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New Zealand Regions, 1986-2001: Incomes

Pool, I., Baxendine, S., Cochrane, W., Lindop, J.



**University of Waikato
Te Whare Wānanga o Waikato
HAMILTON NEW ZEALAND**

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NEW ZEALAND REGIONS, 1986-2001: INCOMES

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Abstract

This paper investigates income trends in the Regions of New Zealand between 1986 and 2001. It also looks at additional factors of age and ethnicity which have a bearing on the results. Investigations of median, upper and lower quartiles and inter-quartile ranges of personal income calculated from census data showed increasing inequalities between the regions. The distribution of income around New Zealand is also investigated. Auckland and Wellington increasingly have higher incomes than the other regions.

Keywords: Personal Income, Regions, New Zealand

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This is part of the FRST-funded New Demographic Directions Programme. The paper will be included in a monograph entitled *Developing Underdevelopment and Geographical Disparities: A Social Demography of New Zealand Regions*. (Hamilton: Population Studies Centre) that will synthesise the results presented in topic-specific discussion papers. For a full list of this specific series, please see at the back of this booklet.

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1. Introduction

This working paper is part of a large project, funded by the Foundation for Research, Science and Technology (FoRST), being undertaken by the Population Studies Centre. This project explores the links between different sorts of population transitions, social transformations of various kinds and changes in the political economy of New Zealand's regions between the 1980s and the dawn of the 21st century. It relates to a period of rapid change at the end of which the regional architecture of the country was very different from the way it had been in 1985. The trends also represented a radical departure from what preceded these last two decades.

This particular discussion paper, using data from the five yearly Census of Population and Dwellings collected by Statistics New Zealand, examines the personal income of the population between regions in New Zealand¹.

2. Incomes²

A rise in income inequality in New Zealand over the period 1986-96 has been well documented (for example, Department of Statistics 1991; Martin 1997; Martin 1998). Like numerous other topics of research most of the discussion and literature have been confined to the national level, a major exception to this being the papers by Karagedikli et al. (2000; 2003). Many factors have been cited as causing increases in income inequality, primarily restructuring and associated with this increasing unemployment, and changes in the age structure and composition of the population (Amey 1997; Dixon 1996; Easton 1996; Morrison 1996). The aim of this paper is to provide a description of regional income differentials between 1986 and 2001. There is no attempt to determine causes of income inequality.

In some senses the present paper could be seen as being similar to studies by Karagedikli et al. (2000; 2003); our work was being carried out at roughly the same time, but this paper offers a contribution to a wide study of regional differences (Pool et al. forthcoming-a). We employed different and less refined indices – medians, quartiles etc. and against Gini coefficients – albeit that these indices all have common statistical bases. Despite some methodological differences our results essentially confirm theirs, which in itself is gratifying. This analysis of income trends is comprehensive, it details age and ethnic differences, even the summary rates used here are standardised to take age composition into account. This is important as New Zealand regions have markedly different age distributions (Pool et al 2005d).

The period 1986 to 2001 has seen major restructuring in all public policy areas. Both endogenous and exogenous factors have led to these changes in New Zealand. Changes in the levels of incomes should be seen in light of these broader processes. Important factors that directly influence changes in incomes are the social processes of work. Other papers in this series (Pool et al. forthcoming-d; Pool et al. forthcoming-e) have outlined two important

¹ Other topics covered in this series of discussion papers are listed in the end piece to this paper. The culmination of this project will be the publishing in early 2005 as a monograph synthesizing the various themes explored in this series of working papers (Pool et al. forthcoming-a).

² The data used in this paper are specially designed tables from Statistics New Zealand, based on the 1986 to 2001 Censuses.

trends that have occurred within the labour force of New Zealand both nationally and sub-nationally. Firstly, there has been the reinforcement of long-term quantitative shifts within the labour force, from a situation where primary and secondary industries were the major sectors in terms of number of workers, to where the tertiary sector employs much of the labour force, and then recently there have been changes in the distribution within the tertiary sector. The second factor was a shift in the more qualitative aspects of work, notably the increasing importance of part-time work.

These changes in the labour force and in the industrial structure have had an impact on social organisation and cohesion. The present paper looks at how the economy affects the social world through the mechanism of income patterns, through trends and differentials in levels, and in inequalities. Evidence on regional differences in these factors allows one to infer the occurrence of “social exclusion” – the areas that have not shared fully in the developments seen in mainstream New Zealand. Regional patterns of social exclusion are seen as a major social policy issue in Europe. Their economic policy is seen as relating to the production of wealth; social policy to its distribution (European Commission/European Foundation for the Improvement of Living and Working Conditions 1996).

There is yet another dimension to this. Within both “included” and “excluded” regions there will also be intra-regional inequalities. Here the analysis attempts to determine whether regions facing exclusion are also exposed to more or less inequality than those that are in the mainstream.

This is a further related question here. The restructuring 1986-96 increased inequalities and, eliminated many jobs across a wide range of sectors (Pool et al. forthcoming-d; Pool et al. forthcoming-e). Moreover, the gap between demographic supply and available jobs, and unemployment, fell heavily on the young, on ethnic minorities and on the more peripheral regions. It was carried out with no regard for human capital implications – financial restructuring, underpinned by ideologies favouring privatisation a diminishing of the role of the state and managerialism was the driver. Yet this was a period in which the last large baby-boom cohorts, born around 1970 were reaching labour force ages, a situation which human capital questions must be at the forefront of policy, yet were ignored in the rush to restructure (Honey 1998; Pool 1999). Another large new entrant cohort is about to reach labour force ages in the near future (Pool et al. 2005d). The implications of this at the national level have already been discussed elsewhere (Pool 2003).

Three methodological points need summarising here. Measuring changes over time in incomes requires finding a standard by which changes in the value of the dollar can be controlled. To overcome this problem a conventional strategy has been adopted: the Consumer Price Index was used to calculate an adjustment factor so that incomes can be compared over time³.

This paper uses census data on incomes as they cover the entire population (ie they are not sample data). Thus issues of sampling error, problems of cell-size encountered when

³ The adjustment factors to adjust to 1996 dollars were as follows: 1986 1.644, 1991 1.0962 and 2001 0.9282. These adjusted were worked out using the Consumer Price Index in March 1986 was at 647 points from a base of 1000 points in December 1993, with March 1996 it was 1063 points, resulting in an adjustment factor of 1.644. A similar principle was used for 1991 and 2001. This does not allow for regional differences in purchasing power. We have to assume that purchasing power was uniform for all regions.

analysing Household Economic Survey data disaggregated to a regional level do not arise here (Martin 1997, 1998; Karagedikli et al 2000,2003). That said however, there is an additional problem of the census not collecting data on incomes by source (e.g., wages, salaries, commissions, dividends, etc.). Most importantly both benefit and market incomes are included without any means of disaggregation. Thus this paper relates to all incomes and not just earnings – from an analytical standpoint⁴ this is not a problem. Nevertheless, it must be recognised that for some regions, superannuation payments and even other benefits are an important source of all income. To analyse this factor, incomes by age are presented later in the paper.

One problem with the present analysis is that it is difficult to take account of regional⁵ differences in cost structures. Thus it is not possible to extrapolate from these data and suggest definitely, say that on average, populations in Auckland and Wellington have a better standard of living than do their counterparts elsewhere. But it must be recalled that factors affecting expenditure in one region may be different from another: housing in Auckland, say, as against transport and communications in more isolated regions. That said this argument becomes somewhat academic when intra-regional income differentials are looked at. For basic needs whether one is Māori or Pakeha it costs the same to live in any region. If one then looks at households, these intra-regional differences open up further (Cochrane et al. forthcoming).

There is another purely technical issue. The per cent of the people who do not specify their income has grown over time from just over five per cent in 1986 and 1991 to 11 per cent in 2001 for New Zealand, as is shown in Appendix Table 1. The percentage not specified for Maori is over double that of Pakeha in 2001: six and 13 per cent respectively. When looking at data on “not specified” by age the two tail-end groups 15-24 and 65 years and over had the highest percentage, and this was especially so for Maori. In the coming sections “not specified” answers are excluded in the computations.

3. *Standardised Median Incomes⁶ and Changes Over Time, 1986 to 2001*

At the national level incomes were lower in 2001 than in 1986, But beyond that Table 1 shows the median incomes for each Regional Council area in New Zealand between 1986 and 2001. These can be directly compared as they are standardised to the same population. The overall New Zealand level adjusted to 1996 levels was highest in 1986, dropping by \$2,000 in 1991 and even further 1996, then increasing again to 2001, though still not to the same levels as had been seen in 1986. The median incomes of the regions are quite diverse showing a range of approximately \$5,400 in both 1986 and 1996 between the lowest and the

⁴ The interest here is issues of social and economic equity rather than some of the questions economists ask which are more monetary/financial.

⁵ We analyse 15 regions instead of the usual 16. Nelson and Tasman are combined into one as they operate essentially as one entity other than administratively. As local body reorganisation (1989) was on the basis of river catchments not communities of social and economic interest, anomalies occur. For example, Nelson urban area has some of its population in the Tasman region.

⁶ Median incomes measure the level for the 50th percentile in a given population. They are used as an indication of the “average” income in particular regions (Martin 1998; Shryock et al. 1976). The results are standardised for age and gender to 1996 the total New Zealand population so as to eliminate these composition effects in the overall results.

highest regions' median incomes, and with gaps that were even higher in 1991 and 2001, \$6,206 and \$6,743 respectively.

Table 1: Standardised¹ Median Incomes (in 1996 Dollars), by Region, 1986-2001

Region	1986*	1991*	1996	2001*	1986-2001
Northland	16,088	13,254	13,228	14,162	-1,926
Auckland	19,234	17,300	17,389	18,997	-237
Waikato	17,331	15,447	15,319	16,772	-559
Bay of Plenty	17,159	14,574	14,637	15,822	-1,338
Gisborne	16,112	13,692	13,643	14,138	-1,974
Hawke's Bay	17,138	14,754	14,358	15,626	-1,512
Taranaki	17,685	15,290	15,348	16,382	-1,303
Manawatu-Wanganui	16,858	15,009	14,505	15,532	-1,326
Wellington	20,797	19,256	18,557	20,203	-594
West Coast	15,397	13,050	13,172	13,460	-1,938
Canterbury	16,707	15,066	14,937	16,430	-278
Otago	16,213	14,506	14,152	15,307	-906
Southland	16,571	14,821	14,814	16,465	-106
Nelson-Tasman	16,011	14,431	14,541	15,305	-706
Marlborough	15,696	14,681	14,825	16,018	322
New Zealand	17,875	15,774	15,603	17,143	-732
Range	5,400	6,206	5,385	6,743	

* Inflation adjusted to 1996 dollars: see footnote 3

(1) Standardised by age and gender to 1996 New Zealand Total Population. It assumes that each region has the same age and gender structure.

Source: In this table and except where otherwise noted data used in this paper comes from published census data, or from Supermap3, or from special tabulations from the Censuses of Population and Dwellings from Statistics New Zealand.

The overwhelming dominance of Auckland⁷ and Wellington⁸ over the rest of the country stands out, as is shown for 1986 and 2001 in Figure 1. These are the only regions that in the 1986 to 2001 period were above the “average”, by having higher median incomes than those recorded for New Zealand as a whole (see Table 1).

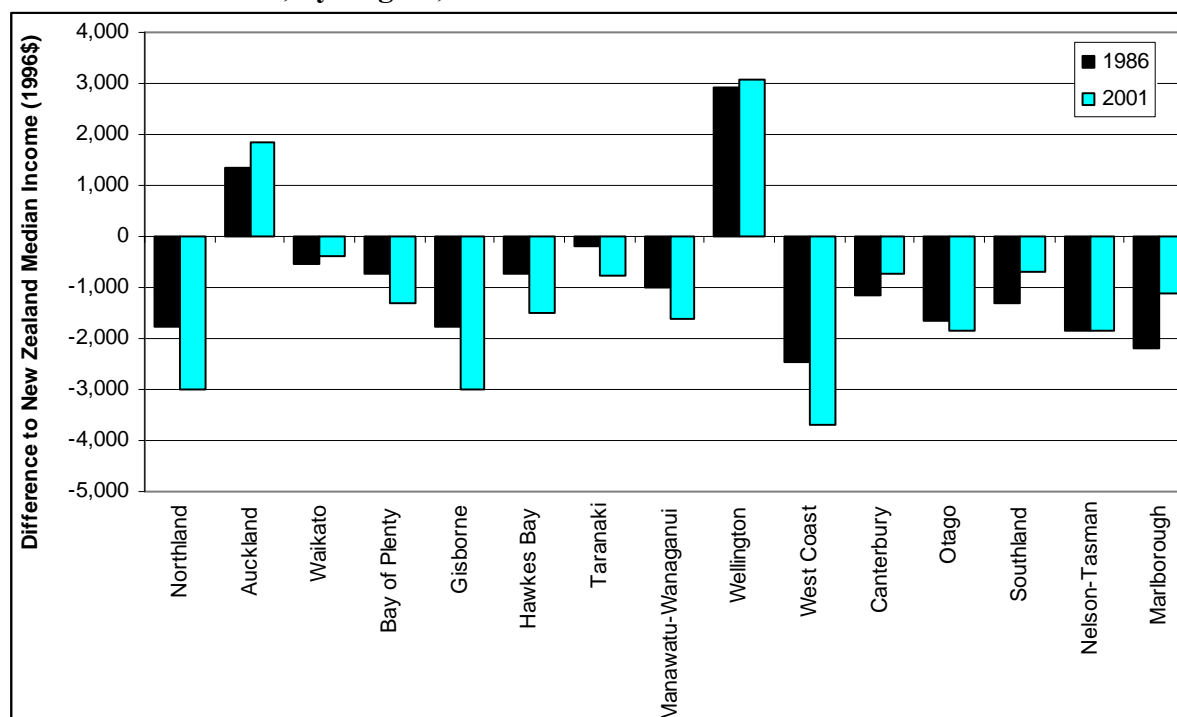
All the other regions fell below the New Zealand level, and by a very large margin for some (Figure 1). The West Coast had the lowest median income for the whole period 1986 to 2001. Other regions which had incomes over \$1,000 lower than the New Zealand median in 1986 were Marlborough, Nelson-Tasman, Northland, Gisborne, Otago, Southland, Canterbury and Manawatu-Wanganui. By 2001 Southland and Canterbury were no longer in the group that had income \$1,000 and lower than New Zealand, while Hawke's Bay and the Bay of Plenty⁹ entered this category. In real terms an individual was almost \$2,000 worse off in 2001 than in 1986, 12 per cent to 13 per cent lower, and as noted the inter-regional range had widened by 25 per cent.

⁷ Median income within Auckland urban areas ranged from \$20,806 on the North Shore to \$17,444 in Southern Auckland with Central Auckland \$20,066 and Western Auckland \$18,480 in 2001 (1996\$).

⁸ Wellington Central was \$23,781 with the other urban areas of Wellington below \$20,000 in 2001 (1996\$).

⁹ The Eastern Bay of Plenty median income was \$13,515, just above the West Coast, New Zealand's worst region, compared to the Western Bay of Plenty at \$16,222 and Rotorua District of \$17,117 in 2001 (1996\$).

Figure 1: Standardised¹ Median Incomes (in 1996 Dollars) Difference from New Zealand, by Region, 1986 and 2001



(1) Standardised by age and gender to 1996 New Zealand Total Population. It assumes that each region has the same age and gender structure.

When both the age structure and the ethnic composition are taken into account a different ranking is seen. It is a useful exercise to control for the factor of ethnicity in the results as this shows how inequalities between Māori and Pakeha persist as an important determinant of disparities between regions. But this is the only time in this paper that this N-way standardisation is carried out it effectively decreases real variance. Income levels range between age-groups, while, overall, Māori median incomes are lower than non-Māori, and thus Regions with higher proportions of Māori have lower medians. Appendix Table 2 controls for these factors for each Regional Council area in New Zealand in 1986 and 2001. The region which differs the most by adding ethnicity into the standardisation mix is Gisborne with the ranking changing from 11th to 8th in 1986 and 14th to 10th in 2001; also in 2001 the Bay of Plenty moved from 8th to 4th. Both of these regions have high proportion of Māori in their populations, so standardisation for this factor has the largest impact on their results.

3.1 Change in Median Income, 1986 to 2001

The changes in the nature and structure of work, as discussed in the introduction to this paper, can be seen to be influencing the changing levels of income over time. Table 1 shows the shifts in median incomes between 1986 and 2001 for each Regional Council area in New Zealand, standardised to 1996 dollars. Every region except Marlborough experienced decreases in their median income, while seven regions showed decreases greater than \$1,000: Gisborne, West Coast, Northland, Hawke's Bay, the Bay of Plenty, Manawatu-Wanganui and Taranaki. In contrast, Auckland, Canterbury and Southland declines of less than \$300. All the regions experienced their largest decline between 1986 and 1991, showed little

change between 1991 and 1996, but had increases of varying levels occurring between 1996 and 2001. Nationally, real income rose by more than \$1,500 between 1996 and 2001, but this was still insufficient to bring it up to 1986 levels. Four regions experienced an increase of less than \$1,000 between 1996 and 2001 West Coast, Gisborne, Nelson-Tasman and Northland.

3.2 *Changes in Median Income by Ethnicity, 1986 to 2001*

Incomes separately standardised¹⁰ for the Pakeha and Māori ethnic groups reflect the pattern for specific ages to be covered in the next section of this paper. The levels for New Zealand for Pakeha are higher than Māori. Moreover, this gap has widened from under \$3,000 in 1986 to over \$5,000 in 2001. The two main points are firstly, that median incomes for both ethnic groups in Auckland¹¹ and Wellington¹² are substantially higher than elsewhere in New Zealand, particularly Northland and the West Coast (Table 2). Secondly, outside Auckland and Wellington in 2001, median incomes for Māori are higher in the South Island except on the West Coast than for the remaining North Island regions.

Systematically across New Zealand, Māori receive lower incomes than do Pakeha in the same region (Table 2). In the regions where Māori constitute a high proportion of the population, for example Northland, the Bay of Plenty, Gisborne, and Hawke's Bay, there is a large inter-ethnic difference. That said, the inter-regional differences for both ethnicities are so great that median incomes for Māori in Wellington and Auckland are higher than those for Pakeha in six regions in 2001, Northland, Manawatu-Wanganui, the West Coast, Otago, Nelson-Tasman and Marlborough.

For the fifteen year period 1986 to 2001 for all the regions Māori systematically went through a decline, though by varying degrees. Auckland had the smallest decrease with Marlborough and Wellington also having declines of under \$1,000 (see Table 2). There is a large number of regions with drops of over \$2,000: Northland, the Bay of Plenty, Gisborne, Hawke's Bay, Taranaki, Manawatu-Wanganui, Southland and Nelson-Tasman.

The situation for Pakeha was qualitatively different from that experienced by Maori. Where Maori everywhere went through declines, for Pakeha over the fifteen year period there was a mix of regions which had increases and decreases. Auckland had by far the largest increase of \$2,700 occurring, though, only since 1996, while Waikato, Wellington, Canterbury, Southland and Marlborough all had rises of under \$1,000. The region with the largest decrease for Pakeha was the West Coast with \$1,879, a result expected because of the structure and quality of work in this region (Pool et al. forthcoming-d; Pool et al. forthcoming-e)). The remaining regions had decreases but below \$1,000.

¹⁰ Standardised by age and gender to the 1996 total population, so that results are comparable to the same standard population both over time and between ethnic groups.

¹¹ For Māori, the North Shore (\$19,231) median income was substantially higher than for the other three urban areas of Auckland (\$15,977-16,927). For Pakeha, median income ranged from Central Auckland at \$25,772 to Western Auckland of \$21,027 in 2001 (1996\$). Rank orders were thus different for Maori and Pakeha.

¹² For Pakeha, the median income ranged from \$25,977 in Central Wellington to \$19,888 in Upper Hutt with Porirua and Lower Hutt around \$21,500 in 2001 (1996\$). For Māori, Central Wellington was \$19,963, Upper Hutt \$18,067, Lower Hutt \$16,754 and Porirua \$15,459. For Pakeha and Māori the ranking was thus different.

Table 2: Standardised¹ Median Incomes (in 1996 Dollars), by Ethnicity and Region, 1986-2001

Region	1986*	1991*	1996	2001*	1986-2001
	Pakeha				
Northland	16,729	14,472	14,406	16,040	-689
Auckland	20,293	19,411	20,208	23,017	2,724
Waikato	17,866	16,385	16,868	18,407	541
Bay of Plenty	17,947	15,764	16,139	17,615	-332
Gisborne	17,389	15,661	15,961	16,980	-409
Hawke's Bay	17,645	15,622	15,375	17,020	-625
Taranaki	18,021	15,830	16,191	17,171	-849
Manawatu-Wanganui	17,156	15,551	15,117	16,446	-710
Wellington	21,756	20,674	20,031	21,987	231
West Coast	15,513	13,179	13,310	13,634	-1,879
Canterbury	16,853	15,276	15,462	17,069	217
Otago	16,329	14,663	14,411	15,694	-634
Southland	16,642	15,112	15,152	16,877	235
Nelson-Tasman	16,099	14,580	14,741	15,649	-451
Marlborough	15,756	14,824	14,941	16,211	456
New Zealand	18,364	16,626	16,991	18,694	331
<i>Range</i>	<i>6,243</i>	<i>7,495</i>	<i>6,898</i>	<i>9,383</i>	
	Māori				
Northland	14,098	10,393	10,606	11,778	-2,320
Auckland	16,601	13,523	14,723	16,555	-45
Waikato	14,656	11,302	12,207	12,894	-1,762
Bay of Plenty	14,695	10,903	12,190	12,569	-2,126
Gisborne	14,254	10,849	11,333	12,094	-2,161
Hawke's Bay	15,228	11,381	12,094	12,814	-2,414
Taranaki	14,924	11,291	12,315	12,814	-2,110
Manawatu-Wanganui	15,263	11,932	12,653	13,104	-2,159
Wellington	17,625	14,432	14,693	16,785	-840
West Coast	13,499	11,225	12,123	12,138	-1,361
Canterbury	15,682	12,595	13,378	14,013	-1,669
Otago	15,325	11,932	12,787	13,729	-1,596
Southland	15,742	12,168	12,971	13,518	-2,224
Nelson-Tasman	15,780	12,603	13,673	13,348	-2,431
Marlborough	15,404	13,329	13,885	14,767	-637
New Zealand	15,517	12,008	12,963	13,647	-1,870
<i>Range</i>	<i>4,125</i>	<i>4,038</i>	<i>4,117</i>	<i>5,007</i>	

(continues on next page)

Table 2: (continued)

Region	1986*	1991*	1996	2001*	1986-2001
	Difference: Pakeha less Māori				
Northland	2,631	4,078	3,799	4,262	1,631
Auckland	3,693	5,888	5,484	6,462	2,769
Waikato	3,210	5,083	4,661	5,513	2,303
Bay of Plenty	3,252	4,861	3,949	5,046	1,794
Gisborne	3,134	4,812	4,628	4,886	1,752
Hawke's Bay	2,418	4,240	3,281	4,206	1,789
Taranaki	3,096	4,538	3,876	4,357	1,261
Manawatu-Wanganui	1,893	3,619	2,464	3,341	1,448
Wellington	4,131	6,242	5,338	5,203	1,071
West Coast	2,013	1,954	1,187	1,496	-518
Canterbury	1,170	2,680	2,085	3,056	1,886
Otago	1,004	2,731	1,624	1,966	962
Southland	900	2,944	2,181	3,358	2,458
Nelson-Tasman	320	1,977	1,068	2,300	1,980
Marlborough	351	1,495	1,056	1,444	1,093
New Zealand	2,847	4,618	4,028	5,047	2,201
<i>Range</i>	<i>3,811</i>	<i>4,747</i>	<i>4,429</i>	<i>5,018</i>	

* Inflation adjusted to 1996 dollars: see footnote 3

(1) Standardised by age and gender to 1996 total population so results are comparable to the same standard population.

The major shifts in income occurred in the five-year period 1986 to 1991 where, in all the regions, both Māori and Pakeha experienced decreases in median incomes (Table 2), although these changes were less extreme for Pakeha than for Māori. Nationally Pakeha median incomes declined in this quinquennium by \$1,738, whereas for Māori the figure was \$3,509. The region with the smallest decrease was Auckland, where the median incomes of Pakeha decreased by only \$882 between 1986 and 1991. In contrast, the experience of Māori in Auckland was very different, for their median income there decreased by 19 per cent (\$3,078) in this five-year period. In most regions inter-ethnic differences opened up over the period 1986-91, but were more extreme in northern regions than southern. There was then generally a modest pick up for Māori in both 1991-96 and 1996-2001 though not reaching 1986 levels. For Pakeha the regions had a mixture of results between 1991-96 whereas all regions increased between 1996-2001.

Although all the regions showed a decrease in median income for Māori and a mixture of results for Pakeha from 1986 to 2001, within each ethnic group at a regional level the differences in 2001 were larger than in 1986. For Pakeha the range of median incomes in 1986 was \$6,243 between Wellington and West Coast. By 2001 this difference had increased to \$9,383, and the region with the highest median income had changed to Auckland. For Māori the range of median incomes increased from \$4,125 in 1986 to \$5,007 in 2001. In 1986 the highest region had been Wellington and the lowest the West Coast, with the lowest region changing to Northland by 2001. When the extremes of the major metropolitan centres of Wellington and Auckland are excluded, the ranges for the regional median incomes of both ethnic populations are much smaller. In 2001 inter-regional differences reduce by more than \$3,300 for Pakeha and by more than \$2,000 for Māori when Wellington and Auckland

are excluded from analysis¹³.

4. Regional Incomes by Age Groups and Ethnicity between 1986 and 2001

In this section incomes are examined for each functional age group within the working ages for both Pakeha and Māori and also for the total population (including Pakeha and Maori and the other ethnic groups). Table 3 presents national level data, but for reasons of space, detailed regional data are tabulated in the Appendix Table 3.

The age structure of a population is a key determinant of income, as personal incomes tend to increase with age until individuals start pulling out of full time work. But an important dimension in the New Zealand's policy making context is the difference in income between Māori and Pakeha in the key working ages. Some recent studies have also started to examine such variables as differences in household structures and more importantly labour force status as explanations for these distinctions (for example, Martin 1997, 1998; Dixon 1996; Morrison 1996).

Table 3: Median Incomes (in 1996 Dollars) by Age Group and Ethnicity, New Zealand, 1986-2001

Ethnicity	Age Group (years)	1986*	1991*	1996	2001*	Change 1986-2001
Pakeha	15-24	14,029	9,566	8,069	7,022	-7,007
	25-44	24,858	24,015	25,136	26,619	1,761
	45-64	20,745	18,996	21,855	24,569	3,824
	65+	12,197	11,783	12,172	12,340	143
Māori	15-24	12,734	8,077	6,783	6,626	-6,108
	25-44	19,470	15,672	16,848	18,438	-1,031
	45-64	17,699	12,983	14,862	17,091	-608
	65+	10,951	9,883	10,378	10,827	-124
Total	15-24	13,640	8,938	7,054	6,142	-7,498
	25-44	23,657	22,078	22,796	24,295	638
	45-64	20,321	18,118	20,609	22,978	2,658
	65+	12,131	11,584	12,037	12,175	44
Pak-Mao	15-24	1,295	1,489	1,285	396	-899
	25-44	5,388	8,343	8,287	8,180	2,792
	45-64	3,045	6,014	6,993	7,478	4,432
	65+	1,246	1,900	1,794	1,513	267

* Inflation adjusted to 1996 dollars: see footnote 3

4.1 Young Working Age Population (15-24 Years)

At these ages levels of income are low and differentials relatively limited. Moreover, a major change shown in Table 3 has taken place, the substantial drop in the inflation-adjusted median income for both young Pakeha and young Māori. Overall this drop reached around 50 per cent between 1986 and 2001. This probably reflects to a degree the increased numbers in this age group choosing to continue in tertiary education rather than electing to begin their working life as unemployed¹⁴. But against this, the numbers of 15-24 year olds in part-time

¹³ The ranges excluding Auckland and Wellington for Pakeha are \$2,508, \$3,206, \$3,558 and \$4,773 for 1986, 1991, 1996 and 2001 respectively, and Maori are \$2,281, \$2,936, \$3,279 and \$2,989 for the same years.

¹⁴ The fact that in the census no distinction is made between market and non-market income sources, means that

work has tripled over this period (Pool et al. forthcoming-e). These two points are not, of course, contradictory.

In 2001, at the youngest age group (15-24 years), seven of the fifteen regions had incomes above the New Zealand median (see Appendix Table 3). Of these seven regions the highest medians were in Wellington and in three of the four South Island rural regions which do not have universities: West Coast, Southland and Marlborough. For Pakeha and Māori aged 15-24 years, in five of the fifteen regions median incomes were above that for New Zealand: Auckland, Wellington, Canterbury and Marlborough. Those regions that differed on an ethnic basis were the West Coast (Pakeha above) and Manawatu-Wanganui (Māori above).

The variations in median income between Pakeha and Māori for the 15-24 year age group ranged around \$1,300 from 1986 to 1996, when levels at this age group were much higher, but then reduced to around \$400 in 2001. In 2001 the regions with the biggest gaps between Pakeha and Māori median incomes in favour of Pakeha in this age group were on the West Coast and in Southland (over \$1,000), two regions that are predominately rural. The regions in which Māori had higher income than Pakeha were Gisborne, Canterbury, Manawatu-Wanganui and Nelson-Tasman. This may be simply that proportionately fewer Maori than Pakeha were in full-time study, but, instead were earning or on benefits.

4.2 Middle Working Age Group (25-44 Years)

This is the most critical age group because these are the family-building years. Thus, variations in income point to differences in levels of wellbeing.

The median income adjusted for inflation for the total population had an increase of \$638 between 1986 and 2001 (Table 3). This is an increase of three per cent, and contrast with the decrease of the younger age group (more than 50 per cent). The 25-44 year age group experienced a drop between 1986 and 1991 and only a small increase between 1991 and 1996, but then a significant increment by 2001.

But Māori and Pakeha income dynamics differed: Pakeha level increased by \$1,761, but Māori incomes dropped by \$1,032 for New Zealand as a whole. Pakeha had only a slight drop to 1991 then increased again, whereas Māori had a large drop to 1991 of nearly \$4,000 then increased again, but not to regain their initial ground.

The explanations that may apply at 15-24 years do not relate to this age group. The range of median incomes for both Māori and Pakeha aged 25 to 44 years illustrates the regional diversity within New Zealand (see Appendix Table 3). For Pakeha the range between the highest and lowest region has increased from just over \$9,000 in 1986 to just under \$13,000 in 2001. The range between the regions has been less for Māori increasing from \$5,500 in 1986 to \$8,700 in 2001.

There were also regional shifts in ranking at these ages, with Gisborne, Northland and the West Coast typically being far and away the lowest for total population incomes. For Māori in 1986 the same pattern was seen. By 2001, the lowest median income at this age group was

the entire population must be used as a denominator. Thus, for example, persons reporting “full-time study” are included here. This may be less problematic than it may seem because, today, many students, even those enrolled “full-time”, have jobs, and are in “full-time” employment.

in Northland followed by Gisborne for Māori. The highest regions for Māori in 2001 were Wellington¹⁵ and Auckland¹⁶. In 1986 the lowest Pakeha median income was in Marlborough (\$20,568) and the highest income was in Wellington (\$29,623). In 2001 the highest Pakeha median income was in Auckland (\$32,111) followed by Wellington and the lowest Pakeha median income was for West Coast (\$19,271).

At this age group the regional differences in median incomes between Pakeha and Māori are marked. In 2001 in Auckland, the Māori median income was \$9,340 below that for Pakeha, and most North Island regions show similar levels of disparity though not quite as high, whereas the gaps are considerably less in the South Island. The Wellington and Auckland regions had consistently high levels of income for each ethnic groups compared to their peers elsewhere for the whole period 1986 to 2001. If these two regions are excluded, the ranges of regional median incomes are less for both ethnic groups and especially for Pakeha.

4.3 Mature Working Age Group (45 to 64 years)

The regional and ethnic patterns for the 45-64 years age group are similar to the two younger age groups (see Appendix Table 3). The income levels for the 45-64 years age group in each region were generally lower than the incomes for the 25-44 years age group. For New Zealand there was an increase of \$2,657 in median income from 1986 to 2001 (Table 3). This was, however, due to increases in the incomes of the Pakeha majority of over \$3,800, as Māori had a decrease of \$600.

The gap between the median income for Pakeha and Māori was substantial for all regions for 1991 to 2001. In 1986 all the South Island regions had higher income for Māori than Pakeha (note though that numbers are small for Māori). Moreover, while Pakeha incomes increased in every region except the West Coast, those for Māori decreased in every region except Auckland, Wellington and Canterbury, sometimes significantly so. In Wellington¹⁷ in 1986 the ethnic difference was \$5,408 and by 2001 this difference had increased to \$7,300 even though this region had the highest median income for Māori for both years and Pakeha in 1986. The largest difference was Gisborne at \$9,675 in 2001.

4.4 Income Differentials at Active Ages: a Summary

There are two regional patterns that are applicable across all three active age groups. Firstly, in most cases both Auckland and Wellington have the highest incomes for both ethnic groups. In 1986 Wellington had had the highest median income across all three age groups for Pakeha whereas Auckland had the highest in 2001. For Māori, Wellington had the highest for 15-24 years in 1986 with Southland being the highest for the two other age

¹⁵ For the total population incomes in Wellington Central (\$33,411) were significantly higher than the other urban areas with Porirua (\$24,729) being the lowest (see Appendix Table 4). This is a similar pattern for Māori though at a lower level. For Pakeha the lowest is Upper Hutt with Wellington Central being the highest.

¹⁶ For the total population the median income was highest on the North Shore and in Central Auckland (see Appendix Table 4). For Pakeha, Central Auckland was significantly higher than for the other urban areas of Auckland.

¹⁷ The Wellington Central median income was substantially higher than those in the other urban areas of Wellington (see Appendix Table 4). The gap between Pakeha and Māori was \$10,000 in Porirua and Wellington Central in 2001 (1996\$).

groups. In 2001 Auckland had the highest for 15-24 years with Wellington having the highest for the other age groups.

Secondly, while there are proportionally fewer Māori in many South Island regions, those that live there tend to have higher incomes than Māori living in the North Island. Median incomes for Māori tend to be lower in the regions with large concentrations of Māori. This has a noticeable effect on the median income of the overall population.

Thirdly, however, the overall picture by age and ethnicity is not very positive at all. In most regions, at most ages, Pakeha have higher, normally very much higher incomes.

4.5 Retired Age Group (65 Years and Over)

The regional patterns of income for those aged 65 years and older is different from the pattern for the younger age groups as can be seen in Appendix Table 3. Because of the muted differences less attention is given to an analysis of this age-group than others. Differentials are dampened down as an effect of universal superannuation.

There was a small increase in median income (\$44) for the total population in the fifteen years period. There was an initial drop from 1986 to 1991 of over \$500 then an increase. The differentials between Pakeha and Māori were less marked than at active ages. The range between regions is considerably less than at the other age groups (e.g., 25-44 years and 45-64 years), although the range did increase between 1986 and 2001. As the range is relatively small the regional differences are much more muted compared to the regional differences for the other age groups.

Once again, Māori have lower median incomes than Pakeha for all regions with the gap being larger in the North Island regions. However, the income gap between the Pakeha and Māori is much smaller at this age group than at the younger ones. In Wellington in 1986 this gap was \$1,476, and widened slightly to \$1,619 in 2001.

At this age group, Wellington had the highest income and West Coast had the lowest. Of other regions, Auckland is around the national average, as is Gisborne. This last noted similarity is found only for this age group and may reflect internal migration at different ages within this age group. For example, as noted in other papers those in the younger ages of elderly, the 'young-old', have different characteristics from those of the 'oldest-old', those aged over 75 years (Bedford et al. forthcoming; Pool et al. 2005c). People approaching older ages could be leaving Gisborne to live in other areas perhaps closer to family or services, thus increasing the median incomes of those aged 65 years and older in the Gisborne region. Equally well, although the Gisborne region overall has higher proportion of Māori, at older ages this factor is less marked. This argument assumes, not unreasonably, that on average incomes tend to decline as people reach much older ages.

5. *Income by Labour Force Status by Age Group*

In this section the median income of those people who are working full- or part-time in the three working age groups is considered. This is to detect any real difference in what employed people are earning by removing the effect of those not employed. In interpreting these results, therefore, it is important to note that they related to the reference age-group and work-force status. Income as derived from the census is from all sources of income not just paid employment.

5.1 *Full-time Employed*

Between 1986 and 2001 there was a steady decline in the national inflation adjusted median income for full-time employed 15-24 year olds (see Table 4), as youths working full-time are typically less skilled now. The median for this age group is over one-third less than the median income of each of the other two age groups. From 1986 to 2001 for the 25-44 and 45-64 years age group the median income went up, but with all the increase occurring between 1996 and 2001.

Table 4 presents data on regions, by age, for each census 1986-2001. These reflect, to a significant degree the overall trends discussed earlier in the paper. Most importantly inter-regional ranges increased. The median income for full-time workers in all three age groups in Gisborne, Northland and West Coast was notably low for the period. In 2001 the median incomes for Hawke's Bay, Nelson-Tasman and Marlborough was also low since these regions have fewer people across the age groups in highly paid professional jobs (Pool et al. forthcoming-d). For the whole period 1986 to 2001 those employed full-time in Wellington and Auckland had the highest median incomes at all age groups. Taking inflation into account the median income in these two regions for the active age group 25-64 years has increased by around \$3,000 from 1986 to 2001. The higher median incomes in Wellington¹⁸ and Auckland¹⁹ are related to the higher levels of skills of workers in these two regions (Pool et al. forthcoming-d). However, for the 15-24 year age group the median income for Wellington actually declined.

Between 1986 and 2001 for those working full-time in the 15-24 years age group the lowest median income, for Gisborne, dropped by over \$3,500. There was as noted earlier a corresponding increase in the range across all the regions for this fifteen year period, in the case of 15-24 years almost doubling.

¹⁸ Wellington Central had a median income for full-time workers that were significantly higher than the other three urban areas especially at 25-44 and 45-64 years. For example, at 25-44 years, Wellington Central's was \$40,804 were the other three urban areas were below \$34,000 in 2001 (1996\$).

¹⁹ Central Auckland and North Shore have higher median incomes for full-time workers than do Western and Southern Auckland, especially for 25-44 and 45-64 years. For example, at 25-44 years Central Auckland's is \$37,188, North Shore's is \$36,844 compared to Western Auckland's at \$32,974 and Southern Auckland's at \$31,709 in 2001 (1996\$).

Table 4: Median Incomes (in 1996 Dollars) for those Employed Full-time, by Age Group and Region, 1986-2001

Region	Age Group (Years)					
	15-24	25-44	45-64	15-24	25-44	45-64
	1986*			1991*		
Northland	18,163	27,967	27,850	17,451	25,936	25,175
Auckland	20,303	31,692	32,014	20,820	31,985	31,740
Waikato	18,632	29,323	30,042	18,378	29,026	28,387
Bay Of Plenty	18,338	29,473	29,982	17,793	28,458	27,798
Gisborne	17,488	26,115	27,210	15,698	25,414	25,983
Hawke's Bay	18,439	29,137	29,909	16,851	27,211	27,666
Taranaki	18,965	30,136	29,885	17,953	28,868	28,529
Manawatu-Wanganui	19,150	29,253	28,952	18,596	28,081	27,880
Wellington	21,291	33,407	33,819	21,820	34,416	33,852
West Coast	19,113	27,181	27,666	17,509	26,208	26,053
Canterbury	18,988	29,688	29,687	18,326	28,937	28,266
Otago	18,928	29,265	29,113	17,694	27,833	27,620
Southland	18,917	29,504	28,859	17,403	27,779	26,702
Nelson-Tasman	17,730	27,128	27,824	16,634	26,062	25,781
Marlborough	18,123	28,043	26,586	17,174	26,787	25,483
New Zealand	19,450	30,461	30,662	19,231	30,067	29,588
<i>Range</i>	<i>3,802</i>	<i>7,292</i>	<i>7,233</i>	<i>6,122</i>	<i>9,001</i>	<i>8,677</i>
	1996			2001*		
Northland	15,705	26,639	26,593	15,650	28,059	28,100
Auckland	20,395	32,708	33,816	20,835	34,673	35,318
Waikato	17,329	29,622	30,072	17,454	31,205	31,817
Bay Of Plenty	16,911	28,984	29,226	16,931	30,085	30,444
Gisborne	15,106	26,512	27,260	13,973	26,717	27,314
Hawke's Bay	15,316	27,286	28,016	15,229	28,104	28,770
Taranaki	17,587	29,697	30,095	17,555	30,700	31,589
Manawatu-Wanganui	17,685	28,282	28,810	17,401	29,165	29,764
Wellington	20,495	34,489	35,073	19,902	36,107	36,416
West Coast	16,815	27,098	27,113	16,332	27,113	26,941
Canterbury	18,032	29,197	29,599	17,757	30,676	30,763
Otago	16,696	28,031	28,609	16,204	28,743	29,711
Southland	17,204	28,420	28,416	16,985	29,635	29,803
Nelson-Tasman	16,894	27,011	27,294	15,412	27,502	27,630
Marlborough	16,495	26,705	25,795	15,220	27,461	26,680
New Zealand	18,444	30,318	30,909	18,414	32,171	32,395
<i>Range</i>	<i>5,389</i>	<i>7,977</i>	<i>9,278</i>	<i>6,862</i>	<i>9,390</i>	<i>9,735</i>

* Inflation adjusted to 1996 dollars: see footnote 3

5.2 *Part-time Employed*

Between 1986 and 2001 for the total national population there was very significant decline in the inflation adjusted median income for the 15-24 years age group employed part-time as is seen in Table 5. For the other two age groups the median income increased, though at the 45-64 years age group there was an initial increase then a slight decline. The range across the regions decreased for the 15-24 years age group from 1986 to 2001 with the 2001 range being quite narrow. But at the 25-44 years age group the range has remained reasonably similar and at the 45-64 years age group there was an increase.

Unlike in the case of full-time work, incomes for part-time jobs showed no clear regional pattern at 15-24 years. At the 25-64 years age groups, Auckland²⁰ and Wellington²¹ had the highest median income for part-time workers over the whole period and there was an increase of approximately \$2,000 for 25-44 years between 1986 and 2001 for both Auckland and Wellington, and around \$1,000 for 45-64 years. At the same age groups West Coast had the lowest median income. In 1986 Nelson-Tasman and Marlborough had low median incomes at these age groups, and in 2001 Otago and Southland had low median incomes.

²⁰ Central Auckland had a higher level of median income for part-time workers than did the other three urban areas of Auckland.

²¹ Wellington Central had a higher level of median income for part-time workers than did the other three urban areas of Wellington.

Table 5: Median Incomes (in 1996 Dollars) for those Employed Part-time, by Age Group and Region, 1986-2001

Region	Age Group (Years)					
	15-24	25-44	45-64	15-24	25-44	45-64
	1986*			1991*		
Northland	5,989	11,127	12,924	4,618	12,071	12,850
Auckland	4,686	11,652	13,536	4,844	12,955	14,471
Waikato	5,312	10,923	12,779	4,571	12,167	13,679
Bay Of Plenty	4,665	10,457	12,591	3,866	11,660	12,714
Gisborne	5,630	11,234	12,999	4,111	10,768	12,290
Hawke's Bay	5,790	10,902	12,627	3,234	11,163	12,066
Taranaki	4,892	11,102	13,546	3,756	11,779	13,447
Manawatu-Wanganui	5,872	10,299	11,730	4,439	11,085	12,406
Wellington	5,107	11,532	13,536	4,497	12,607	14,649
West Coast	3,681	8,782	10,576	3,107	9,794	10,688
Canterbury	5,501	10,030	11,953	4,871	10,721	12,092
Otago	5,951	10,297	11,793	5,389	10,905	11,824
Southland	6,583	10,785	12,724	3,787	10,674	11,148
Nelson-Tasman	3,863	9,641	11,707	3,818	10,822	11,727
Marlborough	5,726	9,033	11,827	4,111	10,426	12,267
New Zealand	5,187	10,879	12,712	4,581	11,792	13,225
<i>Range</i>	2,902	2,870	2,970	2,282	3,161	3,961
	1996			2001*		
Northland	3,389	11,497	12,526	3,174	12,480	12,382
Auckland	3,913	12,839	14,370	3,916	13,780	14,788
Waikato	3,672	12,152	13,543	3,671	12,810	13,113
Bay Of Plenty	3,528	11,799	12,858	3,379	12,635	13,012
Gisborne	3,450	11,202	12,381	3,267	12,220	12,452
Hawke's Bay	3,297	11,134	12,465	3,193	12,206	12,297
Taranaki	3,399	11,984	12,875	3,217	12,205	12,453
Manawatu-Wanganui	3,823	11,340	12,307	3,753	12,157	12,381
Wellington	3,970	12,601	14,341	4,016	13,651	14,310
West Coast	3,508	9,815	10,695	3,198	10,942	10,420
Canterbury	3,849	11,083	12,048	3,809	11,995	12,316
Otago	3,822	10,959	11,944	3,900	11,850	11,977
Southland	3,335	10,561	11,887	3,269	11,538	11,998
Nelson-Tasman	3,359	11,096	12,283	3,168	11,587	12,784
Marlborough	3,265	10,721	12,356	3,123	11,365	12,330
New Zealand	3,762	11,837	13,112	3,726	12,710	13,098
<i>Range</i>	705	3,024	3,674	892	2,837	4,368

* Inflation adjusted to 1996 dollars: see footnote 3

6. *Quartile Incomes*

This paper has already shown that the distribution of incomes between and within regions is far from equitable. It now turns to a more refined measure of spread. Table 6 looks at percentiles, the 25th and below representing the lowest incomes and the 75th and above the highest²². The inter-quartile range for incomes between the 25th and 75th percentiles, also presented in Table 6, indicates the spread seen for the middle 50 per cent of the population²³. These indices give indications of the nature and spread of, and inequalities in the levels of income in each region.

Generally in both 1986 and 2001, the ranking of regions by their inter-quartile ranges (IQR) is the same ranking as found in the same regions for the 75th percentile (Table 6). The 25th and 75th percentiles and the IQR are highly correlated to each other, whether using Spearman's rank or Pearson's technique. However, the ranges between the regions for the 75th percentile are typically much larger than those at the 25th percentile. At the 75th percentile the range in 1986 was \$8,039, and by 2001 this had increased to \$10,641, a clear indication of considerable regional differences. In contrast, the range for the 25th percentile in 1986 was only \$1,920, and in 2001 was lower at \$1,809, indicating little variance between the regions for the lowest income groups in regional populations.

This means that not only did the better off regions become even more advantaged overall, but intra-regional differentials in their relative gains (by comparison with others) over the period became even more marked. In contrast, for low income groups inter-regionally differences declined slightly.

For New Zealand as a whole the level of income at the 75th percentile (in 1996 dollars) increased from \$30,469 in 1986 to \$32,010 in 2001, a 5 per cent change. There had been an initial decrease between 1986 to 1991 of \$1,839, then a small increase from 1991 and 1996, but with a larger increase between 1996 and 2001 of over \$2,500. But the level of income at the 25th percentile (in 1996 dollars) declined from \$9,753 in 1986 to \$8,164 in 2001, a significant reduction of 16 per cent. There had been a very significant drop overall in excess of \$2,000 between 1986 and 1996 (ie. 21 per cent of 1986 income), but with some recovery to 2001. This reflects the reductions in the proportions in the labour force in full time work, as well as benefit cuts introduced in the December 1990 mini-budget. These income shifts are very significant socially. The best-off increased by 5 per cent in real terms; the poorest saw relative decreases of 16 per cent and their absolute decrease (\$1,589) exceeded the absolute increase of the best-off (\$1,541).

²² The 25th percentile is what 25th person income of one to 100 people from lowest to highest. The 75th percentile is what the 75th person income of one to 100 people from lowest to highest.

²³ The difference between the 25th and 75th percentile is the inter-quartile range (that is the population that earns above the 25th percentile and below the 75th percentile).

Table 6: Standardised¹ Quartile Incomes and Inter-Quartile Ranges (in 1996 Dollars), by Region, 1986-2001

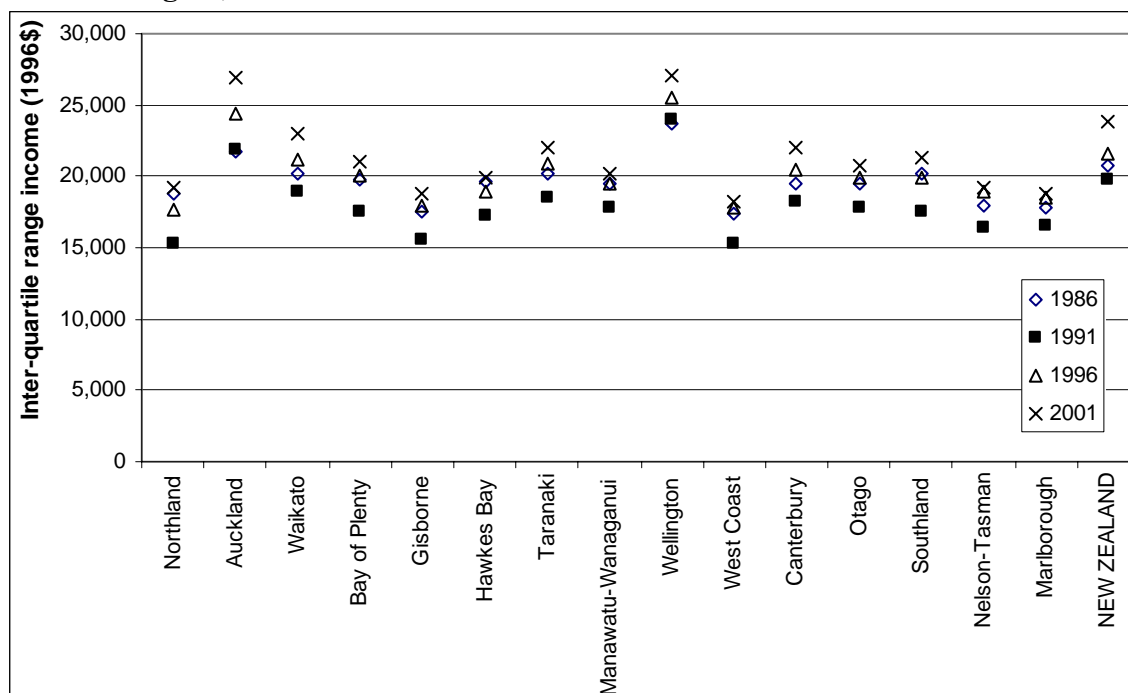
Region	25th Percentile				75 th Percentile				Inter-quartile range			
	1986*	1991*	1996	2001*	1986*	1991*	1996	2001*	1986*	1991*	1996	2001*
Northland	9,200	8,253	7,067	7,545	28,036	23,524	24,663	26,793	18,836	15,271	17,595	19,248
Auckland	10,388	9,186	7,872	8,118	32,093	31,017	32,260	35,032	21,705	21,831	24,388	26,914
Waikato	9,531	8,802	7,731	8,222	29,752	27,789	28,949	31,153	20,221	18,987	21,218	22,932
Bay of Plenty	9,656	8,684	7,643	8,142	29,380	26,272	27,658	29,205	19,724	17,588	20,015	21,063
Gisborne	9,430	8,461	7,155	7,436	26,979	23,984	25,167	26,167	17,549	15,522	18,011	18,731
Hawkes Bay	9,524	8,719	7,565	8,048	29,102	25,901	26,474	27,966	19,578	17,182	18,909	19,919
Taranaki	9,805	8,840	7,930	8,324	30,037	27,352	28,755	30,376	20,232	18,512	20,825	22,052
Manawatu-Wanganui	9,317	8,721	7,465	7,981	28,787	26,516	26,934	28,134	19,470	17,795	19,468	20,153
Wellington	10,725	9,568	8,488	9,240	34,372	33,497	33,948	36,361	23,647	23,930	25,461	27,121
West Coast	8,975	8,341	7,004	7,431	26,333	23,643	24,801	25,720	17,358	15,302	17,797	18,289
Canterbury	9,292	8,700	7,526	8,042	28,801	26,886	28,027	29,987	19,509	18,186	20,501	21,945
Otago	8,867	8,401	7,042	7,543	28,287	26,148	26,899	28,234	19,419	17,747	19,856	20,691
Southland	8,943	8,636	7,740	8,466	29,181	26,196	27,606	29,756	20,238	17,560	19,865	21,290
Nelson-Tasman	9,066	8,607	7,616	8,106	27,059	25,025	26,543	27,315	17,993	16,418	18,928	19,210
Marlborough	8,805	8,760	7,725	8,613	26,654	25,243	26,211	27,374	17,849	16,483	18,486	18,761
New Zealand	9,753	8,881	7,691	8,164	30,469	28,630	29,318	32,010	20,716	19,748	21,628	23,846
<i>Range</i>	<i>1,920</i>	<i>1,314</i>	<i>1,484</i>	<i>1,809</i>	<i>8,039</i>	<i>9,973</i>	<i>9,285</i>	<i>10,641</i>	<i>6,289</i>	<i>8,659</i>	<i>7,865</i>	<i>8,832</i>

* Inflation adjusted to 1996 dollars: see footnote 3

(1) Standardised by age and gender to 1996 New Zealand Total Population. It assumes that each region has the same age and gender structure.

Inter-quartile ranges in income levels also vary. The inter-quartile ranges are smaller in regions with lower median income levels. Between 1986 and 2001, the inter-quartile range increased nationally and in all the regions, markedly so in the cases of Auckland and Wellington, as is shown in Figure 2. Thus inequalities both intra-regional and inter-regional deepened over the period. Over the entire period 1986 to 2001 the inter-quartile ranges were highest for Auckland²⁴ and Wellington²⁵, and were the only regions higher than that for New Zealand as a whole for the period.

Figure 2: Standardised¹ Inter-Quartile Ranges for Personal Income (1996 Dollars), by Region, 1986-2001



(1) Standardised by age and gender to 1996 New Zealand Total Population. It assumes that each region has the same age and gender structure.

On average those with top incomes (that is, at the 75th percentile and above) in Auckland and Wellington receive higher personal incomes than do the top income group in any other region. Moreover, and this is equally important, the incomes in these two regions grew in real terms. Wellington also has higher levels below the 25th percentile than do other regions, although here the difference is not as marked as for top income earners. Auckland and Wellington also had declining levels at the 25th percentile, but growing levels at the 75th percentile producing a growth in the inter-quartile range. It has been argued that “the earnings of professionals in Auckland and Wellington are driven by global trends, not New Zealand conditions, and this led to rapid increases in top incomes relative to local mean earnings (Karagedikli et al. 2003: 232).” This would seem only part of the explanation; equally well, radical labour market deregulation including the elimination of many national awards in higher paid industries in the 1980s and 1990s would have spurred the trend.

²⁴ There is considerable variation in the inter-quartile ranges in the urban areas of Auckland in 2001 (1996\$) from \$29,989 in Central Auckland to \$24,517 in Southern Auckland with Western Auckland \$24,592 and North Shore \$28,266.

²⁵ Wellington Central inter-quartile range is \$33,273 in 2001 (1996\$) while the other three urban areas of Wellington are less than \$25,000 in 2001 (1996\$).

For the period 1986 to 2001 the 75th percentiles for Gisborne and West Coast were low, while incomes in this percentile for Marlborough were low in 1986 and Northland between 1991 and 2001. The inter-quartile ranges were also limited for these regions reflecting more the low figure for the 75th percentile than the 25th percentile. Also these regions had low median incomes. Northland and Hawke's Bay saw considerable drops in their 75th percentile figure between 1986 and 2001 censuses, as to a lesser degree did the Bay of Plenty, Gisborne, Manawatu-Wanganui, West Coast and Otago.

In summary, the overall picture is one of even more rapidly increasing inequality than the national figures show. Both intra-regional and inter-regional differentials have opened up. In part, this is because in some regions even the higher paid have seen losses in the real dollar values of incomes at the 75th percentile, and in all regions the lowest income groups have seen declines, as represented by drops in the values at the 25th percentile.

6.1 Ethnicity

When examined on an ethnic basis, there is an inter-ethnic difference in the inter-quartile range of over \$6,500 in 2001 between Pakeha and Māori for New Zealand as a whole, and for the 75th percentile the dollar difference is even more marked (\$8,317); Pakeha at the 75th percentile earned one third more than their Māori peers. The data are presented in Table 7. This difference had increased from 1986 when the gap between Pakeha and Māori was just under \$6,000 for the inter-quartile range, and far more importantly for the 75th percentile it was only \$6,269. Between 1986 and 2001 the incomes of Maori at the 75th percentile of that ethnic group barely changed, whereas, for Pakeha there was an increase.

Intra-ethnic, inter-quartile ranges are much smaller for Māori than for Pakeha. For Pakeha this is mainly due to the higher incomes of those at the 75th percentile, rather than the lower incomes at the 25th percentile, as ethnic differences are low at the 25th percentile. In 1986, no region across New Zealand had a difference at the 25th percentile between ethnic groups of more than \$1,000. Thus what was a national pattern held true for every region. By 2001, this gap had increased with the largest of \$2,105 being in the Waikato, whereas for the majority of the South Island regions it fell below \$1,000.

Regional differences in 2001 for Māori at the 75th percentile are also less than for Pakeha (ranges of \$8,525 and \$13,430 respectively). Nevertheless, these ranges had increased from \$5,747 for Māori and \$9,281 for Pakeha in 1986. In Wellington and Auckland, which are predominately metropolitan areas the differences between Māori and Pakeha at the 75th percentile are particularly wide, and this is reflected in the inter-quartile ranges for both ethnic groups in these two regions.

For the Pakeha population in 2001 the regions with the lowest inter-quartile income ranges were the West Coast, Marlborough and Nelson-Tasman, running between \$18,444 and \$19,453. These were the same regions which had had low inter-quartile ranges in 1986.

Table 7: Standardised¹ Incomes (in 1996 Dollars) for Māori and Pakeha: Quartiles and

Inter-Quartile Ranges, by Region, 1986 and 2001

Regions	25th Percentile		75th Percentile		Inter-quartile range	
	Pakeha	Māori	Pakeha	Māori	Pakeha	Māori
	1986*					
Northland	9,313	8,763	29,368	22,822	20,055	14,058
Auckland	10,525	9,998	33,809	26,078	23,283	16,080
Waikato	9,669	8,772	30,534	24,363	20,865	15,590
Bay of Plenty	9,830	9,021	30,418	24,642	20,588	15,621
Gisborne	9,601	9,034	29,417	21,810	19,816	12,776
Hawke's Bay	9,582	9,084	29,946	24,569	20,364	15,485
Taranaki	9,894	8,921	30,468	24,566	20,574	15,645
Manawatu-Wanganui	9,342	9,129	29,370	24,566	20,029	15,437
Wellington	10,813	10,490	35,820	27,557	25,008	17,067
West Coast	8,991	8,893	26,540	22,742	17,548	13,850
Canterbury	9,308	9,560	29,088	24,879	19,780	15,318
Otago	8,902	8,992	28,516	25,839	19,614	16,846
Southland	8,933	8,996	29,359	26,776	20,426	17,780
Nelson-Tasman	9,042	9,966	27,250	23,824	18,208	13,858
Marlborough	8,767	9,546	26,865	25,229	18,098	15,683
New Zealand	9,805	9,368	31,301	25,032	21,496	15,664
<i>Range</i>	<i>2,045</i>	<i>1,726</i>	<i>9,281</i>	<i>5,747</i>	<i>7,459</i>	<i>5,004</i>
	2001*					
Northland	8,216	6,484	29,146	21,061	20,930	14,577
Auckland	10,006	8,159	39,417	29,104	29,410	20,946
Waikato	8,993	6,888	33,087	24,086	24,094	17,198
Bay of Plenty	8,877	6,850	31,541	23,424	22,664	16,574
Gisborne	8,366	6,610	30,240	20,734	21,875	14,124
Hawke's Bay	8,636	6,929	30,090	23,052	21,454	16,123
Taranaki	8,688	6,902	31,466	23,903	22,778	17,002
Manawatu-Wanganui	8,361	7,166	29,587	23,885	21,226	16,719
Wellington	9,874	8,400	38,883	29,259	29,009	20,860
West Coast	7,543	6,706	25,987	22,717	18,444	16,012
Canterbury	8,413	7,568	30,773	25,812	22,359	18,244
Otago	7,774	6,925	28,720	25,241	20,946	18,316
Southland	8,602	7,394	30,354	25,463	21,751	18,069
Nelson-Tasman	8,239	7,591	27,692	23,698	19,453	16,107
Marlborough	8,640	8,236	27,582	25,409	18,941	17,172
New Zealand	8,984	7,300	33,962	25,645	24,978	18,344
<i>Range</i>	<i>2,464</i>	<i>1,915</i>	<i>13,430</i>	<i>8,525</i>	<i>10,966</i>	<i>6,821</i>

* Inflation adjusted to 1996 dollars: see footnote 3

(1) This table has been directly standardised for regional age and gender differences. These results are comparable between ethnic groups.

Intra-ethnic income inequality, as measured by inter-quartile ranges, is least for the Māori populations in Northland and Gisborne. This is not due to the Māori population of these

regions earning high incomes on average, but instead to generally depressed income levels. For example, 50 percent of the Māori population in Northland only earned between \$6,484 and \$21,061 in the 12 month period before the 2001 Census (1996\$). In contrast, 50 percent of the Pakeha population of Auckland earned between \$10,006 and \$39,417 in the same time period.

7. *Regional Gross Personal Incomes*

So far, the emphasis has been on levels and inequalities for and between groups and regions, an analysis that has pointed to marked social inequalities. But incomes are also a very important determinant of regional product through consumption, savings and investment. Thus it is also useful to estimate aggregate effect²⁶. The share of the national aggregate of personal incomes gained by each region can then be compared with the population distribution. In Table 8 the ratios between the per cent of the national gross personal income generated in any region and the per cent of the New Zealand population living there are presented. Regions that have a ratio greater than one receive a disproportionate share of the national personal income and, those below one less than their share.

Table 8: Income Distribution around New Zealand by Region, 1986 and 2001

	Percentage of Gross National Personal Income ⁽¹⁾		Percentage of National Population		Ratio of Percentage Income/Population	
	1986	2001	1986	2001	1986	2001
Northland	3.4	3.1	3.8	3.7	0.91	0.84
Auckland	29.0	33.9	26.8	31.0	1.08	1.09
Waikato	9.3	9.1	9.8	9.6	0.94	0.95
Bay Of Plenty	5.4	5.8	5.8	6.4	0.93	0.90
Gisborne	1.2	0.9	1.4	1.2	0.86	0.78
Hawke's Bay	3.9	3.3	4.3	3.8	0.91	0.87
Taranaki	3.2	2.6	3.3	2.8	0.97	0.96
Manawatu-Wanganui	6.3	5.1	6.8	5.9	0.92	0.87
Wellington	13.9	13.4	12.0	11.3	1.15	1.18
West Coast	0.9	0.7	1.0	0.8	0.87	0.83
Canterbury	12.7	12.4	13.2	12.9	0.96	0.96
Otago	5.1	4.4	5.5	4.9	0.93	0.91
Southland	2.9	2.3	3.2	2.4	0.92	0.95
Nelson-Tasman	1.9	2.0	2.1	2.2	0.91	0.90
Marlborough	0.9	1.0	1.0	1.1	0.88	0.90
New Zealand	100.0	100.0	100.0	100.0	--	--

(1) Income per region = Average (mean) Personal Income x Population 15 years and over.

The region which stands out in this respect is Auckland, where not only do individuals have high median incomes, but where there is also the second highest positive ratio between

²⁶ Ideally the regional product should be used here, but no reliable data are available. In any case the aggregate of personal incomes is an indication of liquidity and thus the spending power of the regional population, whereas the product includes all goods and services, and thus may comprise some factors that have little direct effect on regional spending power (e.g., the costs of repairing an environmental disaster). The estimates here must be taken merely as indicative or regional patterns.

income and population, the region with a highest ratio is Wellington. What is notable is that all other regions have a ratio between income and population that is below one. The lowest ratio occurs in Gisborne for both 1986 and 2001, with the West Coast also being low for both years. In 1986 the other area with a low ratio had been Marlborough in 2001, this was true for Northland, Hawke's Bay and Manawatu-Wanganui.

Finally, the ratio for both Auckland and Wellington increased between 1986 and 2001, markedly so for Wellington. All other regions except Canterbury, Southland and Marlborough showed decreases. In some cases, especially Gisborne the decrease in the ratio was marked.

8. Conclusion

This paper has identified at a population level both the forgotten and favoured New Zealanders. In income terms New Zealand is composed of two sets of regional populations, haves and have nots and some of the latter, say Northland, Gisborne and the West Coast have very depressed incomes by comparison with national levels. Within regions there are also inequalities. In general, as well as when data are disaggregated by age and ethnicity and by regions, adjusting to 1996 dollar values, personal incomes went down then from 1996 rose, but generally not back to 1986 levels. At the same time inequalities rose. To add to this regional aggregate incomes, relative to population, were also unequally distributed, and this increased over the 15 years.

These findings generally confirm those of Karagedikli and his colleagues (2000 and 2003), where they studied regional inequalities between 1981 and 1996 though their results were not standardised²⁷. In our work here we do not look at the 1981 results. But Karagedikli et. al. showed that there were significant declines in income from 1981 to 1986, indicating that the decreases did not just start in 1986 but earlier. In passing it should be noted that the period 1981-86 saw changes in wages and salaries distorted by the wage-price freeze, that had a perverse benefit of reducing ethnic inequalities (Martin 1998). They also confirm a key finding here, that there was an increasing divergence between, on the one hand, Auckland and Wellington and, on the other hand the rest of New Zealand. Their results showing that inequalities within regions increased between 1986 and 1996, especially for Auckland and Wellington.

The differences in income between ethnic groups are due to a mix of different factors. But critical to this is the combination of the disadvantaged position of Māori in terms of employment status (Pool et al. forthcoming-e) and the structural place of Māori within the labour market (Pool et al. forthcoming-d). This complex mix is then further confounded by regional factors. The growing disparity between, on the one hand, Auckland and Wellington, especially the latter, and, on the other hand, the remaining regions, especially some peripheral areas is a clear indicator of differences in development. Two or three regions prospered, some stood still, but some suffered the development of under-development.

²⁷ The index used here is less refined than their's in one sense, but more so in another as the data used in this paper have been standardised by age and sex. They used Gini Coefficients, Deciles and Gender-Specific Average Incomes.

At an aggregate level in terms of the access of regions to the national income there is also inequality. Auckland and Wellington gained disproportional and increasing tranches of the national personal income. In this regard every other region was proportionately disfavoured, and most lost significant ground relatively over the decade.

Thus the income data here show critical end results of the restructuring of human capital and the building up of inequalities over the last 15 to 20 years. The personal income dimension of financial capital has also become far more inequitable. But as seen this has also had aggregate (region-wide) effects in terms of the quality and under-use of human capital (discouraged workers reported in Pool et al. forthcoming-e), the clustering of the highly skilled into Auckland in particular, and the concentration of gross personal income there and in Wellington.

In other papers in this series the effects of these human and financial capital questions will be looked at for families (Cochrane et al. forthcoming; Pool et al. 2005b), but it is necessary to analyse the generation of new flows of human capital – education and training. We do this in a companion study (Pool et al. 2005a).

Appendix Table 1: Percentage of Respondents Not Specifying Personal Income by Age Group and for the Overall Standardised¹ Rate, New Zealand, 1986-2001

Ethnicity	Age group (years)	1986	1991	1996	2001
Pakeha	15-24	4.3	4.7	5.5	6.9
	25-44	4.8	4.4	3.8	4.9
	45-64	2.9	2.2	3.4	4.6
	65+	3.3	2.2	5.7	9.4
	Standardised Rate	4.0	3.6	4.3	5.9
Maori	15-24	13.1	11.7	13.0	17.6
	25-44	8.9	7.2	9.1	9.8
	45-64	9.0	6.4	9.8	10.6
	65+	9.7	6.7	13.6	19.7
	Standardised Rate	9.7	7.7	10.6	12.9
Total	15-24	7.0	7.3	12.0	14.7
	25-44	6.1	5.9	8.8	10.1
	45-64	4.1	3.6	7.7	9.1
	65+	3.9	3.4	9.6	13.4
	Standardised Rate	5.4	5.2	9.3	11.2

(1) Standardised by age and gender to 1996 total population so results are comparable to the same standard population.

Appendix Table 2: Standardised¹ (including Ethnicity) Median Incomes (in 1996 Dollars), Total Population, by Region, 1986 and 2001

Region	1986*	2001*	Change	Rank 1986	Rank 2001
Northland	16,347	14,985	-1,362	11	14
Auckland	19,130	18,920	-209	2	2
Waikato	17,408	17,093	-314	5	3
Bay of Plenty	17,471	16,535	-936	4	4
Gisborne	16,827	15,832	-995	8	10
Hawke's Bay	17,258	15,974	-1,284	6	8
Taranaki	17,595	16,407	-1,188	3	5
Manawatu-Wanganui	16,855	15,660	-1,195	7	11
Wellington	20,626	20,123	-503	1	1
West Coast	15,248	13,413	-1,835	15	15
Canterbury	16,612	16,287	-325	9	7
Otago	16,147	15,189	-958	12	12
Southland	16,510	16,377	-132	10	6
Nelson-Tasman	15,908	15,166	-742	13	13
Marlborough	15,641	15,908	267	14	9
New Zealand	17,818	17,148	-670		

* Inflation adjusted to 1996 dollars as foot note 2

(1) Standardised by age, gender and ethnicity (Māori, Non-Māori) New Zealand 1996. It applies the age, gender, ethnic specific rate to the standard populations composition – New Zealand as a whole.

Appendix Table 3: Median Incomes (in 1996 Dollars) by Age Group and Region, 1986-2001

a) 15-24 years

Region	Pakeha				Māori				Total			
	1986*	1991*	1996	2001*	1986*	1991*	1996	2001*	1986*	1991*	1996	2001*
Northland	13,181	8,294	6,992	5,447	11,249	7,284	5,391	5,030	12,581	7,713	6,048	5,097
Auckland ^{1,2}	15,514	11,379	9,708	8,268	14,138	9,368	8,581	8,164	14,832	9,931	7,444	6,064
Waikato	13,240	9,364	7,764	6,915	11,367	7,753	5,977	6,205	12,752	8,727	6,925	6,262
Bay of Plenty ²	13,837	9,152	8,009	6,173	11,390	7,662	5,785	5,861	13,019	8,345	6,814	5,872
Gisborne	13,690	8,482	7,026	4,568	10,767	7,655	5,309	5,474	12,260	7,907	5,809	5,011
Hawkes Bay	13,699	8,877	7,258	5,724	11,234	7,411	5,829	5,226	13,036	8,157	6,559	5,386
Taranaki	14,196	9,035	7,861	6,182	12,272	7,424	6,031	5,613	13,848	8,527	7,293	5,817
Manawatu-Wanganui	13,032	8,700	7,148	6,522	12,287	7,833	6,676	6,721	12,793	8,330	6,751	6,235
Wellington ^{1,2}	15,576	10,879	8,268	7,789	14,489	9,368	7,322	7,478	14,994	9,984	7,456	7,084
West Coast	14,220	9,929	8,093	7,743	12,331	7,892	7,130	6,575	14,046	9,665	7,968	7,546
Canterbury	13,309	9,035	7,921	7,034	13,347	8,467	7,235	7,352	13,180	8,849	7,261	6,463
Otago	11,513	7,521	5,854	5,287	10,796	7,682	5,677	5,062	11,220	7,465	5,421	4,919
Southland	14,177	9,123	8,509	6,956	12,828	7,796	7,103	5,802	13,960	8,811	8,138	6,697
Nelson-Tasman	13,304	9,147	8,458	6,236	12,912	7,667	8,450	6,371	13,209	8,939	8,146	6,117
Marlborough	13,172	10,664	9,479	7,710	12,468	8,007	7,838	7,625	13,135	10,262	9,069	7,560
New Zealand	14,029	9,566	8,069	7,022	12,734	8,077	6,783	6,626	13,640	8,938	7,054	6,142
<i>Range</i>	<i>4,063</i>	<i>3,858</i>	<i>3,854</i>	<i>3,700</i>	<i>3,722</i>	<i>2,085</i>	<i>3,272</i>	<i>3,135</i>	<i>3,774</i>	<i>2,797</i>	<i>3,648</i>	<i>2,642</i>

* Inflation adjusted to 1996 dollars: see footnote 3

(1) Auckland, and to a lesser extent Wellington, results are affected by a large proportion who are not Māori or Pakeha.

(2) Sub-regional information for Auckland, Bay of Plenty and Wellington for 2001 is in Appendix Table 4.

b) 25-44 years

Region	Pakeha				Māori				Total			
	1986*	1991*	1996	2001*	1986*	1991*	1996	2001*	1986*	1991*	1996	2001*
Northland	21,959	19,098	19,826	22,245	17,862	12,981	12,907	14,119	20,676	16,830	16,811	18,923
Auckland ¹	28,185	28,287	29,030	32,111	20,162	17,903	20,702	22,771	25,621	24,543	25,211	26,824
Waikato	23,497	23,127	24,502	25,650	18,669	14,873	15,076	16,794	22,548	21,200	22,017	23,322
Bay of Plenty ¹	23,474	21,879	23,081	24,392	18,474	14,219	14,606	15,737	22,057	19,373	20,262	21,446
Gisborne	22,365	21,161	22,176	23,320	17,257	13,519	13,606	14,140	20,004	17,196	17,434	18,035
Hawkes Bay	23,060	21,158	21,766	23,467	18,807	14,732	14,302	15,948	22,009	19,359	19,371	20,916
Taranaki	23,886	21,876	23,266	24,015	19,137	14,652	15,455	16,845	23,284	20,845	22,030	22,902
Manawatu-Wanganui	22,778	21,510	21,995	22,939	19,180	15,434	16,160	16,972	22,053	20,212	20,473	21,316
Wellington ¹	29,623	29,388	28,924	31,186	21,884	19,442	20,858	22,815	27,835	27,202	26,749	28,475
West Coast	20,600	18,458	18,524	19,271	16,562	14,517	14,375	15,235	20,356	18,099	18,080	18,818
Canterbury	22,766	21,797	23,078	24,300	20,487	17,012	18,350	19,510	22,486	21,254	22,200	23,366
Otago	22,473	21,137	21,851	23,065	21,393	16,632	17,786	19,251	22,281	20,738	21,271	22,498
Southland	22,469	21,071	22,223	23,693	22,106	15,735	17,010	18,896	22,445	20,396	21,471	23,092
Nelson-Tasman	20,686	19,662	20,418	20,891	18,230	15,483	16,308	17,074	20,485	19,341	19,869	20,400
Marlborough	20,568	20,176	21,012	21,822	19,637	15,955	18,140	18,815	20,453	19,792	20,640	21,342
New Zealand	24,858	24,015	25,136	26,619	19,470	15,672	16,848	18,438	23,657	22,078	22,796	24,295
<i>Range</i>	<i>9,055</i>	<i>10,930</i>	<i>10,506</i>	<i>12,840</i>	<i>5,544</i>	<i>6,461</i>	<i>7,951</i>	<i>8,696</i>	<i>7,831</i>	<i>10,371</i>	<i>9,937</i>	<i>10,440</i>

* Inflation adjusted to 1996 dollars: see footnote 3

(1) Sub-regional information for Auckland, Bay of Plenty and Wellington for 2001 is in Appendix Table 4.

c) 45-64 years

Region	Pakeha				Māori				Total			
	1986*	1991*	1996	2001*	1986*	1991*	1996	2001*	1986*	1991*	1996	2001*
Northland	18,680	15,507	17,310	20,121	15,070	10,393	10,932	12,766	17,946	14,224	15,501	18,274
Auckland ¹	23,013	22,680	26,257	29,543	18,657	15,093	18,498	21,131	22,031	20,802	23,669	25,568
Waikato	20,519	18,954	21,816	24,378	16,819	11,918	13,931	15,645	20,052	17,857	20,491	22,837
Bay of Plenty ¹	19,687	16,713	19,456	22,163	16,760	11,237	13,794	14,838	19,121	15,758	18,278	20,626
Gisborne	20,003	18,333	20,916	23,409	15,899	11,466	12,209	13,734	18,503	15,649	17,431	19,370
Hawkes Bay	19,837	17,514	19,432	22,080	17,515	12,444	13,875	15,593	19,456	16,550	18,308	20,784
Taranaki	20,421	18,321	20,486	22,836	17,028	11,204	13,776	15,216	20,176	17,689	19,707	21,955
Manawatu-Wanganui	19,386	17,415	19,232	21,665	17,844	12,906	14,238	15,375	19,230	16,876	18,491	20,653
Wellington ¹	25,808	24,591	26,250	28,773	20,400	17,728	19,021	21,473	25,016	23,424	24,706	26,660
West Coast	16,852	13,671	14,818	16,666	17,468	12,561	13,000	13,591	16,839	13,622	14,688	16,438
Canterbury	18,129	16,113	19,364	22,283	18,365	15,005	17,235	19,210	18,112	16,043	19,068	21,715
Otago	18,465	15,979	18,495	21,545	19,360	14,269	17,215	18,981	18,455	15,947	18,347	21,271
Southland	19,013	16,328	18,906	21,975	23,094	15,492	17,120	18,409	19,250	16,290	18,696	21,583
Nelson-Tasman	17,471	15,227	18,055	20,108	17,640	13,246	17,084	16,689	17,447	15,127	17,877	19,873
Marlborough	16,484	15,229	16,769	19,677	19,408	15,153	17,001	17,454	16,634	15,175	16,806	19,456
New Zealand	20,745	18,996	21,855	24,569	17,699	12,983	14,862	17,091	20,321	18,118	20,609	22,978
<i>Range</i>	<i>9,324</i>	<i>10,920</i>	<i>11,439</i>	<i>12,877</i>	<i>8,024</i>	<i>7,335</i>	<i>8,089</i>	<i>8,707</i>	<i>8,383</i>	<i>9,802</i>	<i>10,019</i>	<i>10,223</i>

* Inflation adjusted to 1996 dollars: see footnote 3

(1) Sub-regional information for Auckland, Bay of Plenty and Wellington for 2001 is in Appendix Table 4.

d) 65 years and over

Region	Pakeha				Māori				Total			
	1986*	1991*	1996	2001*	1986*	1991*	1996	2001*	1986*	1991*	1996	2001*
Northland	12,060	11,377	11,784	12,111	10,764	9,694	9,571	10,354	11,893	10,928	11,530	11,916
Auckland ¹	12,147	11,917	12,343	12,608	10,888	10,027	10,668	10,819	12,065	11,633	12,100	12,215
Waikato	12,193	11,767	12,267	12,476	10,801	9,771	10,268	10,927	12,108	11,524	12,122	12,332
Bay of Plenty ¹	12,511	12,003	12,248	12,373	10,991	9,844	10,469	10,760	12,288	11,692	12,104	12,226
Gisborne	12,243	11,862	12,399	12,450	10,960	9,755	10,554	10,559	12,019	11,102	12,067	12,118
Hawkes Bay	12,252	11,697	12,069	12,275	10,894	9,685	10,281	10,749	12,172	11,426	11,943	12,180
Taranaki	12,111	11,522	12,227	12,134	10,949	9,917	9,964	10,675	12,057	11,392	12,132	12,078
Manawatu-Wanganui	12,118	11,711	12,026	12,189	10,949	10,003	10,383	11,008	12,071	11,569	11,939	12,109
Wellington ¹	12,807	12,911	12,877	13,030	11,331	10,132	11,261	11,411	12,635	12,684	12,721	12,832
West Coast	11,464	10,297	10,996	11,107	11,023	9,729	11,501	11,087	11,459	10,283	11,006	11,082
Canterbury	12,322	11,508	11,931	12,031	11,336	10,055	10,490	11,045	12,305	11,463	11,888	11,980
Otago	11,868	11,381	11,689	11,901	11,224	10,096	10,348	10,829	11,854	11,343	11,646	11,872
Southland	12,094	11,433	11,909	11,966	11,015	10,220	10,001	10,706	12,072	11,380	11,856	11,902
Nelson-Tasman	12,034	11,466	11,979	12,148	11,131	10,551	11,177	11,087	12,007	11,448	11,952	12,123
Marlborough	11,984	10,955	11,839	12,093	10,836	10,140	10,001	10,829	11,973	10,938	11,807	12,076
New Zealand	12,197	11,783	12,172	12,340	10,951	9,883	10,378	10,827	12,131	11,584	12,037	12,175
<i>Range</i>	<i>1,342</i>	<i>2,614</i>	<i>1,881</i>	<i>1,923</i>	<i>572</i>	<i>866</i>	<i>1,930</i>	<i>1,057</i>	<i>1,176</i>	<i>2,401</i>	<i>1,715</i>	<i>1,750</i>

* Inflation adjusted to 1996 dollars: see footnote 3

(1) Sub-regional information for Auckland, Bay of Plenty and Wellington for 2001 is in Appendix Table 4.

Appendix Table 4: Median Incomes (in 1996 Dollars) by Age Group and Ethnicity, Urban Areas of the Auckland and Wellington Metropolis, Sub-regions of Bay of Plenty, 2001*

Sub-Region	Pakeha				Māori				Total			
	15-24	25-44	45-64	65+	15-24	25-44	45-64	65+	15-24	25-44	45-64	65+
Auckland Urban Areas												
North Shore	7,295	31,952	30,298	12,833	8,857	25,914	25,053	11,791	5,478	29,160	28,151	12,661
Western Auckland	8,722	29,231	27,203	11,837	8,639	23,112	22,590	10,889	7,099	25,797	24,599	11,540
Central Auckland	9,209	36,289	32,902	13,094	8,752	24,603	20,905	11,143	6,322	29,098	26,780	12,523
Southern Auckland	8,278	30,897	29,254	12,345	7,604	21,108	20,420	10,353	5,675	24,191	23,671	11,770
Bay of Plenty Sub-regions												
Western Bay of Plenty	5,868	23,746	21,333	12,468	5,814	16,160	16,197	11,010	5,735	21,934	20,589	12,387
Eastern Bay of Plenty	5,887	24,431	22,013	12,055	4,656	13,223	12,587	10,264	4,931	18,092	18,078	11,739
Rotorua District	7,066	26,191	24,928	12,310	6,996	18,010	16,829	11,093	6,752	22,879	22,959	12,136
Wellington Urban Areas												
Porirua	6,397	30,531	30,210	12,455	6,436	20,795	20,288	10,559	6,017	24,729	25,307	11,982
Wellington Central	8,606	36,069	35,155	14,381	8,898	27,652	25,267	12,130	7,736	33,411	32,102	13,718
Upper Hutt	7,190	27,754	27,055	12,310	7,973	23,994	23,919	10,889	6,927	26,476	26,162	12,234
Lower Hutt	7,681	29,559	27,863	12,856	7,473	22,334	20,884	12,221	7,068	26,829	25,719	12,654

* Inflation adjusted to 1996 dollars: see footnote 3

References

- Amey, B. W. (1997). *The Effects of Economic Restructuring on the Maori Family 1981-1991*. Unpublished Masters Thesis, University of Waikato.
- Bedford, R., Ho, E., Lidgard, J., & Muntz, M. (forthcoming). New Zealand Regions, 1986-2001: Population Mobility, *Population Studies Centre Discussion Paper Series*. Hamilton: University of Waikato.
- Cochrane, W., Pool, I., & Baxendine, S. (forthcoming). New Zealand Regions, 1986-2001: Household Incomes, Joblessness and Parenting, *Population Studies Centre Discussion Paper Series*. Hamilton: University of Waikato.
- Department of Statistics (1991). *New Zealand Social Trends: Income*. Wellington, New Zealand.: Department of Statistics.
- Dixon, S. (1996). The Distribution of Earnings in New Zealand 1984-1995. In P. Morrison (Ed.), *Labour, Employment and Work in New Zealand: Proceedings of the Sixth Conference*. Victoria University of Wellington: Department of Geography, Victoria University of Wellington, New Zealand.
- Easton, B. (1996). Income Distribution. In B. Silverstone, A. Bollard & R. Lattimore (Eds.), *A Study of Economic Reform: The Case of New Zealand*. Amsterdam: North-Holland.
- European Commission/European Foundation for the Improvement of Living and Working Conditions (1996). *Working on European Social Policy*. Luxembourg: Office for Official Publications of the European Communities.
- Honey, J. (1998). *Baby-Boom Backwash: A Demographic Perspective of the Employment Opportunities of the "Disadvantaged Generation"*, University of Waikato.
- Karagedikli, O., Mare, D., & Poot, J. (2000). Disparities and Despair: Changes in Regional Income Distributions in New Zealand 1981-1996. *Australasian Journal of Regional Studies*, 6(3), 323-347.
- Karagedikli, Ö., Maré, D., & Poot, J. (2003). Changes in New Zealand Regional Income Distributions 1981-1996. In E. T. Gomez & R. Stephens (Eds.), *The State, Economic Development and Ethnic Co-existence in Malaysia and New Zealand, Center for Economic Development and Ethnic Relations*, (pp. 221-244). University of Malaya, Kuala Lumpur.
- Martin, B. (1997). Away from Equality: Change in Personal Incomes, 1951 to 1991, *Population Studies Centre Discussion Paper Number 20*. University of Waikato, Hamilton: Population Studies Centre.
- (1998). *Incomes of Individuals and Families in New Zealand, 1951 to 1996*. Unpublished Ph.D. Thesis, University of Waikato.
- Morrison, P. (1996). A Regional Labour Market Profile. In P. Morrison (Ed.), *Labour, Employment and Work in New Zealand: Proceedings of the Sixth Conference*. Victoria University of Wellington: Geography Dept., Victoria University of Wellington, New Zealand.
- Pool, I. (1999). People (=Population) and Public Policy in New Zealand. *New Zealand Population Review*, 25(1&2), 57-79.
- Pool, I. (2003). Ageing, Population Waves, Disordered Cohorts and Policy. *New Zealand Population Review*, 29(1), 19-40.
- Pool, I., Baxendine, S., Bedford, R., Cochrane, W., Lidgard, J., & Lindop, J. (forthcoming-a). *Developing Underdevelopment and Geographical Disparities: A Social Demography of New Zealand Regions*. Hamilton: Population Studies Centre.

- Pool, I., Baxendine, S., Cochrane, W., & Lindop, J. (2005a). New Zealand Regions, 1986-2001: Education and Qualifications, *Population Studies Centre Discussion Paper Series*. No. 56. Hamilton: University of Waikato.
- Pool, I., Baxendine, S., Cochrane, W., & Lindop, J. (2005b). New Zealand Regions, 1986-2001: Household and Families, and their Dwellings, *Population Studies Centre Discussion Paper Series*. No. 55. Hamilton: University of Waikato.
- Pool, I., Baxendine, S., Cochrane, W., & Lindop, J. (forthcoming d) New Zealand Regions, 1986-2001: Industries and Occupations, *Population Studies Centre Discussion Paper Series*. Hamilton: University of Waikato.
- Pool, I., Baxendine, S., Cochrane, W., & Lindop, J. (forthcoming-e). New Zealand Regions, 1986-2001: Labour Market Aspects of Human Capital, *Population Studies Centre Discussion Paper Series*. Hamilton: University of Waikato.
- Pool, I., Baxendine, S., Cochrane, W., & Lindop, J. (2005c). New Zealand Regions, 1986-2001: Population Dynamics, *Population Studies Centre Discussion Paper Series*. No. 52. Hamilton: University of Waikato.
- Pool, I., Baxendine, S., Cochrane, W., & Lindop, J. (2005d) New Zealand Regions, 1986-2001: Population Structures, *Population Studies Centre Discussion Paper Series*. No. 53. Hamilton: University of Waikato.
- Shryock, H. S., Siegel, J. S., & Associates (1976). *The Methods and Materials of Demography*. New York: Academic Press.

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