Vava'u (503), 535 from Ha'apai, Eua (125) and 129 from Ongo Niua. Migrants born in Ha'apai were the largest group (535) to move to Tongatapu between 2001 and 2006. There is no doubt that the main destination for population moving from and to other divisions is the Tongatapu division.

Table 10: Division of residence in 2006, division of residence in 2001 and division of birth for the population in 2006

Division of residence in 2006 and 2001	Division of place of birth					
	Tongatapu	Vava'u	Ha'apai	Eua	Ongo Niua	Total
Tongatapu_2006 Division of Residence in 2001	<u>3,976</u>	<u>1,565</u>	<u>1,344</u>	<u>430</u>	<u>415</u>	<u>7,730</u>
Tongatapu	3,617	503	535	125	129	4,909
Vava'u	114	955	61	4	18	1,152
Ha'apai	110	52	700	17	4	883
Eua	88	28	24	280	18	438
Ongo Niua	47	27	24	4	246	348
Vava'u_2006 Division of Residence in 2001	<u>471</u>	<u>584</u>	<u>114</u>	<u>14</u>	<u>33</u>	<u>1,216</u>
Tongatapu	368	96	38	6	10	518
Vava'u	58	468	23	1	9	559
Ha'apai	21	7	53	-	-	81
Eua	12	4	-	7	-	23
Ongo Niua	12	9	-	-	14	35
Ha'apai_2006 Division of Residence in 2001	<u>458</u>	<u>146</u>	<u>475</u>	<u>39</u>	<u>25</u>	<u>1,143</u>
Tongatapu	359	38	88	13	9	507
Vava'u	4	71	7	2	1	85
Ha'apai	85	31	374	10	7	507
'Eua	5	3	3	14	-	25
Ongo Niua	5	3	3	-	8	19
Eua_2006 Division of Residence in 2001	<u>380</u>	<u>96</u>	<u>93</u>	<u>151</u>	<u>21</u>	<u>741</u>
Tongatapu	306	40	37	13	10	406
Vava'u	9	38	1	3	2	53

Ha'apai	9	3	36	1	-	49
Eua	53	13	19	134	5	224
Ongo Niua	3	2	-	-	4	9
Ongo Niua_2006	<u>118</u>	<u>60</u>	<u>14</u>	<u>15</u>	<u>50</u>	<u>257</u>
Division of Residence in 2001						
Tongatapu	93	17	2	1	10	123
Vava'u	9	30		1	-	40
Ha'apai	6	5	10	-	1	22
Eua	5	-	1	12	1	19
Ongo Niua	5	8	1	1	38	53

Source: Data adopted from 2006 Census of Population and Housing, Tonga Department of Statistics, 2008.

Note: sign “-” indicates as zero or 0, instead of leave it as blank and seem like a missing number.

There is an increase of the number of migrants in 2006, as recorded in 2011 census, shown in Table 11, compared to Table 10. The 2011 census reveals that only Tongatapu and Vava'u increased their migrants. Tongatapu increased by 2.7 percent $((7,942-7,737)/7,737*100)$, while Vava'u went up by more than 18 percent $((1,438-1,216)/1,216*100)$. The rest of the divisions (Ha'apai, Eua and Ongo Niua) saw a decrease in their total migrants both during 2001 - 2006 and 2006 - 2011. There are a lot of measures shown in Tables 10 and 11 but this section focuses on the characteristics of the inter-division migration.

Table 11: Division of residence in 2011, division of residence in 2006 and division of birth for the population for last 5 years before census 2011

Division of residence in 2011 and 2006	Division of place of birth					
	Tongatapu	Vava'u	Ha'apai	Eua	Ongo Niua	Total
Tongatapu_2011	<u>4,065</u>	<u>1,693</u>	<u>1,358</u>	<u>457</u>	<u>369</u>	<u>7,942</u>
Division of residence in 2006						
Tongatapu	3,662	579	583	159	133	5,116
Vava'u	168	1,017	61	17	19	1,282
Ha'apai	96	50	675	9	15	845
Eua	101	29	33	268	9	440
Ongo Niua	38	18	6	4	193	259
Vava'u_2011	<u>540</u>	<u>633</u>	<u>165</u>	<u>53</u>	<u>47</u>	<u>1,438</u>
Division of residence in 2006						
Tongatapu	379	70	64	18	12	543
Vava'u	109	518	26	1	7	661
Ha'apai	13	15	70	1	-	99
Eua	22	14	3	33	2	74
Ongo Niua	17	16	2	-	26	61

Ha'apai_2011 Division of residence in 2006	<u>388</u>	<u>164</u>	<u>290</u>	<u>41</u>	<u>27</u>	<u>910</u>
Tongatapu	321	60	79	6	11	477
Vava'u	8	65	7	5	2	87
Ha'apai	52	32	197	8	5	294
Eua	5	4	6	22	1	38
Ongo Niua	2	3	1	-	8	14
'Eua_2011 Division of residence in 2006	<u>331</u>	<u>92</u>	<u>79</u>	<u>115</u>	<u>21</u>	<u>638</u>
Tongatapu	293	44	40	34	14	425
Vava'u	11	42	6	1	-	60
Ha'apai	8	-	21	-	-	29
Eua	19	4	12	80	1	116
Ongo Niua	-	2	-	-	6	8
Ongo Niua_2011 Division of residence in 2006	<u>63</u>	<u>38</u>	<u>18</u>	<u>12</u>	<u>31</u>	<u>162</u>
Tongatapu	42	4	6	3	5	60
Vava'u	3	20	3	-	-	26
Ha'apai	5	1	5	1	-	12
Eua	6	7	2	6	1	22
Ongo Niua	7	6	2	2	25	42

Source: Data adopted from 2011 Census of Population and Housing, Tonga Department of Statistics, 2014.

Note: sign “-” indicates as zero or 0, instead of leave it as blank and seem like a missing number.

Inter-division and Inter-district Net Migration Flow

Inter-division migration between 2001 and 2006 is summarised in Table 12 (see also Maps A5 – A10 in Appendix 4). Only Tongatapu and 'Eua had net migration gains, and in 'Eua's case it was only 1 person. All the northern divisions (Vava'u, Ha'apai and Ongo Niua) had net migration losses during the period 2001 to 2006. The largest net losses were to the populations of Vava'u and Ha'apai. In the same intercensal period, Table 14 shows at the district level, that out of 23 districts, only 7 districts had net migration gains: 5 from Tongatapu, and 2 from the outer island divisions. Those districts with the largest net gains were Kolofo'ou, Kolomotu'a and Vaini. The districts with the largest net losses were Neiafu, Leimatu'a and Hihifo, all from Vava'u, and Lulunga from Ha'apai, and Niuatoputapu from Ongo Niua (Table 14).

Net migration gains and losses in the 2006-2011 intercensal period were largely the same, with Tongatapu division and district gaining population, and the outer islands divisions and districts all losing population (Table 13 and see Maps A8 – A12 in Appendix 4). The Ongo Niuva division joins Vava’u and Ha’apai with the largest net losses. ‘Eua marked the smallest losses but had shifted from a small net gain in the 2001 – 2006 period. Most of the districts that recorded net migration gains and losses between 2006 and 2011 were the same as the ones that had these gains and losses between 2001 and 2006 (Table 15). Two districts, Nukunuku and Lulunga recorded net migration losses between 2001 and 2006, but had net gains between 2006 and 2011. The three leading districts which had net gains in both intercensal periods were Kolofo’ou, Kolomotu’a and Vaini. Neiafu had one of the largest net losses between 2001-2006, and while there was still a net loss between 2006 and 2011, it was one of the smallest recorded at the district level. Leimatu’a, Hihifo, Niuatoputapu continued to have largest net losses and Hahake district joined this group in 2006 – 2011.

Table 12: Total migrants' last five years' residence (2001) and migration rate by division, census 2006

Division	Migration Number						Migration rate / 1000				
	Total population-2006	Intra-division migration	In - migration	Out- migration	Gross inter-division migration	Net migration	MER ¹² /100	In- migration rate	Out- migration rate	Gross inter-division migration rate	Net migration rate
Tongatapu	72,045	6,077	3,263	2,070	5,333	1,193	22	45	29	24	17
Vava'u	15,505	728	878	1,552	2,430	-674	-28	57	100	157	-43
Ha'apai	7,570	646	854	1,195	2,049	-341	-17	113	158	271	-45
Eua	5,206	278	607	606	1,213	1	0	117	116	233	0
Ongo Niua	1,665	76	273	452	725	-179	-25	164	271	435	-108
Total	101,991	7,805	5,875	5,875	11,750	0	0	58	58	115	0

Source: Data adapted from 2006 Census of Population and Housing, Tonga Department of Statistics & Secretariat of the Pacific Community, 2008.

Table 13: Total migrants' last five years' residence (2006) and migration rate by division, census 2011

Division	Number						Migration rate / 1000				
	Total population-2011	Intra-division migration	In- migration	Out- migration	Gross inter-division migration	Net migration	MER /100	In- migration rate	Out- migration rate	Gross inter-division migration rate	Net migration rate
Tongatapu	75,416	6,213	3,193	2,068	5,261	1,125	21	42	27	70	15
Vava'u	14,922	821	1,044	1,627	2,671	-583	-22	70	109	179	-39
Ha'apai	6,616	385	844	1,115	1,959	-271	-14	128	169	296	-41
Eua	5,016	145	638	686	1,324	-48	-4	127	137	264	-10
Ongo Niua	1,282	53	160	383	543	-223	-41	125	299	424	-174
Total	103,252	7,617	5,879	5,879	11,758	0	0	57	57	114	0

Source: Data adapted from 2011 Census of Population and Housing & Secretariat of the Pacific Community, Tonga Department of Statistics, 2014.

¹² Migration Effectiveness Rate

Table 14: Total migrants' last five years' residence (2001) and migration rate by district, census 2006

Division/District	Number						Migration rate / 1000				
	Total population-2006	Intra-district migration	In-migration	Out-migration	Gross inter-district migration	Net migration	MER /100	In-migration rate	Out-migration rate	Gross inter-district migration rate	Net migration rate
Tongatapu											
Kolofo'ou	18,463	960	1,912	1,421	3,333	491	15	104	77	181	27
Kolomotu'a	15,848	367	1,830	1,344	3,174	486	15	115	85	200	31
Vaini	12,594	361	1,235	992	2,227	243	11	98	79	177	19
Tatakamotonga	6,969	95	677	627	1,304	50	4	97	90	187	7
Lapaha	7,255	179	572	626	1,198	-54	-5	79	86	165	-7
Nukunuku	6,820	91	562	637	1,199	-75	-6	82	93	176	-11
Kolovai	4,096	43	456	404	860	52	6	111	99	210	13
Vava'u											
Neiafu	5,787	81	640	808	1,448	-168	-12	111	140	250	-29
Pangaimotu	1,412	13	122	170	292	-48	-16	86	120	207	-34
Hahake	2,422	54	214	282	496	-68	-14	88	116	205	-28
Leimatu'a	2,742	16	157	312	469	-155	-33	57	114	171	-57
Hihifo	2,267	13	139	275	414	-136	-33	61	121	183	-60
Motu	875	19	138	237	375	-99	-26	158	271	429	-113
Ha'apai											
Pangai	2,967	96	436	521	957	-85	-9	147	176	323	-29
Foa	1,479	83	212	206	418	6	1	143	139	283	4
Lulunga	1,075	48	180	331	511	-151	-30	167	308	475	-140
Mu'omu'a	630	7	148	192	340	-44	-13	235	305	540	-70
Ha'ano	619	7	106	150	256	-44	-17	171	242	414	-71
Uiha	800	8	169	192	361	-23	-6	211	240	451	-29
'Eua											
Eua Motu'a	2,949	128	454	461	915	-7	-1	154	156	310	-2
Eua Fo'ou	2,257	42	261	253	514	8	2	116	112	228	4
Ongo Niua											
Niuaatoputapu	1,019	50	171	296	467	-125	-27	168	290	458	-123
Niuafo'ou	649	16	112	166	278	-54	-19	173	257	430	-84
Total	101,991	2,777	10,903	10,903	21,806	0	0	107	107	214	0

Source: Data adapted from 2006 Census of Population and Housing, Tonga Department of Statistics Secretariat of the Pacific Community, 2008.

Table 15: Total migrants' last five years' residence (2006) and migration rate by district, census 2011

District level	Number						Migration rate / 1000				
	Total population-2011	Intra-district migration	In-migration	Out-migration	Gross inter-district migrants	Net migration	MER /100	In-migration rate	Out-migration rate	Gross inter-district migration rate	Net migration rate
Tongatapu											
Kolofu'ou	18,957	540	1,839	1,588	3,427	251	7	97	84	181	13
Kolomotu'a	17,088	520	2,108	1,591	3,699	517	14	123	93	216	30
Vaini	12,949	328	1,258	1,073	2,331	185	8	97	83	180	14
Tatakamotonga	7,233	141	717	627	1,344	90	7	99	87	186	12
Lapaha	7,380	113	532	628	1,160	-96	-8	72	85	157	-13
Nukunuku	7,733	121	731	614	1,345	117	9	95	79	174	15
Kolovai	4,076	61	397	336	733	61	8	97	82	180	15
Vava'u											
Neiafu	5,774	134	703	740	1,443	-37	-3	122	128	250	-6
Pangaimotu	1,325	17	130	190	320	-60	-19	98	143	242	-45
Hahake	2,297	32	195	296	491	-101	-21	85	129	214	-44
Leimatu'a	2,436	17	213	406	619	-193	-31	87	167	254	-79
Hihifo	2,105	19	207	325	532	-118	-22	98	154	253	-56
Motu	985	19	179	253	432	-74	-17	182	257	439	-75
Ha'apai											
Pangai	2,410	39	375	527	902	-152	-17	156	219	374	-63
Foa	1,359	14	161	203	364	-42	-12	118	149	268	-31
Lulunga	1,055	14	254	228	482	26	5	241	216	457	25
Mu'omu'a	609	5	122	165	287	-43	-15	200	271	471	-71
Ha'ano	511	9	109	132	241	-23	-10	213	258	472	-45
Uiha	672	4	123	160	283	-37	-13	183	238	421	-55
'Eua											
Eua Motu'a	2,852	28	419	426	845	-7	-1	147	149	296	-2
Eua Fo'ou	2,164	51	285	326	611	-41	-7	132	151	282	-19
Ongo Niua											
Niutatoputapu	759	27	90	292	382	-202	-53	119	385	503	-266
Niuafo'ou	523	4	92	113	205	-21	-10	176	216	392	-40
Total	103,252	2,257	11,239	11,239	22,478	0	0	109	109	218	0

Source: Data adapted from 2011 Census of Population and Housing, Tonga Department of Statistics & Secretariat of the Pacific Community, 2014.

Gross Migration Flows: Inter-division and Inter-district

Gross migration flows comprise the sum of in-migrants and out-migrants. They are calculated to demonstrate the overall magnitude of mobility between particular spatial or administrative units. The gross migration flows at the division and district levels are shown in Tables 12 – 15.

Tongatapu had the largest total exchange of migrants with other divisions, with 5,333 crossing its divisional boundary. The total number of in-migrants (3,263) outnumbered the out-migrants (2,070) producing the net migration gain mentioned above. The rate of in-migration to Tongatapu is thus higher than the out-migration rate - 45/1000 to 29/1000 respectively.

Vava'u (2,430), and Ha'apai (2,049) had the next highest gross flows while 'Eua (1,213) and Ongo Niua (723) had the smallest reflecting their small population sizes. Between 2006 – 2011, Tongatapu remained the division with the largest gross flow with 5,261, followed by Vava'u (2,671), Ha'apai (1,959), 'Eua (1,324) and Ongo Niua (54). Three divisions—Vava'u, 'Eua and Ongo Niua—had a marked increase in the magnitude of their gross flows between 2006 and 2011 compared with the flows between 2001 and 2006 (Tables 12 and 13, and also see Maps A3 – A7 and A8 – A12 in Appendix 4).

Table 14 presents data for migration flows and rates at the district level, between 2001 and 2006. Out of 23 districts, two districts had more than 3,000 in their gross migration exchanges: Kolofo'ou (3,333) and Kolomotu'a (3,174). Tonga's main urban area is located within the boundaries of the districts of Kolofo'ou and Kolomotu'a. Only one other district in central Tongatapu, Vaini, had more than 2,000 gross migrants. In the rest of the country four other districts had gross flows ranging between just over 1,300 to just under 1,200: Tatakamotonga (1,304), Lapaha (1,198), Nukunuku (1,199) all from Tongatapu, and Neiafu (1,448) from Vava'u. The sixteen districts that share the smallest gross flows are mainly in Vava'u, Ha'apai and the Ongo Niua division. A similar pattern was found between 2006 and 2011 (Table 15).

As suggested above, there is a close link between the size of the population and their gross migration flows. There are some considerable variations in the distance, nature and rate of movements because of the distance from island to island especially in Ha'apai and Vava'u divisions. Distance is the major factor of movement especially in the case of Ongo Niua.

Intra-division Migration at the District Level, specifically on Tongatapu

Intra-division migration breaks down into two types of mobility: movement within the district (or intra-district) and movement between the district (or inter-district), as shown in Table 16. Both movements are the result of movement from village to village (or inter-village mobility). Inter-village movement is the lowest level of spatial mobility that can be assessed using Tongan census data.

Intra-division mobility is higher than movement between divisions (inter-division mobility). Of the total intra-division migration between 2001 and 2011, 7,805 moved between years 2001 and 2006 and 7,617 between 2006 and 2011. This overall decrease was due to the decrease of internal district movement in Ha'apai, Eua and Ongo Niua. For both intercensal periods only Tongatapu and Vava'u had increased intra-divisional mobility, but the total for Tongatapu is five times bigger than all of the other divisions. In terms of migration flows at the district level, for both intercensal periods, inter-district mobility is always higher than intra-district mobility, except in the cases of 'Eua and Ongo Niua. In both Ongo Niua and 'Eua, movement between districts is less than movement within the district.

Table 16: Intra-division migrants in Tonga, by division of residence in 2001 and 2006 and division of enumeration in 2006 and 2011

Division of Residence 2006 & 2011	2001-2006			2006-2011		
	Total intra-district migration	Total inter-district migration	Total intra-division migration	Total intra-district migration	Total inter-district migration	Total Intra-division migration
Tongatapu	2,096	3,981	6,077	1,824	4,389	6,213
Vava'u	196	532	728	238	583	821
Ha'apai	249	441	646	85	300	385
'Eua	170	108	278	79	66	145
Ongo Niua	66	10	76	31	22	53
Total	2,733	5,072	7,805	2,257	5,360	7,617

Source: Data adapted from 2006 & 2011 Census of Population and Housing, Tonga Statistics Department & Secretariat of the Pacific Community, 2008 & 2011.

Table 16 shows that over three quarters (78 percent or 6,077) of the migrants in the 2001-2006 period moved within Tongatapu division, compared to only 22 percent (728+646+278+76=1,728) of migrants in all other divisions. During the five years 2006-2011, 80 percent (6,213) of the migrant population in Tongatapu moved within the division. This means that in both periods Tongatapu had four times the migration than a combination of the other four divisions' intra—division migration. Intra-division migration on Tongatapu is analysed further in the next section given the importance of this for Tonga's internal migration between censuses.

Tongatapu's Intra-division Migration

Tables 17 and 18 contain Tongatapu division's migration matrices for the period 2001–2006 and 2006–2011. Of the total intra-division migrants in Table 17, 6,077 moved within the division of Tongatapu between 2001 and 2006 and 6,213 during the following five-year period. (Also see Maps A13 – A19 in Appendix 5 for the percentage of inter- and intra- district migration in Tongatapu division in the period between 2001 and 2006). On the other hand, total intra-district migration (2,096) between 2001 and 2006 fell to 1,172 during the following five-year period.

At the same time, the total inter-district migration increased by 417 correspondingly.

Table 17: Intra- and inter-district migration in Tongatapu division between 2001 and 2006

District of residence - 2006	District of residence - 2001							Total	Intra-district migration	Inter-district migration
	Kolofo'ou	Kolomoto'u'a	Vaini	Tatakamotonga	Lapaha	Nukunuku	Kolovai			
Kolofo'ou	960	377	200	103	108	81	72	1,901	960	941
Kolomoto'u'a	413	367	139	112	63	101	67	1,262	367	895
Vaini	219	180	361	95	94	125	36	1,110	361	749
Tatakamotonga	65	110	91	95	95	49	20	525	95	430
Lapaha	70	68	78	68	179	47	28	538	179	359
Nukunuku	69	48	66	35	52	91	56	417	91	326
Kolovai	57	68	59	19	32	46	43	324	43	281
Total	1,853	1,218	994	527	623	540	322	6,077	2,096	3,981

Source: Tonga Statistics Department & Secretariat of the Pacific Community, Census of Population and Housing, 2006.

Note: Highlighted in yellow is intra-district migration in Tongatapu.

Table 18: Intra- and inter-district migration in Tongatapu division between 2006 and 2011

District of residence - 2011	District of residence - 2006							Total	Intra-district migration	Inter-district migration
	Kolofo'ou	Kolomoto'u'a	Vaini	Tatakamotonga	Lapaha	Nukunuku	Kolovai			
Kolofo'ou	540	428	193	124	102	112	35	1,534	540	994
Kolomoto'u'a	528	520	242	139	108	89	90	1,716	520	1,196
Vaini	207	197	328	88	84	91	48	1,043	328	715
Tatakamotonga	76	100	100	141	107	33	26	583	141	442
Lapaha	77	89	80	47	113	60	23	489	113	376
Nukunuku	67	72	105	44	53	121	50	512	121	391
Kolovai	42	85	42	28	28	50	61	336	61	275
Total	1,537	1,491	1,090	611	595	556	333	6,213	1,824	4,389

Source: Tonga Statistics Department & Secretariat of the Pacific Community, Census of Population and Housing, 2011.

Note: Highlighted in yellow is intra-district migration within Tongatapu.

As mentioned earlier, total inter-district migration is greater than total intra-district migration; this may be because of a multitude of dimensions of push and pull factors that cause individuals to move from one place to another. However, one of the common spatial answers is that the size of the population and area play a major role as well, given that these have a direct impact on the number of districts and villages within the division. Intra-district migration is influenced by the number of villages and size of population within that district.

Only the Kolofo'ou district in the five years prior to censuses in 2006 and 2011 had intra-district movement which was bigger than inter-district migration. (Also see Maps A20 - A26 in Appendix 5 for the percentage of the inter- and intra-district migration in Tongatapu division in the period of 2006 - 2011). The size of intra-district movement at Kolofo'ou is three times greater than in Kolomotu'a and Vaini districts which had the second largest intra-district flows. Again, as mentioned earlier, the size of each flow is strongly related to the size of population in each district. The district with the smallest movement flows within districts were: Tatakamotonga, Lapaha, Nukunuku, and Kolovai.

The main reason, apart from population size, that Tongatapu has far greater intra- and inter-district migration than other divisions is because there are no barriers to travel and transport. In addition, within Tongatapu there is a relatively lower cost of transport and it has more employment opportunities (outside of agriculture) than other parts of the island.

Kolofo'ou had a net gain only from Tatakamotonga, Lapaha, Nukunuku, and Kolovai, and net loss to Kolomotu'a and Vaini (Table 17). Those two districts, Vaini and Kolomotu'a, are neighbouring districts of Kolofo'ou, and apart from that, potential areas for extended urban settlement are readily available here. Similar to Kolomotu'a, there was a net gain from Kolofo'ou, Vaini, Lapaha, and a marginal gain from Kolovai district, and net loss to Tatakamotonga and Nukunuku districts. Overall, out of seven districts in Tongatapu, only four districts had net gains from all other districts—those were Kolofo'ou, Kolomotu'a, Vaini, and Kolovai. The

others had net losses - Tatakamotonga, Lapaha and Nukunuku, during the five-year period to the 2006 census.

Table 18 shows the same districts had the same pattern of intra- and inter-migration between 2006 and 2011 as they had in the previous period. In both intercensal periods, Kolofo'ou, Kolomotu'a and Vaini districts had the largest flows of intra-district migration. In the 2006-2011 period, Kolofo'ou's inflow dropped by 420 from the 960 of the 2001-2006 period, whereas movement within Kolomotu'a's boundary increased by 153 people as it did in the other districts, such as Tatakamotonga, Nukunuku and Kolovai.

Regarding mobility between the districts during the same period, Kolomotu'a experienced a big increase mainly because of the number of in-migrants from other districts, especially the total of 528 from Kolofo'ou, Vaini (242), Tatakamotonga (139), Lapaha (108), and 179 people from both Nukunuku and Kolovai district. Kolomotu'a and Kolofo'ou continued to be the districts having the largest in-migrant flows, while Vaini had larger flows of in-migrants than Tatakamotonga, Lapaha, Nukunuku, and Kolovai districts (Table 18). The pattern of inter-district migration within Tongatapu is relatively strong, because out of seven districts, six increased their total inter-district flows.

Rural–Urban Migration

The drift of population from rural to urban areas in Tonga requires consideration of three regions: the urban area of Tongatapu, the area called Tongatapu rural which is outside the urban boundary, and outer islands rural which includes all the districts and villages of 'Eua, Vava'u, Ha'apai and the Onga Niua divisions. It is important to consider Tongatapu rural as a separate rural region from the outer island rural region because of its geographical proximity to the urban area and some major differences in social and economic conditions and opportunities associated with being in close proximity to the main urban area and the services, facilities, businesses and employment associated with a large town.

The migration matrices in Tables 19 - 21 and 22 - 23 show the flows within and between these three urban/rural regions and the gross and the net migration rates for the two intercensal periods. This section examines in-migration and out-migration from each region, in order to assess the gains and losses to rural and urban areas in Tonga.

There have been small increases in rural-urban and urban-rural migration between 2006 and 2011 (Table 19). The total number of people who moved from Tongatapu rural to Tongatapu urban increased from 1,043 to 1,191 people in the period of 2006 to 2011. Between 2001 and 2006 the net migration loss from outer island rural to urban areas and Tongatapu rural was 1,193. By 2006–2011, this net loss had decreased slightly to 1,125 persons. (See Table 20 and detail in 21).

Table 19: Rural-Urban and Urban– Rural migration flows, 2001-2011

Migration flow	2001-2006		2006-2011	
	Number	% of total	Number	% of total
Tongatapu Rural - Urban	1,043	30.7	1,191	37.6
Outer Island Rural - Urban	1,251	36.8	1,157	36.6
Urban - Tongatapu Rural	1,104	38.7	1,132	41.9
Urban - Outer Island Rural	649	22.7	754	27.9

Source: Tonga Department of Statistics, Census of Population and Housing, 2006 & 2011.

When the two rural components are combined as one flow into urban areas it is evident from Table 19 that there has been only a small numerical increase in the migration of people from rural to urban areas over the two five year periods. Between 2001 and 2006 a total of 2,294 people moved from rural to urban areas; over the next five year period, this number was 2,338 – an increase of 54 during over the previous period (Table 19). When movement from Tongatapu urban to Tongatapu rural and outer island rural are aggregated, there was a slightly larger increase (133): from 1,753 between 2001 and 2006 to 1,886 between 2006 and 2011 (Table 19). This result challenged a widely held view that there is mainly a one-way flow of population in Tonga from rural to urban areas. However, this

study demonstrates that the time-honoured pattern of reciprocal migration flows between rural and urban areas applies in Tonga as much as it does in other parts of the world. As Ravenstein (1885), in his influential ‘laws of migration’ published in the late 19th century points out, each migration flow produces a compensating counterflow. This is clearly evident in the data on the exchanges of population between Tonga’s rural and urban areas (Tables 19, 20 and 21).

Table 20: Measures of Migration between Rural and Urban Areas, 2001-2006

Region of residence in 2006	Region of residence in 2001				Intra-migration	In-migration	Out-migration	Gross-migration	Net-migration
	Urban	Tongatapu Rural	Outer Island Rural	Total					
Urban	1,103	1,043	1,251	3,397	1,103	2,294	1,750	4,044	544
Tongatapu Rural	1,104	2,827	2,012	5,943	2,827	3,116	2,467	5,583	649
Outer Island Rural	646	1,424	2,270	4,340	2,270	2,070	3,263	5,333	119
Total	2,853	5,294	5,533	13,680 ¹³	6,200	7,480	7,480	14,960	0

Source: Tonga Department of Statistics, Census of Population and Housing, 2006.

Table 21: Migration Flows and Net Migration between Urban and Rural Areas, 2001-2006

2001-2006	in-migration		out-migration		net-migration	
	Tongatapu Rural	Outer Islands Rural	Tongatapu Rural	Outer Islands Rural	Tongatapu Rural	Outer Islands Rural
Urban	1,043	1,251	1,104	646	-61	605
Tongatapu Rural	1,104	2,012	1,043	1,424	61	588
Outer Islands Rural	646	1,424	1,251	2,012	-605	-588

Source: Tonga Department of Statistics, Census of Population and Housing, 2006.

¹³ Total population who changed their residence five years before 2006

The percentage of people who moved from Tongatapu rural to urban areas increased from 31 to 38 percent during the period of 2006 to 2011. The corresponding outer island rural drift to Tongatapu urban areas is much higher than the absolute number of Tongatapu rural-urban, but increases between the two intercensal periods are consistently the same. In return, percentages increased by 3 percent over the two periods when the migration flow was directed from urban to Tongatapu rural and also by 5 percent from urban to outer island rural.

These figures indicate that the major increases in migration are occurring in both directions between Tongatapu's rural and urban areas. The urban-outer island rural migration flow is also increasing but numbers are small, while there continues to be consistent out-migration from the outer Island rural to both Tongatapu urban and Tongatapu rural during the two intercensal periods.

Between 2001 and 2006 (Table 21), the net migration loss from outer Island rural to both urban and Tongatapu rural was 1,193 ((-605) + (-588)). The loss was mainly due to the large out-migration to Tongatapu rural (2,012) and Tongatapu urban (1,251). Out-migration from outer island rural exceeds the total in-migration flows into this region. The same net migration loss occurred in the period 2006 and 2011 (Table 22) but decreased to 1,125 persons (Table 23). The loss from outer Island rural areas to Tongatapu rural is far greater than the loss to the urban areas, over the period of 2001-2006 and 2006-2011. It appears that during the period 2006-2011 migrants from outer Island rural were seeking places on Tongatapu to reside that were outside the urban area's boundary, while in the period of 2001-2006 and before there was still space available in the Tongatapu urban area. This means the number of out-migrants from outer island rural to Tongatapu urban decreased during the period in 2006 - 2011, while migration to Tongatapu rural increased during the same period.

Tongatapu rural had more out-migration to outer Island rural than to the urban areas during both five year periods (Table 20 - 21 & 22 - 23). Over the same periods Tongatapu rural had the highest net migration gain from urban and outer island

rural. In addition, Tongatapu rural's net migration gain increased from 649 to 663 during 2001-2006 and 2006-2011 correspondingly. This indicated that Tongatapu rural was gaining more people both from outer island rural and Tongatapu urban, whereas outer Island rural lost more people to urban and Tongatapu rural.

Table 22: Measures of Migration between Rural and Urban Areas, 2001-2006

Region of enumeration & residence of 2011	Region of residence in 2006				Intra-migration	In-migration	Out-migration	Gross-migration	Net-migration
	Urban	Tonga-tapu Rural	Outer Island Rural	Total					
Urban	816	1,191	1,157	3,164	816	2,348	1,886	4,234	462
Tongatapu Rural	1,132	3,074	2,036	6,242	3,074	3,168	2,505	5,673	663
Outer Island Rural	754	1,314	2,022	4,090	2,022	2,068	3,193	5,261	-1,125
Total	2,702	5,579	5,215	13,496 ¹⁴	5,912	7,584	7,584	7,584	0

Source: Tonga Department of Statistics, Census of Population and Housing, 2006.

Table 23: Migration Flows and Net Migration between Urban and Rural Areas, 2001-2006

2006-2011	in-migration		out-migration		net-migration	
	<u>Tongatapu Rural</u>	Outer Islands Rural	Tongatapu Rural	Outer Islands Rural	Tongatapu Rural	Outer Islands Rural
Urban	1,191	1,157	1,132	754	59	403
Tongatapu Rural	<u>Urban</u>	Outer Islands Rural	<u>Urban</u>	Outer Islands Rural	<u>Urban</u>	Outer Islands Rural
	1,132	2,036	1,191	1,314	-59	722
Outer Islands Rural	<u>Urban</u>	Tongatapu Rural	<u>Urban</u>	Tongatapu Rural	<u>Urban</u>	Tongatapu Rural
	754	1,314	1,157	2,036	-403	-722

Source: Tonga Department of Statistics, Census of Population and Housing, 2006.

Drift South: Northern Islands–Tongatapu

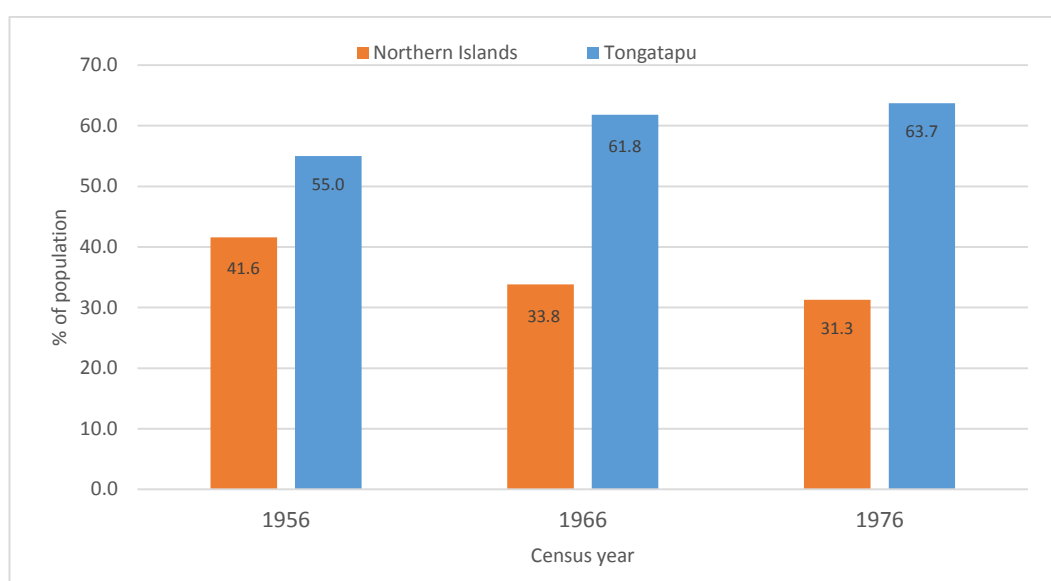
The drift south of the population of the Northern Islands¹⁵ of Tonga is a trend that has continued since the late 19th century. In the mid-19th century, the population of Tonga was spread much more evenly across the main divisions of Tonga (Crane

¹⁴ Total population who changed their residence five years before 2011.

¹⁵ The Northern islands comprise Ongo Niua, Vava'u and Ha'apai Island divisions. 'Eua is not included here because of the outlying location; before the introduction of administrative divisions, 'Eua was one of the Tongatapu Group. However, 'Eua is not an important destination for the Northern travellers.

1979). Crane recorded that, in 1891, 37% of the population lived in Tongatapu, 28% in Ha’apai, and 26% in Vava’u. Official population censuses started in 1956, and over the next two decades population distribution between the northern and southern regions moved further apart. In 1976, for example, 64% lived in Tongatapu, 12% in Ha’apai, and 17% in Vava’u. Figure 6 shows the changing distribution of Tonga’s total population in the northern islands and on the island of Tongatapu between 1956 and 1976.

Figure 6: Population distribution in Tonga, 1956-1976

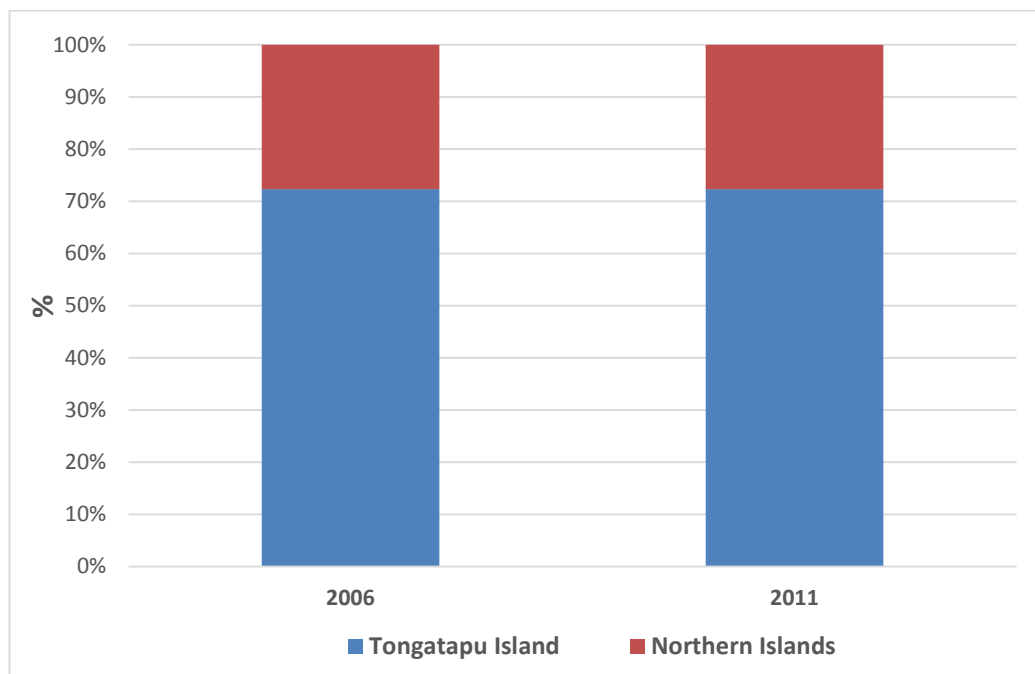


Source: Data adopted from 1956 - 1976 Census of Population and Housing, Tonga Department of Statistics.

Figure 6 shows the trend and increasing gap between the total population of Tongatapu and Northern Islands between 1956 and 1976. This pattern continued during two five-year periods between 2001 and 2011.

Inter-region migration between Tongatapu and the Northern Islands totalled 4,325 between 2001 and 2006, with a net loss of 1,153 persons to the Northern Islands, and a corresponding net gain to Tongatapu (Table 24). In the following period, 2006-2011, the total number who moved between Tongatapu and the Northern Islands was marginally less, at 4,201, with again a net loss of 1,129 to the Northern Island and gain to Tongatapu. The net loss between 2006 and 2011 was two percent lower than during the previous period.

Figure 7: Proportion of Tonga’s total population on Tongatapu and in the Northern Islands, 2006 and 2011



Source: Data adopted from 2006 & 2011 Census of Population and Housing, Tonga Department of Statistics & Secretariat of the South Pacific Community, 2008 & 2014.

The patterns of movement between the Northern Islands and Tongatapu are summarised in Table 24 for the two intercensal periods. There is considerable stability in the flows in both directions – from Tongatapu to the Northern Islands, and from the Northern Islands to Tongatapu, producing very similar net gains to Tongatapu over the two periods. This reflects both the importance of understanding the reciprocal flows of people between Northern and Southern Tonga, as well as the progressive drift south of population as reflected in the net gains to Tongatapu’s population (Table 24).

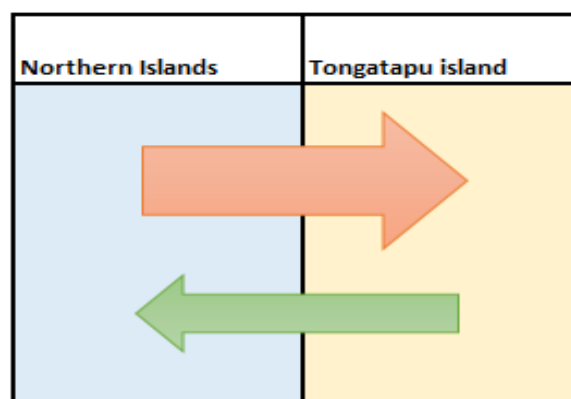
Table 24: Inter-island migration between Tongatapu and the Northern islands during the two five-year periods.

	2001-2006	2006-2011
Inter-Island Movement	Number	Number
Tongatapu – Northern Islands	1,586	1,536
Northern Islands – Tongatapu	2,739	2,665
Total inter-island	4,325	4,201
Net gain to Tongatapu	1,153	1,129
Migration Effectiveness Ratio (%)	26.7	26.9

Source: Data adapted from 2006 & 2011 Census of Population and Housing, Tonga Department of Statistics & Secretariat of the South Pacific Community, 2006 & 2014.

The decrease in inter-island mobility from the Northern Islands to Tongatapu is corresponding to the decrease of the flow from Tongatapu to the Northern Islands. However, as clearly shows in Figure 7, the difference and gap between the loss of people from the Northern Islands to Tongatapu and vice versa in both five year periods is still the major variable in Tongan inter-island mobility. The general decrease between census periods may be affected by other factors, such as emigration overseas between the census enumerations which affects the total de facto population.

Figure 8: Migration between the Northern Islands and Tongatapu Island: a measure of migration effectiveness



The diagram and model in Figure 8, adopted from Rowland (2003), demonstrates the effectiveness of migration. According to the model, the Northern Islands have effective outward migration, while Tongatapu Island has effective inward migration. Rowland states that “the ratio places net migration gains and losses in the context of gross migration, without which it is impossible to discern whether the net shifts are actually occurring in association with an exchange of migrants” (p. 401). Table 4.16 also demonstrates the effectiveness of migration in redistributing population between the Northern Islands and Tongatapu. Again, the ratio remains consistent over the two intercensal periods with a value of 27, representing that the relative significance of migration as a process that is redistributing the population between rural and urban areas in Tonga.

Discussion and Conclusion

This chapter has presented a statistical summary of internal migration in Tonga between 2001 and 2011 with reference to six major types of population flow. These are flows between: divisions, districts, rural and urban areas, the northern islands and Tongatapu (the ‘drift south’), as well as flows within districts and within divisions. These flows comprise a national migration system which has three major components within Tonga (an urban area on Tongatapu; a larger rural area on Tongatapu, and an outer islands rural area) plus a set of mainly urban locations for Tongans living overseas (Auckland, Sydney, Brisbane, Los Angeles and Honolulu). The chapter acknowledges the very important overseas dimension to the total migration system but the analysis focuses on the internal components of the system.

A major finding of the analysis is the high level of stability in the patterns of flows between districts, divisions, rural and urban areas, and between the northern islands and Tongatapu over the two intercensal periods since 2001 (2001-1006 and 2006-2011). There has not been any great acceleration of migration to Tongatapu during the decade – the numbers of in-migrants, out-migrants and net migration gains to Tongatapu are very similar during both intercensal periods, with small increases in net gains to Tongatapu urban and rural areas between 2006 and 2011.

When the spatial lens is shifted from inter-division to intra-division migration some significant differences emerge which are linked in large part to the very different population sizes and economies of the division comprising Tongatapu and the outer island divisions. There is intra-divisional migration in all divisions but it is within the urban and rural parts of Tongatapu division, where most Tongans live, that most of the intra-division migration occurs.

Urbanisation, defined as the percentage share of the total population living in areas classified as urban, is continuing in Tonga but there has not been a significant increase in the share of population living in the three villages that comprise the officially defined urban area of Nuku'alofa. Much of the population growth in these urban villages would have been due to natural increase during the decade given the large share of the population in these villages that is in the reproductive age groups between 15 and 45 years. Net migration obviously contributed to urban population growth but its contribution is probably smaller than that made by natural increase.

A critically important factor affecting population growth in Tonga is migration overseas and this is reflected directly in the small increase (1,261) in total population of the Kingdom between 2006 (101,991) and 2011 (103,252). Given that natural increase is quite high, international migration is having the effect of keeping population growth at low levels. Migrants overseas will predominantly come from Tongatapu given the concentration on this island of the younger working-age population that is better educated and has experience of working for

wages. Emigrants from Tongatapu are being replaced in part by immigrants from the outer islands, but internal migration is not producing the sort of cumulative growth in the urban population than might have been found if there had not been extensive migration overseas of Tongans.

Analysis of internal migration at the district level produces some distinctive patterns for the districts in the outer islands rural divisions on the one hand, and the districts that comprise the division that encompasses Tongatapu's rural and urban areas. There is much more residential mobility at the inter-district level than at the inter-division level, especially between districts on Tongatapu, and between the outer islands districts and rural Tongatapu districts. There is considerable population redistribution occurring in rural Tongatapu which is an increasingly important destination for internal migrants in Tonga.

When the spatial lens is reduced further to capture residential mobility within districts, the number of people changing their places of usual residence during the five year intervals is lower than for inter-district moves except in Onga Niua division. There has been very little research done on Tongan residential migration at this local level and this is a topic that might be pursued further in future research given the availability of census data now for such analysis.

The analysis of rural-urban migration and the drift south essentially confirm trends that Walsh identified 50 years ago. But the magnitude of the migration flows from rural to urban areas, and the percentage increases in the shares of the population living in urban areas have not been great between 2001 and 2011. The reasons for this have been touched on above – slow national population growth during the decade because of international migration; the importance of counter-flows back to the areas the migrants come from resulting in relatively small net gains in the urban area; and the restricted definition of the urban area to the three villages of Kolofo'ou, Kolomotua and Vaini. The most dynamic area of population growth is rural Tongatapu, especially the Tatakamotonga and Lapaha districts which comprise part of "Greater Nuku'alofa". Given the increasing importance of these

districts as homes for workers in town the time may have arrived to include them formally within the official urban boundary. I return to this issue in Chapter 6.

Chapter 5: Demographic and Socio-Economic Characteristics of Internal Migration

This chapter presents an analysis of demographic characteristics of the Tongan internal migrant population as this can be defined using the 2011 census data. The analysis of demographic characteristics is restricted to the one census given the considerable stability in internal migration flows and patterns between 2001 and 2011. There are unlikely to be major differences in characteristics of internal migrants in 2006 compared with 2011.

Five characteristics are analysed – age and sex, marital status, educational qualification level, and occupation. The analysis is in two parts. The first part compares the characteristics of migrants and non-migrants. The second part compares the characteristics of migrants in three regions: the Tongatapu-urban areas (Nuku'alofa), Tongatapu rural, and the outer island rural divisions comprising Vava'u, Ha'apai, 'Eua and Ongo Niua.

A comparison of Migrants and Non-migrants, 2011

Age–sex Structure

The population pyramid is the most widely used graphical representation of a population's age and sex structure. Figure 9 indicates the age and sex structure of the migrant and non-migrant populations in 2011. A common way to describe a population's age and sex structure is also to present the age dependency ratio to reflect the relationship between the dependent and the productive age groups. Also examined are the median age of the migrant population and the age-specific migration rates.

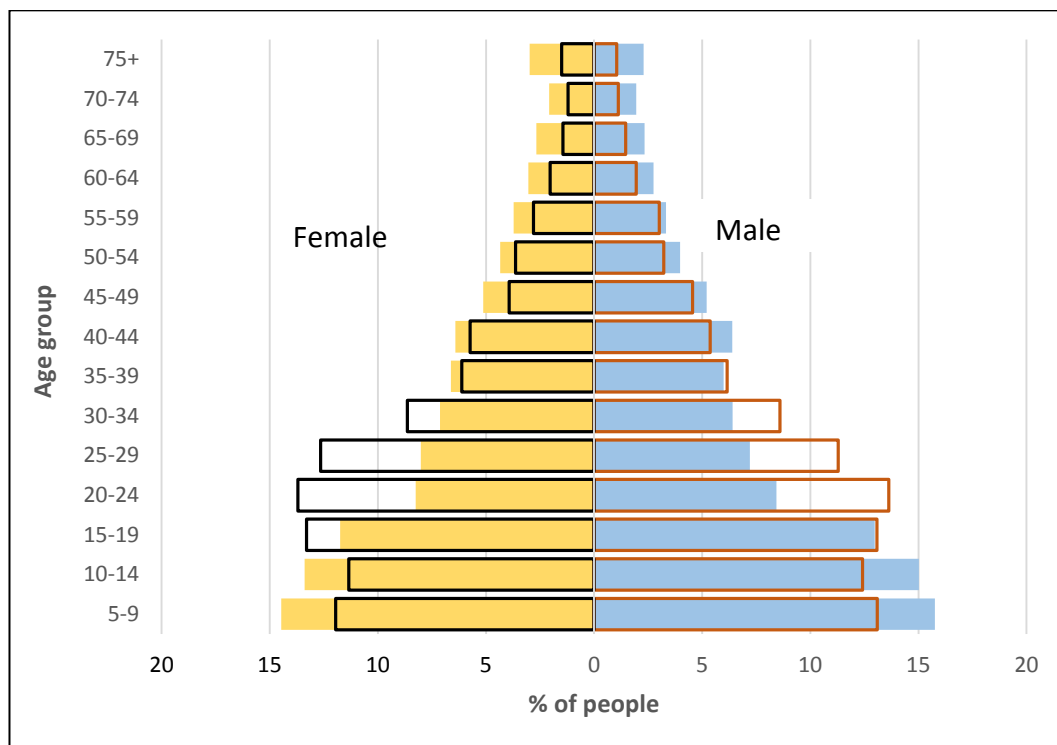
Poston and Bouvier (2010) review the concept of migration selectivity. For example, migration is selective on the basis of age, sex and socioeconomic status. The age group between 15 and 29 dominates the migrant population of males and

females, but the proportion of females is greater than males, as shown in the age and sex pyramid in Figure 5.1. Both sexes have active migration profiles at ages 30 to 34 while beyond age 35, non-migrants progressively become more dominant with older age except for a small number of male migrants aged between 35 and 39.

It is obvious from the age-sex pyramids that the migrant population is dominated by the youth age group, especially those aged between 20 and 34 years. On the other hand, the non-migrant population has a large share of the population that is under 15 years of age. Above age 35, the incidence of migration declines, mainly because the older people are, the less likely they are to want to move. However, distribution of migrant and non-migrant populations by all age groups and both sexes is proportional, except the age group 15 to 34, all are in favour of the migrant population only. The particular distributions of migrants and non-migrants by age and sex in different parts of the country are discussed further in the next section.

From the literature, when children are involved in migration it is a clear indication that their families are moving. Bedford (1985, p.340) states that family and household relocation has become very common in recent years, and this is likely to indicate long-term rather than temporary movement from the region. It is safe to say that many of those in the 5-9 and 9-14 age groups in the migrant population are either accompanying their parents or joined them at the destination because children of these ages usually do not migrate alone.

Figure 9: Age-sex structure, migrant and non-migrants populations, 2006 and 2011



The non-migrants on the other hand, have a reasonably uniform distribution through the age groups, although there is some contraction in the width of the bars in the pyramid for ages 20-34 reflecting the importance of both overseas and internal migration at these ages.

Table 25 shows the sex ratios for the inter-and intra-division migrant, and non-migrant populations. A sex ratio of 100 means equal numbers of males and females. Sex ratios varied widely by age, in relation to migrants and non-migrants (see Figure 10). At younger ages it is common to have more males than females because of a higher incidence of male births in a population. At most ages in both the migrant and non-migrant populations there are fewer males than females reflecting a combination of the unusually high incidence of female migration in the migrant populations and the impact of international migration of males in Tonga's non-migrant population. In only a few age groups above 20 are there more males than females. This is unusual given the predominance of males in the population,

which usually persists until the older ages in the absence of a process that removes males from the population. International migration is likely to be this process in the case of the non-migrant population in Tonga.

Table 25: Sex ratio by age group of migrant and non-migrant, age-specific migration rate by sex, 2011

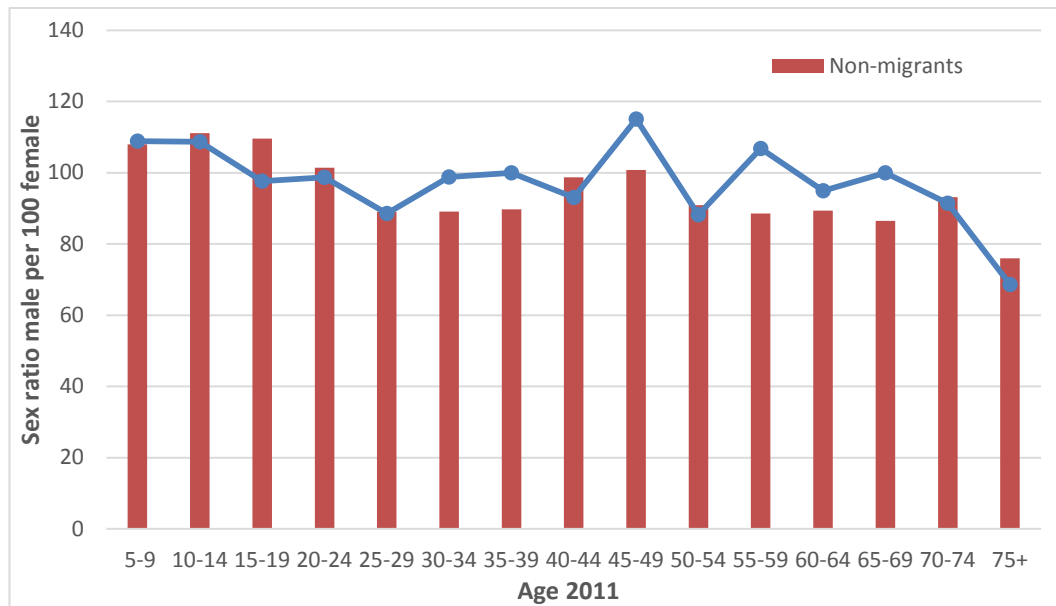
Age group	Sex Ratio (males per 100 females)			Age specific migration rate (per 1000)		
	Inter-division migrant	Intra-division migrant	Non-migrant	Male	Female	Total
5-9	110	108	108	132.1	130.4	131.3
10-14	107	110	111	131.3	134.2	132.6
15-19	96	99	110	155.1	170.3	162.4
20-24	100	97	101	221.8	226.4	224.1
25-29	95	84	89	212.3	213.4	212.9
30-34	103	96	89	186.8	176.4	181.4
35-39	90	107	90	148.8	139.3	143.9
40-44	97	90	99	125.0	135.5	130.2
45-49	123	108	101	129.2	120.1	124.8
50-54	87	89	91	120.8	128.1	124.6
55-59	96	119	89	133.4	116.1	124.4
60-64	91	99	89	107.4	105.5	106.4
65-69	91	111	86	97.0	86.5	91.5
70-74	100	85	93	89.7	92.2	91.0
75+	60	78	76	72.6	80.2	76.9
Total	99	99	99	149.8	151.0	150.4
Age Dependency Ratio¹⁶	40.1	46.1	64.9	Median Age		
Migrant				24.2	24.9	24.5
Non-migrant				23.7	26.3	25.0

Source: Data adapted from 2011 Census of Population and Housing, Tonga Department of Statistics & Secretariat of the South Pacific Community, 2014.

¹⁶ The Age Dependency Ratio (per 100) is calculated by relating the populations aged under 15 and 60 and over to the working age population (15-59 years).

The overall stream of migrants is in favour of females. This is uncommon, usually males dominate migrant populations but the pattern shown in Table 25 indicates that there are some different norms of migration in Tonga.

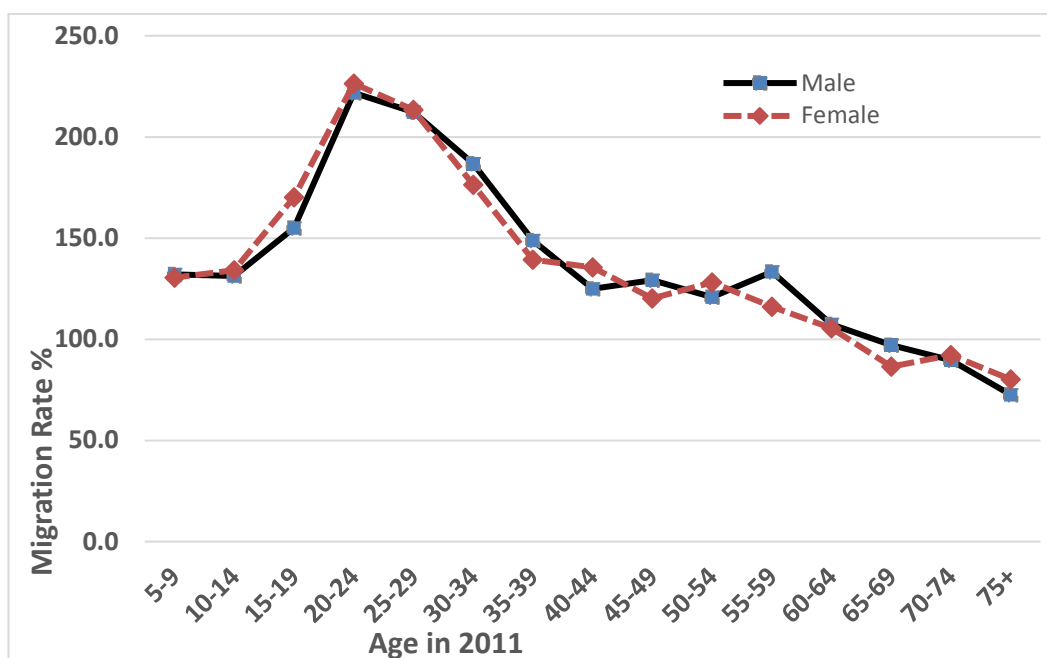
Figure 10: Sex ratio of migrants and non-migrants, 2006 – 2011



Rowland (2003, p.399) states that age-specific data are particularly helpful in understanding how the incidence of migration varies over the life cycle. Table 25 and Figure 11 illustrate age-specific migration within and between the divisions for the five-year period, 2006-2011, and the graphs in Figure 11 show peak migration rates at ages 20 to 24. According to Rowland, when movement peaks at those ages, it probably relates to education and employment.

In general, the age specific migration rates reveal that the most mobile migrants are those in the age groups of 20 to 29 years for both male and female migrants, with the highest rate for both sexes for the age group 20 to 24. A comparison of males and females aged 20-29 shows that females have higher rates than males. Overall, female migrants seem to be slightly more mobile than male with 151 persons per 1,000 moving compared to 150 during 2006-2011 periods.

Figure 11: Age-specific migration rates, total migrants, 2006 – 2011



The age dependency ratio for the total migrant population is 43 per 100 (40 for inter-division migrants and 46 for intra-division migrants). In other words, for every 100 people of working age of the migrant population, 43 are in the age dependent category. The non-migrant age dependency ratio is higher, at 65 per 100. The higher out-migration of young adults resulted in a higher median age for the population staying behind. Table 25 shows that the median ages for male and female migrants are virtually the same at around 25 years of age.

Marital Status

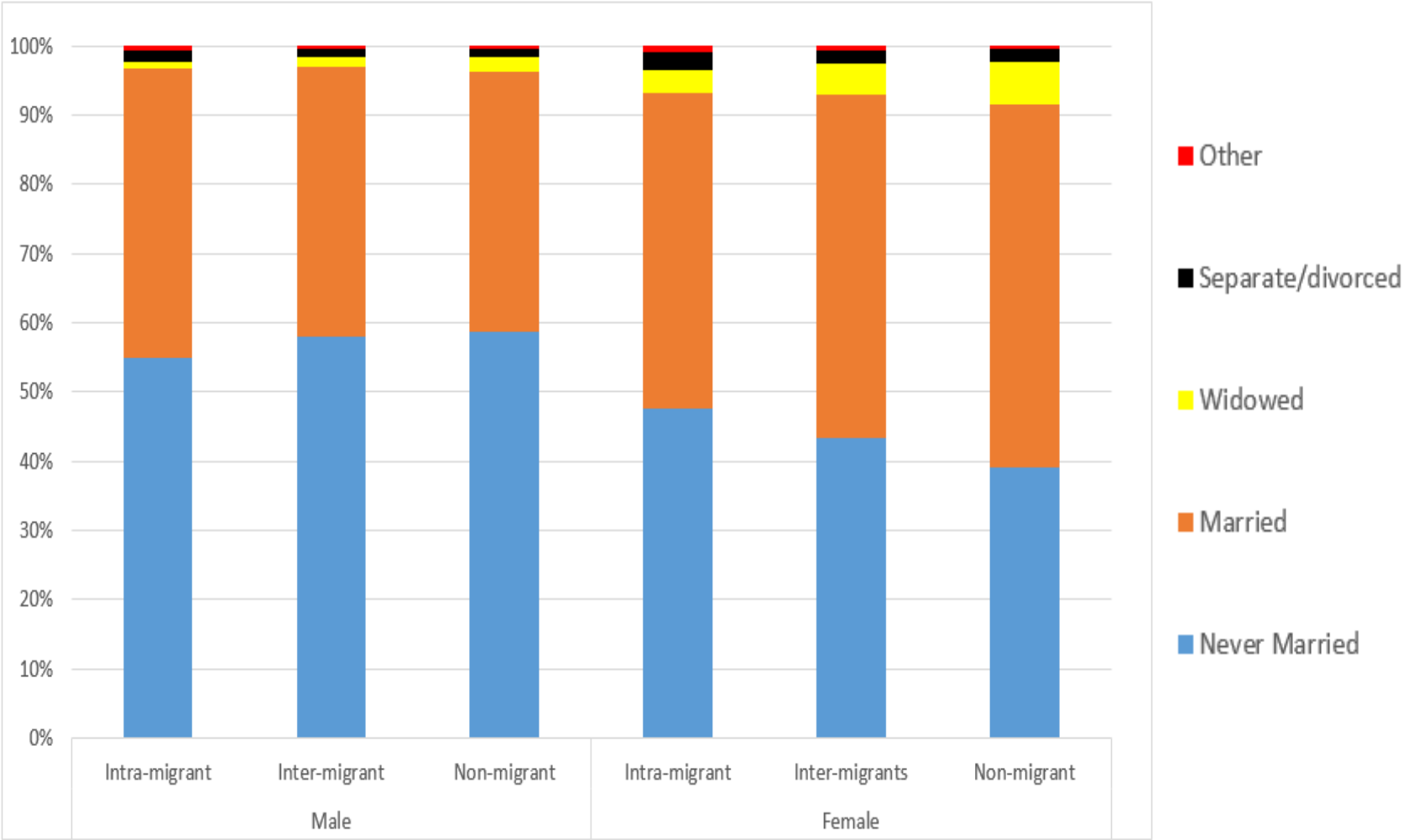
In 2011, 60 percent of the population were never married or single people, and 53 percent of the never married were male. Married people are the second largest group with 51 percent of the married Tongans being women. The higher number of married females is explained by the fact that some male spouses were overseas at the time of the census enumeration. In general, women marry at younger ages than men, the average age at marriage was 27.2 years for males and 24.7 years for females, respectively (Tonga Statistics Department & Secretariat of the Pacific Community, 2014).

Figure 12 shows that migrants and non-migrants at the division level are dominated by single males or people who never married, while married females dominated both intra- and inter-division migrants and non-migrants. Over 50 percent of both intra- and inter-division migrants, as well as the non-migrants, were single males. The single females were less than 50 percent of migrants and non-migrants. The migration flow of married people is different from people who are still single. As mentioned above, married females dominated in the migrant and non-migrant populations, and, at the same time, non-migrants have the highest proportion married (more than 50 percent) compared to intra- and inter-division migrants.

The proportion of females widowed is generally larger than males widowed, mainly because women tend to live longer than men. The highest proportion of widowed was found in the female non-migrant population reflecting both their greater longevity than men plus the fact that very old widows have less migration. The widowed (either male or female) always attach with their son or daughter's family, whether they moved to another division for employment or other reasons. Distance from place of residence of a widowed parent is a very important factor for the family who is responsible for them.

The marital statuses of the migrant and non-migrant populations are shown in Figure 12. There are no major differences between groups in the minor statuses (divorced, separated and other (including de facto relationships)).

Figure 12: Marital status, migrant and non-migrant population, 2011

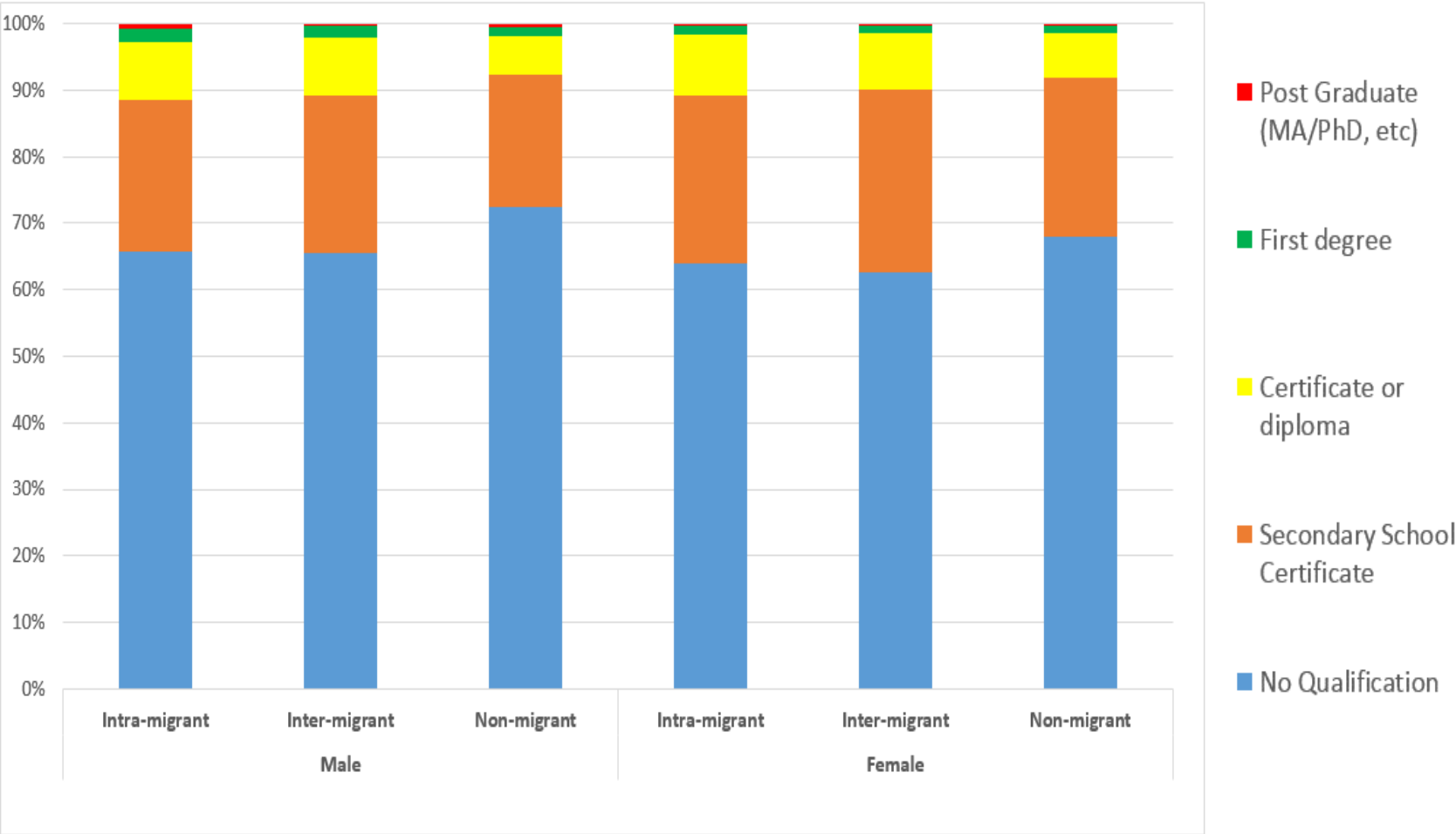


Education and Qualifications

While the largest proportion of both the migrant and non-migrant populations have no school qualifications, it is important to keep in mind that most of those aged 5-9 and 10-14 years are still at school and have yet to obtain any educational qualifications. Information on four main qualifications was collected from the population in 2011 (Figure 13). The most frequently cited qualification for both groups was secondary school certificate with male and female migrants having the highest incidence. Those who have the school certificate qualification are more mobile than those without it.

Post-school certificates and diplomas are the second major group of qualifications for migrants, with females having a higher incidence of attainment than males. In the case of first degree and post-degree education qualifications, male migrants outnumber female migrants. Non-migrants have greater representation in the population with no qualifications. Overall, in 2011, the migrant population has more qualifications than the non-migrant population and female migrants had more qualifications than male migrants did.

Figure 13: Highest School qualification obtained, migrant and non-migrant populations, 2011



Occupation

During the 2011 census enumeration, Tonga's Statistics Department collected data on occupation using the International Standard Classification of Occupation (ISCO) codes (from one to four digits). For the purposes of this study the major occupation group classification is used.

The largest proportion of migrants were *craft and related trades workers*, followed by *skilled agricultural and fishery workers*. Whereas *craft and related trades* were completely dominated by female migrants, males were frequently employed more in agricultural, forestry and fisheries work. The majority of males worked in agriculture, fishing and quarrying, and the dominant employment status was employee – with either a private employer or and as self-employed. More than 50 percent of female migrants were employed as craft and related trades workers, and the majority of females were self-employed. Self-employed is explained in the Census 2011 as those who produced any product for their own benefit. Morrison and Lichter (1988) note that this status can reflect underemployment, especially among married women.

The next most important occupational group was the *professional* group and this is significant category for both male and female migrants. The proportion of migrants who gave their occupations as professional is much larger than for non-migrants. The ISCO classification of professional occupations includes teachers, health workers, religious ministers, and so forth. There were more male than female professional migrants and this is partly due to some professional occupations being occupied only by men, such as religious ministers. Nurses were one of the specialised female occupations, although in recent years Tongan men have been joining the nursing occupation. Large numbers of teachers (primary and secondary), and small numbers of health professionals, including nurses, doctors, and others like dentists, were essential occupations in most communities, and these jobs were filled mainly by people trained on Tongatapu. Some may have had their place of birth in the outer islands and spent the last five years in one of the rural divisions for employment reasons.

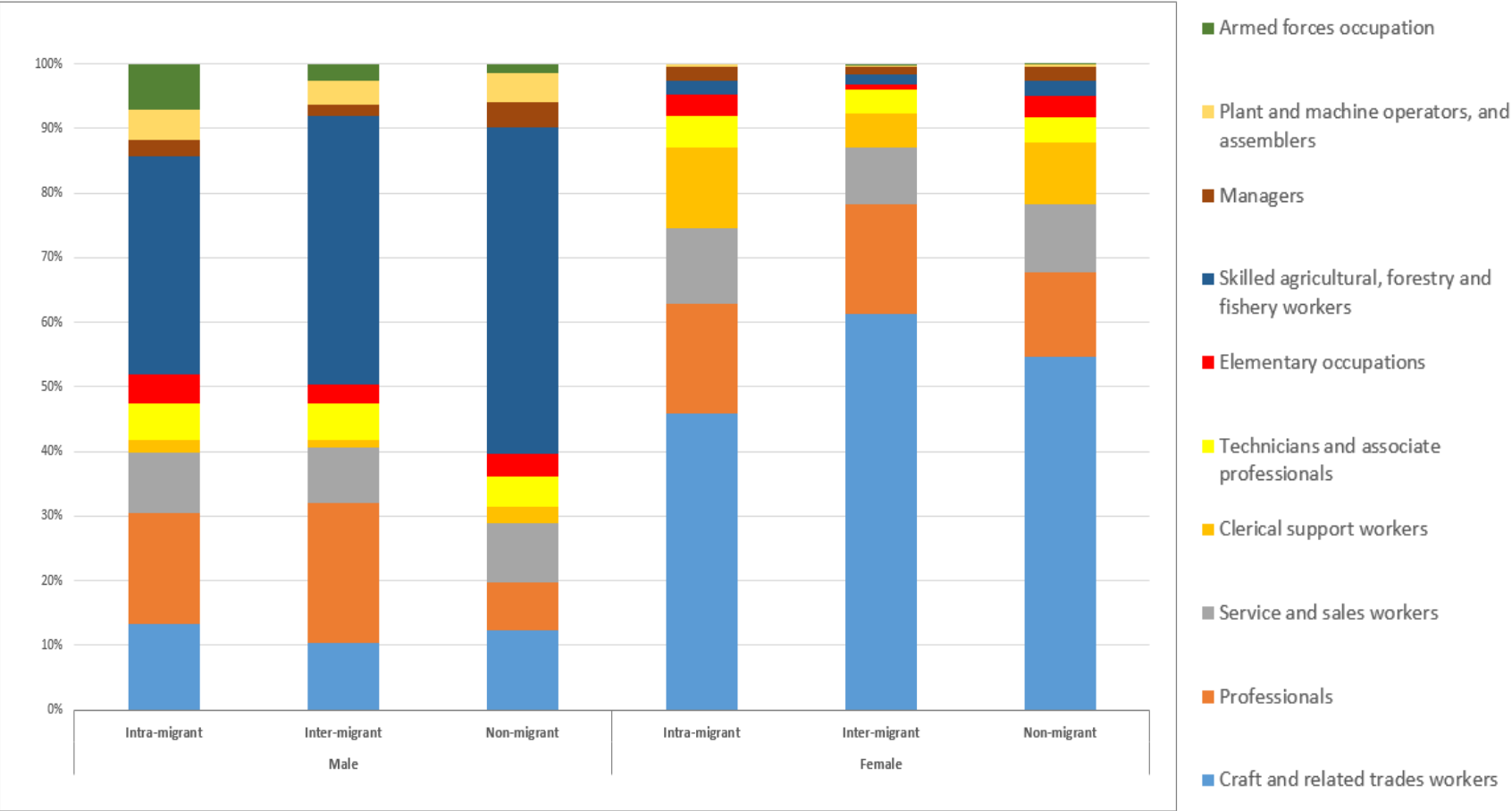
The fourth largest group for both male and female migrants was the *service and sale workers* group. The proportion of people employed as service and sale workers was almost the same for male and female migrants and also amongst the non-migrants. This was not the case for the *armed forces*, and *plant and machine operators and assemblers*, which were dominated by male migrants and non-migrants. Those employed in the armed forces were mainly resident in Tongatapu, and there was a higher proportion of migrants than non-migrants in the armed forces. Those employed in the *plant and machine operators and assemblers* category were employed in such occupations as car, van, bus and taxi drivers, heavy truck drivers, and ship deck crews. *Plant and machine operators and assemblers* occupations were distributed proportionally between migrants and non-migrants.

Those employed in the *clerical support* category were primarily female, it being the third largest group for female migrants. Female migrants employed in clerical support largely migrated within the division rather than between the Island divisions. This reflects that the majority of clerical workers are based in Tongatapu and within the urban areas. A significant proportion of female non-migrants were employed in clerical support services as well.

Technicians and associate professionals cover the fifth major group of migrants and non-migrants for both males and females. Included in this group are mainly religious associate professionals, ships' deck officers, construction supervisors, and so forth. However, a proportion of female migrants and non-migrants are also in this group.

The *elementary occupations* are mostly unskilled or semi-skilled jobs according to the ISCO classification, including cleaners and labourers on farms and in construction. Figure 14 shows that male migrants make up a larger proportion in elementary occupations than females. The proportion of males who had migrated and were employed in the *elementary occupations* was the same as the proportion of female non-migrants in this category.

Figure 14: Occupations for migrant and non-migrant population, 2011



Migrant Population–Regional Variation

In this section, attention is focussed on variations in the demographic characteristics of migrants and non-migrants in three major regions: the urban areas of Tongatapu, Tongatapu rural, and the outer islands rural areas. Three migrant populations are discussed: all in-migrants to the region, all out-migrants from the region, and intra-region migrants – people moving within the regions.

Age–Sex Structure

The overall feature of the age structure of in-migrants, as shown in Figures 15 - 17 is the heavy domination of the 15 to 29 age group, for both males and females. Males aged 20 to 24 are particularly prominent in the flows into urban and rural Tongatapu, with the largest proportion of migrants aged 20 to 24 years moving into rural Tongatapu. The Tongatapu rural and urban regions also have the smallest shares of out-migrants in the age group 5 to 14. In contrast, the outer island rural region has a larger proportion of out-migrants in this age group. The data suggest that families with young children did not comprise a large share of the migrants who were resident in rural and urban Tongatapu in 2011 but had been living in other regions five years earlier in 2006.

The outer island rural region has a large proportion of its in-migrant population in the age groups 5-9, 30-34, 40-45 and 55-59 for both males and females. According to a cross-tabulation of age groups, marital status, and employment, most of the in-migrants to this region are families who have migrated into the region as a result of employment. Migrants aged 35 and over moving into the Tongatapu rural and urban regions comprised a smaller share than those moving into the outer Island region. This demonstrates that Tongatapu is the main source, in terms of where those people moving for employment to the outer islands region come from. That said, it is important to keep in mind that most movement for employment occurs on Tongatapu itself, between the urban and rural regions on the island. This is because more than 70% of the population of Tonga are permanently resident in Tongatapu.

The out-migrant populations differ for each region. The largest share of female out-migrants from urban Tongatapu and the outer island rural region are aged between 20 and 29 years. In the case of rural Tongatapu this group is confined to females aged 25 to 29. In the case of the male 20-24, out-migration from the outer Island region is more prominent than in the Tongatapu rural and urban regions. This is male age group that is most prominent in the flows into Tongatapu. The outer island region has the least out-migration, especially from the age group of 5 to 14. By contrast, Tongatapu rural has the largest proportion of male and female out-migrants who are in this younger age group. The outer islands region has a greater proportion of people moving to other regions who are aged 35 and above.

When those who moved within regions are considered (the intra-regional migrants) the age group 20 to 29 years still dominates for both males and females, along with the youngest age group, 5-9 years. These patterns are fairly consistent across the three regions – in the outer islands region younger male age groups dominate intra-regional migration, especially ages 20 to 24 and children aged 5 to 9. The component of males moving within the outer islands region aged 5 to 9, was greater than in the Tongatapu urban and rural regions. The largest age groups for Tongatapu rural and urban intra-regional migrants are 5 to 9 and 20 to 24.

Figure 15: The age and sex structure for the three types of migrants for the Tongatapu urban region, 2011

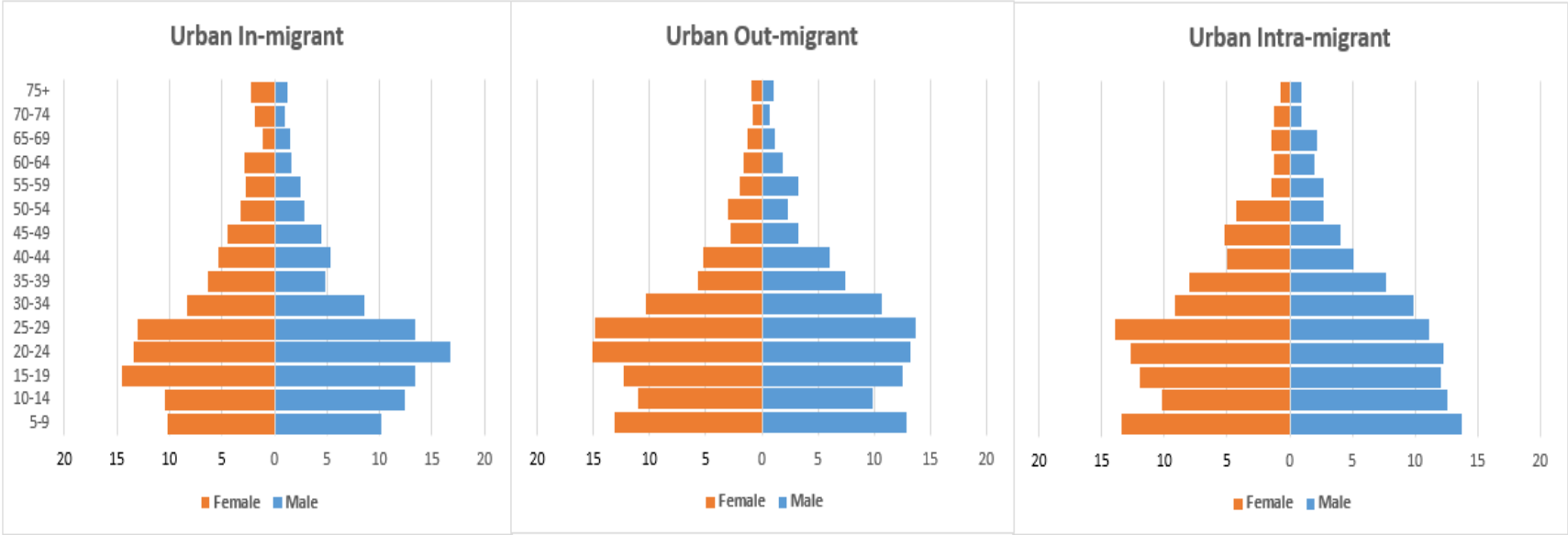


Figure 16: The age and sex structure for the three types of migrants for the Tongatapu rural region, 2011

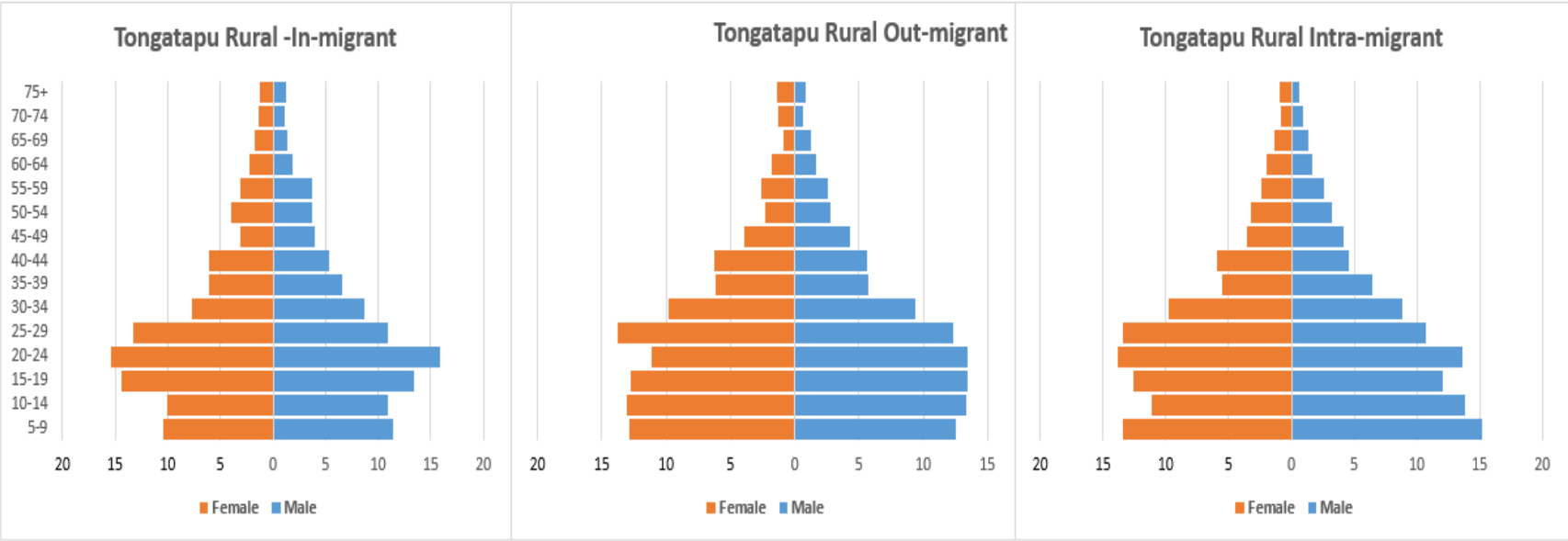
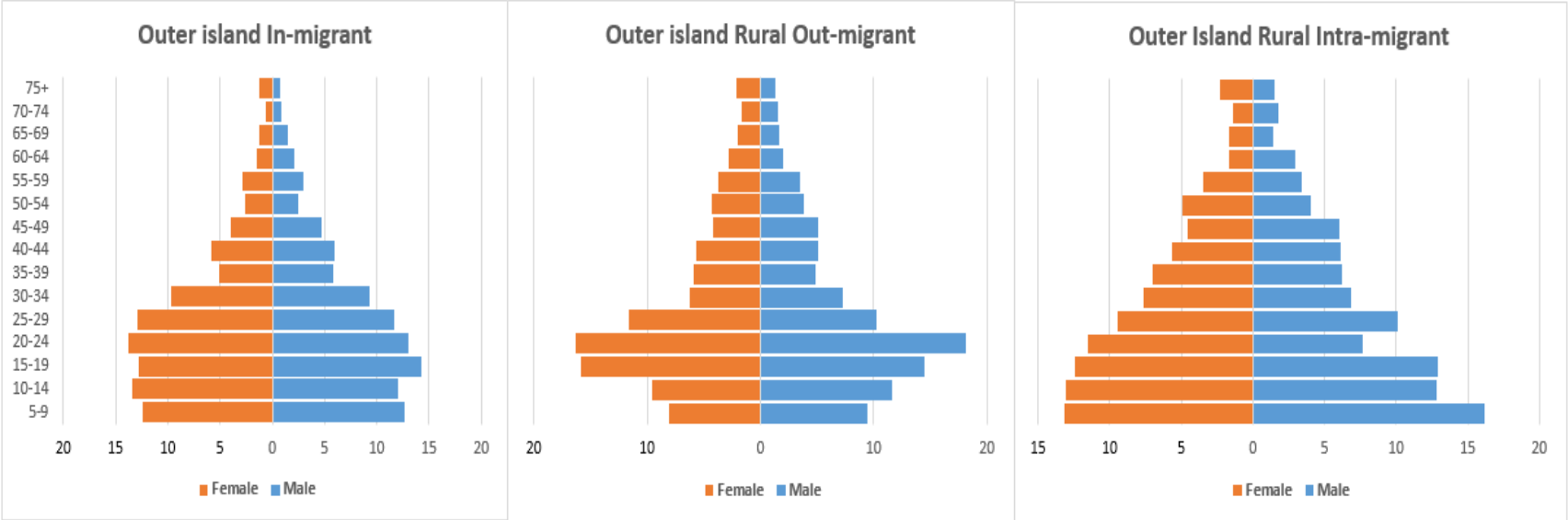


Figure 17: The age and sex structure for the three types of migrants for the Outer Island rural region, 2011



Marital Status

Single migrants comprise the largest share of both male and female migrants in the three regions, followed by married people. Single males are more prominent in the migrant populations than single females, but females dominate amongst the married migrants. Single male migrants make up the largest share of movers into urban Tongatapu (60%) and are the main group moving from the outer islands rural area. More married people, both male and female, moved out from urban Tongatapu than moved in, while on the other hand, Tongatapu rural has more in-migrants than out-migrants. In the case of the outer Islands rural region, there were more married male and female in-migrants than out-migrants.

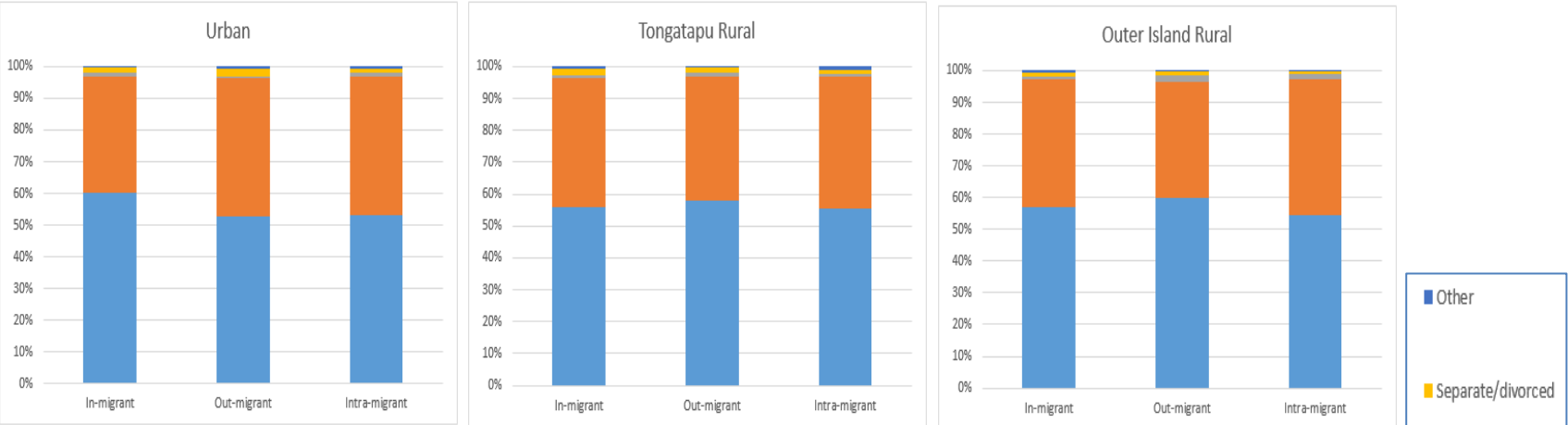
The proportions of intra-regional male and female migrants who were married were generally higher than was the case for married in-migrants and out-migrants for the three regions. The Tongatapu rural region had the highest share of intra-regional migration for single males, while, Tongatapu urban and the outer Islands rural regions had more married female in- and out-migrants.

The Tongatapu urban and rural regions had higher proportions of in-migrant widowed females, while the outer Island rural region had the highest proportion of widowed female out-migrants. The proportion of widowed females in all three regions is small, ranging from 3 - 5%.

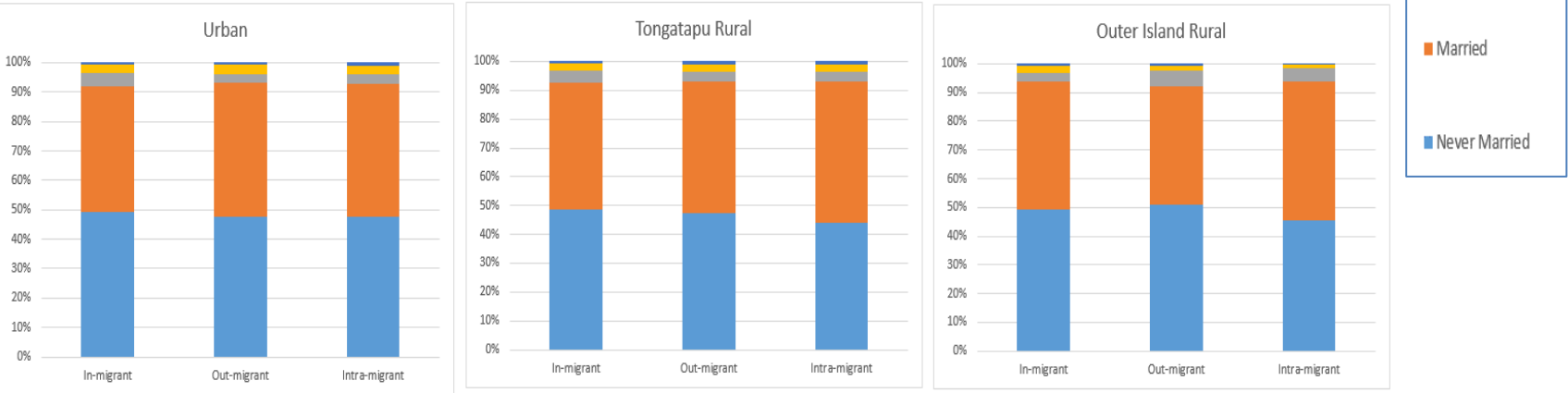
There are no clear regional patterns in the movement of divorced and separated men and women. The numbers are small with more women than men stating they were either divorced or separated.

Figure 18: Marital status for the three types of migrants from three selected regions, 2006–2011

Male



Female



Educational Qualifications

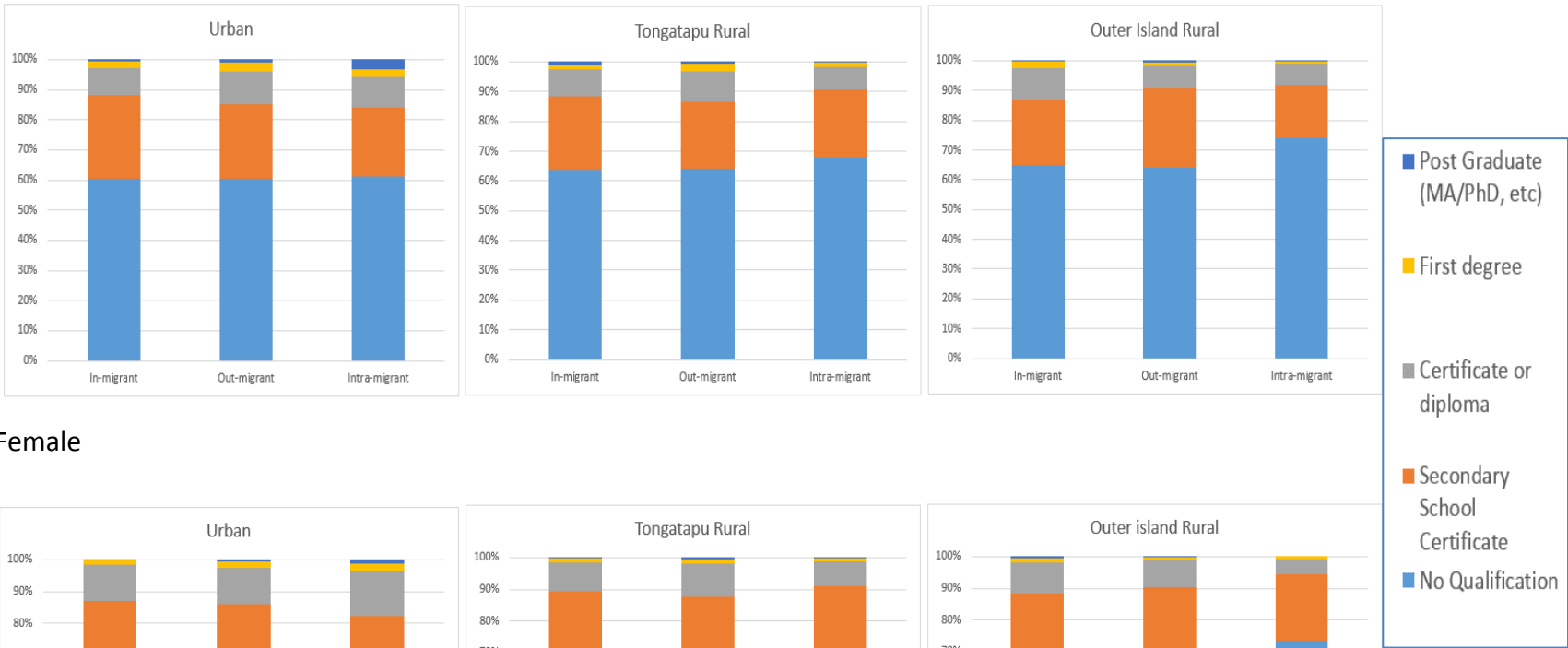
As has been already noted, the largest proportion of migrants have no qualifications and this is the case for both males and females in all three regions (Figure 19). The proportion of male migrants with no qualification was 65%, and 62% for females with no qualification. A larger proportion of males and females who have no qualification migrated within the regions than between them.

In the case of migrants with a qualification, the largest group were those having secondary school certificate, and the proportion of females migrants (27%) is greater than males (24%) for all three regions. Those with post-school certificate or diploma qualifications comprise the third largest group, around 9% of the total migrants, equally distributed between males and females. A large proportion of those with certificates migrated within the Tongatapu urban and rural regions. Greater numbers of migrants moved out than moved in with the same qualification in the Tongatapu rural and urban regions. In the outer Islands rural region, a greater proportion of those with secondary school certificate moved out than moved in.

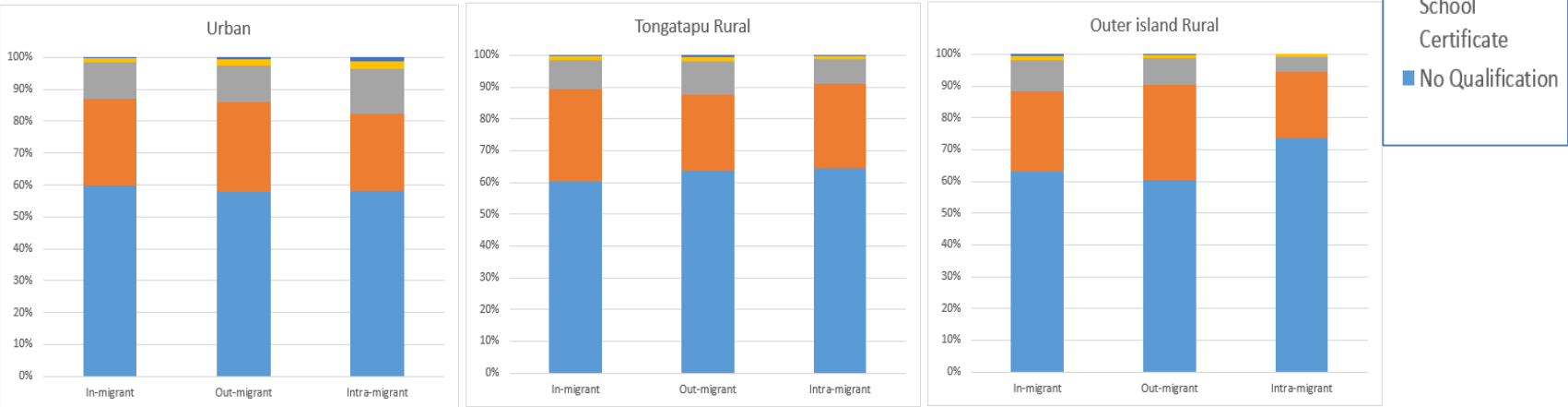
Those migrants with postgraduate qualifications comprise the smallest group. Migrants who have degrees were distributed in almost equal proportions over the three regions, disregarding minor differences for males and female. Most of the migrants with postgraduate qualifications were employed in the urban areas and larger proportions of both males and females with these qualifications were migrants within the urban area. However, at the same time it should be noted that there were some male in-migrants with these qualifications to the Tongatapu rural region, and some female in-migrants with these qualifications to the outer island rural region. Male and female out-migrants with postgraduate qualifications from the Tongatapu rural region were also significant.

Figure 19: Highest level of education and qualification for the three types of migrants from three selected regions, 2011

Male



Female



Occupation

In all three regions, the largest proportions of male in- and out-migrants were employed in *agricultural, forestry and fishery* and related sectors, whereas for female migrants most were classified as *craft and related trades workers* (Figure 20). A greater proportion of the migrants in both groups were in the two rural regions than in the Tongatapu urban region (Figure 20). As a result, the largest proportion migrants in both the main occupations moved from the urban to the rural regions. It should be noted that in all regions a significant number of men were involved as *crafts and related trades workers*, while a lower proportion of females were employed in *agricultural, forestry and fisheries* sectors.

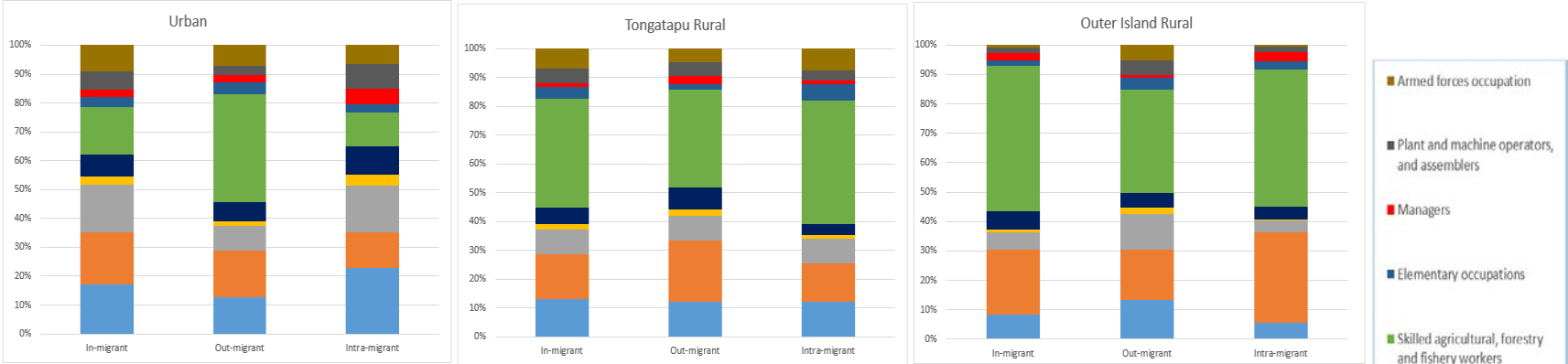
The second major in-migrant male and female groups to urban Tongatapu comprised those employed as *professionals* and *service and sales workers*. On the other hand, the lowest proportions of male in-migrants in this occupation group were found in the Tongatapu rural region and in the outer Island rural region. However, both Tongatapu rural and the outer Islands region have significant numbers of *professional* and *service and sales workers* who were in-migrants. The overall flows of *professional* and *service and sales workers* for both males and females favour the urban areas rather than the rural areas.

The distribution of *clerical support workers* to all regions reflected the gendered nature of these occupations: females dominate this mainly office work. A larger proportion of clerical support workers were employed in the Tongatapu urban region given the concentration of office jobs there. There was high level of out-migration of clerical support workers from the outer Islands rural region.

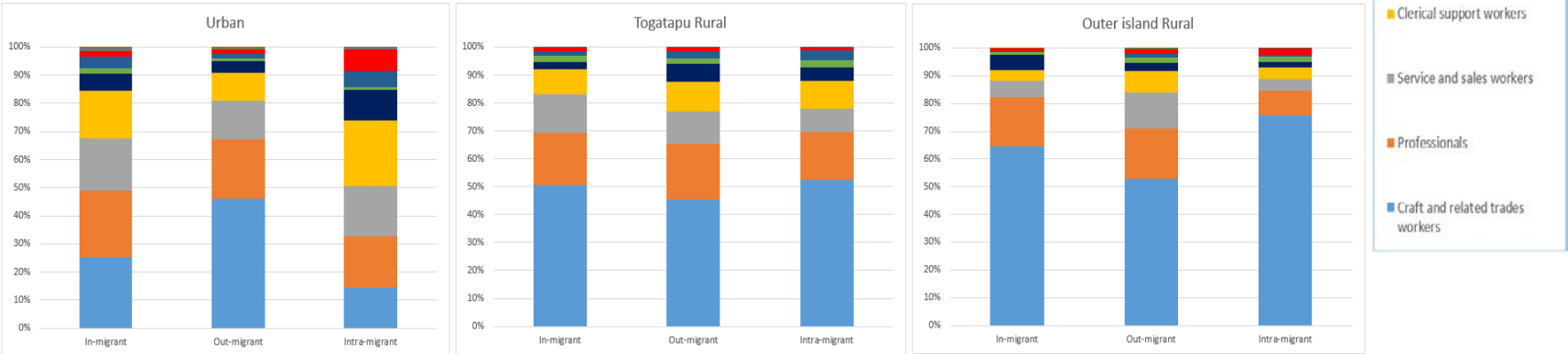
The distribution of migrants who were *technicians and associate professionals* was reasonably similar across all three regions. The largest flows of both male and female *technicians and associate professionals* were within the urban region, however. A larger proportion of *technicians and associate professionals* were out-migrants from rural Tongatapu.

Figure 20: Occupation for the three types of migrants from three selected regions, 2011

Male



Female



The other two regions had more prominent in-migration flows of those who employed as *technicians and associate professional workers*. In the case of migrants with *elementary occupations*, these were found in all regions although such jobs are not common for females in the outer island rural region.

Managers were not prominent amongst the migrant occupations for males and females. The largest flow of both male and female migrants who were classified as *managers* was within the Tongatapu urban region.

Armed forces and, *plant and machine operators, and assemblers* are occupations dominated by males, specifically in Tongatapu and in the urban area. The major share of migrants in the latter occupation group moved within the Tongatapu urban region, while Tongatapu rural has the highest intra-regional migration of males in *armed forces* occupations. Urban Tongatapu experienced in-migration of *armed forces* personnel while the outer Islands region experience out-migration of people in this occupational group.

Discussion and Conclusion

There is nothing particularly unusual about the findings relating to demographic characteristics of people who can be classified as internal migrants and non-migrants in the 2011 census. The most prominent age group for migrants in both the in-migrant and out-migrant groups were people aged in their 20s, usually single, and frequently with some qualifications. This is a very common pattern internationally. There are some obvious differences between the migrant and non-migrant populations in terms of the presence of children and older people who are much less likely to be in the population that has changed place of usual residence within the five years before the census. However, when characteristics of migrants are examined at the regional level some differences do emerge, especially between the flows into and within the outer islands rural region and the urban and rural regions of Tongatapu. Family migration from Tongatapu to the

outer islands, as evidenced by children in the out migrant population, is more characteristic of the flow to rural areas, than the flow to the urban area.

The great majority of migrants in Tonga are in the same broad occupation groups and have the same sorts of education qualifications as the non-migrants. This is sometimes overlooked in discussions of migrant differentials where a lot of attention is usually given to those with high-level qualifications in professional occupations. In this way, the discussion of migrant/non migrant differentials is similar to the discussion of migrant flows, where focussing on rural-urban migration can disguise the importance of counter-flows back to rural areas. A key finding from the study of migrant and non-migrant differentials as revealed in the census data for Tonga in 2011 is the significant similarities between the two populations across many of the key variables.

Chapter 6: Conclusion

This thesis has explored data relating to contemporary internal migration in Tonga that were collected in the Kingdom's Censuses of Population and Housing in 2006 and 2011. The analysis is exploratory and preliminary because the questions relating to contemporary migration had never been asked in Tonga's censuses before the enumeration in 2006. Two key research questions have been addressed concerning firstly, the spatial characteristics of migrant flows between 2001 and 2011, and secondly, demographic characteristics of migrant and non-migrant populations in 2011.

This short concluding chapter contains a summary of key research findings and some observations on the strengths and limitations of the study, including suggestions for future research. While academic research on internal migration in Tonga dates back to the 1960s, the census data analysed in this thesis provides new insights into patterns and characteristics of contemporary population movement within the Kingdom. Some commonly held views about the dominance firstly of rural-urban migration, and secondly of younger males and females in the flows of Tongans into the main urban area of Nuku'alofa are confirmed. However, the structure of the system of flows that can now be identified in the census data, and the compositions of the migrant and non-migrant populations in different parts of that Kingdom are more complex and dynamic than the widely-held stereotypes suggest.

Spatial Characteristics

Inter- and Intra-Division Migration

Migration between the country's major administrative units, the divisions, reveals the broad patterns of population exchanges and associated redistribution of Tongans at a national level. Flows of people, and the net gains and losses to population as a result of imbalances in these flows, were remarkably stable over the two intercensal periods under analysis using the 2006 and 2011 census data. For both five-year periods, the largest flows were between Tongatapu, Vava'u and

Ha'apai. However, Tongatapu dominates the in- and out-migrant stream from/to other divisions and in both censuses only Tongatapu division had a net gain in population.

There is less inter-division migration than migration within the divisions. The divisions cover a large number of communities, except for the Onga Niuas division, and so it is not surprising that intra-division residential migration is greater than movement between divisions. Only two divisions - Tongatapu and Vava'u - had increased intra-division movement over the two intercensal periods. Tongatapu, especially has significant intra-division movement, especially between the urban and rural parts of the island.

Intra-division migration on Tongatapu and in Vava'u can be assessed at the district level. The greatest sources of this more localised migration were between the district containing the urban villages of Kolofo'ou, Kolomotu'a and Vaini on Tongatapu and Tongatapu's rural districts, and between Neiafu district with its small town in Vava'u and other outer islands' districts.

Migration flows within districts tended to be smaller than the flows between districts except on Tongatapu. This probably reflects the fact that in most of the outer island districts there is not a lot of variation in the economies and job opportunities between districts. However, little research has been done on this localised internal migration and there is scope for a closer analysis of recent census data on movements between communities in the outer islands. It is the rural-urban flows and the increasing concentration of the population in the Tongatapu urban and rural areas that attracts most attention in academic research on internal migration in Tonga. This is a common tendency in the research literature on Pacific migration in recent decades.

Rural-Urban Migration and Urbanisation

In each of the censuses for 2006 and 2011, just under a quarter (23 percent) of Tonga's population were resident in the urban areas. Of this total, 13-14 percent had been living in another part of Tonga or overseas five years before the census.

The proportion of the urban population that comprised recent migrants did not change much during the decade. There is a continual movement of people from outer islands divisions into Tongatapu but much of this is to parts of the island that are outside the boundary of the urban area. Drift of population from rural (both Tongatapu rural and outer island rural) to urban is a new name but an old phenomenon in the history of internal migration in Tonga. Recently, the boundary of the urban area is clearly identified from other Tongatapu territory. Just over two-thirds (68 percent) percent of the recent migrants in the urban area in 2006 were from the rural Tongatapu rural and outer islands; the other third had been living overseas five years earlier. By 2011 the share of the migrants living in the urban area who had moved from rural areas in Tonga had risen to 74 percent and the share from overseas was around 24 percent.

There were differences in the major flows from rural areas during the two intercensal periods. Between 2001 and 2006, the greater share of rural-urban migrants came from the outer islands. During the following period Tongatapu rural provided the larger share of Tongans moving into the urban areas. Aside from these differences in major sources of rural in-migrants to urban Tongatapu, there was considerable consistency in the patterns of movement between rural and areas across the two intercensal periods.

A relatively stable pattern of migration-led growth of the population of the urban areas is apparent in the data from the last two censuses. The contribution made by internal migration to urban population growth has been mediated by three related processes. The first is the reciprocal flows back to rural areas, following Ravenstein's law of counter flows in internal migration. In-migration is always compensated for, in part, by out-migration unless there are very unusual circumstances prompting the migration away from particular places. Secondly, there has been increasing movement to rural Tongatapu especially to areas close to the urban area. This follows a common international pattern of intensifying settlement on the rural fringes of towns and cities that are experiencing population growth. These peri-urban areas are absorbing some of the population

growth that might otherwise have occurred in Nuku'alofa's officially defined urban area.

The third factor affecting growth of Nuku'alofa's population between 2001 and 2011 is the on-going migration of Tongans overseas. Data from the New Zealand and Australian censuses in 2001 and 2011 (Australia) and 2013 (New Zealand) show that the populations born in Tonga in those two countries increased by over 6,600 during the decade (from 18,051 to 22,414 in New Zealand and from 7,692 to 9,210 in Australia).¹⁷ In addition to these flows, there has also been migration to the United States (an estimated 17,700 Tonga-born migrants were in the USA in 2015 according to the United Nations Population Division's latest estimates of migrant stock living outside their countries of birth) and to neighbouring Pacific countries, especially American Samoa and Fiji.¹⁸ These flows of Tongan emigrants have been partially compensated for by the return migration of Tongans that was discussed in Chapter 3, but there have been persistent net losses of Tongans to urban areas overseas through the first decade of the 21st century. Many of these Tongans would have moved from Nuku'alofa to an overseas town or city rather than directly from rural areas. However, this process of inter-urban migration involving overseas urban destinations has not been examined recently in Tonga.

Drift South – Migration to Tongatapu

Crane (1969) observed that the 'drift south' or the flow of people from the outer islands to Tongatapu was the first known flow of migration in Tonga, and it was still the dominant flow between 2001 and 2011. The largest out- and in-migration flows and corresponding net gains and losses are between the northern islands to Tongatapu. The main sources of migrants to rural and urban Tongatapu from districts in the north were Pangai in Ha'apai and Neiafu in Vava'u. The Niua Totutapu, Niuafo'ou and most of the other districts of Vava'u and Ha'apai also

¹⁷ Data provided by Richard Bedford from unpublished census tables, July 2016.

¹⁸ UN Population Division (2015) Trends in International Migrant Stock: Migrants by Destination and Origin, 2015. Data provided by Richard Bedford, July 2016.

show a significant flows south to Tongatapu. Villages in Kolofo’o and Kolomotu’a district received the largest numbers of in-migrants from the northern islands.

Demographic Characteristics of Migrants and Non-migrants and Variation in Region

This study has also described the demographic characteristics of migrants and non-migrants, and the regional variations of these characteristics using 2011 census data. Five demographic characteristics were analysed; age and sex, marital status, education/qualification and occupation, with reference to three regions: Tongatapu–urban, Tongatapu–rural and outer island rural.

Patterns of Migration in Terms of Demographic Characteristics

According to Poston and Bouvier (2010), migration is heavily age-selective and this is certainly the case in Tonga where the age group between 15 and 29 dominates the migrant populations for both males and females. Overall, the proportion of females who are internal migrants is greater than that for males. There are higher concentrations of older people and children in the younger age group (5-14) for the non-migrant population. The sex ratios by age group and the age-specific migration rates show that females had a higher incidence of migration than males between 2006 and 2011. The median age for female migrants (24) was slightly younger than for males (25), while amongst the non-migrants, females had a slightly higher median age (26) compared to males (24).

Analysis of the education qualifications of migrants and non-migrants revealed that the great majority of both populations have no formal qualifications beyond school attendance. There are higher proportions of migrants with school certificate and with post-school qualifications, but the differences are not major. There are also some differences between males and females in terms of their qualifications, but again, these are not large differentials.

More significant differentials are apparent when occupation is considered. Males in both the migrant and non-migrant populations are heavily concentrated in the agriculture, forestry, fisheries and related occupations, while females are heavily

concentrated in the craft and related trades. There are differences between migrants and non-migrants in terms of their shares in specialist occupation groups, especially clerical workers (for females), and professionals (for males), and a much larger share of the migrants are in these occupations than non-migrants. The majority of professionals are teachers, nurses, religious ministers, and so forth. The clerical support occupation is primarily a female occupation, unlike the armed forces, and plant and machine operators and assemblers category which is dominated by males, both migrants and non-migrants. The service and sale worker occupation category has reasonably even shares of both male and female migrants.

Migrant Population Differs in Terms of Region

Urban and Tongatapu-rural had the largest proportions of in-migrants in the young working age groups for both males and females. The in-migrant flows into the outer island region had a larger proportion of children and employed married people with their families. There was differences in the age composition of the out-migration flows by region but in all regions most out migrants were in their 20s. The pattern of intra-regional-migration also varied somewhat with movement of children and their parents dominating in the outer island region, while young adults dominated in the flows within the urban and rural regions on Tongatapu.

Migrants who are not married dominate in all three regions and the largest proportion of migrants in all three regions have no qualification. Those migrants with Secondary school certificate and first degrees were evenly distributed across the migrant populations in all three regions. Post-degree certificates and higher qualifications were concentrated among migrants employed and resident in the urban areas.

For all three regions, the largest occupation group for the migrants who were employed was *agricultural, forestry and fishery* and related sectors. The second largest migrant group by occupation was *craft and related trades workers*. A large proportion of *agricultural, forestry and fishery* and related sectors and the craft and related trades workers were found in both rural areas than in the urban. The professionals, service and sale workers, clerical support workers, armed forces and

plant and machine operators, and assemblers, combined to make up the largest occupation group and tended to favour the urban areas.

Some Contributions and Limitations of the Research

This study used available data from censuses for internal migration in Tonga for the period of 2001–2011. The type of Tongan census data that was available for this analysis had never been collected before so the thesis makes an important contribution by presenting an assessment of recent flows and characteristics of internal migrants in the Kingdom. The analysis has allowed for a more comprehensive assessment of the spatial dimensions of contemporary internal migration in Tonga across a range of scales: divisions, districts, rural and urban areas and between the northern and southern islands. Achieving this analysis required preparation of a special data set and the use of a range of GIS techniques to produce appropriate maps.

While the major contribution of the study has been to effectively demonstrate the contemporary patterns of internal migration and characteristics of migrants and non-migrants, the major limitation is the absence of information on factors causing movement between different parts of Tonga. The analysis of ‘push and pull’ factors, using census data, relies on assumed associations between variables like age, education qualifications, occupations and so on, rather than evidence of the actual factors that encouraged people to move from or stay in their current places of residence. This study needs to be followed up by further qualitative research into the causes of contemporary internal migration in Tonga. It is only through more specific inquiry into the causes and consequences of migration that Walsh’s (1964) assumptions about the importance of kin, rank and land in the migration process can be assessed. This study provides a useful baseline description of contemporary migrant flows and characteristics; there is plenty of scope for further research into the causes and consequences of migration in Tonga and for deepening our understanding of contemporary population movement within Pacific countries.

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Appendix 1

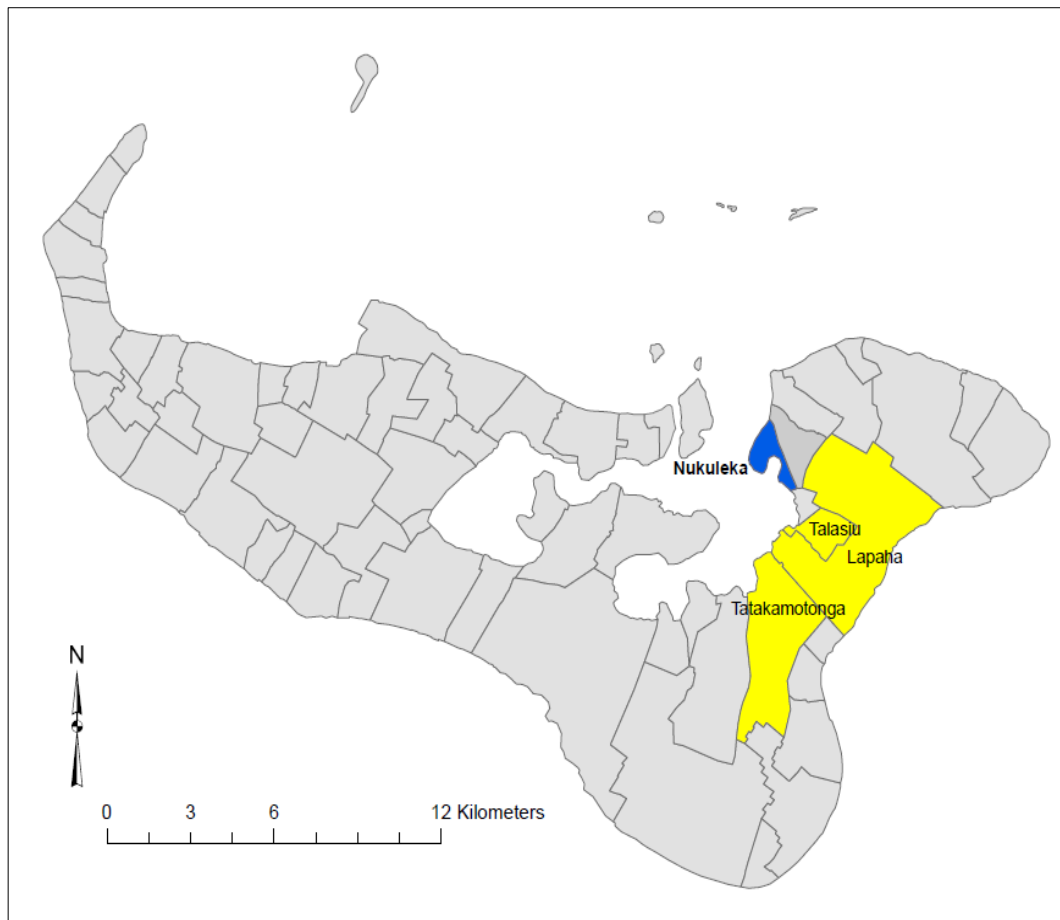
Distinguishing permanent and temporary residents during census enumeration

The distinction is between those who usually live in the village from those who do not usually live there and whose presence is temporary. The “place of usual residence: is the geographic place where the enumerated person (a) has lived for the past six months or more, or (b) having arrived in that geographic area during the last six months, intends to stay there for 6 months.” The distinction between being in residence and merely visiting is sometimes a difficult one to make, but in this case the census accepts 6 months or more as “residence”. The question asked in both censuses are as follows:

P09 Usual Place of residence									
1. Does this person usually live in this village?									
1. Yes	➔	GO TO P10						<input style="width: 40px; height: 30px;" type="text"/>	
2. No									
2. If no, where does this person usually live ?									
								<i>office use only</i>	
								<input style="width: 40px; height: 30px;" type="text"/>	
								<input style="width: 40px; height: 30px;" type="text"/>	
								<input style="width: 40px; height: 30px;" type="text"/>	
<i>(Village / Island in Tonga or Country if outside Tonga)</i>									

Source: Tonga Department of Statistics, 2006 & 2011 Census of Population and Housing.

Map A1: Location of Nukuleka village, the birthplace of Polynesia, and location of Mu'a village, the ancient capital of Tonga



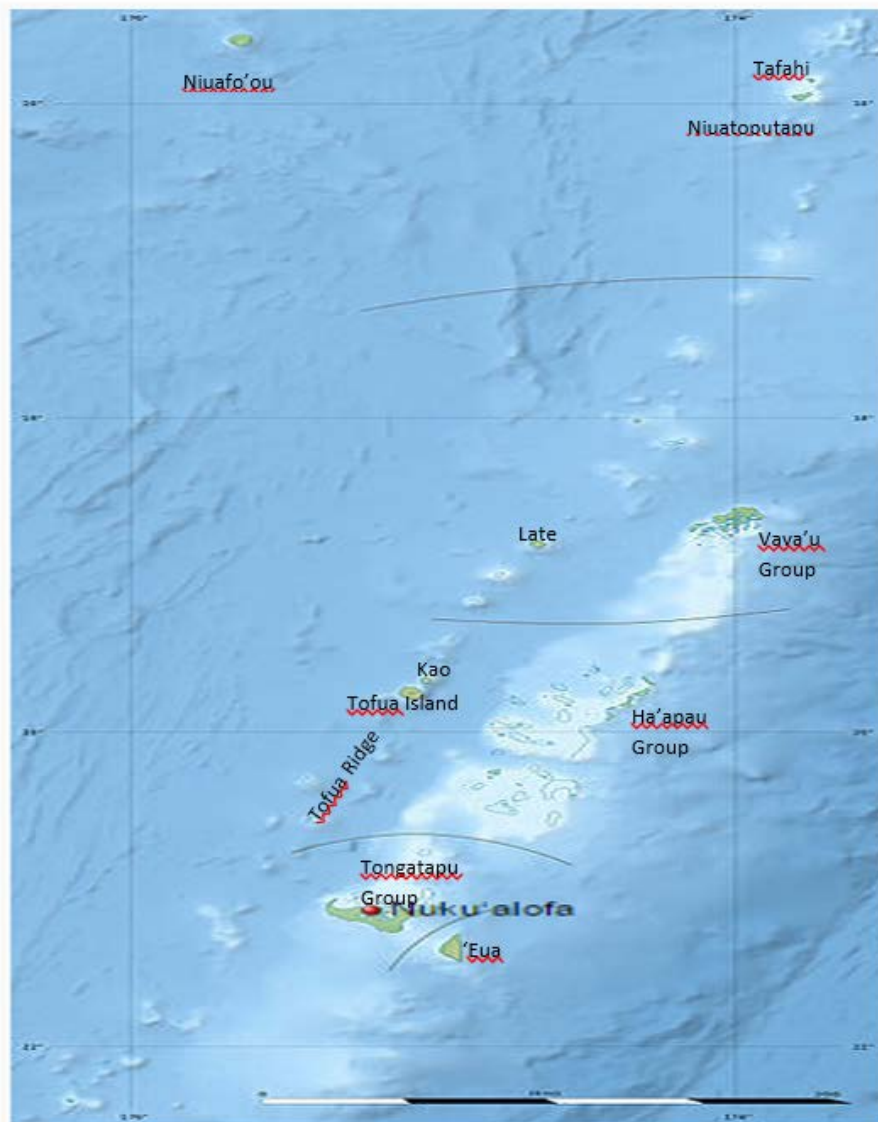
Source: Data and shape file adapted from Tonga Department of Statistics & Secretariat of the Pacific Community, 2014. Map created by author using ArcMap 10.2.

Note:

Mu'a Village is the Ancient capital of Tonga comprised of three villages: Lapaha, Tatakamotonga and Talasiu (highlight in yellow).

Nukuleka Village, the birth place of Polynesian in Tonga and in the Pacific (highlighted in blue).

Map A2: Tonga Island groups and volcanic chain



Source: Source: <https://en.wikipedia.org/wiki/Nuku%CA%BBalofa>.

Appendix 2

1. Current internal migration questions, for both 2006 and 2011 census questionnaires.

P10	Internal Migration:					
1. Where did this person live 1 year ago ?						
<i>(If this person is less than 1 year of age, mark 0000)</i>		<i>office use only</i>				
		<table border="1" style="width: 100%; height: 20px; background-color: #cccccc;"> <tr> <td style="width: 25%;"></td> <td style="width: 25%;"></td> <td style="width: 25%;"></td> <td style="width: 25%;"></td> </tr> </table>				
<i>(Village / Island in Tonga or Country if outside Tonga)</i>						
2. Where did this person live 5 years ago ?						
<i>(If this person is less than 5 years of age, mark 0000)</i>		<i>office use only</i>				
		<table border="1" style="width: 100%; height: 20px; background-color: #cccccc;"> <tr> <td style="width: 25%;"></td> <td style="width: 25%;"></td> <td style="width: 25%;"></td> <td style="width: 25%;"></td> </tr> </table>				
<i>(Village / Island in Tonga or Country if outside Tonga)</i>						

Source: Tonga Department of Statistics & Secretariat of the Pacific Community, 2008 & 2014.

2. Revised and proposed question for internal migration (These questions can be prioritised, however, the study understands the difficulties that limit the number of questions to be asked during census enumeration).

Usual place of residence and internal migration

1. Does this person usually live in this village?

- Yes
- No

1.1. If yes, how long has this person lived here?

1.2. If no, where does this person usually live?

2. Did this person live here 1 year ago?

- Yes
- No

2.1. If yes, how long did this person live here?

2.2. If no, name village or country if outside Tonga.

2.3. Why did this person move to this village?

3. Did this person live here 5 years ago?

- Yes
- No

3.1. If yes, how long has this person lived here?

3.2. If no, name village or country if outside Tonga

3.2. Why did this person move to this village?

3.3. During last 5 years, how many times did this person change his/her residence before moving here?

Appendix 3

Table A1: Basic table on internal migration, produced from 2006 census

Table 15: Population by place of enumeration and usual residence five years ago (in 2001), Tonga: 2006

Place of enumeration at time of census		Usual residential address 5 years ago							
Division	Total	Tongatapu	Vava'u	Ha'apai	Eua	Ongo Niua	Overseas	Not born*	NS
Tongatapu	72,045	55,311	1,341	1,013	524	385	3,372	9,783	316
Vava'u	15,505	705	12,096	102	32	39	404	2106	21
Ha'apai	7,570	705	100	5,601	30	19	133	957	25
Eua	5,206	484	60	54	3,705	9	135	757	2
Ongo Niua	1,665	176	51	26	20	1,200	13	179	0
Tonga	101,991	57,381	13,648	6,796	4,311	1,652	4,057	13,782	364

□ = non-movers (i.e. those people who did not change their residence during the reference period)
 * people aged 5 and younger could not state their residence five years prior to the census, because they were not yet born then

Source: Tonga Department of Statistics & Secretariat of the Pacific Community, 2008 (p. 25).

Table A2: Basic table on internal migration, produced from 2011 census

Table 19: Population by place of enumeration and usual residence five-years ago (in 2006), Tonga: 2011

Place of enumeration at the time of the 2011 Census		Usual residential address five years prior to the 2011 Census							
Division	Total	Tongatapu	Vava'u	Ha'apai	'Eua	Ongo Nuia	Not born ²	Overseas	N/S
Tongatapu	75,281	58,921 ¹	1,433	942	528	290	9,982	3,179	6
Vava'u	14,884	755	11,520 ¹	128	91	70	1,907	413	0
Ha'apai	6,607	688	98	4,836 ¹	43	15	831	96	0
'Eua	4,989	532	65	33	3,593 ¹	8	648	110	0
Ongo Nuia	1,282	93	31	12	24	983 ¹	131	8	0
Tonga	103,043	60,989	13,147	5,951	4,279	1,366	13,499	3,806	6

¹ Non-movers i.e. those people who did not change their residence during the reference period
² People aged less than five years enumerated in the census

Source: Tonga Department of Statistics & Secretariat of the Pacific Community, 2014 (p. 26).

Note: The total of 103,043 in 2011 in Table A2 is the total Tongan resident (usually resident in Tonga at the time of census), but the total in Table A6 is the total population in Tonga including non-residents during the census enumeration.

Table A3: Revised tables corresponding to Table A1 in 2006 census

Place of residence at the time of 2006 census	Place of residential address - 2001								
	Tongatapu	Vava'u	Ha'apai	Eua	Ongo Niua	Abroad	Not yet born	Not specify	Total
Tongatapu	55,311	1,341	1,013	524	385	3,372	9,783	316	72,045
Vava'u	705	12,096	102	32	39	404	2,106	21	15,505
Ha'apai	705	100	5,601	30	19	133	957	25	7,570
Eua	484	60	54	3,705	9	135	757	2	5,206
Ongo Niua	176	51	26	20	1,200	13	179		1,665
Total	57,381	13,648	6,796	4,311	1,652	4,057*	13,782*	364*	101,991

Note: Highlighted figures—some of them are non-migrants, intra-division migrants which means they are inter-district & village migrants. Add all number in * sign from Table A3, A4 & A5 to get the total population.

Table A4: The breakdown of intra-division migrants in Table A3, 2006

Place of residence at the time of 2006 census	Place of residential address - 2001					
	Tongatapu	Vava'u	Ha'apai	Eua	Ongo Niua	Total
Tongatapu	6,077	1,341	1,013	524	385	9,340
Vava'u	705	728	102	32	39	1,606
Ha'apai	705	100	646	30	19	1,500
Eua	484	60	54	278	9	885
Ongo Niua	176	51	26	20	76	349
Total	8,147	2,280	1,841	884	528	13,680*

Note: Highlighted figures indicated those are intra-division migrants (inter-district and village).

Table A5: The non-migrants in all geographical levels (division, district and village), 2006

Place of residence at the time of 2006 census	Place of residential address - 2001					
	Tongatapu	Vava'u	Ha'apai	Eua	Ongo Niua	Total
Tongatapu	49,234					49,234
Vava'u		11,368				11,368
Ha'apai			4,955			4,955
Eua				3,427		3,427
Ongo Niua					1,124	1,124
Total	49,234	11,368	4,955	3,427	1,124	70,108*

Note: Highlighted are non-migrants (in all geographical levels), who did not move anywhere during the last five years before 2006.

Table A6: Revised tables corresponding to Table A2 in 2006 census

Place of residence at the time of 2011 census	Place of residential address - 2006								
	Tongatapu	Vava'u	Ha'apai	Eua	Ongo Niua	In-migration from abroad	Not yet born	Not specified	Total
Tongatapu	58,921	1,433	942	528	290	3,179	9,982	141	75,416
Vava'u	755	11,520	128	91	70	413	1,907	38	14,922
Ha'apai	688	98	4,836	43	15	96	831	9	6,616
Eua	532	65	33	3,593	8	110	648	27	5,016
Ongo Niua	93	31	12	24	983	8	131		1,282
Total	60,989	13,147	5,951	4,279	1,366	3,806*	13,499*	215*	103,252

Note: Highlighted are non-migrants, intra-divisional migrants, and inter-district & village migrants.

Add all number in * sign from Table A6, A7 and A8 to get the total population.

Table A7: The breakdown of intra-division migrant in Table A6, 2011

Place of residence at the time of 2011 census	Place of residential address - 2006					
	Tongatapu	Vava'u	Ha'apai	Eua	Ongo Niua	Total migrants
Tongatapu	6,213	1,433	942	528	290	9,406
Vava'u	755	821	128	91	70	1,865
Ha'apai	688	98	385	43	15	1,229
Eua	532	65	33	145	8	783
Ongo Niua	93	31	12	24	53	213
Total	8,281	2,448	1,500	831	436	13,496*

Note: Highlighted are intra-division migrants (inter-district and village), the un-highlighted are inter-division migrants (in and out migration).

Table A8: The Non-migrants in all geography levels (division, district and village), 2011

Place of residence at the time of 2011 census	Place of residential address - 2006					
	Tongatapu	Vava'u	Ha'apai	Eua	Ongo Niua	Total non-migrants
Tongatapu	52,708					52,708
Vava'u		10,699				10,699
Ha'apai			4,451			4,451
Eua				3,448		3,448
Ongo Niua					930	930
Total	52,708	10,699	4,451	3,448	930	72,236*

Note: Highlighted are non-migrants (in all geographical levels), who did not move anywhere during the last five years before 2011.

Appendix 4

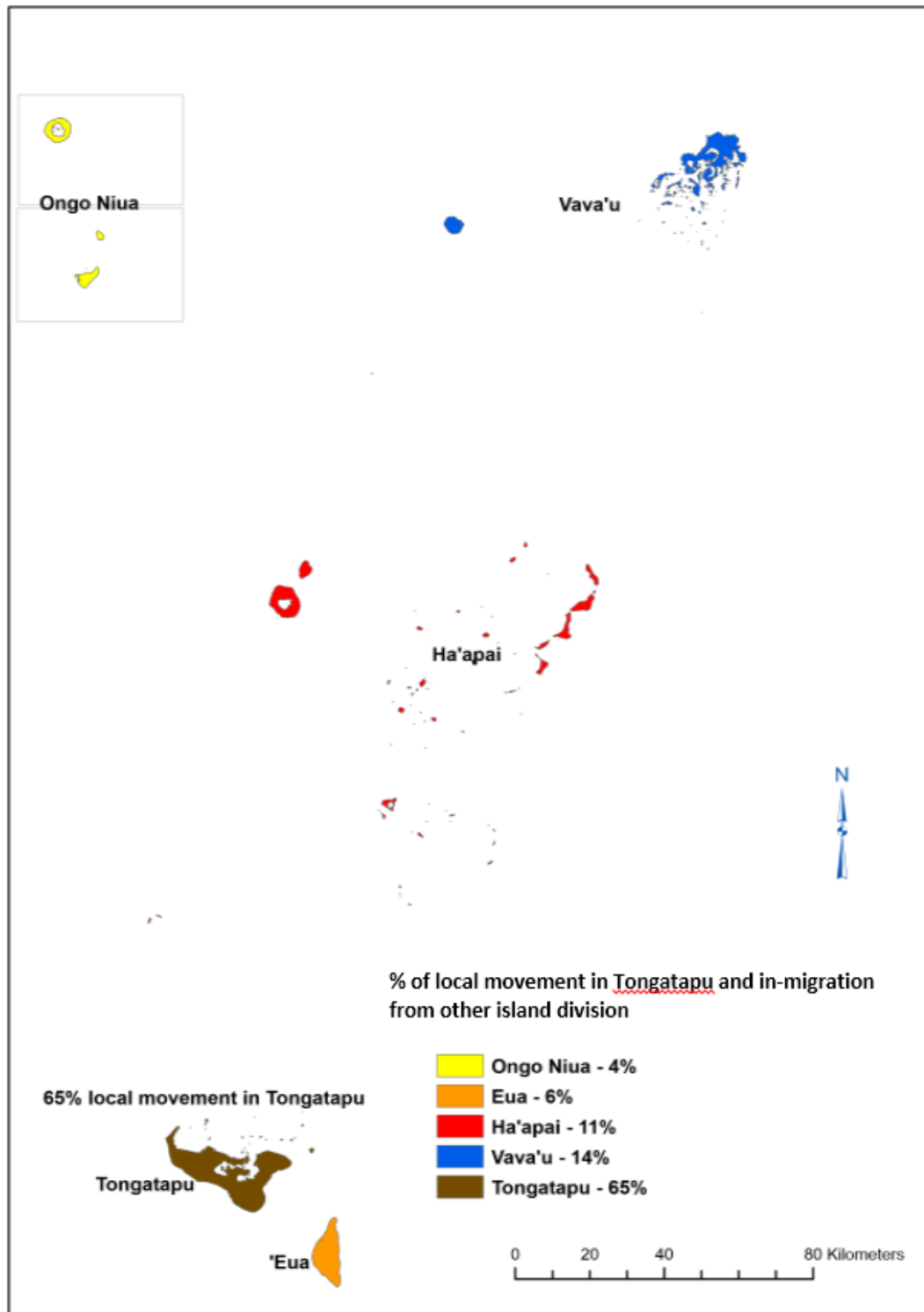
This appendix contains maps and flow of the total inter-division (in- and out-migrants), and intra-division (migrants within the division) over the periods 2001-2006 and 2006-2011.

Maps A3–A7 shows the percentage of the local movement and in-migration to each division in the period of 2001–2006.

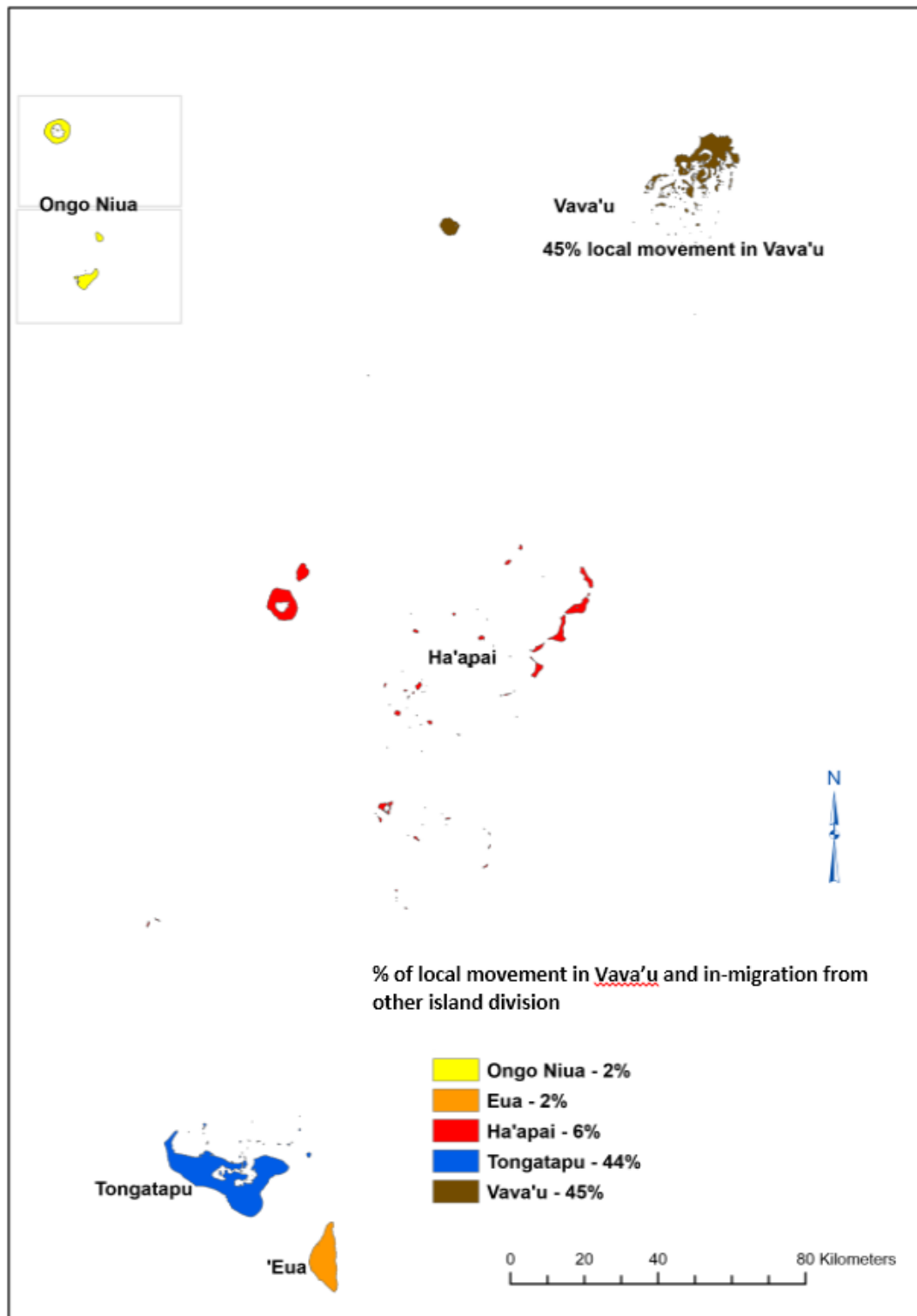
Maps A8–A12 shows the percentage of the local movement and in-migration to each division in the period of 2006-2011.

Source: Data and shape file adapted from Tonga Department of Statistics & Secretariat of the Pacific Community, 2008 & 2014. Map created by author using ArcMap 10.2.

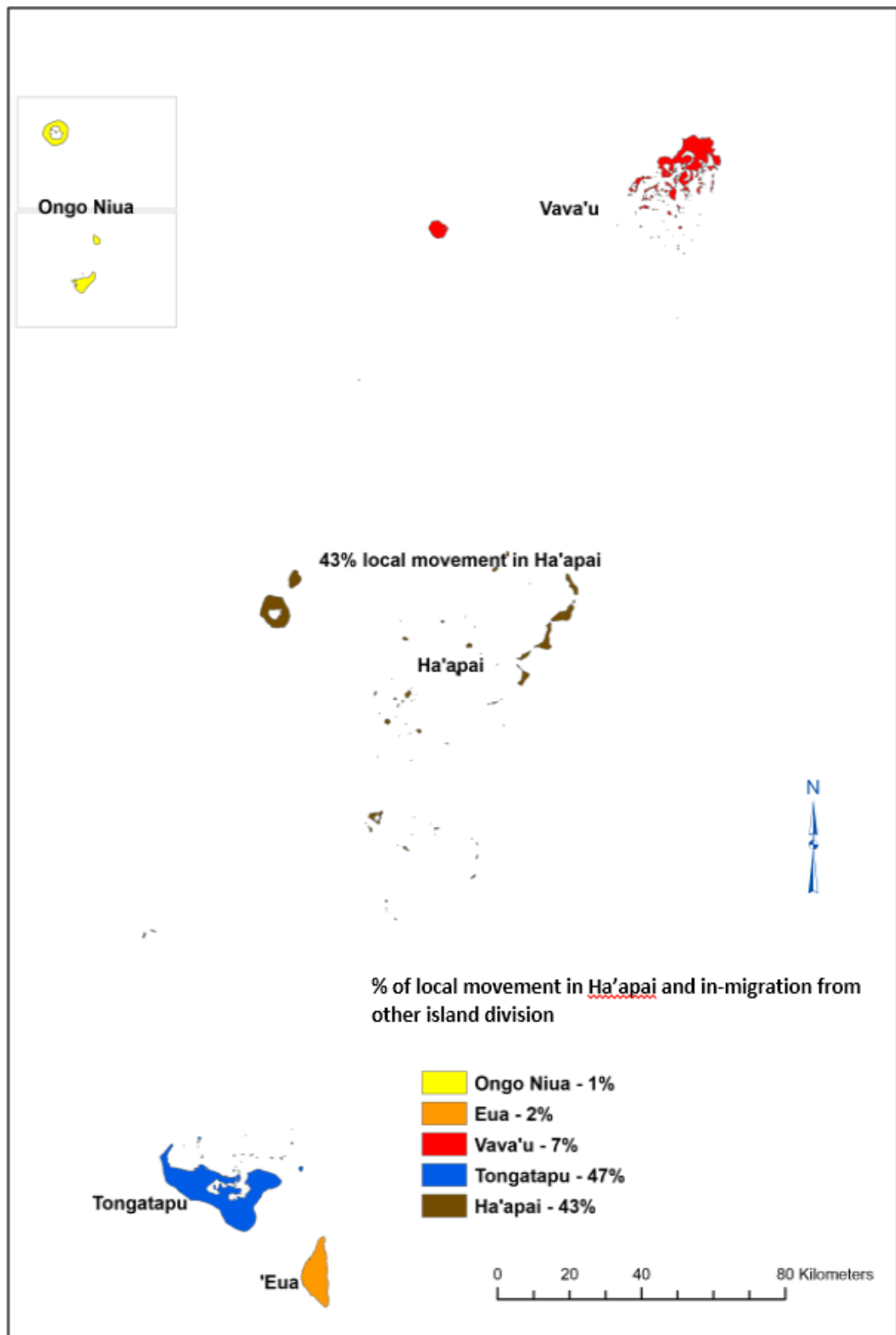
Map A3: Percentage of in-migration to Tongatapu from outer island, 2001-2006



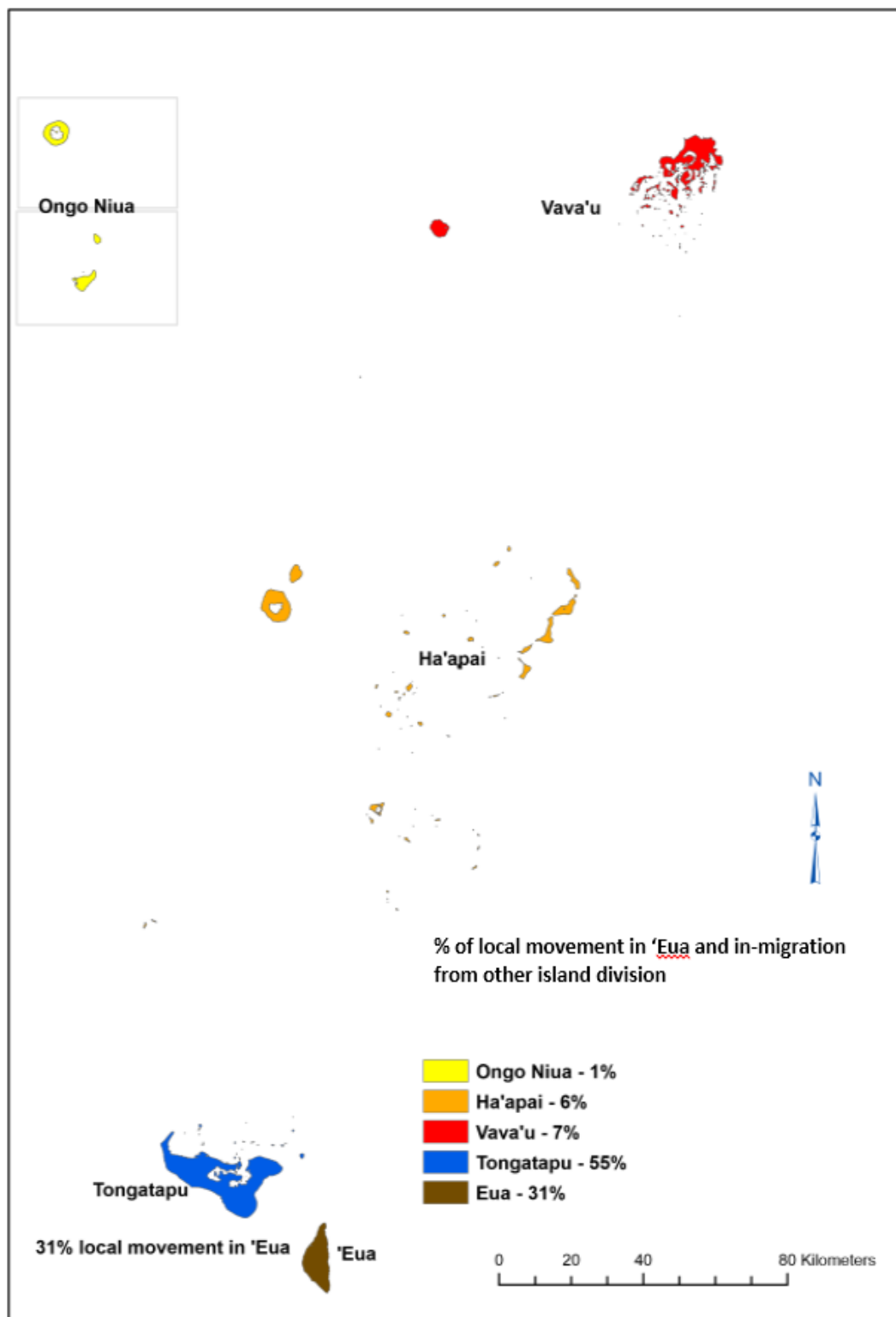
Map A4: Percentage of in-migration to Vava'u from other island division, 2001-2006



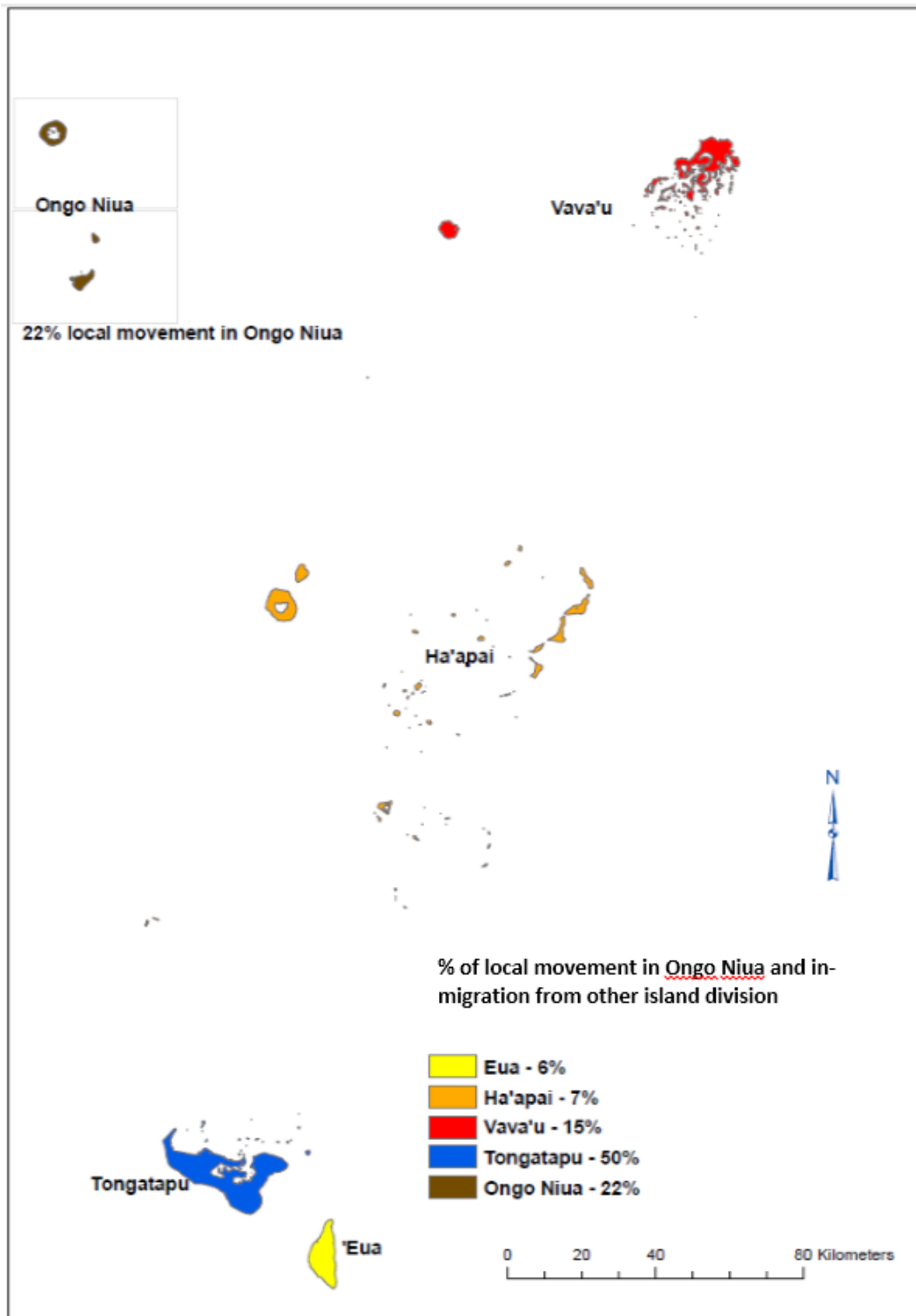
Map A5: Percentage of in-migration to Ha'apai from other island division, 2001-2006



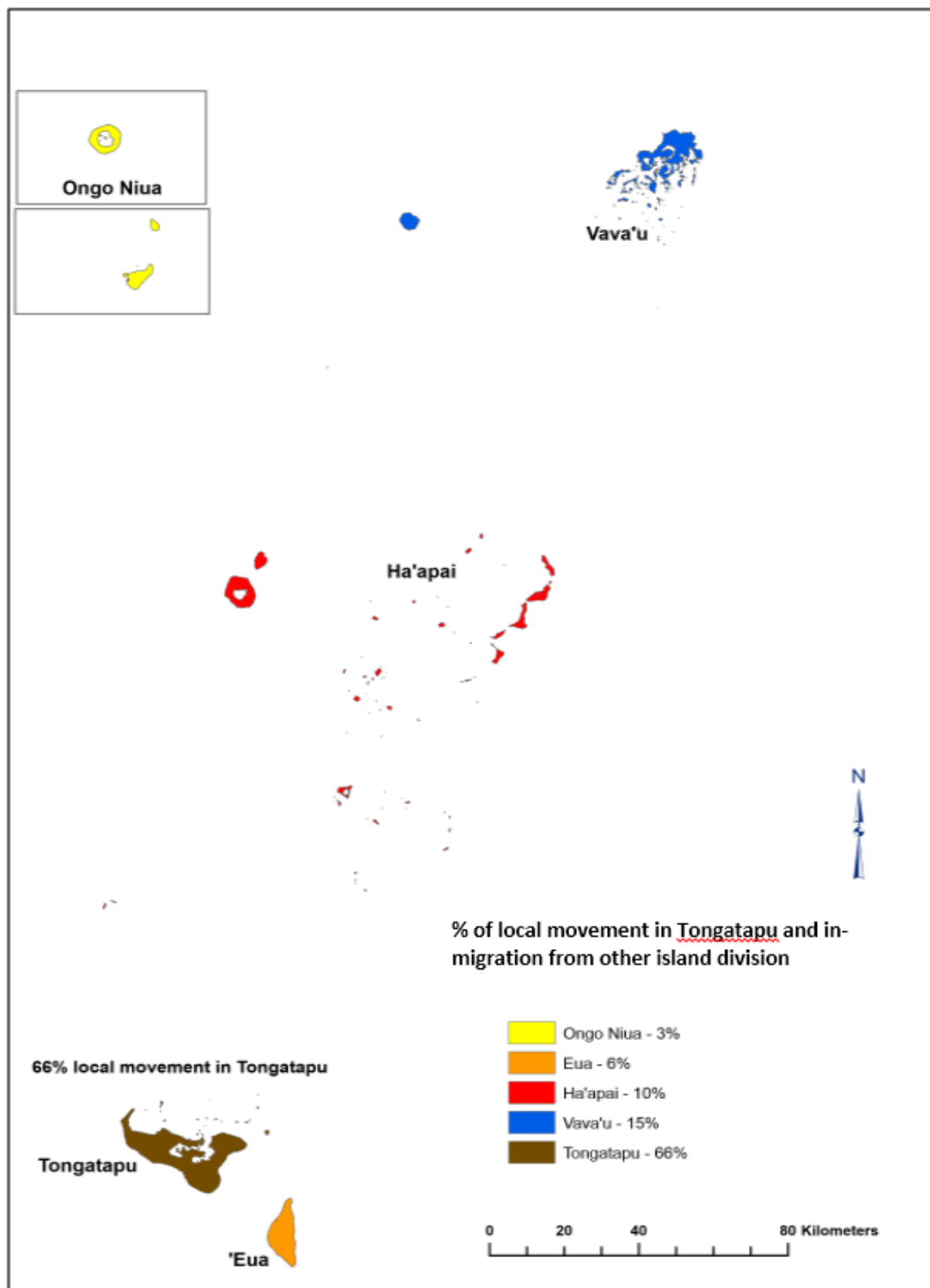
Map A6: Percentage of in-migration to 'Eua from other island division, 2001-2006



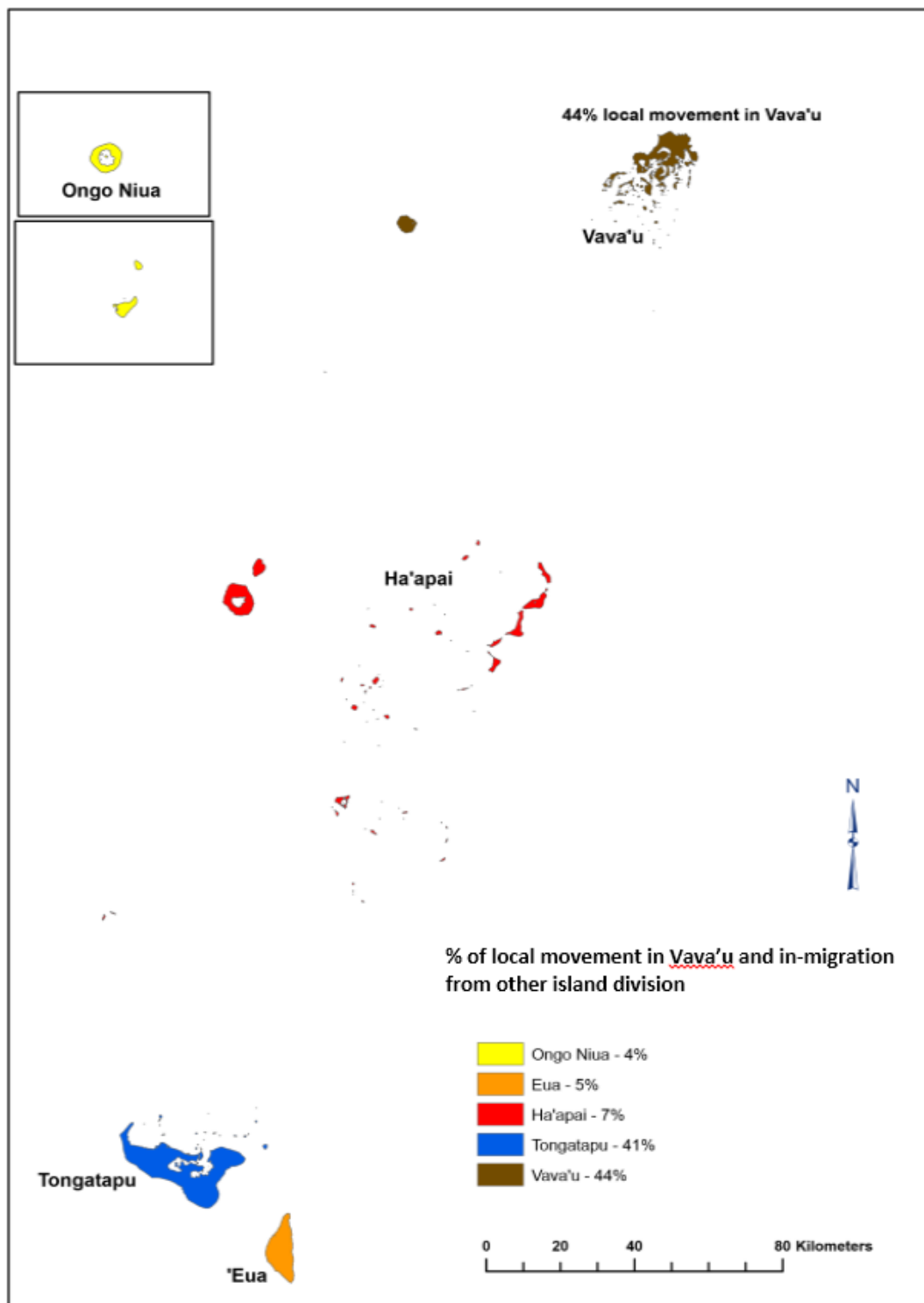
Map A7: Percentage of in-migration to Ongo Niua from other island division, 2001-2006



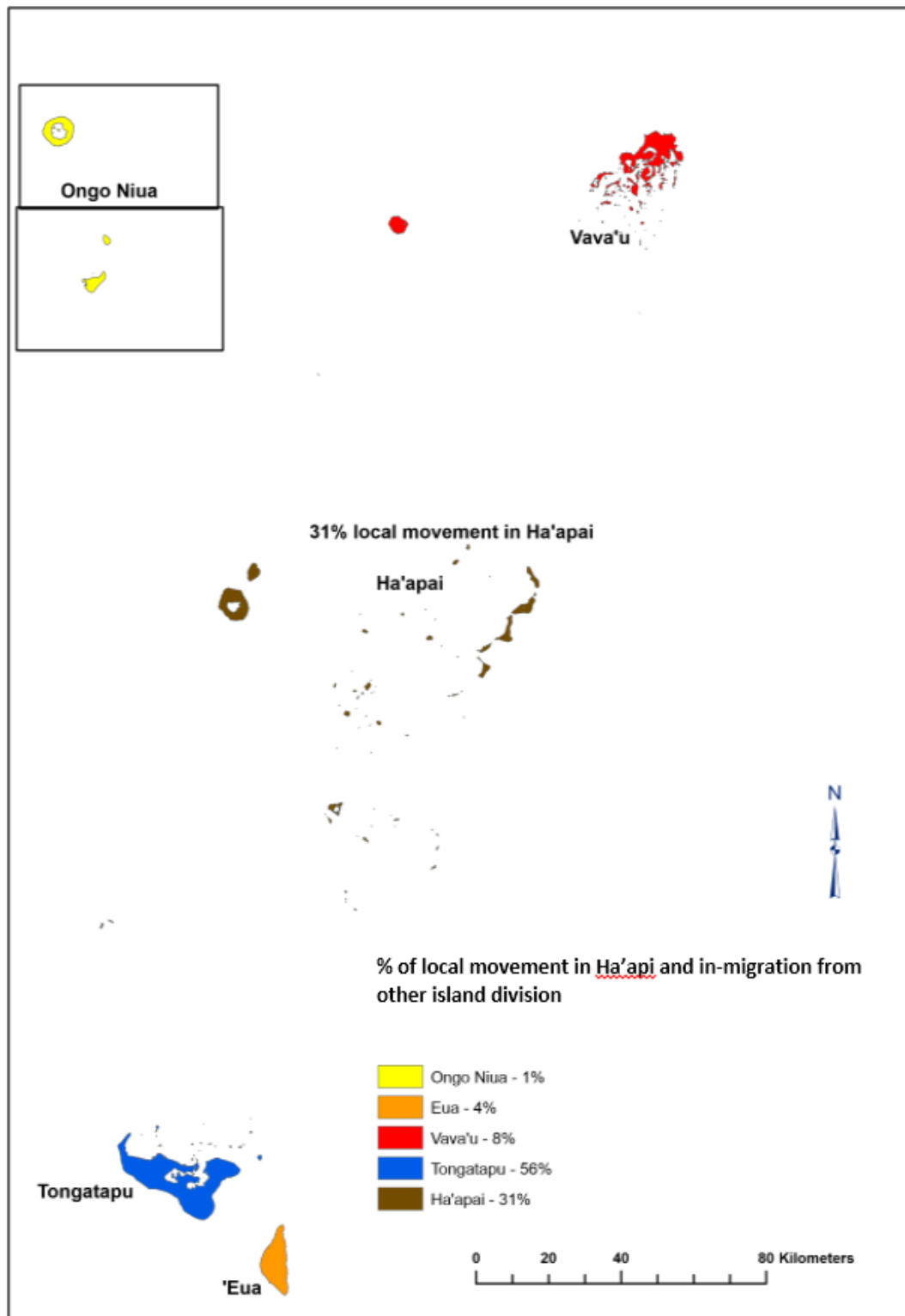
Map A8: Percentage of in-migration to Tongatapu from other island division, 2006-2011



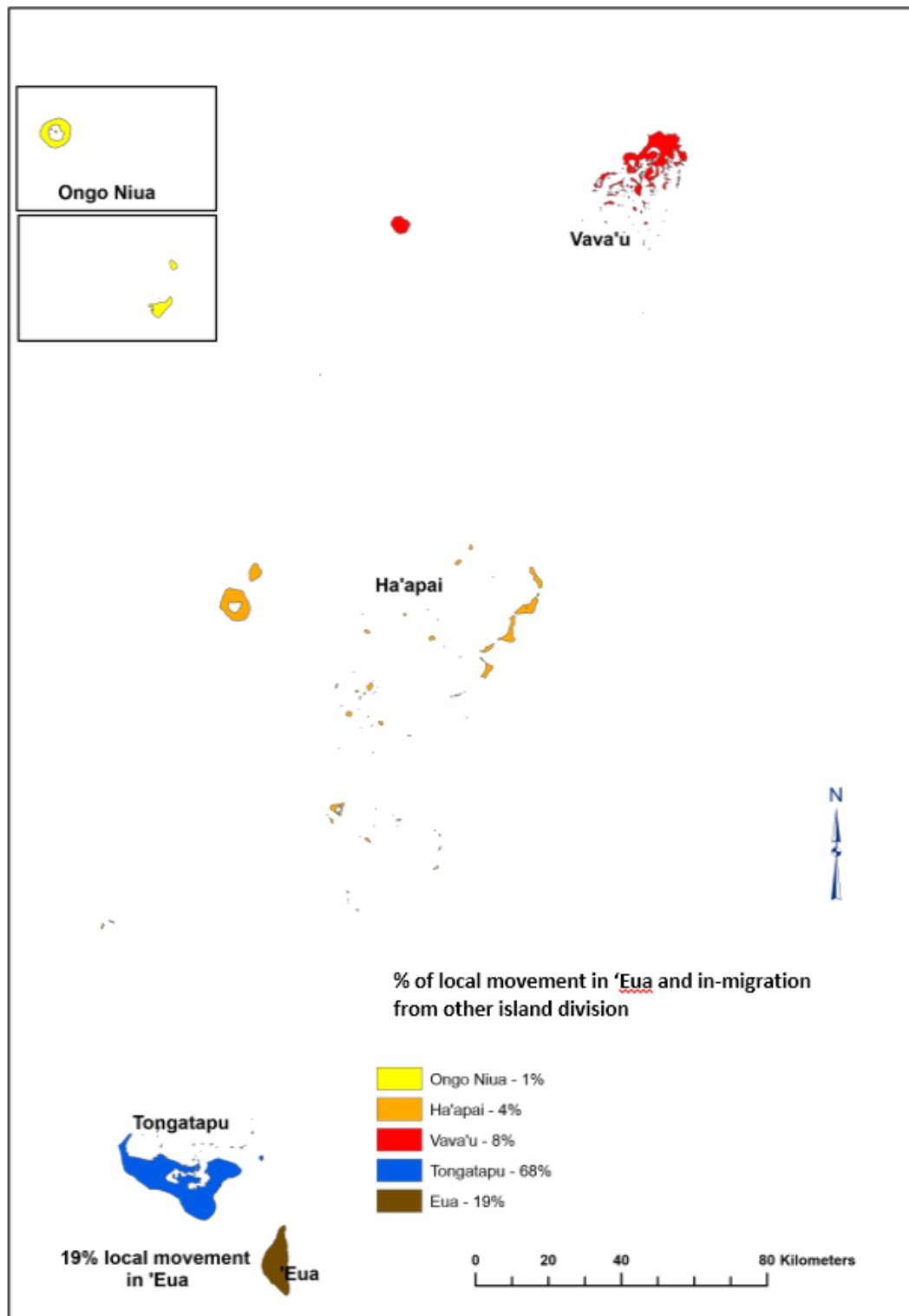
Map A9: Percentage of in-migration to Vava'u from other island division, 2006-2011



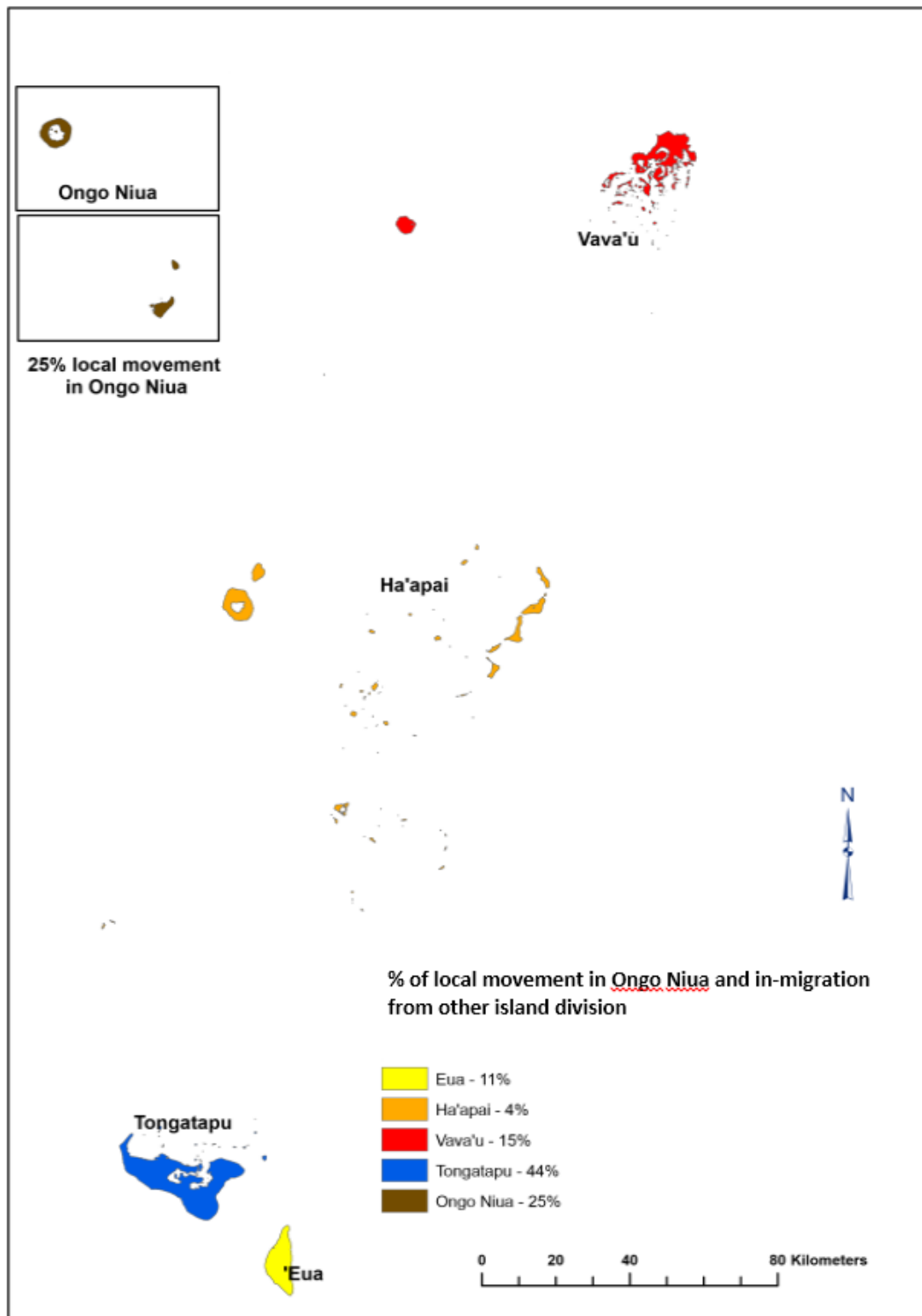
Map A10: Percentage of in-migration to Ha'apai from other island division, 2006-2011



Map A11: Percentage of in-migration to 'Eua from other island division, 2006-2011



Map A12: Percentage of in-migration to Ongo Niua from other island division, 2006-2011



Appendix 5

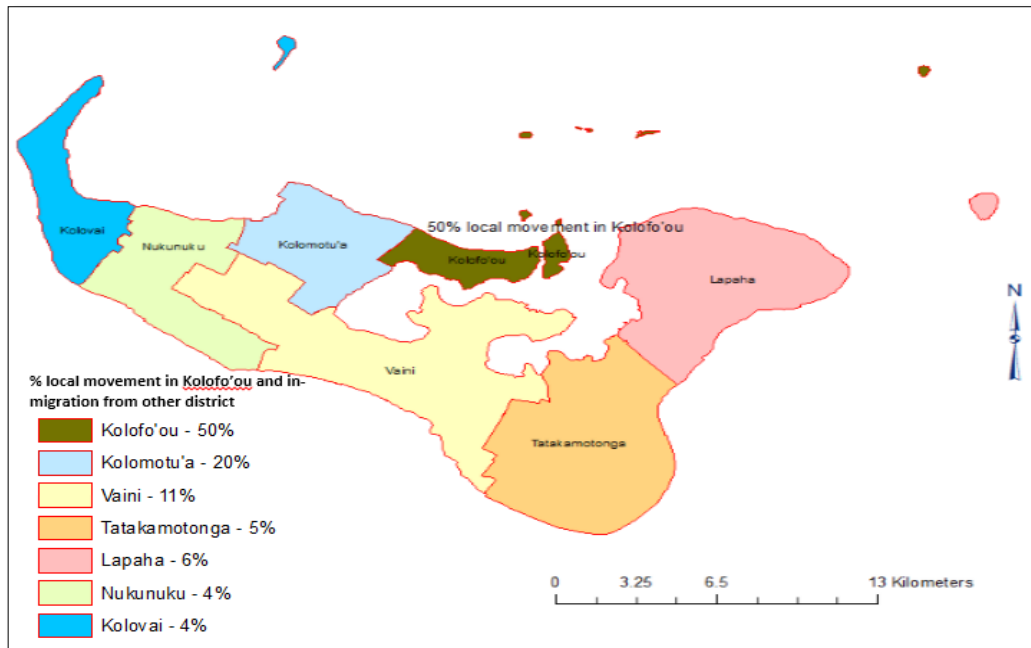
This appendix contains maps and flow of the local movement in Tongatapu only, inter-district (in-and out-migrants), and intra-district (migrants within the district) over the periods 2001–2006 and 2006–2011.

Maps A13–A19 shows the percentage of the local movement and in-migration to each district of Tongatapu in the period 2001–2006.

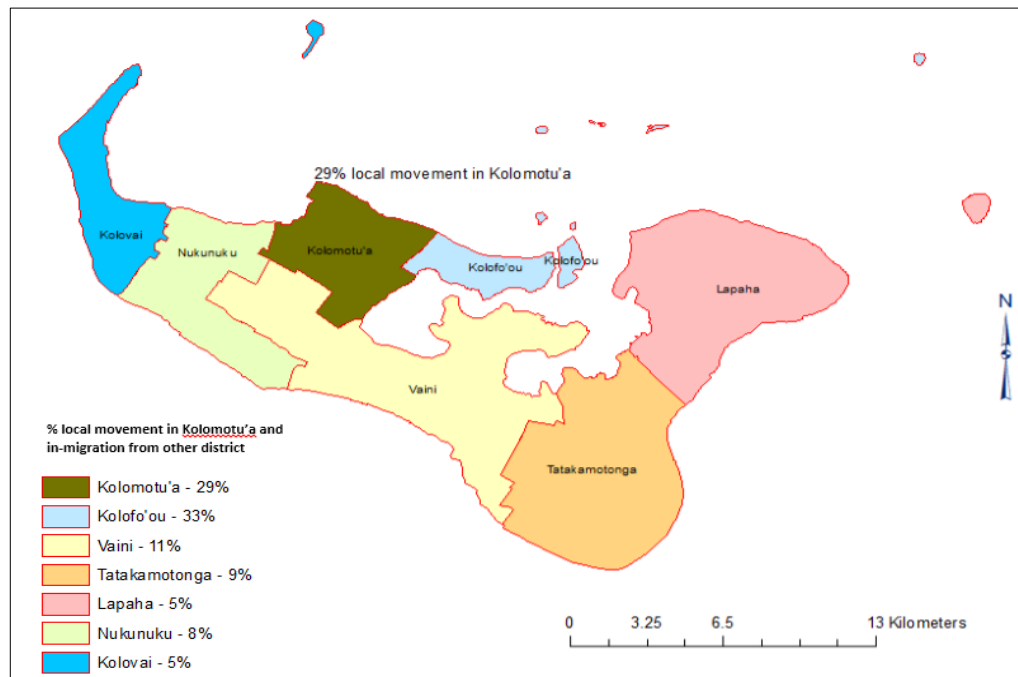
Maps A20– A26 shows the percentage of the local movement and in-migration to each district of Tongatapu in the period 2006 – 2011.

Source: Data and shape file adapted from Tonga Department of Statistics & Secretariat of the Pacific Community, 2008 & 2014. Map created by author using ArcMap 10.2.

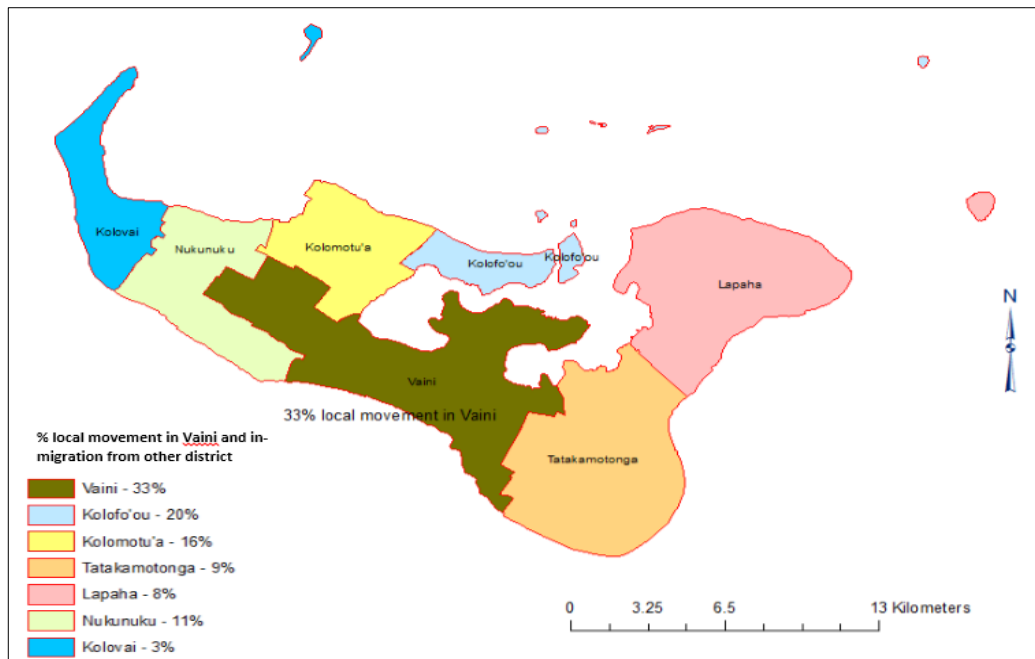
Map A13: Local mobility in Tongatapu and percentage of in-migration to Kolofo'ou from other districts of Tongatapu, 2001-2006



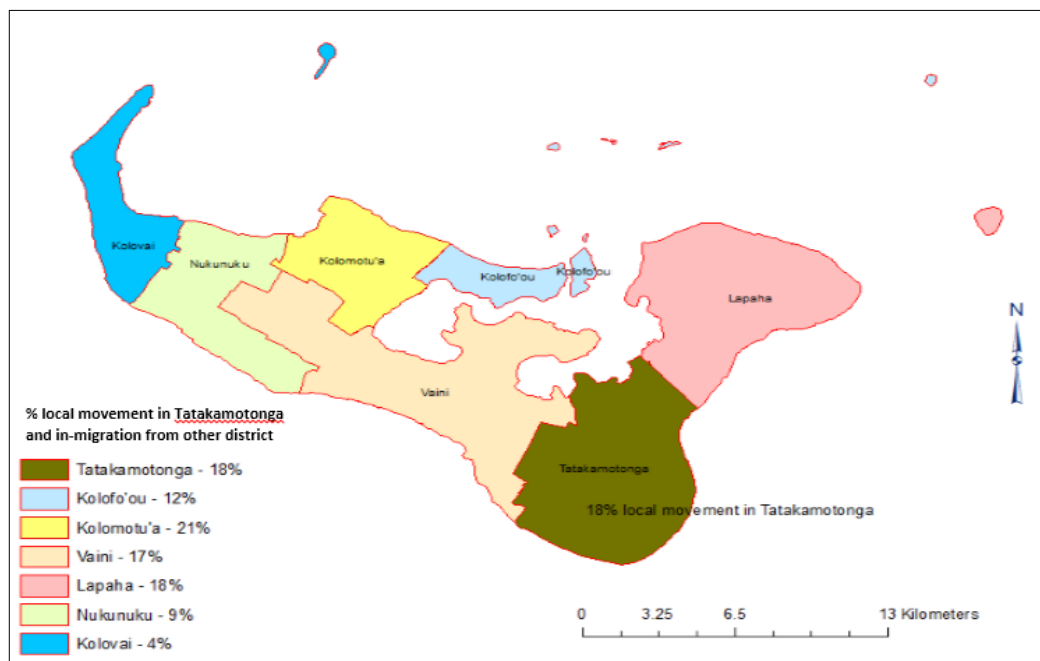
Map A14: Local mobility in Tongatapu and percentage of in-migration to Kolomotu'a from other districts of Tongatapu, 2001-2006



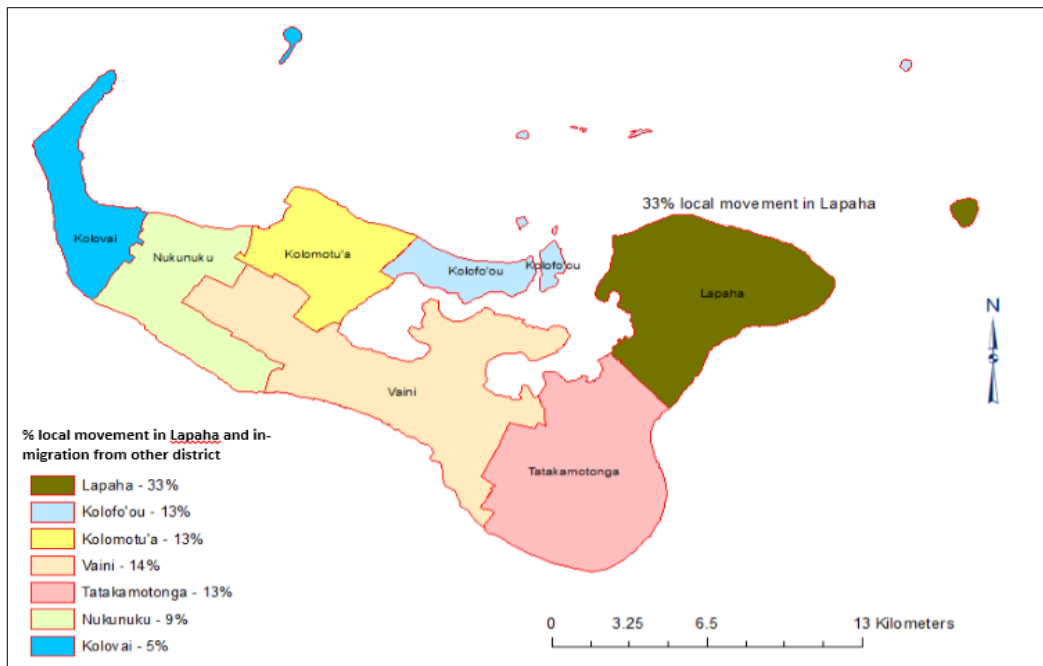
Map A15: Local mobility in Tongatapu and percentage of in-migration to Vaini from other districts of Tongatapu, 2001-2006



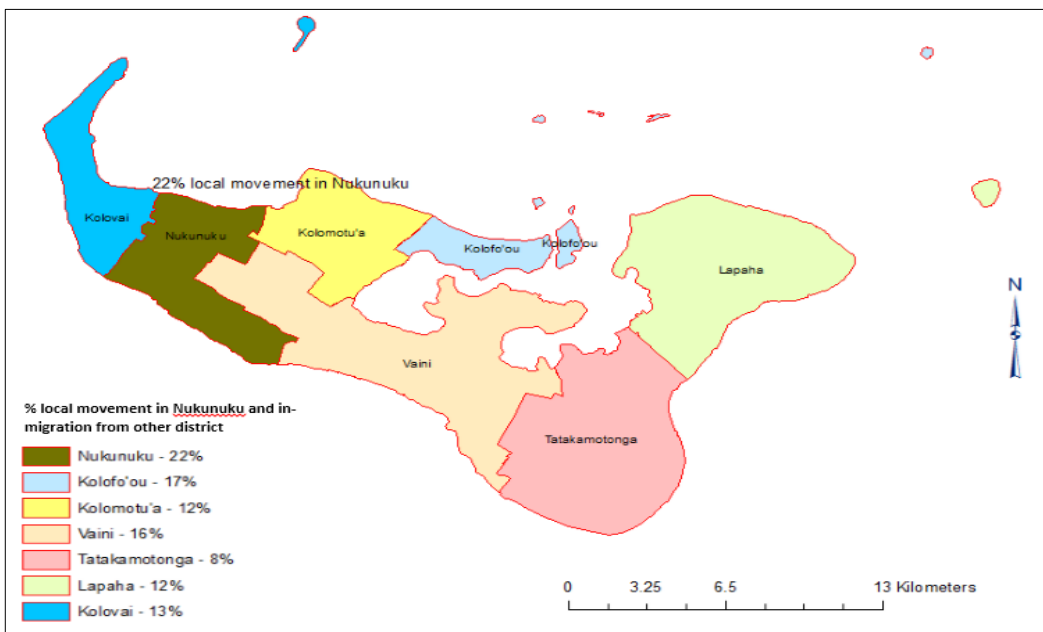
Map A16: Local mobility in Tongatapu and percentage of in-migration to Tatakamotonga from other districts of Tongatapu, 2001-2006



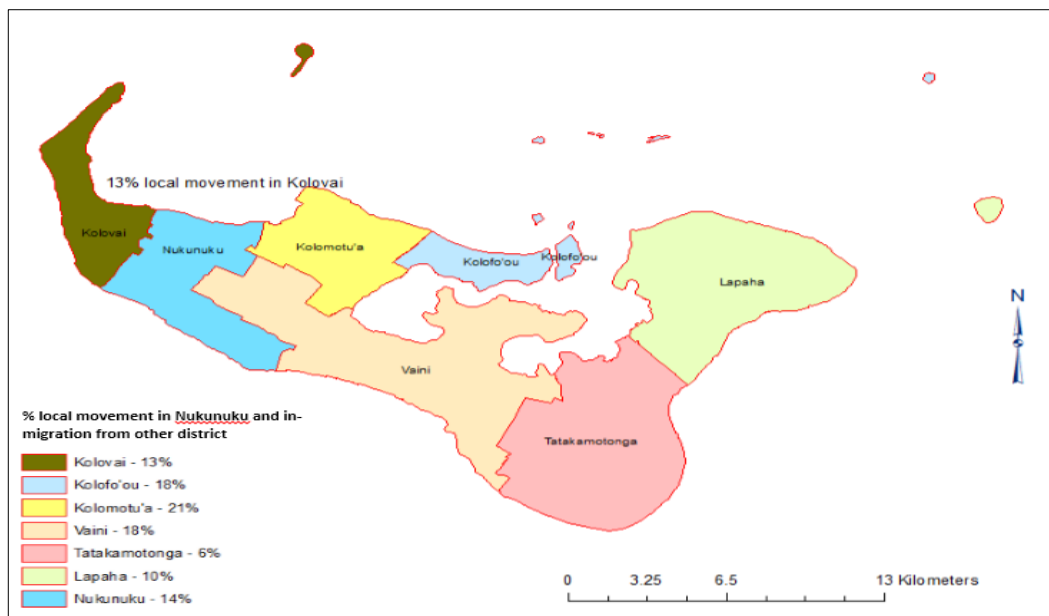
Map A17: Local mobility in Tongatapu and percentage of in-migration to Lapaha from other districts of Tongatapu, 2001-2006



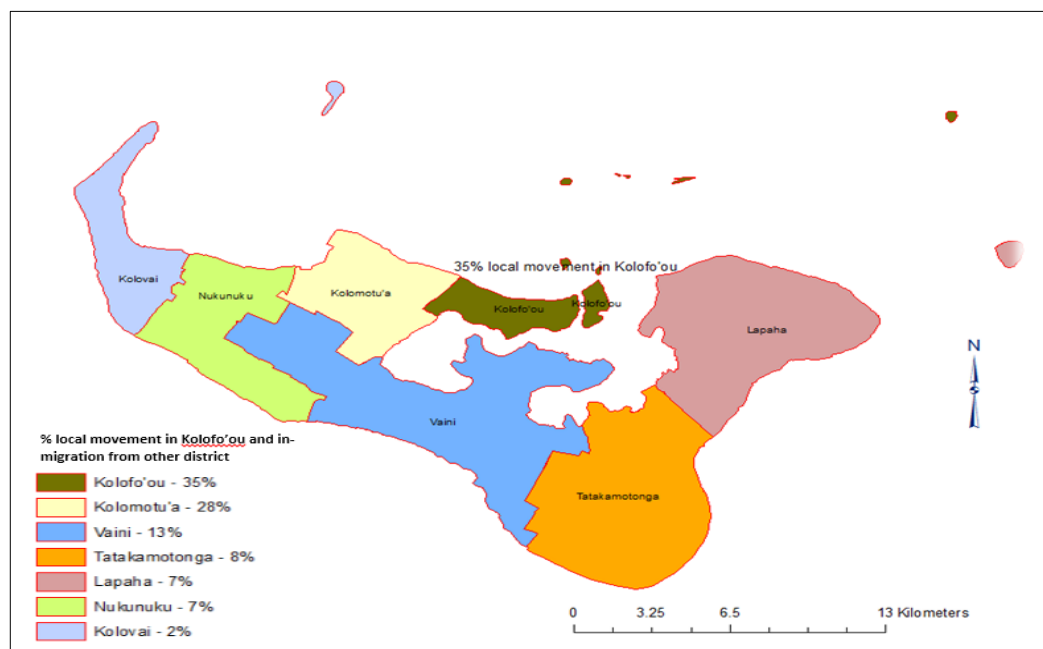
Map A18: Local mobility in Tongatapu and percentage of in-migration to Nukunuku from other districts of Tongatapu, 2001-2006



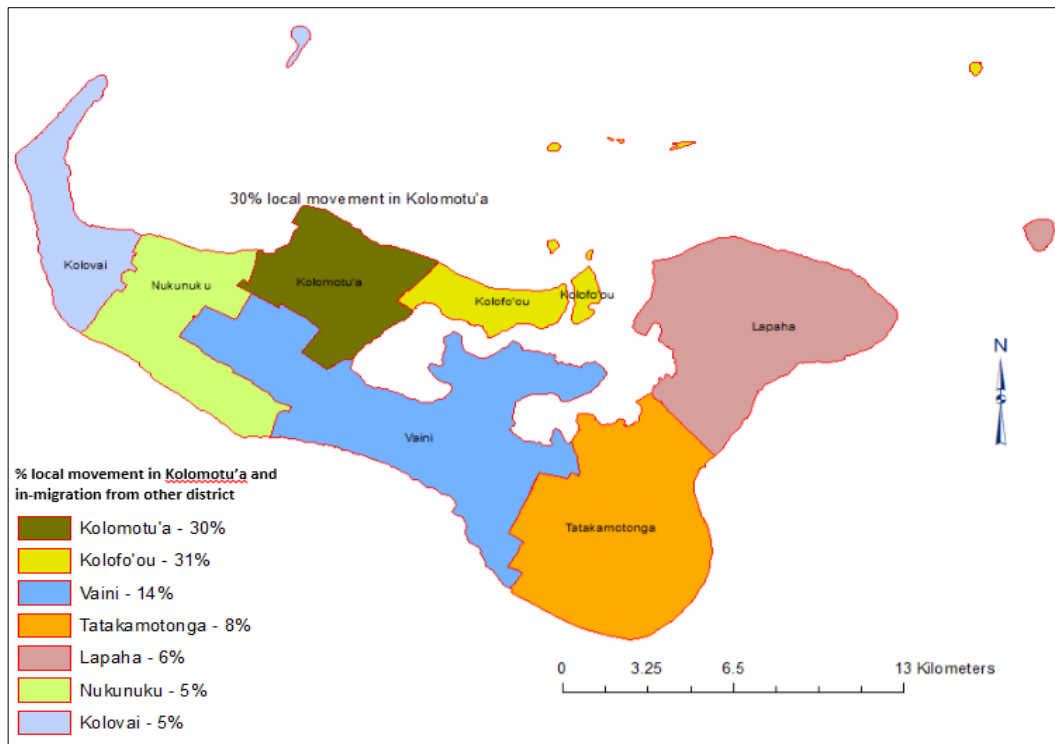
Map A19: Local mobility in Tongatapu and percentage of in-migration to Kolovai from other districts of Tongatapu, 2001-2006



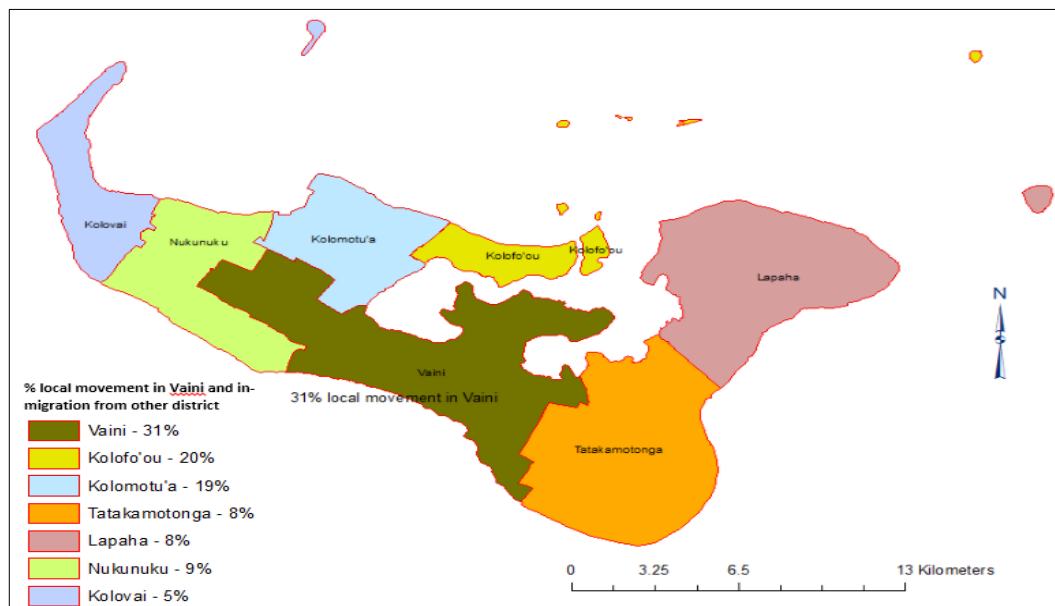
Map A20: Local mobility in Tongatapu and percentage of in-migration to Kolofo'ou from other districts of Tongatapu, 2006-2011



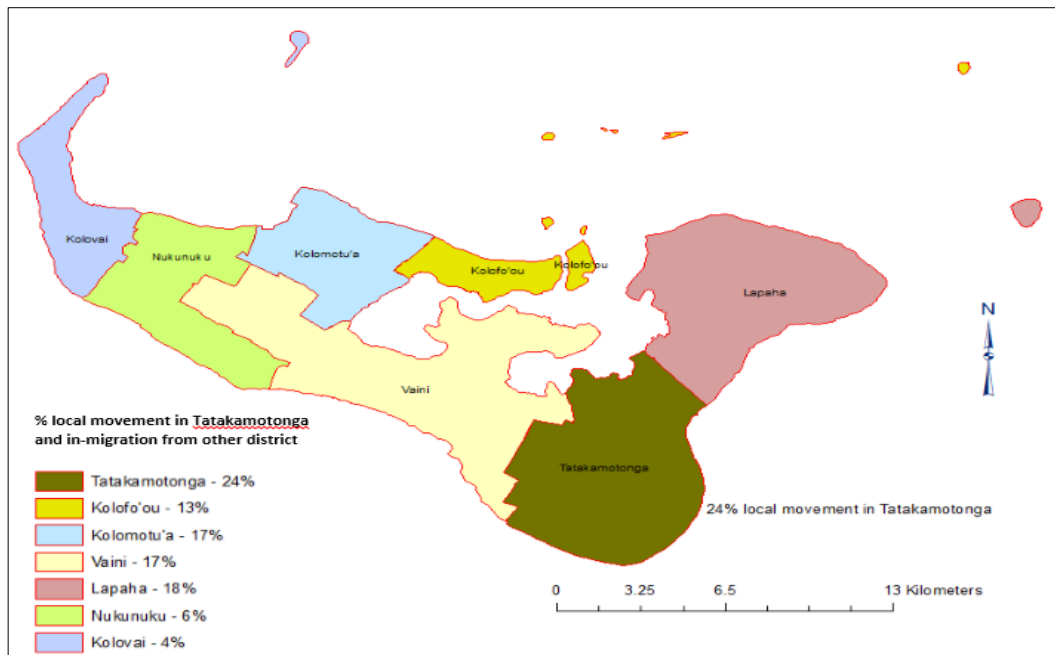
Map A21: Local mobility in Tongatapu and percentage of in-migration to Kolomotu'a from other districts of Tongatapu, 2006-2011



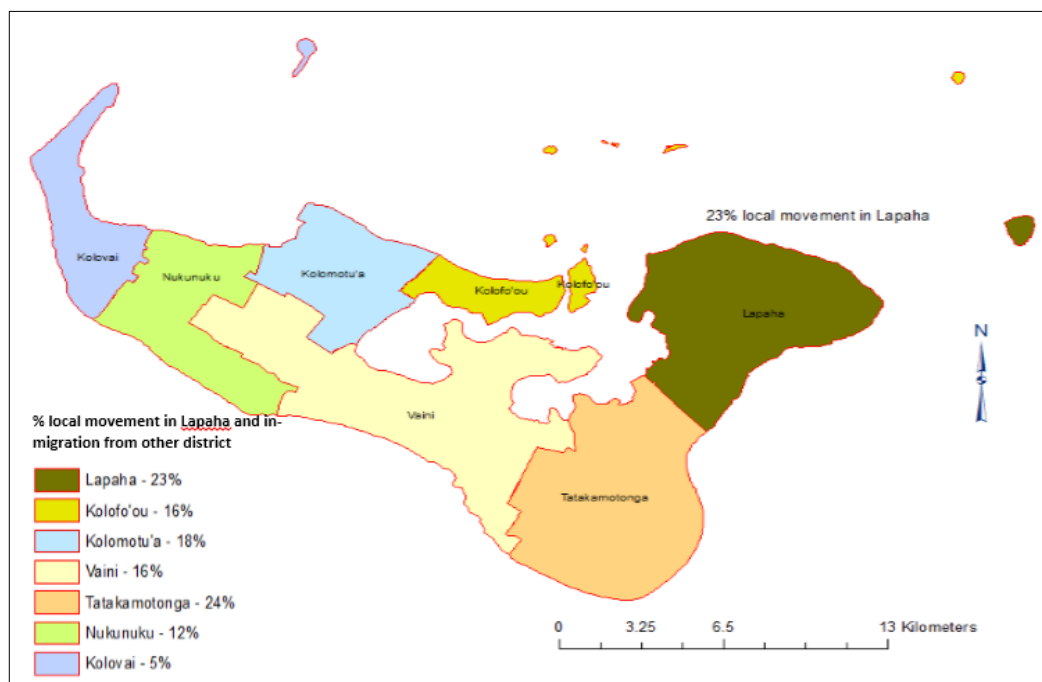
Map A22: Local mobility in Tongatapu and percentage of in-migration to Vaini from other districts of Tongatapu, 2006-2011



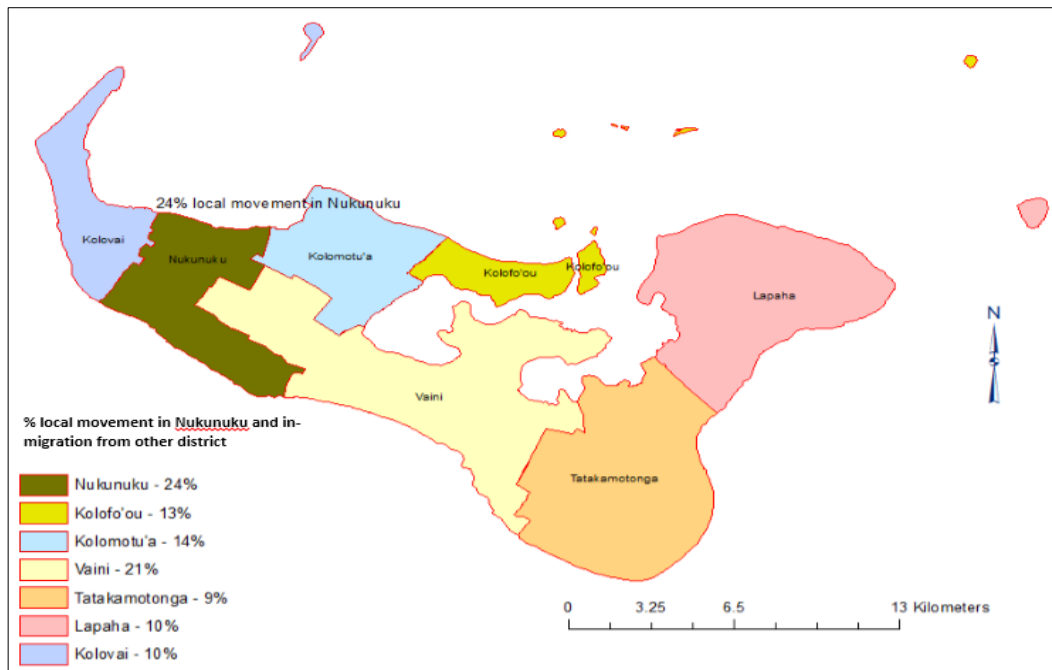
Map A23: Local mobility in Tongatapu and percentage of in-migration to Tatakamotonga from other districts of Tongatapu, 2006-2011



Map A24: Local mobility in Tongatapu and percentage of in-migration to Lapaha from other districts of Tongatapu, 2006-2011



Map A25: Local mobility in Tongatapu and percentage of in-migration to Nukunuku from other districts of Tongatapu, 2006-2011



Map A26: Local mobility in Tongatapu and percentage of in-migration to Kolovai from other districts of Tongatapu, 2006-2011

