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New Zealand Regions, 1986-2001: Population Structures

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New Zealand Regions, 1986-2001: Population Structures

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Abstract
The age structure of a region's population affects many areas of social and economic development across all sectors, including employment, housing, welfare, health and education. This is mainly because different age groups tend to have different needs both at a family level and a social policy level. Also related to this are the differing ethnic structures between the regions, which can explain some regional differences in social and economic factors. Birthplaces are also related to ethnicity. This paper investigates age, birthplace and ethnicity for the period 1986 to 2001 by the regional council areas of New Zealand. It also looks at the projected age structures into the future between 2001 and 2021 and the wave effects these may generate.

Keywords: Age Structure, Ethnic Structure, Birthplace, Regions, New Zealand

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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 dramatically different from the way it had been in 1985, representing a radical departure from the preceding decades.

This particular discussion paper, using data from the five yearly Census of Population and Dwellings collected by Statistics New Zealand, examines age, birthplace and ethnicity of the populations in the regions[1]. Information from the projections by age have been calculated by Statistics New Zealand and in places, specifically the calculation of momentum deaths, vital statistics have been used.

2. Population Structure

The overall vitality of a region is driven by the interaction of various dynamics – fertility, mortality and migration (Pool et al. forthcoming-b). But the capacities and characteristics of a region come from its mix of structures, the subject of the present paper and in part these are driven by migration flows (Bedford et al. forthcoming). Together these shape its population geography (Pool et al. forthcoming-c). Further discussion papers linked to the present one will be looking in detail at human capital and a range of other phenomena. But fundamental to all of these are age and ethnic structures for they delineate the base for human capital formation, family and household formation, the inter-generational allocation of resources, many aspects of supply and demand of goods and services, and the cultural attributes of a region.

Thus changes in the age structure of a population affect many areas of social and economic development across all sectors, including employment, housing, welfare, health and education. This is mainly because different age groups tend to have different needs both at a family level and at market and social policy levels. For example, children are dependent upon their parents for financial and other types of support, while those older than 65 years of age are usually retired or close to retirement from paid work. These groups have very different consumption habits and health needs. Dependency ratios are one method of measuring the age structure of a population. They relate the older and younger persons to those at working ages. This ratio is used as a proxy for economic, social and fiscal burdens.

The age structure of a region is not something static but instead is changing constantly, particularly in a country such as New Zealand where fertility levels and migration rates[2] have fluctuated markedly over most of the latter part of the ninetieth century and the twentieth century. Together they have produced population waves that move across the age-pyramid. In New Zealand these waves are irregular, a result of what are termed disordered cohort flows

[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 of a monograph synthesizing the various themes explored in this series of working papers (Pool et al. forthcoming-a).

[2] For Māori, this also held true for mortality, especially in the period of rapid decrease (1945-61) which most affected the force of mortality at young ages, thereby, destabilising the age-structure (Pool 1991).

(Pool 1999). Among Western developed countries New Zealand's fluctuations are notable for their turbulence.

The end part of an age-structural transition is ageing. But as we will show later in this paper, the ageing process for populations takes two forms, numerical (increase in the numbers at old age) and structural (the per cent at older ages) (Pool 2003; Pool in press; Pool under editorial review).

Ethnic structures leave a similar imprint on regions. In this paper both birthplace and ethnicity *per se* are analysed to determine inter-regional variability in cultural attributes.

3. Age Structures

3.1 Age Structure

In this paper, six age categories are used: those aged between 0 and 14 years (children); 15 and 24 years (young adult); 25 and 44 years (young middle age); 45 and 64 years (middle age); 65 and 74 years (retired); and 75 years and older (elderly). These age groups are employed because they represent major points in life cycles. Dependent young people are concentrated at the ages 0 to 14 years. Those aged between 15 and 24 years, are at a stage of high "demographic density"(Rindfuss 1991). They are not only faced with the passage from childhood to adulthood in a biosocial sense but are often involved in finishing their secondary or tertiary education, starting work and for some, starting family formation. Consequently, this is also an age at which geographical mobility peaks (Pool et al. forthcoming-b). The age groups 25-44 and 45-64 represent the central working ages, in which family formation occurs, then family situations change as children leave home and unions dissolve through separation or widow(er)hoods.

The older ages are split into two groups, those aged between 65 and 74 years and those older than 75 years. Often the oldest of the elderly, here defined as those who are older than 75 years, require different goods and services from those aged between 65 and 74 years. Those in the early retired population age groups are often involved in "work", perhaps in a voluntary capacity or increasingly in a part-time capacity, but nevertheless remain relatively active. This "younger-old" aged group may not demand as high and diverse a level of health care as the "older elderly" population.

The age structure of the New Zealand population is slowly changing with fewer younger members and more older members as shown in Table 1 (see also Appendix Tables 1 for 1991 and 1996). Compared to 1986, in 2001 a smaller proportion of the population was in the younger age groups (0-14 years and 15-24 years) and a higher proportion made up the remaining age groups. The largest increase from 1986 to 2001 was in the 45-64 years age group (those born during the baby-boom years).

However, the trends for individual regions vary somewhat from the national trends. For example, in Auckland, Canterbury and Nelson-Tasman[3] there was a slight decrease in the percentage in the 65-74 years age group, whereas all other regions had an increase.

[3] Throughout this paper, Tasman and Nelson regions are combined, and together constitute much of the old Nelson province. Their division into two separate regions for statistical and local authority purposes is based purely on the profiles of river catchment areas and produces some strange anomalies, among others that the

Table 1: Age Structure of the Population by Region, 1986 and 2001

Region	Age Group (years)						Total
	0-14	15-24	25-44	45-64	65-74	75+	
				1986			
Northland	27.4	16.1	28.5	18.7	6.0	3.4	100.0
Auckland	23.3	18.2	29.9	18.3	6.3	4.1	100.0
Waikato	26.9	18.2	28.6	17.5	5.6	3.2	100.0
Bay of Plenty	26.5	16.9	27.7	18.5	6.7	3.7	100.0
Gisborne	28.1	17.2	27.7	17.4	6.0	3.7	100.0
Hawke's Bay	26.7	16.7	28.0	18.0	6.6	4.1	100.0
Taranaki	26.5	17.1	28.3	17.5	6.4	4.2	100.0
Manawatu-Wanganui	25.1	19.0	27.5	17.5	6.5	4.4	100.0
Wellington	23.5	18.2	30.2	18.3	6.0	3.8	100.0
West Coast	24.3	16.4	29.7	18.2	7.2	4.1	100.0
Canterbury	22.0	17.8	28.6	19.5	7.4	4.7	100.0
Otago	22.5	18.8	28.0	18.7	7.2	4.8	100.0
Southland	26.5	17.4	28.7	18.0	5.8	3.7	100.0
Nelson-Tasman	22.9	16.5	29.0	19.4	7.6	4.6	100.0
Marlborough	24.2	16.2	28.1	19.6	7.6	4.3	100.0
New Zealand	**24.4**	**17.9**	**28.9**	**18.3**	**6.4**	**4.0**	**100.0**
Range	*6.1*	*3.0*	*2.8*	*2.2*	*2.0*	*1.6*	
				2001			
Northland	25.1	11.0	26.4	24.2	7.8	5.5	100.0
Auckland	22.9	14.3	31.7	21.0	5.4	4.6	100.0
Waikato	24.3	13.7	28.5	21.8	6.7	5.0	100.0
Bay of Plenty	24.4	11.7	27.5	22.5	7.8	6.1	100.0
Gisborne	27.5	12.5	27.3	21.0	6.6	5.2	100.0
Hawke's Bay	24.3	12.1	27.4	22.9	7.2	6.2	100.0
Taranaki	23.7	12.1	27.6	22.5	7.6	6.5	100.0
Manawatu-Wanganui	23.3	14.0	27.6	21.7	7.3	6.2	100.0
Wellington	21.9	13.8	31.7	21.6	6.1	5.0	100.0
West Coast	22.5	10.2	28.8	25.0	7.6	5.8	100.0
Canterbury	20.3	13.4	29.5	23.0	7.3	6.5	100.0
Otago	19.1	16.4	27.8	22.8	7.5	6.4	100.0
Southland	22.6	12.3	28.7	23.2	7.3	5.9	100.0
Nelson-Tasman	21.9	11.3	29.2	23.9	7.2	6.5	100.0
Marlborough	21.0	10.8	26.9	25.9	8.6	6.9	100.0
New Zealand	**22.7**	**13.5**	**29.7**	**22.1**	**6.6**	**5.5**	**100.0**
Range	*8.4*	*6.1*	*5.4*	*4.9*	*3.2*	*2.3*	

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.

boundary cuts right through suburban Nelson.

There are regions which showed variation from the national age distribution (see Appendix Figure 1). In two regions, Gisborne (all four censuses) and Northland (1986-1996) proportions at 0-14 years differed from the New Zealand national level[4] by more than three percentage points (see Appendix Figure 1a). A number of other regions had a difference of more than one percentage point of their population in this age group (Waikato, the Bay of Plenty[5], Hawke's Bay and Taranaki for all four years and Southland for 1986-1991). Two regions, Canterbury and Otago, had proportions of their population in the 0-14 year age group that deviated two percentage points or more below the New Zealand national proportion.

For the 15-24 year age group there are clear regional variations (see Appendix Figure 1b). There are six regions where the proportion of the population in the 15-24 years age group is above that for the New Zealand population (Auckland, Waikato, Manawatu-Wanganui, Wellington[6], Canterbury (1991 and 1996) and Otago). It is important to note that each of these regions has a university and other specialised tertiary institutions and the higher proportion of the 15-24 year age group in these regions could be a function of young people moving into these regions to pursue a tertiary education. In 2001, the Otago region had the greatest difference from the national level (three percentage points). In the remaining nine regions (those without universities) the proportion of the population in the 15-24 year age group was below the national level, suggesting that young people moved from these areas to regions with tertiary institutions.

Between 1986 and 2001, most regions proportion of their populations in the 25-44 year age group was below that of the New Zealand national level (see Appendix Figure 1c). The only exceptions were Auckland and Wellington[7], and the West Coast. Auckland and Wellington regions contain most of the government departments, corporate offices and large industries, which would attract people at these ages. The West Coast is often a deviant case in the following analyses, a caveat must be noted here, this deviance may be more a function of small cell-sizes than of real differences. Of the regions with proportions below the New Zealand national level the percentage point difference have increased between 1986 and 2001. By 2001 seven of the fifteen regions had proportions at these ages more than two percentage points below the national level.

For the 45-64 year age group there is less deviation from national levels compared to the deviations at the younger ages[8] (see Appendix Figure 1d). Only the Gisborne and Auckland region had proportions in the 45-64 years age group that were more than one percentage point below the national level in 2001. In 1986 three regions (Canterbury, Nelson-Tasman and Marlborough) had proportions of their population in the 45-64 years age group that were more than one percentage point above the national level. In 2001 there were five regions in

[4] Auckland was not significantly different from New Zealand at 0-14 years though the four urban areas of Auckland fit into two groups: Western and Southern Auckland are well above New Zealand, whereas North Shore and Central Auckland fall well below New Zealand. Wellington's Porirua is well above New Zealand whereas the Wellington Central is well below New Zealand.

[5] The Eastern Bay of Plenty is over five percentage points higher than New Zealand for the age group 0-14 years whereas the Western Bay is not significantly different.

[6] Wellington Central is well above the other three urban areas in the metropolis for the age group 15-24 years, all of which are close to New Zealand's level.

[7] Wellington Central is well above the other three urban areas, all of which are closer to the New Zealand level for the age group 25-44 years, and this gap became larger in 2001.

[8] Even though the overall Auckland region showed little variation for the 45-64 year age group, the North Shore had higher percentages than New Zealand, whereas all three other urban areas were below New Zealand in 2001 and Southern Auckland was in 1986. For the Wellington region, Porirua in 1986 was significantly below New Zealand with Wellington Central and Porirua tending below New Zealand in 2001.

this category (Northland, West Coast, Southland, Nelson-Tasman and Marlborough). These trends suggest that there could be a movement of pre-retirement and early retirement people to the sun-belt areas of the South Island and perhaps a move away from urban areas for lifestyle changes.

For the 65-74 year age group there was somewhat less regional variation probably because of the much smaller numbers found in this group (see Appendix Figure 1e). In 1986 only Nelson-Tasman and Marlborough had proportions more than one percentage point above the New Zealand level. By 2001 Northland, the Bay of Plenty[9], Taranaki, West Coast and Marlborough had a proportions more than one percentage point above the New Zealand level. In 1986 regions with proportions below the New Zealand level were Northland, Auckland[10], Waikato, Gisborne, Wellington and Southland. By 2001, however, only Auckland and Wellington had proportions below the New Zealand level. The lower proportions in the predominately urban Auckland and Wellington regions are in part due to retirement flows of people in this age group away from urban areas towards the sunshine areas in both the North and South Islands as well as a concentration of people at the working ages, and their families.

As with the 65-74 year age group, the 75 years and over group showed only small variations from the national level because of small numbers at these ages (see Appendix Figure 1f). There were four regions in 2001 which differed by more than one percentage point above the New Zealand level; Taranaki, Canterbury, Nelson-Tasman and Marlborough, all these regions have had an increase in the percentage points from the New Zealand level. Again Auckland and Wellington had lower proportions of people 75 years and over compared to the national New Zealand level as well as the Waikato and Gisborne regions.

3.2 Difference in Numbers by Age between 1986 and 2001

It is the difference in numbers rather than proportions that has important implications on the services needed within a community. For example, more children in an area means more schools will be required, whereas more elderly means more rest homes and health services.

Between 1986 and 2001 the number of children aged 0-14 years in New Zealand increased by seven per cent as shown in Table 2. However, some regions have shown a more significant increase at these ages, this is especially true for Auckland[11], the Bay of Plenty[12] and Nelson-Tasman. The increases in the numbers of people at 0-14 years are a result of the "baby blip", the higher levels of fertility from the late 1980s and early 1990s (Pool 1999). Despite the widespread effects of the "baby-blip" other regions, such as Southland, Otago, West Coast and Taranaki, have experienced a significant decrease in the number of children aged 0-14 years.

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[9] The Western Bay of Plenty was significantly above New Zealand for the 65-74 year age group, whereas the Eastern Bay of Plenty was well below in 1986, but was around the New Zealand level in 2001. This dichotomy is also seen for the 75 years and over age group, though in this case Eastern Bay of Plenty falls below New Zealand for the whole period.

[10] Central Auckland was significantly above New Zealand in 1986 but below in 2001 for the 65-74 year age group. North Shore was above in 1986 but around New Zealand in 2001. Southern and Western Auckland were below New Zealand for both 1986 and 2001. A similar pattern applied for the 75 years and over age group.

[11] All four urban areas of Auckland had changes around 30 per cent for 0-14 years between 1986 and 2001.

[12] Western Bay of Plenty grew 42 per cent whereas Eastern Bay of Plenty actually declined by seven per cent at 0-14 years between 1986 and 2001.

Table 2: Percentage Change in the Number of People in the Age Group by Region, 1986-2001

Region	Age Group (years)						Total
	0-14	15-24	25-44	45-64	65-74	75+	
Northland	4.6	-21.9	5.6	47.7	48.8	85.1	14.1
Auckland[1]	30.5	4.2	41.0	52.4	14.1	49.9	32.6
Waikato	1.1	-15.9	11.1	38.7	33.7	74.8	11.6
Bay of Plenty	15.7	-12.2	25.0	53.0	45.6	111.5	26.0
Gisborne	-5.9	-30.4	-5.2	16.1	5.2	35.5	-3.9
Hawke's Bay	-6.7	-25.9	0.3	30.5	13.2	53.9	2.5
Taranaki	-15.1	-33.2	-7.6	21.9	12.8	47.7	-5.2
Manawatu-Wanganui	-8.1	-27.3	-0.7	22.9	10.5	40.1	-1.0
Wellington[2]	0.5	-18.2	13.1	27.5	10.6	41.9	8.0
West Coast	-15.2	-42.8	-11.0	25.8	-2.0	29.5	-8.2
Canterbury	3.2	-15.5	15.2	32.0	11.5	54.1	11.9
Otago	-13.7	-11.4	1.0	23.7	6.8	35.1	1.7
Southland	-25.6	-38.2	-12.6	12.9	9.8	39.4	-12.7
Nelson-Tasman	17.2	-15.5	23.4	51.3	16.3	72.6	22.7
Marlborough	2.5	-20.8	13.1	56.5	34.8	88.6	18.4
New Zealand	**6.6**	**-13.4**	**17.4**	**37.8**	**17.2**	**54.6**	**14.5**

(1) In Central Auckland there was a decline of 19 per cent in the 65-74 years age group and a very small increase in the 75 years and over age group, whereas the other urban areas had increases for 65-74 years and large increases for 75 years and over.

(2) The Upper and Lower Hutt, and Porirua had a decline of over 24 per cent at the 15-24 years age group, but by contrast, a decrease in Wellington Central was only 10 per cent. Wellington Central had a 22 per cent increase at the 25-44 years age group and with the other urban areas having little change. Porirua had the largest increase at the 45-64 years age group (42 per cent) with the other urban areas having increases below 24 per cent. For age groups 65 years and over, the Upper Hutt and Porirua had the largest increases, with the other two urban areas having declines at the 65-74 years age group, and small increases at 75 years and over.

Between 1986 and 2001 the number of young adults (15-24 years) in New Zealand declined by 13 per cent. This was produced by the smaller cohorts flowing through from what is termed as the "baby bust" of the 1970s. This has had implications for tertiary education facilities, where some institutions have recently experienced a decline in enrolments, although the full effects of this demographic trend have been partly offset by high tertiary education participation rates. The only region that showed an increase at this age group was Auckland[13], a consequence of large numbers of young adults moving to this region for job opportunities and for tertiary education. In contrast Southland, West Coast, Taranaki, Gisborne, Hawke's Bay, Manawatu-Wanganui, Northland and Marlborough had significant decreases. With the exception of Manawatu-Wanganui, these are all provincial areas without specialised tertiary facilities , where many young adults feel the need to move away to centres of tertiary study in larger urban areas. They may then move further to larger urban areas such as Auckland or overseas.

The number of the New Zealand population at the 25-44 year age group increased 17 per cent from 1986 to 2001. Again, the region with the highest growth in this age group was

[13] The largest growth was in the North Shore of seven per cent. The other three urban areas had just under four per cent growth for 15-24 years between 1986 and 2001.

Auckland[14] with a significant rise of 41 per cent. Two other regions (Nelson-Tasman and the Bay of Plenty[15]) had increases of over 20 per cent. Regions that suffered declines in this age group were Southland, West Coast, Taranaki, Gisborne and Manawatu-Wanganui, these declines were experienced in spite of a cohort flow emanating from the peak baby-boom years.

The regions with the highest increases in the 25-44 years age group were also those having the highest increases at the 0-14 years age group. It is important to note that the 25-44 year age group contains those born during the baby boom, who became parents of the "baby blip" of the late 1980s and early to mid 1990s.

The number of people in New Zealand in the 45-64 year age group increased by 38 per cent. This is a group which constitutes many members of the workforce, but also those people who are starting to make the transition to retirement. All regions showed an increase of this age group. Those with the largest increase, were Marlborough, the Bay of Plenty[16], Auckland[17] and Nelson-Tasman, all growing by more than 50 per cent, followed by Northland, Waikato, Hawke's Bay and Canterbury all with an increase above 30 per cent. Two regions, Gisborne and Southland, had increases of under 20 per cent for this age group. Apart from Auckland, the regions showing high increases are again a result of the movement of people to the "sun-belt" areas and away from urban areas for lifestyle changes or retirement.

The number of the New Zealanders at the early "retiree" age group (65-74 years) increased by 17 per cent. Regionally, Northland had the highest increase with almost 50 per cent, closely followed by the Bay of Plenty.[18] Waikato and Marlborough had an increase of over 30 per cent while Gisborne, Otago and Southland had an increase of less than ten per cent. Only one region, West Coast, showed a decline in the proportion of the population in this age group.

For the total New Zealand population in the elderly age group (75 years and over) there was an increase of 55 per cent, the most rapid numerical increase of any age group. The region with the largest increase was the Bay of Plenty[19] with 112 per cent. Other regions with an increase of over 60 per cent were Northland, Waikato, Nelson-Tasman and Marlborough. The regions with the smallest growth at this age group were West Coast, Gisborne, Manawatu-Wanaganui, Wellington, Otago and Southland all of which still increased by between 30 and 42 per cent.

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[14] North Shore had growth of 27 per cent, whereas the other three urban areas of Auckland had growth around 40 per cent for 25-44 years between 1986 and 2001.

[15] Western Bay of Plenty had 51 per cent growth whereas the Eastern Bay of Plenty had no change at 25-44 years between 1986 and 2001.

[16] Western Bay of Plenty growth was double that of the Eastern Bay of Plenty, 75 and 32 per cent respectively for 45-64 years between 1986 and 2001.

[17] For Central Auckland and North Shore growth is lower (37 per cent), whereas the other two urban areas are around 60 per cent at 45-64 years between 1986 and 2001.

[18] Western Bay of Plenty had 52 per cent growth and Eastern Bay of Plenty had 43 per cent at 65-74 years between 1986 and 2001.

[19] Western Bay of Plenty had 133 per cent growth and Eastern Bay of Plenty had 94 per cent at 75 years and over between 1986 and 2001.

3.3 Age Structural Transitions: Historical and into the Future

The different size cohorts that move through the population structure create wave effects.

> "The problem posed by disordered cohort flows stems from the fact that social and economic policies normally address the needs of a particular life-cycle stage – education is delivered to children, labour market entry policies to young adults, family policies and housing to adults at parenting ages, savings and retirement to the old" (Lepina and Pool 2000: 399).

Factors that can cause regions to have wave effects can also be different from those for New Zealand as a whole. These factors are ethnic composition, the socio-economic situation as this affects human capital and retirement migration (Lepina and Pool 2000; Pool 2003; Pool in press; Pool under editorial review; Rindfuss 1991).

To add to the complexity associated with population structure wave effects, waves are followed by troughs, and often by more waves and troughs. The passage of these demands result in on/off-again policies[20] as needs increase to respond to the peaks of waves, and then fall off once these have passed. Moreover, frequently the waves (and troughs) are irregular, thus increasing difficulties for policies and planning. A concomitant of this is that several waves can simultaneously pass across different life-cycle stages, thus producing competing demands that are often intergenerational.

In this section Figure 1 shows changes over five year periods, these are analysed for the historical period of 1986 to 2001 as well as using projections into the future for 2001 to 2021. Fifteen year age groups will be explored as they experience the passage of population waves, which in some cases uses different age groups from those employed in the previous section. Their volume is measured as a percentage of the first year's total population. This gives an indication of effect the change has on the overall population.

The group aged 15 years and under shows flow on effects from the baby-blip. In the 1986-91 period all the regions declined except Northland, Auckland and the Bay of Plenty, whereas in the period 1991-96 most regions increased except Taranaki and Southland. Into the future, over the quinquennia 2001-06 to 2011-16 most regions are expected to experience declines in this age group, as the baby-blip effects diminish with most having decreases of over one percent. The only region to experience an increase being Auckland.

Turning to the young adult population aged 15-29 years for the period between 1986 and 2001 there was a flow-on effect of the baby-bust, and for the majority of regions declines of over one percent of the initial total population were registered in all three periods. The main exception was Auckland which is positive in all three periods, and Canterbury, Otago and Nelson-Tasman which were positive for the period 1991-96. For the periods between 2001 and 2011, as the baby-blip reaches adult ages, all the regions are expected to have positive growth with the exception of Southland in the quinquennium 2001-06. Auckland, Waikato, the Bay of Plenty and Nelson-Tasman are estimated to have over one per cent growth for both periods. By 2016-21 all the regions, except Auckland, are expected to decline. This shows that two factors will influence national age structures: the impact nationally of the baby-blip and then the subsequent fertility decline. While a factor that will strongly effect reginal age structures is the pulling power of metropolis, especially Auckland.

[20] The focus here is on policy, but exactly the same factors have ramifications for market goods and services.

The flows in Figure 1 show that at the age group 30-44 years all the regions increased between 1986 and 1996 with most growing more than one per cent of their initial total population. In contrast, between 2001-16 most of the regions are projected to have negative growth with the exception of Auckland for all three periods, and the Bay of Plenty and Nelson-Tasman in 2001-06. By 2016-21 this decline is expected to swing back to be a positive growth as the baby-blip cohort reaches these age groups for most regions except Southland and Marlborough.

Figure 1: Population Waves: Historical and Projected Age Specific Change in Population Size, by Region, 1986 2021

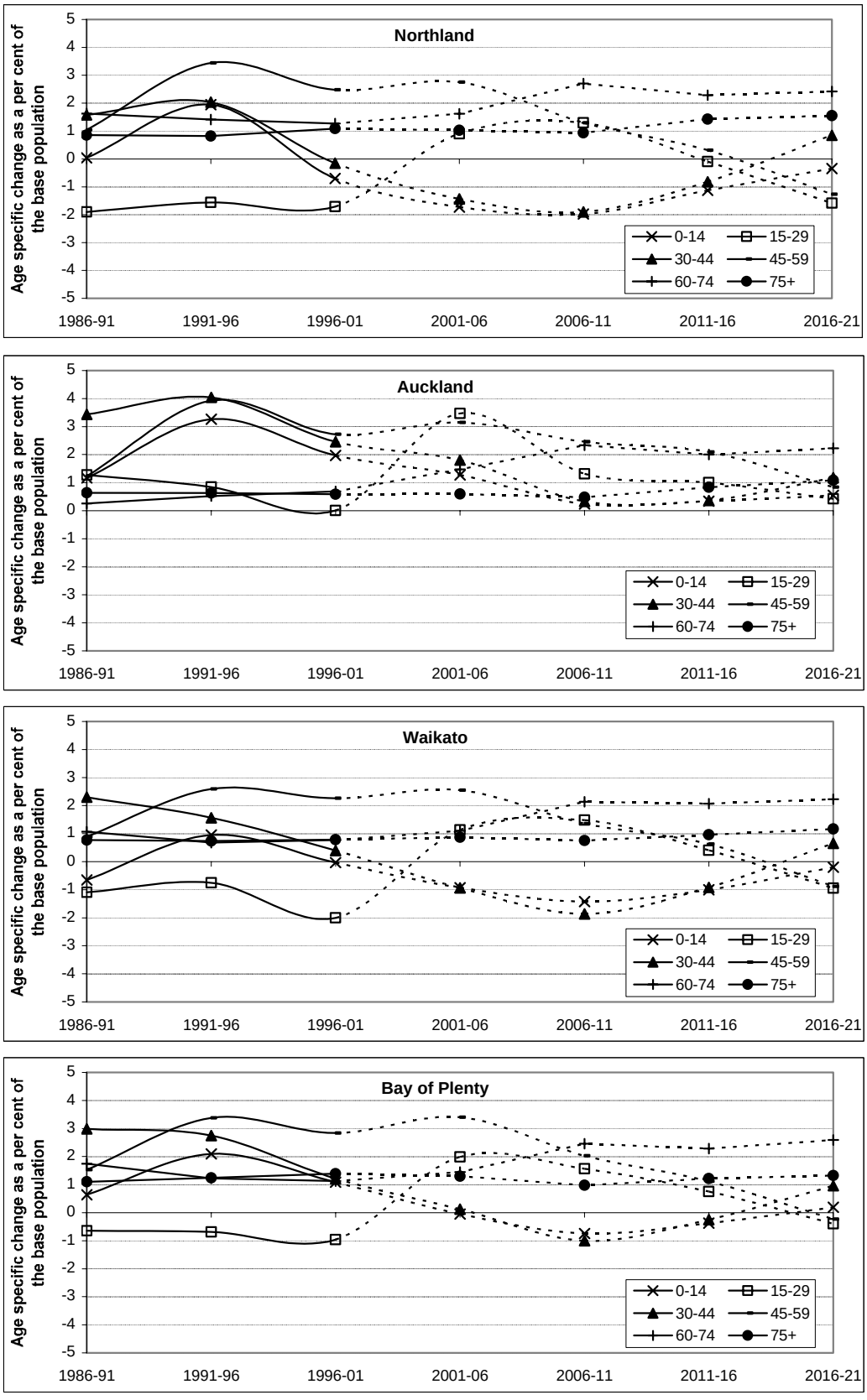

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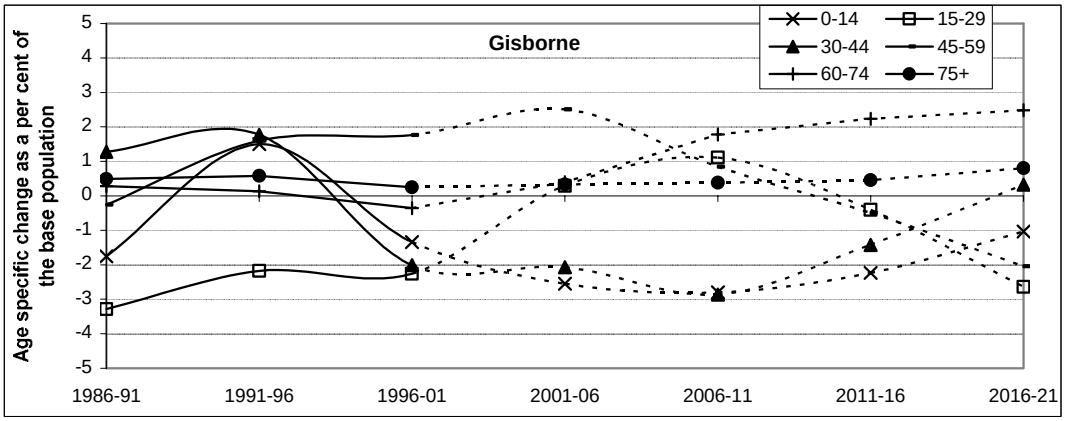
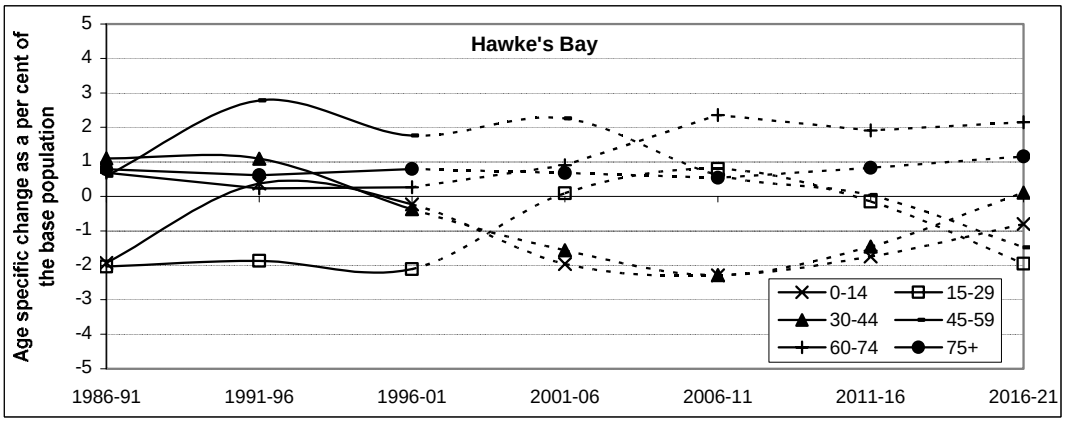
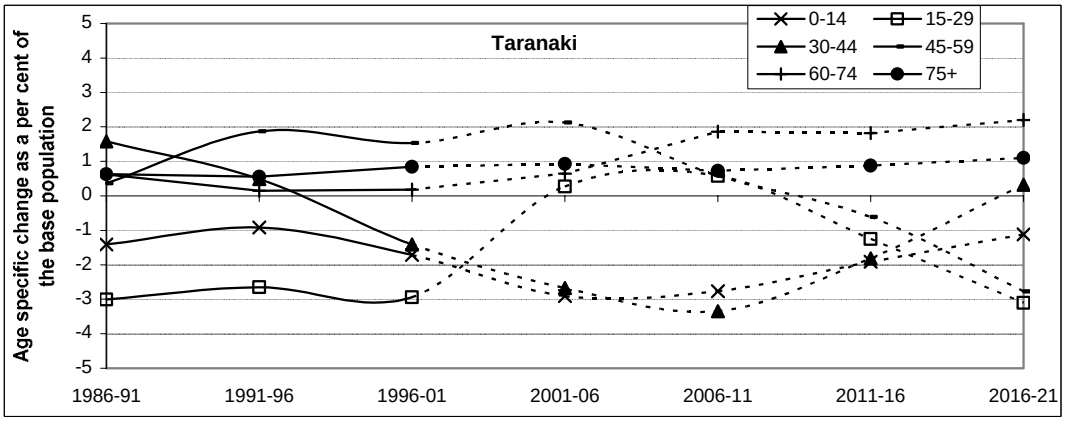
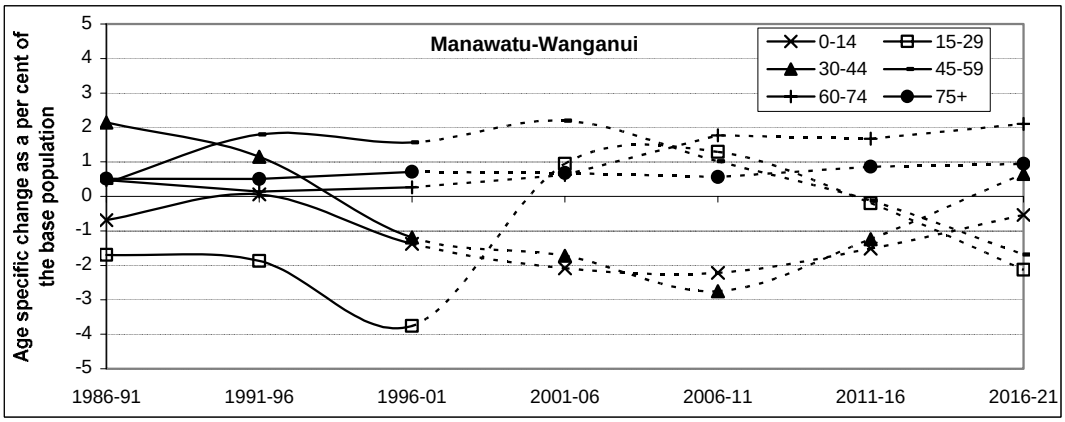
Figure 1: (continued)









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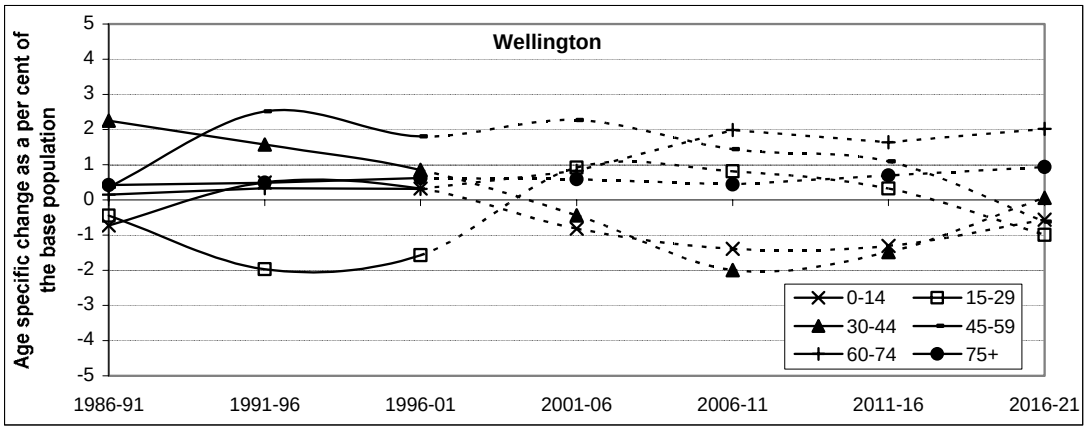

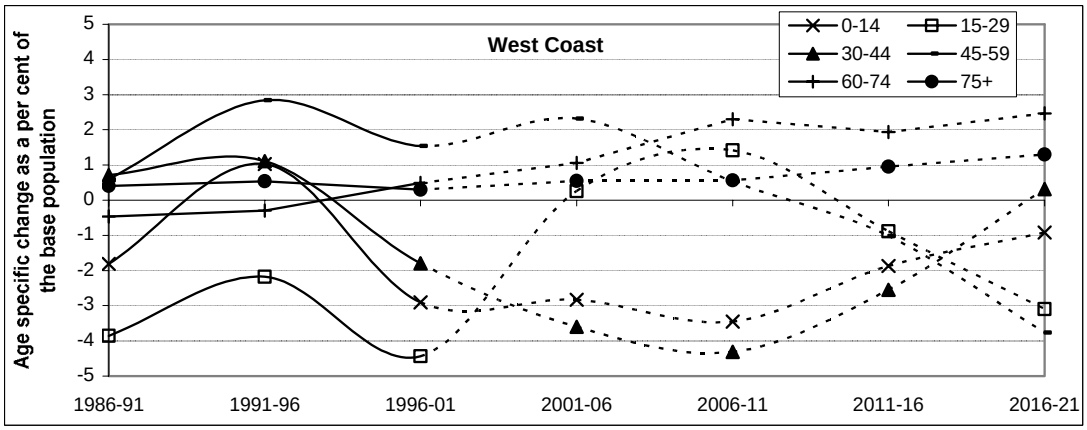

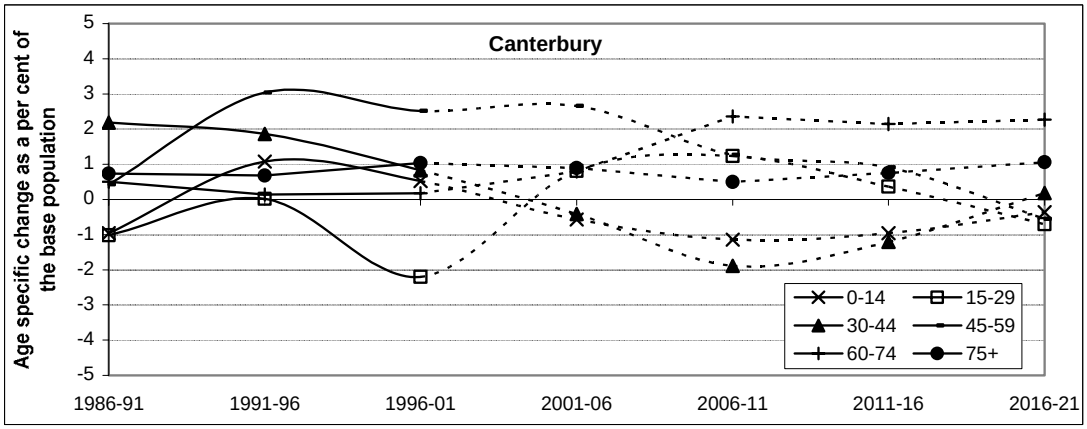

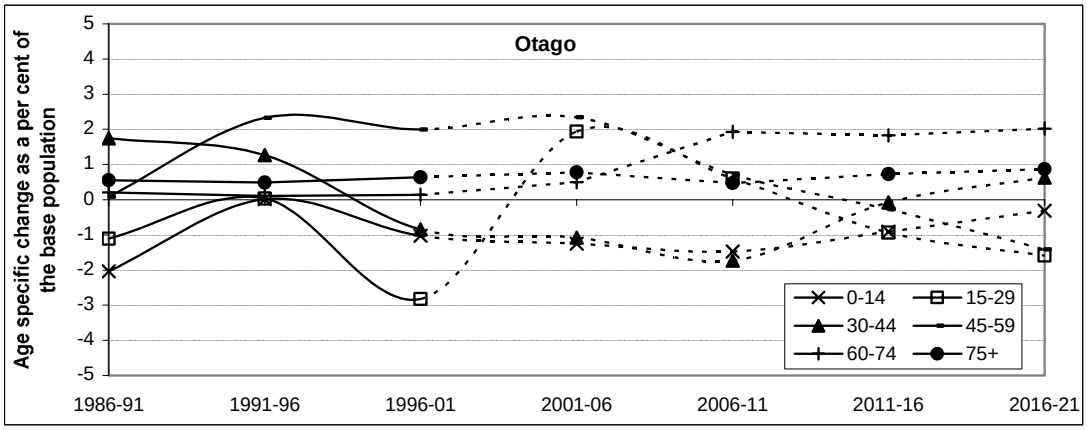

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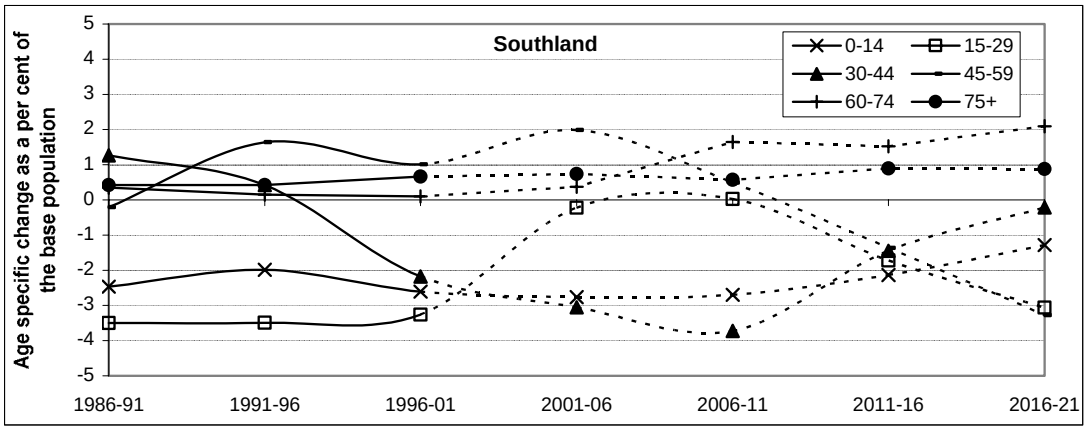
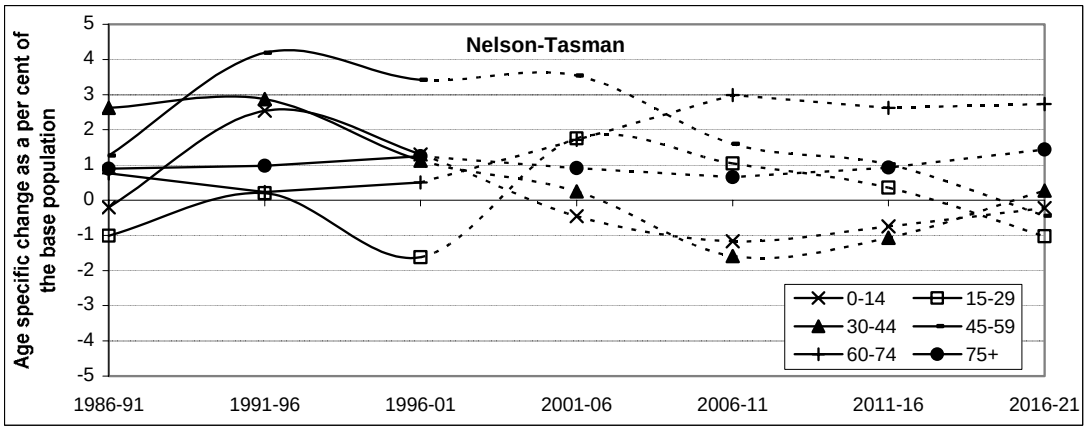
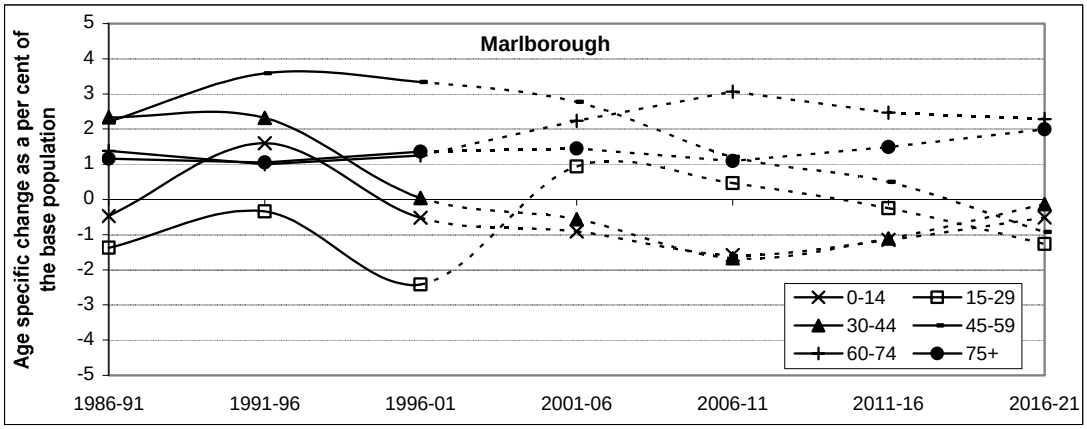
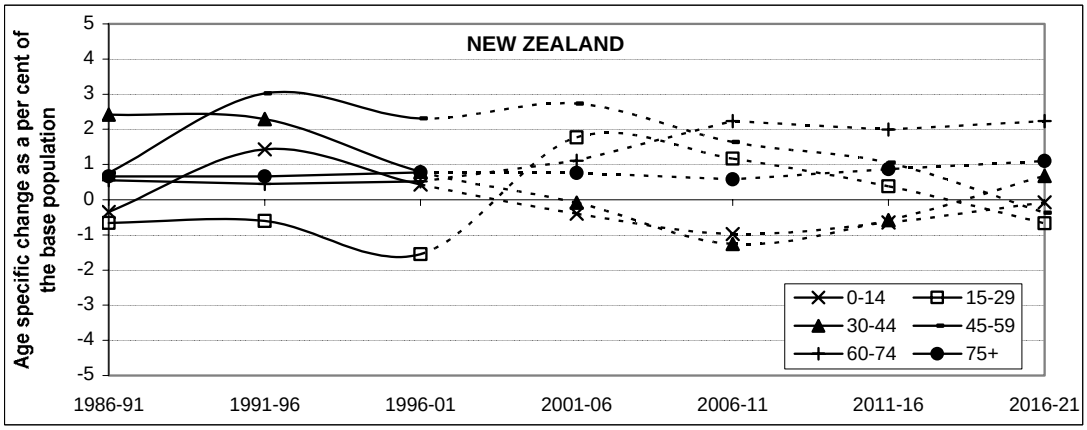








Historically, all regions have been affected at age groups 45-59 years by the momentum impacts of the baby-boom. Moreover, they are expected to have over one per cent increase of the initial population between 1991 and 2006 and again between 2006-11 albeit that this momentum will be decelerating. But by the period 2016-21 all the regions are expected to experience a decrease of this age group, again with the exception of Auckland.

At the early retirement ages of 60-74 years historically all the regions showed the long-term affects of low fertility, the smaller birth cohorts of the 1930s depression and early war years. But as Figure 1 shows most regions are projected to have positive growth of over one percent of their initial total population for the periods between 2006 and 2021. Because of migration inflows Northland and the Bay of Plenty also had or are expected to have this increase in the periods 1986 to 2006. The only regions with a negative growth were West Coast 1986-96 and Gisborne 1996-2001.

Because of the cohort flow emanating from the higher fertility of the early 20th century, the age group 75 years showed significant increases across all the regions over all the periods analysed. Moreover, most are projected to continue this increase, most strongly in Marlborough, with all periods being over one per cent of the initial total population per quinquennium. Northland, the Bay of Plenty and Nelson-Tasman also show strong patterns of increase.

Figure 1 also permits an overview of fluctuations and of intergenerational impacts region by region. While some flows may seem broadly similar in direction, their quantum and relative impact may vary from region to region. For example, a comparison of Auckland and Northland shows patterns to be broadly similar at various life-cycle stages, yet the effects are different. In Auckland growth in the age groups 0-14 and 15-29 years are historically positive (or just so) and high, but in Northland they are lower or even negative. Auckland is projected to show a deceleration at some of these ages in the future, with a marked peaking at 15-29 years over the next few years. In comparison Northland changes will be more muted, with either very minimal increases or a tendency for decline. The "provincial regions", including the Waikato are variants of the Northland pattern, with the more southerly ones who have lower proportions of Maori in their total populations experience declines at key ages, or experience very minimal growth.

These results show that each region faces a different set of unique cohort flows. The results illustrate that there will be unique impacts of such flows on both market demand and needs and any social policy development or planning will have to address complex regional changes rather than follow a generic national formula.

3.4 Dependency Ratios

The gross effects of these flows manifest themselves in patterns of dependency. Dependents are defined as those not in the working age population but who are supported by those in the working age population. A dependency ratio simply relates to dependents [young = 0-14 years; old = 65 years and over; or total = young + old; to person at working age] (International union for the scientific study of population 1982). Dependents can be young or old, subsequently there are ratios for child, aged and total dependency. These ratios are crude measures used to estimate the burden placed on the working age population (15-64 years) that indirectly supports the rest of the population (both young and old) through taxes and services. The notion is that an increase in the relative number of either young or old, or in the total

ratio puts pressure on the resources generated by the workers, placing an economic strain on society and the economy.

Child dependency ratios relate the number of children (0-14 years) to the number in the working age group (15-64 years), the aged dependency ratios relate those aged 65 years and over to the working age group, and the total ratio is the sum of these. It should be noted, however, that the working age population include students (at the younger end) and early retirees (at the older end) who are also outside the labour force. Additionally, as these measures are ratios their levels are affected by trends in denominators as and numerators.

Nationally the population is getting older which affects the balance between child and aged ratios. Child Dependency went from 37 per cent in 1986 to 35 per cent in 2001 while the aged dependency went from 16 to 18 percent over the same time period. The net result was that there was very little change in the total dependency ratio that rested around 53 per cent between these years. It is important to note that although at present child dependency continues to outrun aged dependency, in the long run a major shift will occur as changes in fertility patterns reduce the child dependency rate, a pattern now common in some western developed countries. In New Zealand's case, though, this effect has been somewhat muted by the "baby-blip".

There are considerable regional variations in the child dependency ratios, as is seen in Figure 2 (see also Appendix Table 2), and this is increasing. The range between the regions for child dependency grew over the period 1986 to 2001 from 12 to 17 percentage points. For the whole period Gisborne had the highest child dependency ratio with the level being around 45 per cent for most of the period. The gap between Gisborne and the next highest region of Northland has increased between 1986 and 2001. Other regions which were high for the whole period were Waikato, the Bay of Plenty[21], Hawke's Bay and Taranaki. At the other end of the scale child dependency was lowest in Canterbury and Otago between 1986 and 2001. Other regions which were low for the period were Auckland[22], Wellington[23] and Nelson-Tasman (1986-1996). These regions have high proportions at young adult ages because of tertiary educational facilities (Otago, Canterbury), or employment opportunities (Auckland, Wellington), or low fertility (Nelson-Tasman). Gisborne was the only region to have an increase in its child dependency ratio though only just above zero, whereas Otago and Southland had a decline of over five percentage points (see Appendix Table 3).

For aged dependency, again seen in Figure 2, the variation between the regions has also increased over time from five to ten percentage points. The regions that have low ratios are Auckland (1991-2001), Waikato (1986-1996) and Wellington. Auckland[24] and Wellington[25] were low because of the additional employment opportunities which continue to attract working age populations. The regions which had high aged dependency ratios were the Bay

[21] Eastern Bay of Plenty had a child dependency ratio of 46 per cent in 2001 compared to 37 per cent in the Western Bay of Plenty.

[22] Child dependency ratios in the urban areas of Auckland in 2001 are as follows: North Shore 31 per cent, Western Auckland 37 per cent, Central Auckland 28 per cent and Southern Auckland 41 per cent.

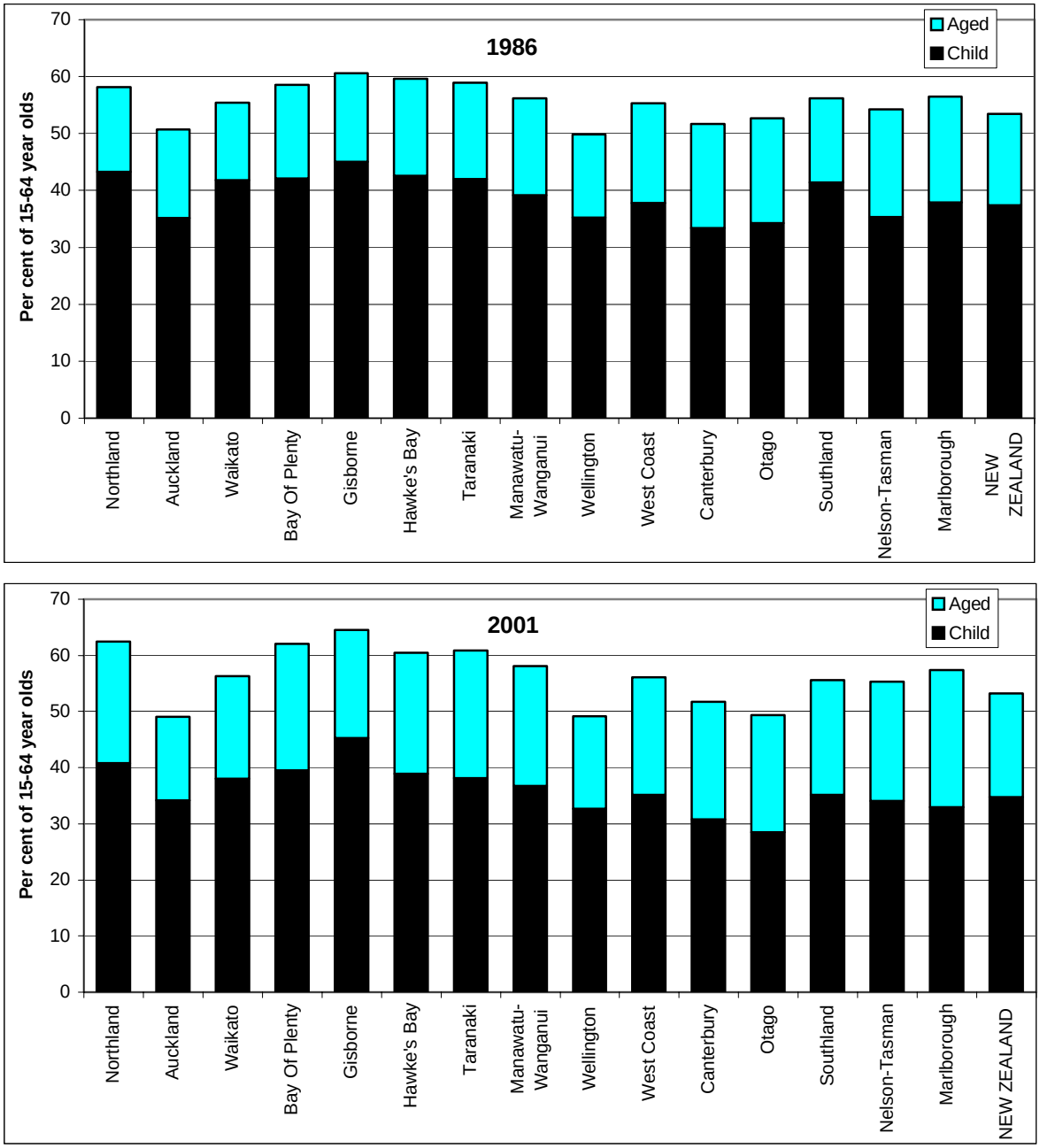
[23] The Porirua child dependency ratio was 43 per cent in 2001, whereas at the other end of the scale Wellington Central was only 25 per cent. The other two urban areas were just above New Zealand levels.

[24] Western, Central and Southern Auckland had aged ratios significantly lower than New Zealand as a whole in 2001. Central Auckland came down from a level significantly above New Zealand in 1986.

[25] The aged dependency ratios in the urban areas of Wellington in 2001 are as follows: Upper Hutt 19 per cent, Lower Hutt 16 per cent, Porirua 11 per cent and Wellington Central 12 per cent.

of Plenty[26] (1996 and 2001), Hawkes Bay, Taranaki (1991-2001), Canterbury, Otago, Nelson-Tasman and Marlborough. Only Auckland showed a decline in the aged dependency ratio, whereas Northland, the Bay of Plenty, Taranaki, Southland and Marlborough went up by over five percentage points.

Figure 2: Dependency Ratios by Region, 1986 and 2001 (%)



The variation between the regions for total dependency (child and adult dependency combined) increased from 11 to 15 percentage points between 1986 and 2001. The regions with high levels of total dependency for the whole period were Gisborne, Northland, the Bay

[26] The Western Bay of Plenty was significantly above New Zealand at 27 per cent in 2001. In contrast, the Eastern Bay of Plenty was well below New Zealand in 1986 at 12 per cent, but finished at the New Zealand level in 2001.

of Plenty[27], Hawkes Bay and Taranaki. In Northland and the Bay of Plenty a combination of a younger Māori population and a retiree Pakeha population create a complex dependency mix. Dependency levels below the national level are found in Wellington[28], Otago, Auckland[29] and Canterbury. Auckland, Wellington, Otago and Southland went through declines in the total dependency ratio, whereas Northland, the Bay of Plenty and Gisborne had an increase of over three percentage points.

In summary, areas with high total dependency levels tend to have higher numbers of children, and typically have concentrations of the Māori population. Low dependency occurs more in regions with metropolitan areas where adult students cluster or employment prospects are better.

Despite public discussion about the "ageing" of New Zealand's society, the proportion of children (those aged between 0 and 14 years) still contribute more to total dependency than aged dependency, this is true in every region in both 1986 and 2001 (see Figures 2). Nevertheless these figures also show a significant shift to aged dependency contributing more to total dependency, part of a national trend in this direction (Pool 1999). Accompanying this shift, however, is another change highlighted in Table 3. While levels of total dependency barely changed for New Zealand as a whole over this period, regional differences in the shift between child and aged dependency were associated with the emergence of changing regional patterns of total dependency.

[27] Both Eastern and Western Bay of Plenty have a total dependency ratio around 64 per cent.

[28] Wellington Central had a total dependency ratio of 37 per cent in 2001, whereas all the other urban areas were around New Zealand's.

[29] Central Auckland had a total dependency ratio of 43 per cent in 2001. The other urban areas were much closer to New Zealand, with North Shore 49 per cent, Western Auckland 51 per cent and Southern Auckland 55 per cent.

Table 3: Classification of Regions, Child, Aged and Total Dependency Ratios, Above or Below that for New Zealand as a Whole, 2001

	Above		Below
Child	**Northland**	*Taranaki*	Auckland
	Waikato	Manawatu-Wanganui	Wellington
	Bay of Plenty	West Coast	*Canterbury*
	Gisborne	Southland	**Otago**
	Hawke's Bay		Nelson-Tasman
			Marlborough *
Aged	*Northland* *	West Coast	*Auckland*
	Bay of Plenty	Canterbury	Waikato
	Gisborne *	Otago	Wellington
	Hawke's Bay	Southland *	
	Taranaki	Nelson-Tasman	
	Manawatu-Wanganui	**Marlborough**	
Total	**Northland**	*Manawatu-Wanganui*	*Auckland*
	Waikato	West Coast	*Wellington*
	Bay of Plenty	Southland	Canterbury
	Gisborne	Nelson-Tasman	*Otago*
	Hawke's Bay	*Marlborough*	
	Taranaki		

Absolute differences of 5 percentage points or more from New Zealand have been bolded,
Absolute differences of between 3 and 5 percentage points from New Zealand have been italicised.
* At the 1986 census these regions shows opposite trends in respect to New Zealand.

In the public policy debates, the spectre has been raised of an increasingly large pool of elderly placing a burden upon the working-age population. As former Prime Minister Jim Bolger and former Deputy Prime Minister Winston Peters argued:

> … as a greater percentage of the population retires, the ratio of workers to retired people will grow smaller and smaller. In the twenty-first century it will be harder to provide an adequate retirement income from taxation (Bolger and Peters 1997: 7).

These changes will have a significant impact on the provision of goods and services, the nature of society, and especially on public policy in the future (Dickson et al. 1997; Periodic Report Group 1997; Pool 1997; Pool and Bedford 1996; Task Force on Private Provision for Retirement 1991; Task Force on Private Provision for Retirement 1992).

However, the regional expressions of these structural changes have not been investigated, and are quite complicated. While these trends broadly follow those of the national population, there are important variations. Essentially there is dichotomisation into metropolitan and non-metropolitan regions. Thus the peripheral regions such as Gisborne and Northland have both relatively high "child" ratios and increasing "aged" ratios. Sometimes, as is the experience of the Bay of Plenty, the ethnic mix of a population can affect the ratio[30]. Conversely, the metropolitan regions[31] have lower dependency ratio's for either or both factors.

3.5 Structure of the Elderly Population

The category "elderly" is made up of two age groups (defined here as the "younger elderly", 65-74 years, and the "older" 75+ years). Since these two groups have different needs, particularly in healthcare, the proportions of people in each group need to be examined. This was done by calculating the ratio of the 75 years and over age group to the 65-74 years age group. In the future, for New Zealand as a whole disordered cohort flows will change this ratio from decade to decade (Pool 1999). A high ratio indicates a weighting towards the older elderly, or the "oldest of the old" as this population is often called internationally (although typically this relates to persons 85 years and over).

The geographic dimension of the "elderly ratio" could be affected strongly by two factors: the availability of medical facilities such as hospitals, rest homes etc.; and concentrations of the Māori population in particular regions. Both numerically and proportionally more Pakeha are 75 years and over than Māori (Statistics New Zealand 1997). Although the Māori population is moving towards a more elderly age structure, it is still younger than the non-Māori population.

Between 1986 and 2001 the lowest elderly ratios were in the Bay of Plenty[32], Northland and Waikato, with West Coast and Marlborough being low at different parts of the period (see Figure 3). Otago and Auckland[33] regions were high between 1986 and 1996, Taranaki and Manawatu-Wanganui were well above New Zealand as a whole in 1986 and 1991, whereas by 2001 the most elevated regions were Nelson-Tasman and Canterbury. The elderly ratio increased by 20 percentage points nationally from 63 to 83 per cent, with Nelson-Tasman having the highest increase of 30 percentage points followed by the Bay of Plenty and Canterbury, while the smallest increase occurred in Northland.

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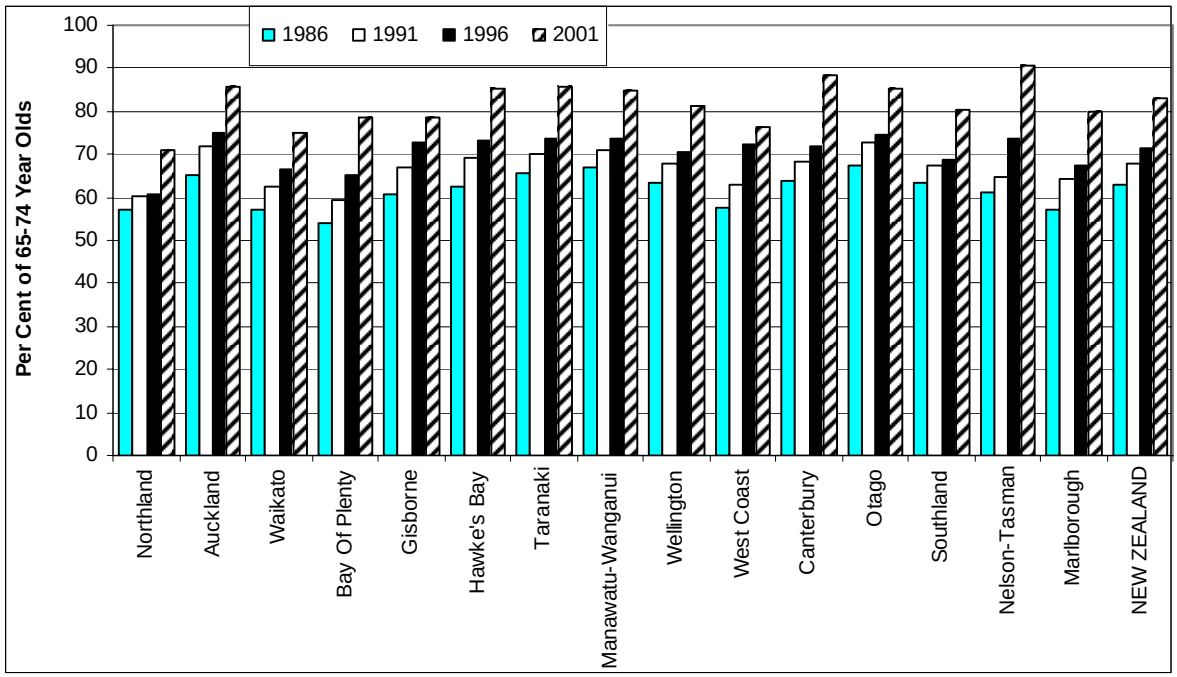
[30] The Western Bay of Plenty with its concentration of retired Pakeha pushes up the aged ratio; the Eastern Bay of Plenty with a high proportion Māori affects the child ratio.

[31] The Waikato region which contains Hamilton has a very different pattern, contrasting Hamilton with the Rest of Waikato. Hamilton has results similar to Auckland, but for the rest of the Waikato the results are similar to those for Northland.

[32] Eastern Bay of Plenty had lower elderly ratios than the Western Bay of Plenty, though both started the period below New Zealand with the Western Bay of Plenty in 2001 being about New Zealand's level, at 83 per cent, whereas Eastern Bay of Plenty was 65 per cent.

[33] North Shore's elderly ratio started below the New Zealand level in 1986 (60 per cent), but finished above New Zealand at 93 per cent. Western and Southern Auckland were below New Zealand for the whole period and finished 70 and 75 per cent respectively. Central Auckland was above New Zealand for the whole period finishing at 102 per cent in 2001.

Figure 3: Elderly Ratio[1] by Region, 1986-2001



(1) Population 75+ years/Population 65-74 years

These results may seem to contradict the dependency data discussed above, but remember that the rates here relate to the structure within the elderly population. Retirement migration that contributes to the growth of the Western Bay of Plenty in particular is composed of flows typically of the younger elderly. There used to be evidence of a outflow of the very old towards larger centres (Thong 1982), but recent work in the Thames-Coromandel did not confirm this (Portal Consulting and Associates Ltd 1999).

3.6 Momentum Effects

The age-structural changes noted earlier produce net momentum growth. This concept is rarely covered in international work, a rare exception being a study looking at ageing in the United States of America (Rogers and Woodward 1988).

An analysis of momentum attempts to disaggregate from overall growth the effects due purely to cohort flows. Thus migration and natural increase are eliminated, leaving what Rogers and Woodward (1988) call "ageing in place". In this paper we have then divided this into two types: net and gross, terms explained in the notes to Table 4.

Inter-regional variance in net momentum has changed over time, as is shown in Table 4. The period 1991-96 saw two cohort flow effects (recalling that migration is excluded from this figure), the momentum of the large late baby-boom age groups born around 1970 through into the working-ages, and the arrival of large birth cohorts of the early 20th century at very old ages. The inter-regional range for net momentum peaked in 1991-96.

There is a pattern in the regional data. Auckland, Wellington and the southern regions have less impact from cohort flows. In contrast, the other North Island regions, especially Gisborne, the West Coast, and (earlier) Southland are more strongly affected.

Table 4: Inter-censal Percentage Changes due to Momentum Effects[1], Net[2] and Gross[3], by Region, 1986-91, 1991-96 and 1996-2001

Region	1986-91		1991-96		1996-2001	
	Net	Gross	Net	Gross	Net	Gross
Northland	8.6	12.5	13.8	15.2	9.4	16.2
Auckland	6.6	12.2	12.1	15.4	8.0	14.0
Waikato	8.3	10.7	12.8	13.4	8.6	11.3
Bay of Plenty	8.0	11.5	13.1	14.2	8.9	12.9
Gisborne	9.4	12.7	14.9	16.2	10.6	14.8
Hawke's Bay	8.0	12.2	12.8	13.5	8.7	12.4
Taranaki	8.0	10.8	12.8	13.8	7.9	13.3
Manawatu-Wanganui	7.7	12.8	12.7	15.0	8.1	12.0
Wellington	6.9	12.8	12.0	16.0	7.7	14.1
West Coast	7.9	12.1	13.0	15.1	9.0	15.2
Canterbury	5.9	13.1	10.6	13.8	6.4	11.7
Otago	6.1	13.6	10.1	15.0	6.0	14.5
Southland	8.3	12.2	12.7	14.8	8.0	13.5
Nelson-Tasman	5.9	12.3	10.9	12.8	6.9	13.2
Marlborough	6.7	11.9	10.7	12.2	7.1	12.9
Range	*3.5*	*2.9*	*4.8*	*3.9*	*4.6*	*5.0*

(1) That part of inter-censal growth not due to migration or natural increase for population 5 years and over.

$$Momentum_x = \left(P_x^{t+5} - P_x^t\right) - \left(-D_x\right) - NetMig_x$$

Where, P = Population,
x = age x (5 years age group),
t = time,
D = Deaths for 5 year period (Calendar years),
NetMig = Net Migration for 5 year period (calculated using the census survivorship method)

(2) The sum of age specific (5 year age groups) momentum taking the sign into account.

(3) The sum of age specific (5 year age groups) momentum regardless of sign.

Turning to gross momentum, an indication of demographic turbulence, the rates do not drop back after 1991-96. The inter-regional range for gross momentum increased over time. This shows the effects of waves as they peak then ebb, and points to problems for planning at a regional level: planning for an impending wave requires a complex set of analyses, involving "upsizing" for an ebb and "downsizing" for a trough, but also keeping an eye on subsequent waves.

In summary, age-structural transitions vary between regions. Some regions, notably Auckland have low dependency. While momentum effects operated there at younger ages (less than 50 years) positively driving growth. At the opposite extreme are regions with both child and aged dependency, plus momentum effects that at key ages are negative as well as turbulent.

The effect of different cohort sizes on various age groups can have important implications for planners as this can often be forgotten if planners focus only on growth. The movement of cohorts through the age groups can mean that there are not enough services or times when there are too many services, for example in areas such as education and health, but also for market goods. The changing cohort sizes have varying affect depending on what age group is focused on, as shown in Table 5.

Table 5: Regional *Minima* and *Maxima*, and Inter-regional Ranges in Inter-censal Percentage Changes due to Momentum[1] Effects (Net and Gross), by Age Group, 1986-2001

Age Group (years)	1986-1991			1991-1996			1996-2001		
	Min.	Max.	Range	Min.	Max.	Range	Min.	Max.	Range
	Net[2] Momentum								
5-14	-2.0	-0.6	1.4	0.3	2.6	2.3	-0.3	1.3	1.7
15-24	-1.9	1.8	3.6	-2.2	2.5	4.8	-3.8	2.9	6.7
25-44	1.2	4.3	3.1	0.5	3.8	3.3	-1.8	2.3	4.1
45-64	0.9	2.2	1.3	2.8	4.5	1.7	2.9	4.3	1.4
65-74	1.4	1.9	0.5	1.3	2.3	1.0	0.4	1.4	1.0
75+	2.5	3.6	1.1	2.6	3.6	1.0	2.7	3.8	1.2
	Gross[3] Momentum								
5-14	1.0	2.0	1.0	0.3	2.6	2.3	0.3	1.8	1.5
15-24	0.3	1.9	1.6	0.9	2.7	1.8	1.0	3.8	2.8
25-44	1.9	4.3	2.3	1.0	3.8	2.8	1.2	4.1	2.9
45-64	1.4	2.4	1.0	3.1	4.5	1.4	2.9	4.3	1.4
65-74	1.4	1.9	0.5	1.3	2.3	1.0	0.4	1.4	1.0
75+	2.5	3.6	1.1	2.6	3.6	1.0	2.7	3.8	1.2

(1) Same as note 1 in Table 4.
(2) The sum of age specific (5 year age groups) momentum taking the sign into account.
(3) The sum of age specific (5 year age groups) momentum regardless of sign.
Source: Appendix Table 4.

The age group which consistently had a large change in all regions was 75 years and over. This is the effect of increased survivorship to old age. The other age groups with major changes are 25-44 years in the period 1986-91 and 1991-96, and 45-64 years in 1991-96 and 1996-2001. This is because of the effect of larger birth cohorts moving through as a result of the baby boom. These age groups experience high positive net momentum and high gross momentum in virtually all regions.

There was only one age group and one period where all the regions experienced negative net momentum which was at 5-14 years in 1986-91 (as shown in Appendix Table 4), a function of the falling fertility in the 1970s and 1980s. Auckland, Wellington, Canterbury and Otago all experience negative momentum of over one per cent of the population 5 years and over for all three periods at age group 15-24 years. At first glance negative momentum at 15-24 years may seem counter intuitive, but in fact tells us something very significant. Recall that the computation estimates the residual growth factor after deaths (at this age) have been added (a negligible factor) and migration effects have been subtracted (a major factor). Thus it shows that these regions are not growing from their own internal effects (they have had low fertility for a number of years), but by absorbing migrants, however, this absorbtion is still insufficient to counter low fertility. The largest range between the highest and lowest region for net momentum was in this age group followed by the 25-44 years age group throughout the period. In 1996-01 at 25-44 years there was negative momentum experienced in Northland, the Bay of Plenty, Gisborne, Hawke's Bay, Taranaki, West Coast, Southland, Nelson-Tasman and Marlborough, all regions which are more provincial and rural. The smallest range between the highest and lowest region for net momentum was for the two oldest age groups 64-74 years and 75 years and over.

In terms of gross momentum which is the total movement of cohort regardless of the sign[34] the same age groups have the most movement. The largest range between the highest and the lowest region is in the 25-44 year age group, with the second highest in the 15-24 year age group. The smallest inter-regional range was in the 65-74 year age group.

4. Birthplace

New Zealand is a country that has always been a land of immigrants. The immigrant Pakeha population arrived in large numbers from the 1840s. These new migrants came particularly from the British Isles (the United Kingdom plus Eire) and tended to congregate and spread across the country displacing Māori. New Zealand maintained an essentially 'kin-migration' system (McKinnon 1996) until 1974 when the right of unrestricted access to New Zealand residency for British citizens ceased. Thus, the British Isles contributed most of the immigrant population from the mid 1800s to the mid 1900s, although there were flows from China, Germany, Scandinavia and elsewhere.

After the Second World War, the immigrant population became increasingly diverse as people came from a wider range of countries. In 1947 an assisted/free passage scheme was reintroduced to attract labour from the United Kingdom and agreements were also negotiated to accept young non-British European migrants (Farmer 1985). Refugee immigration was allowed on humanitarian grounds and immigration quotas were established for small island countries of the Pacific. The reciprocal Trans-Tasman Travel Agreement (TTTA), which allows free movement of residents between Australia and New Zealand, has remained unchanged since the nineteenth century. Similarly, free entry into New Zealand has been maintained for people from the Cook Islands, Niue and the Tokelau Islands, who are regarded as New Zealand citizens (Farmer 1985).

In the last three decades there have been major changes in external migration levels and patterns. The dominance of immigrants from the British Isles has decreased, and migration to and from Australia has become the largest in terms of volume.

In the early 1970s there were large inflows from traditional source countries and the Pacific. Then in the late 1970s there were net out flows, followed in the 1980s by marked fluctuation between net inflows and outflows. In the 1990s there was then a return to net population gain from migration, resulting from both increases in the number of permanent and long-term arrivals, and decreases in departures. In the year ended March 1991, there was a net gain of 11,616 people. By 1995 this had almost doubled to 21,697 people and by 1996 had reached 29,832 - the highest gain of permanent and long-term (PLT) migrants recorded for the entire 1986 to 2001 period (March year). The year ended March 1998 recorded a significantly lower net gain of 2,707 migrants. By March 1999 the gains from external migration had turned to a net loss of PLT migrants - 10,199 in 1999 and 8,990 in 2000 (Statistics New Zealand 2005: Table 5.2). After 2001 PLT made another peak at 41,590 gain in 2003, but since then there has been a down turn.

During the 1970s, immigration flows from the South Pacific countries, although small numerically, continued. Pacific Islanders moved to New Zealand in response to a demand for

[34] See notes accompanying Table 5.

unskilled workers in the manufacturing sector during the industrial expansion following the world wide economic post-war boom. Many of these people then settled in New Zealand. Hence, over the past thirty years a significant population of Pacific Islanders has become established in New Zealand primarily in Auckland and Wellington as shown in Table 6 (see also Appendix Table 5).

Table 6: Percentage of New Zealand's Usually Resident Population of Migrant Groups (Birthplace) Living in the Three Largest Regions, 1986 and 2001

	Australia	United Kingdom (incl. Ireland)	North America/ Europe	Pacific Islands	Asia	Other	Total Overseas
				1986			
Auckland	35.1	37.7	33.1	67.0	39.4	39.6	41.4
Wellington	12.2	15.1	17.0	16.1	22.6	18.2	15.8
Canterbury	11.9	11.5	12.4	3.7	10.9	10.3	10.4
Rest of New Zealand	40.8	35.7	37.4	13.3	27.1	31.9	32.3
New Zealand	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
				2001			
Auckland	33.5	36.9	37.0	72.4	64.3	57.6	50.7
Wellington	10.8	14.0	14.4	12.4	10.1	11.1	12.4
Canterbury	12.9	12.3	12.6	3.5	9.5	7.7	9.9
Rest of New Zealand	42.8	36.8	36.0	11.7	16.0	23.5	27.0
New Zealand	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

People from Asia first migrated to New Zealand in substantial numbers during the gold rushes of the 1870s, but many left once the gold ran out. Official and informal prejudice and "white-only" immigration policies for much of the twentieth century ensured that Asian communities within New Zealand remained small. In 1986 New Zealand conducted a major review of its immigration policy to accompany the significant restructuring of the country's economy, and after this review migrants from Asia began to arrive in large numbers (Lidgard et al. 1998). In 1988 net permanent and long-term migration from Asian countries was 3,998 and by the year ended 31 March 1996 it had increased over six times to 25,200. Since then the number of PLT migrants from Asian countries has decreased to just under 11,000 in 1999 and just over 11,000 in 2000. The numbers increased again to a peak of 32,653 in 2003 (Statistics New Zealand 2002, 2004). These new migrants from Asian countries usually settle in major urban centres, principally in Auckland.

As Table 6 shows most Asian, Pacific Island and "Other"[35] live in Auckland. This community increased markedly between 1986 and 2001. In fact, for every migrant group except Australians[36], Auckland is the most popular region of residence, half of all overseas-born now live there.

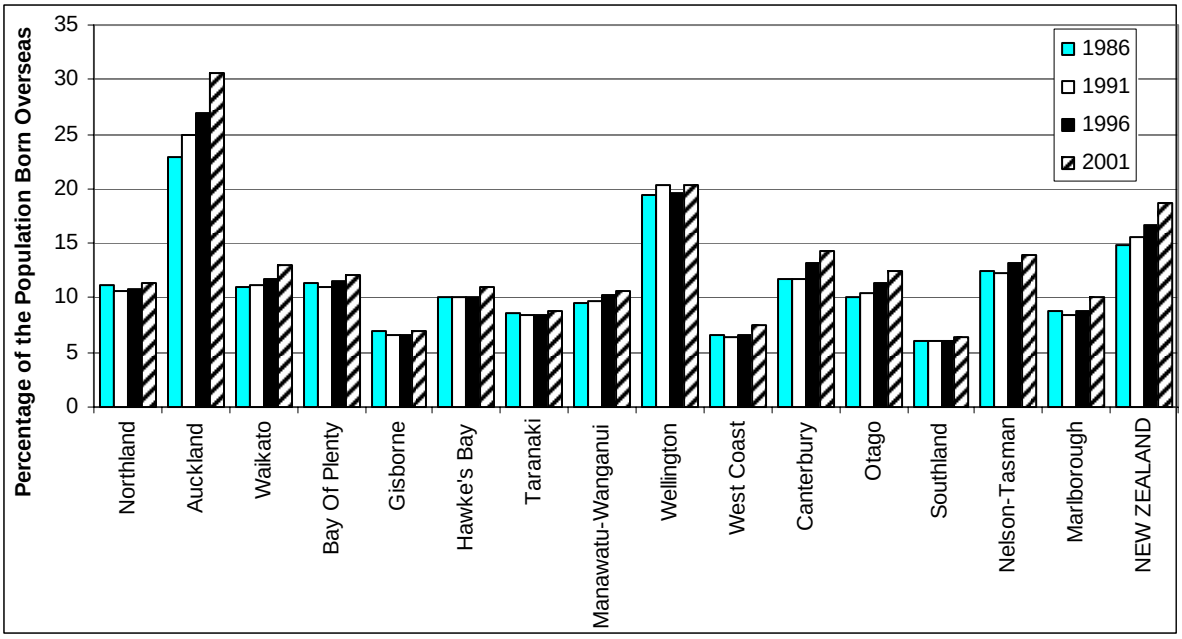
In the census there is a question asking where each person was born and applies both to people who have recently arrived in New Zealand and also those who have been in New

[35] The group "Other", in Table 6 and Appendix Table 5, is a residual category, referring to people who did not fit within the major birthplace groups in New Zealand, for example those born in Africa. Those who did not specify their birthplaces are excluded from those born overseas as they could be born overseas of in New Zealand.

[36] Australian born are sometimes the children of New Zealanders.

Zealand for many years. In 1986 15 per cent of the New Zealand population was born overseas but by 2001 this had increased to 19 per cent as shown in Figure 4.

Figure 4: Percentage of the Usually Resident Population Born Overseas[1] by Region, 1986-2001



(1) Only counted those who specified where they were born as overseas.

In 2001 the duration over which people born overseas have resided in New Zealand, varies considerably with 40 per cent being here less than 10 years. For people born in Asia and Other countries, 68 and 73 per cent have been in New Zealand less than 10 years. Yet, by contrast only 18 per cent of those born in the United Kingdom have been in New Zealand less than 10 years. For those born in Pacific Islands, Australia and North America/Europe the figure were 30, 37 and 36 per cent respectively. The recent growth in the percentage of all overseas-born has come from these recent arrivals from Asia.

For much of the 20th century, up until about 1970, there was a sort of population geographic equilibrium that extended to the foreign born. But in recent decades this equilibrium has broken down. An aspect of the new disequilibrium has been a greater and greater concentration of foreign born in the main three metropolis (Pool 2002). Thus there are some distinct regional patterns for birthplace of migrants. Auckland[37] had the highest proportion with almost one third of the population being born overseas in 2001, a figure that had grown rapidly, and Wellington[38] also had high proportions (Figure 4 and Appendix Table 4). These are the only two regions whose per cent overseas-born exceed the national New Zealand levels.

From 1986 to 2001 Auckland had the largest increase (eight percentage points) of all regions in the proportion of their population who were overseas-born. Auckland, and to a lesser

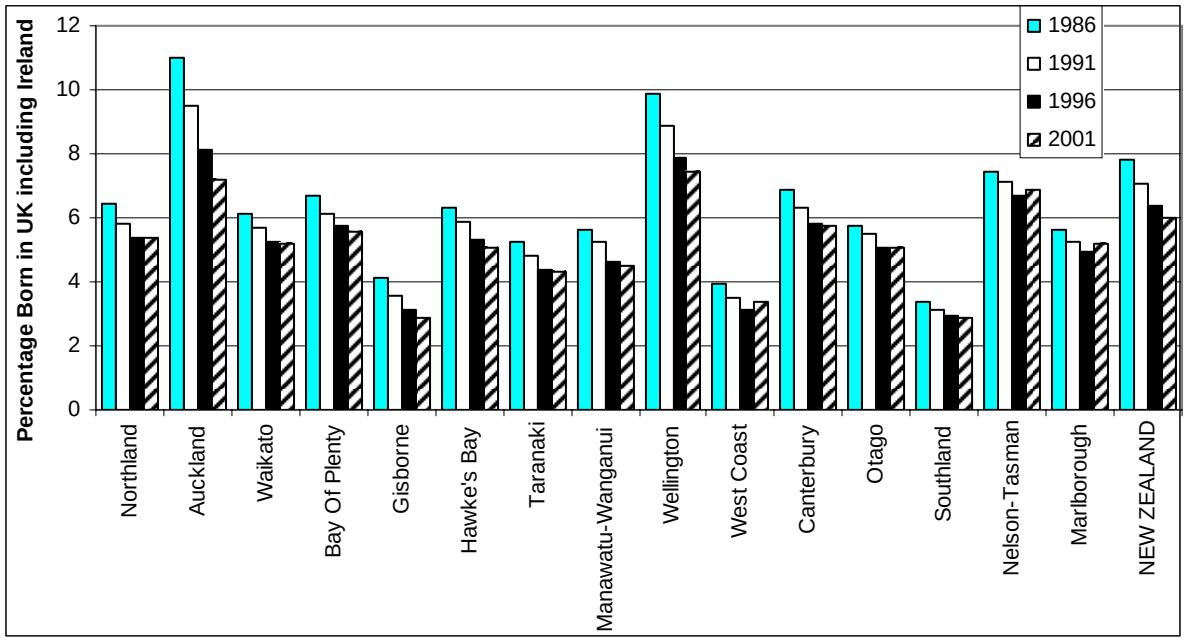
[37] In 1986 the four urban areas of Auckland had similar percentages of people born overseas and this profile was maintained. By 2001 Central Auckland had 34 per cent, North Shore and Southern Auckland had 32 per cent and West Auckland had 27 per cent.

[38] In the four urban areas of Wellington there were different percentages of people born overseas in 2001, varying from the Upper Hutt 17 per cent, Lower Hutt 20 per cent, Porirua 22 per cent and Wellington Central 24 per cent.

degree Canterbury, Otago and Waikato (the contribution of Nelson-Tasman were far less), drove this national increase of four percentage points. Auckland and Wellington are the largest regions where migrants tend to settle into an environment in which increasingly higher concentrations of compatriots already live. From 1986 to 2001 all regions had an increase in the proportion overseas born but for some it was rather modest (see Figure 4). Southland had the lowest percent born overseas, with Gisborne, Taranaki and West Coast also having low proportions. Thus, those regions with low percentages of their population born overseas are the more rural and isolated areas. The remaining regions that fall in the middle range are areas with universities which attract overseas students and staff, and regions with tourism areas which attract people from overseas to provide services for tourists.

There are interesting patterns for the country of birth for migrants (Appendix Table 5). For the period between 1986 and 2001, the most common source country for people born overseas was the United Kingdom including Ireland. In 1986 almost 8 per cent of the New Zealand population had been born in the United Kingdom including Ireland, but this figure had dropped to 6 per cent by 2001. The regions with the highest concentrations of United Kingdom-born migrants were Auckland[39] and Wellington[40] (Figure 5). The more rural and isolated regions of Southland, West Coast and Gisborne had the lowest per cents.

Figure 5: Percentage of the Usually Resident Population Born in the United Kingdom including Ireland by Region, 1986-2001



In the fifteen-year period between 1986 and 2001 the migrant group which has changed the most is the group born in Asia[41] (Figure 6). Of the total population, those born in Asia made

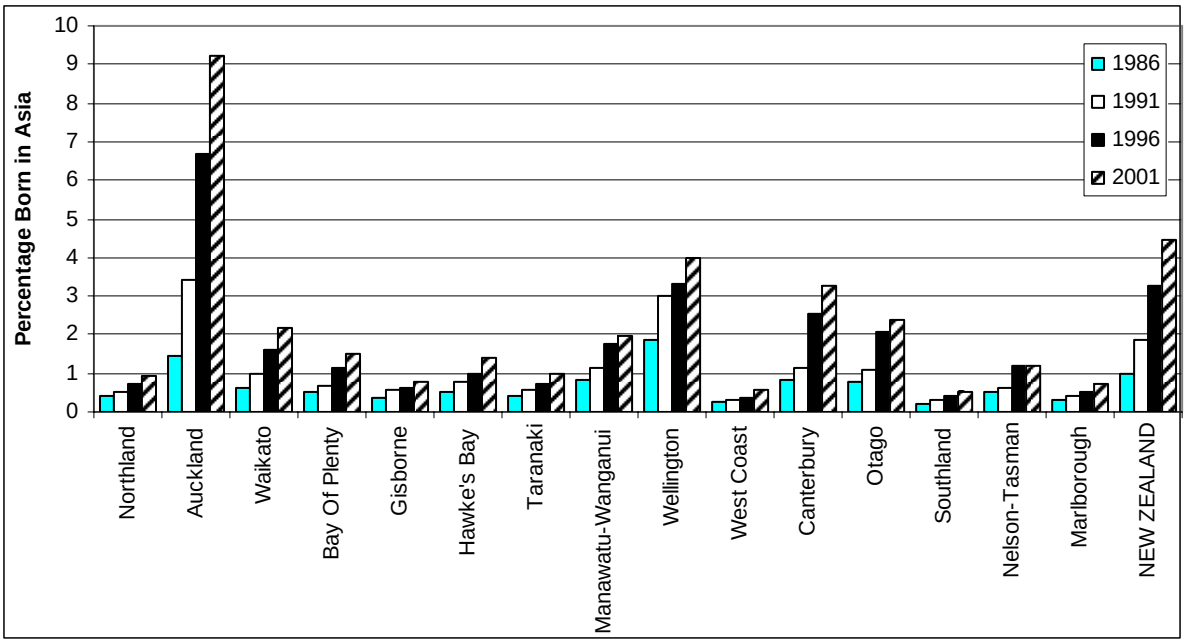
[39] North Shore had the highest percentage born in the United Kingdom including Ireland, with 16 in 1986 and 11 in 2001. The lowest percentages were in Central and Southern Auckland: nine per cent in 1986 and under six per cent by 2001.

[40] Porirua had the lowest percentage born in the United Kingdom including Ireland of seven in 1986 and six in 2001. The other urban areas were over 10 per cent in 1986, but by 2001 were under 10 per cent, with the highest level being in Upper Hutt.

[41] Asian migration flows are primarily from China, India, Republic of Korea, Malaysia, Taiwan, Philippines, Japan, Cambodia, Thailand and Indonesia but can include people as far west as Turkey. The largest numbers born overseas in 2001 are China 38,949, India 20,889 and Korea 17,934.

up only one per cent in 1986 but this proportion had increased to over four per cent by 2001 (Appendix Table 5). The proportion of all overseas-born migrants in New Zealand born in Asia rose from seven per cent in 1986 to 24 per cent in 2001. Migrants from Asia congregated in Auckland[42] and Wellington[43], but from 1986 to 2001 there was a shift of Asian migrants streams between Wellington and Auckland. In 1986 the largest percentage of this population had been in Wellington, but by 2001 it was Auckland. The percentage of the national total went from 39 to 64 per cent in Auckland and 23 to 10 per cent in Wellington from 1986 to 2001 (Table 6).

Figure 6: Percentage of the Usually Resident Population Born in the Asia by Region, 1986-2001



In 1986 other regions with relatively high concentrations of migrants from Asia were, Manawatu-Wanganui, Canterbury and Otago, all regions with universities training overseas students. The same patterns are seen in 2001 with the addition of Waikato, also a region containing a university. The remaining regions all show relatively small proportions of Asian migrants. However, between 1986 and 2001 all regions showed an increase in the proportion of migrants born in Asia, indicating that these groups moved throughout New Zealand in small numbers.

Of the New Zealand population in 1986, 1.5 per cent were born in Australia, around two percent were born in North America/Europe and between two and three per cent had been born in the Pacific Islands with this figure rising slightly between 1986 and 2001 (see Appendix Table 5)[44]. Migrants from Australia constituted 10 per cent of all migrants in 1986

[42] In 1986 all the urban areas of Auckland had two per cent or less of its population born in Asia, but by 2001 there were some distinct differences in the urban areas. Auckland Central has the highest with 13 per cent, followed by North Shore at nine per cent, Southern Auckland at eight per cent and lastly Western Auckland at seven per cent.

[43] In 1986 Wellington Central had three per cent of its population born in Asia, whereas in the other urban areas it was under two per cent. In 2001 Wellington Central was six per cent, Lower Hutt four per cent, Upper Hutt three per cent and Porirua two per cent.

[44] This figure should not be confused with the large number of Pacific Islanders born in New Zealand itself (see next section.

dropping to eight per cent in 2001, those from North America/Europe 12 per cent in both 1986 and 2001 and those from the Pacific Islands increased slightly from 15 to 17 per cent.

In 1986, Australian migrants were spread across all regions, but with some degree of concentration in Auckland. By 2001 Australian migrants were more evenly spread in all regions. North American/European and Pacific Island migrants tend to be concentrated in Auckland and Wellington.

5. Ethnic Structures

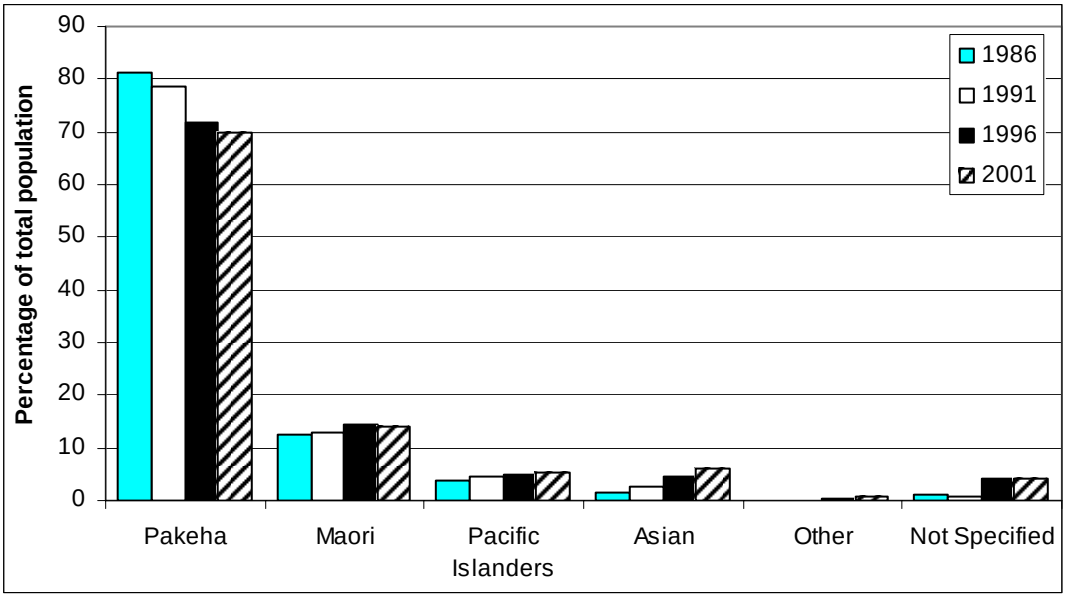
The ethnic structure[45] of the population is partially linked to inflows of overseas born, but is also dependent on the natural increase and momentum of the New Zealand born population, and also, of course, to changes in the size of the indigenous Māori population. The balance between Pakeha, Māori, population of more recent migratory origin, and between, in all these cases, immigrants (even some Māori are born overseas) and locally born varies over time. These variations are largely dependent on the volume of net inflows of an ethnic group, the durations since large waves flowed in, and the groups level of natural increase (ie. the difference between the births and deaths in New Zealand). Asians are among those whose ethnic group size is most affected by recent migration[46].

New Zealand has increasingly become an ethnically diverse country. Between 1986 and 2001 growing numbers of people had Pacific Island, Asian and Other ethnicities (Figure 7). The proportions of the total in these three categories increased from five per cent in 1986 to 12 per cent in 2001 (Appendix Table 6). Combined, these ethnic groups almost equal the Māori population which had also increased from 12 to 14 per cent in the same period. In contrast, the Pakeha population decreased from 81 to 70 per cent of the total population between 1986 and 2001 (Figure 7).

[45] The prioritisation system used by Statistics New Zealand is used here. Prioritisation adopts a hierarchical strategy that counts a respondents as Māori if they identify as Māori and some other ethnicity; Pacific Island if that and any other ethnicity except Māori; Asian as that plus any other ethnicity except Māori and Pacific Island; Other is the other ethnic groups except Māori, Pacific Island and Asian. Pakeha constitutes a residual category.

[46] This may also be true of some constituents of the ethnic group "Pakeha" (eg. South African born Pakeha), but the data on ethnicity obscure this. A person can be reported either as European/Pakeha or can nominate a particular European origin ethnic group. But an Australian origin Italian could be reported as an Italian not Australian.

Figure 7: Ethnic Diversity within New Zealand, 1986-2001



For the whole period there are significant differences in the proportions of Pakeha and Māori in the regional populations (Appendix Tables 6 and Figure 8). Of importance is the distribution of Māori and Pakeha between the North and South Islands, and even between the north and south of the North Island. All the regions in the South Island have more than 80 per cent of their population classified Pakeha, and all but Southland over 90 per cent in 1986. In contrast, in the six most northern regions of New Zealand, the proportion of Pakeha in the regional populations are below that for the country as a whole. In every region except Auckland, the low proportion of Pakeha is due to the high percentages of Māori. In the Gisborne region just below one half of the population was Pakeha in 2001.

Figure 8: Percentage Māori and Pakeha of the Total Population, by Region, 1986 and 2001

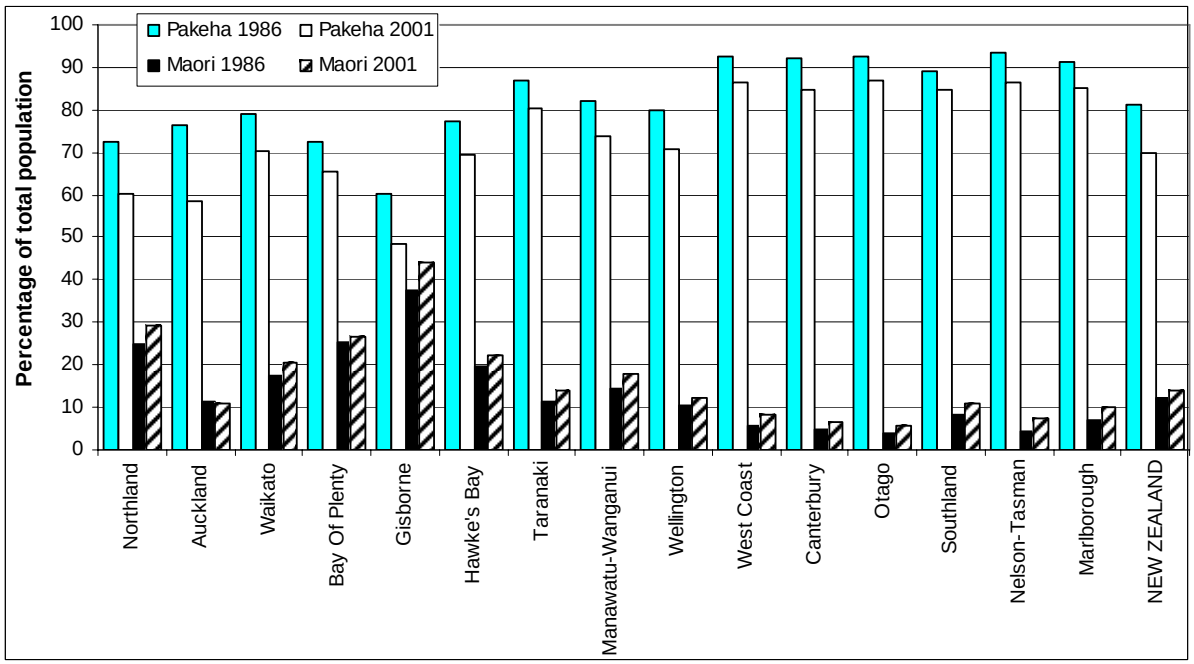


Figure 8 (see also Appendix Table 6) shows that every region except Auckland[47] and Wellington[48] (not 1986) had more than 90 per cent of the population who were either Māori or Pakeha. In 2001 Wellington had 14 per cent who were not listed as either Māori or Pakeha, an increase from eight per cent in 1986. Auckland's level was higher at 26 per cent in 2001 rising from 11 per cent in 1986. The concentration of Asians and Pacific Island people in these two regions has implications for the analyses later in companion discussion papers in this series. We will address this issue in relation to ages in the next section.

The region with the highest proportion of Māori in its population over the whole period is Gisborne (38 and 44 per cent in 1986 and 2001 respectively), and in 2001 Māori made up over 20 per cent of the population in the Northland, Waikato, the Bay of Plenty and Hawke's Bay regions. In all six regions in the South Island Māori made up less than 10 per cent of the population in 1986, and in five of the six regions in 2001 (Appendix Tables 6). Otago has the lowest percentage of Māori of the New Zealand regions with only six per cent of its population in 2001.

Auckland is the most ethnically diverse region in New Zealand. Nevertheless, Māori comprise only 11 per cent of the population in this region compared to a 2001 national level of 14 per cent. As alluded to previously, in the Auckland region both Pacific Islanders and Asians make significant contributions to the diversity of the city's population in 2001 (12 per cent and 13 per cent respectively). This is also the case in the Wellington region where seven per cent of the population is of Pacific Island ethnicity and six per cent is of Asian ethnicity.

Table 7 shows how the different ethnic groups are distributed across New Zealand. Auckland has the largest population, and also has the highest variation between the percentages of different ethnic groups in the population for both 1986 and 2001. About two-thirds of the total Pacific Island population for both years lived in Auckland, as had two-fifths of the Asian population in 1986 increasing to almost two-thirds in 2001. An inverse pattern is mirrored in Wellington where one-quarter of the total Asian population lived in 1986, decreasing to 12 per cent in 2001, and 17 per cent of all Pacific Islanders in 1986 decreasing to 14 per cent in 2001. Interestingly Canterbury, with a slightly higher percentage of the total New Zealand population than Wellington, had a significantly higher percentage of its population identifying as Pakeha, illustrating that Wellington is ethnically more diverse.

While Māori were only 11 per cent of Auckland's population, almost one quarter of all Māori live there. Nevertheless of the major ethnic groups the proportion of Māori was the lowest, and fell well below the national level. The same situation held in Wellington. Conversely Māori are more likely to live in rural North Island regions. As noted above Asians and Pacific Islanders are under-represented in most regions.

Other than Auckland, Wellington and Canterbury, all the other regions make up less than 10 per cent of the overall population of Asians and Pacific Islanders. Waikato and the Bay of

[47] In Auckland region there is some variation between the various urban areas. Southern Auckland is the most ethnically diverse in 2001 having less than half of its population Pakeha with 21 per cent Pacific Island, 17 per cent Māori and 13 per cent Asian. At the other end of the scale on the North Shore over three quarters of the population were Pakeha, 11 per cent Asian, seven per cent Māori and three per cent Pacific Island. Central Auckland had 18 per cent Asian, eight per cent Māori and 12 per cent Pacific Island.

[48] In the Wellington region Porirua stands out as the most diverse with only 50 per cent Pakeha, 20 per cent Māori and 23 per cent Pacific Island in 2001. Wellington Central was 10 per cent Asian.

Plenty each have over 10 per cent of the Māori population. It is important to note here that much is said about Māori living in Northland and Gisborne, but together these regions contain under 12 per cent of the total Māori population. The South Island regions combined also have 12 per cent of the Māori population, but 29 per cent of the Pakeha population compared to 24 per cent of the total population. These regions have a smaller percentage of all other ethnic groups than would be indicated by their share of the overall population.

Table 7: Percentage of New Zealand Population of Each Ethnicity Living in Each Region, 1986 and 2001

Region	Pakeha	Māori	Pacific Island	Asian	Other	Total
			1986			
Northland	3.4	7.6	0.7	1.0	2.3	3.8
Auckland	25.1	24.2	65.7	40.0	35.0	26.8
Waikato	9.5	13.9	4.3	6.6	5.6	9.8
Bay of Plenty	5.2	11.8	1.6	2.4	3.0	5.8
Gisborne	1.0	4.3	0.2	0.5	0.6	1.4
Hawke's Bay	4.1	6.8	1.5	2.2	1.8	4.3
Taranaki	3.6	3.0	0.3	1.4	2.7	3.3
Manawatu-Wanganui	6.9	7.9	1.8	5.7	6.5	6.8
Wellington	11.8	10.0	16.9	24.0	18.4	12.0
West Coast	1.2	0.5	0.1	0.2	0.6	1.0
Canterbury	14.9	4.9	3.7	9.5	13.2	13.2
Otago	6.2	1.7	1.6	4.7	7.4	5.5
Southland	3.5	2.1	1.1	0.8	1.8	3.2
Nelson-Tasman	2.4	0.7	0.3	0.8	0.8	2.1
Marlborough	1.1	0.6	0.1	0.2	0.4	1.0
New Zealand	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
			2001			
Northland	3.2	7.7	0.8	0.7	1.0	3.7
Auckland	25.9	24.3	69.5	64.3	55.5	31.0
Waikato	9.6	13.8	3.7	4.9	6.5	9.6
Bay of Plenty	6.0	12.1	1.6	2.0	1.6	6.4
Gisborne	0.8	3.7	0.3	0.2	0.2	1.2
Hawke's Bay	3.8	6.1	1.8	1.1	1.2	3.8
Taranaki	3.2	2.8	0.3	0.6	0.8	2.8
Manawatu-Wanganui	6.2	7.5	1.9	2.7	3.1	5.9
Wellington	11.5	9.7	14.1	11.6	15.5	11.3
West Coast	1.0	0.5	0.1	0.1	0.2	0.8
Canterbury	15.6	6.0	3.8	8.3	9.7	12.9
Otago	6.0	2.0	1.1	2.4	3.3	4.9
Southland	3.0	1.9	0.5	0.3	0.5	2.4
Nelson-Tasman	2.8	1.1	0.3	0.5	0.6	2.2
Marlborough	1.3	0.7	0.2	0.2	0.2	1.1
New Zealand	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

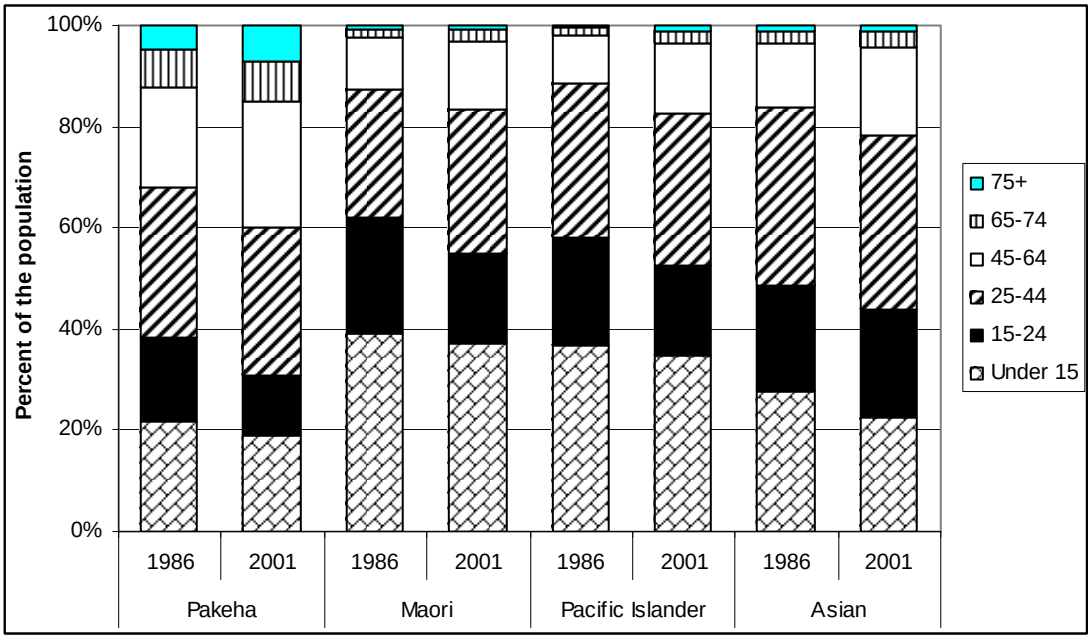
Note: "Not Specified" is not included in table as is residual category.

6. Age and Ethnic Structures

The various ethnic groups within New Zealand have different age structures. The age distributions for the Pakeha, Māori, Asian and Pacific Island populations are shown in Figure 9. The age structure of these four ethnic groups vary because of different trends in the four elements of population change - fertility, mortality, migration and, as noted earlier in this paper, momentum effects. Over the past fifteen years, fertility, mortality and momentum have been the major factors affecting population change in the Pakeha and Māori populations. The Pacific Island population has been affected by these factors too, but this has also been mediated by migration, whereas the age structure of the Asian population is primarily determined by migration rather than by natural increase.

In 2001, 29 per cent of the total Pakeha population were aged between 25 and 44 years and 25 per cent were aged between 45 and 64 years, these age groups correspond to the "baby-boom" birth cohorts. The equivalent to these large cohorts are noticeably smaller in the Māori population as the Māori population has a younger age structure than the Pakeha population. The largest proportion of the Māori population is aged below 15 years (39 per cent in 1986 and 37 per cent in 2001) (Figure 9).

Figure 9: Age Distribution of the Pakeha, Māori, Asian and Pacific Island Populations in New Zealand, Functional Age Groups, 1986 and 2001



The Pacific Island population has an age structure similar to that of the Māori population. A high percentage of the population is concentrated in the youngest age groups with a correspondingly lower percentage of the population in the older age groups (Figure 9). In contrast, a higher percentage of the Asian population was aged between 25 and 44 years in 2001 (34 per cent) with fewer people in the elderly age groups and only 23 per cent of the population below the age of 15 years in 2001. Of all ethnic groups it is the Asian that has the highest concentration at the early middle-ages (25-44 years).

The Pakeha and Māori populations have very different age structures which mostly reflect different historical fertility and mortality patterns. Regional age structures for these two

populations are shown in Appendix Tables 7 and 8. Regionally for both 1986 and 2001 there is little overlap between Pakeha and Māori populations in the percentage range in each age group except for the 25-44 year age group in 2001 (Table 8).

Table 8: Inter-regional Ranges for Age Groups: Minimum and Maximum Percentages for Percentage of the Population in a Age Group for the Region of New Zealand, by Ethnicity, 1986 and 2001

Age Group	Pakeha		Māori	
(years)	1986	2001	1986	2001
0-14	19.5 – 24.9	18.1 – 21.0	36.7 – 41.4	34.9 – 40.5
15-24	14.4 – 18.3	8.9 – 14.9	20.3 – 26.4	14.5 – 22.9
25-44	27.9 – 30.6	25.4 – 31.6	23.1 – 26.3	26.4 -30.3
45-64	18.5 – 21.0	24.0 – 29.0	8.8 – 13.1	11.6 – 15.7
65-74	6.3 – 8.5	7.1 – 10.1	1.1 – 2.9	1.3 – 3.9
75 +	3.8 – 5.2	6.3 – 8.6	0.5 – 1.2	0.6 – 1.4

Source: Appendix Table 7 and 8.

Generally for both Pakeha and Māori populations the inter-regional percentage range in different age groups for the regions is modest (Table 8, Appendix Table 7 and 8). For Pakeha the widest range was at 25-44 years in 2001, where a clear distinction between the two major metropolitan regions (Auckland and Wellington) and the remaining regions had emerged far more clearly than had been the case in 1986. This indicates that this key working age group is moving to regions with better employment prospects. For Māori the age group 15-24 years had the largest range in 2001, from Otago at 23 per cent to Northland, Gisborne and West Coast at only 15 per cent. The lowest percentages for Pakeha populations under 15 years were found in Auckland, Wellington, Canterbury and Otago. In 2001 at older ages the distribution reflects movement to the retirement areas of Northland, the Bay of Plenty and Marlborough where the percentage in the 65-74 year age group for Pakeha is higher than in other regions. For Māori, two regions (Northland and Gisborne) have higher proportions of the population in the three oldest age groups than is true in other regions. This indicates that many older Māori return to their home or tribal areas later in life having migrated to urban areas at younger ages (Pool 1991), as is confirmed in a case study of the Mangakahia Valley in Northland (Scott and Kearns 2000).

In every region at 45 years and over, Pakeha are the majority, even in Gisborne where, overall, they are under 50 per cent of the population as a whole, but are over 50 per cent in the 45 years and over age group shown in Table 9. At childhood and youth ages in the two northern regions of Northland and Auckland, Pakeha are the largest group, and in Gisborne this is also true at 25-44 years. In Gisborne for age groups under 25 years Pakeha made up less than two-fifths of the population. The Pakeha population of all ages combined is under half the population in Gisborne (49 per cent). For all ages Pakeha are a higher proportion than the national level in the regions of the South Island than in the North Island regions, especially in the age groups under 65 years (Table 9).

Table 9: Pakeha Population, as a Per Cent of the Total Population by Age in Each Region, 2001

Region	Age Group (years)						All Ages
	0-14	15-24	25-44	45-64	65-74	75+	
Northland	46.0	49.2	58.3	72.4	77.8	82.0	60.5
Auckland	46.3	47.4	57.9	69.0	76.5	85.6	58.3
Waikato	59.0	61.1	70.1	79.7	85.6	90.8	70.3
Bay of Plenty	51.2	53.8	63.4	76.0	83.9	89.7	65.4
Gisborne	35.0	37.6	47.2	60.8	68.3	81.2	48.6
Hawke's Bay	56.2	58.3	67.8	79.8	85.7	90.8	69.3
Taranaki	71.2	72.8	80.1	86.7	90.6	93.4	80.3
Manawatu-Wanganui	62.1	66.9	72.9	82.3	88.2	92.3	73.9
Wellington	59.8	63.0	70.8	79.0	85.7	90.6	70.9
West Coast	80.3	81.5	86.3	90.3	92.3	94.0	86.3
Canterbury	78.6	77.1	84.4	89.8	93.5	94.9	84.8
Otago	82.3	79.2	86.6	91.4	94.3	95.3	86.8
Southland	77.2	78.5	85.5	89.5	93.4	94.9	84.8
Nelson-Tasman	80.9	81.0	85.6	91.4	94.4	94.6	86.7
Marlborough	77.4	78.7	83.8	90.7	93.7	94.6	85.3
New Zealand	**58.6**	**60.5**	**69.0**	**78.8**	**85.2**	**90.2**	**69.8**
Range	*47.3*	*43.9*	*39.3*	*30.6*	*26.1*	*14.1*	*38.2*

Two previous points need to be reiterated when discussing the age distribution of the Māori population. Firstly, Māori constitute a relatively high proportion of the population only in six regions in New Zealand: Northland, Waikato, the Bay of Plenty, Gisborne, Hawke's Bay, and Manawatu-Wanganui. Of these six regions Gisborne has the highest proportions of Māori by a significant margin, at 44 per cent, followed by Northland and the Bay of Plenty. Secondly, the younger age distribution of the Māori population is the key factor in explaining why there is such a high proportion of younger Māori in regions where Māori are concentrated (Table 10). This is especially so in Gisborne where in 2001 Māori aged under 25 years made up the greatest proportion of the population as a whole.

Table 10: Māori Population, as a Per Cent of the Total Population by Age in Each Region, 2001

Region	Age Group (years)						All Ages
	0-14	15-24	25-44	45-64	65-74	75+	
Northland	44.3	38.6	29.6	18.2	14.1	7.4	29.1
Auckland	17.6	14.0	10.5	6.5	3.7	1.5	11.0
Waikato	31.5	26.6	19.9	12.3	7.9	3.5	20.4
Bay of Plenty	41.1	36.7	27.0	16.7	10.1	4.8	26.6
Gisborne	57.8	54.0	44.4	33.0	26.2	12.2	44.0
Hawke's Bay	35.1	31.6	22.6	13.4	8.7	3.8	22.4
Taranaki	23.2	20.0	13.9	8.4	5.1	2.4	14.2
Manawatu-Wanganui	29.5	22.4	17.9	10.5	6.3	2.7	17.8
Wellington	20.1	15.8	11.5	7.1	3.8	1.3	12.1
West Coast	15.1	11.9	7.8	4.8	3.0	1.5	8.4
Canterbury	12.0	9.1	6.5	3.6	1.7	0.7	6.6
Otago	10.6	8.1	5.8	3.1	1.5	0.6	5.8
Southland	18.6	16.0	10.1	6.8	3.8	1.6	11.0
Nelson-Tasman	13.1	10.4	7.5	3.5	1.5	0.7	7.2
Marlborough	17.5	14.9	10.0	5.8	2.9	1.5	9.8
New Zealand	**23.2**	**18.1**	**13.6**	**8.5**	**5.3**	**2.3**	**14.1**
Range	*47.2*	*45.9*	*38.7*	*29.9*	*24.8*	*11.6*	*38.2*

Most Asians and Pacific Islanders reside in Auckland, and to a lesser extent Wellington, as was noted earlier. Their age structures vary markedly from the Māori and Pakeha in these regions, but very nearly reflect the national pattern in Figure 9. Moreover, as is indicated in Table 11, Asians and Pacific Islanders combined constitute a significant percentage of the population for ages under 45 years, especially in Auckland and to a lesser extent in Wellington. The other regions in which when combined comprise more than five per cent of those in the 15-24 years age group are Waikato, Manawatu-Wanganui, Canterbury, Otago, and Hawke's Bay again most of these are regions that also have tertiary institutions. The Hawke's Bay also has historical links with the Pacific from which many horticultural workers immigrated.

Table 11: Pacific Island and Asian Populations (combined), as a Per Cent of the Total Population by Age in Each Region, and Each Ethnicity as a Percentage of the Total Population of Auckland and Wellington, 2001

Region	Age Group (years)						All Ages
	0-14	15-24	25-44	45-64	65-74	75+	
Northland	2.9	3.5	2.9	1.5	0.6	0.3	2.3
Auckland	30.9	32.8	25.2	18.3	13.1	6.1	24.6
Waikato	6.0	8.1	5.5	3.7	2.2	1.0	5.1
Bay of Plenty	3.9	4.6	4.1	2.3	1.3	0.5	3.2
Gisborne	2.4	3.7	3.3	1.9	1.0	0.8	2.6
Hawke's Bay	5.4	6.1	5.3	2.8	2.1	0.8	4.3
Taranaki	2.4	3.5	2.1	1.4	0.8	0.4	2.0
Manawatu-Wanganui	5.1	7.2	4.9	3.3	1.9	0.8	4.5
Wellington	16.5	17.0	13.4	9.8	6.4	3.4	12.9
West Coast	1.4	1.7	1.4	0.8	0.5	0.3	1.2
Canterbury	6.6	10.3	5.8	3.6	1.9	0.8	5.5
Otago	4.8	9.3	4.3	2.3	1.4	0.7	4.3
Southland	2.5	3.0	2.0	1.4	0.7	0.4	1.9
Nelson-Tasman	2.7	4.4	2.5	1.2	0.4	0.4	2.2
Marlborough	2.7	2.5	2.1	0.8	0.6	0.3	1.7
New Zealand	**14.2**	**16.7**	**12.4**	**8.1**	**4.9**	**2.4**	**11.4**
Range	*29.4*	*31.0*	*23.7*	*17.5*	*12.7*	*5.8*	*23.4*
	Pacific Island[1]						
Auckland	18.5	14.5	11.4	7.7	6.1	3.0	12.0
Wellington	9.9	8.8	6.4	4.6	2.8	1.4	6.6
	Asian[1]						
Auckland	12.4	18.2	13.8	10.6	7.0	3.1	12.6
Wellington	6.6	8.2	7.0	5.2	3.6	2.0	6.2

(1) Looked at the components for Auckland and Wellington as have more than 10 per cent in the two groups.

7. Conclusion

Structurally, New Zealand regions vary significantly, and these differences seem to be increasing. In the media there is a great deal of attention paid to the cultural diversity of Auckland and Wellington, often as if these two regions were representative of the whole of New Zealand. This is in part a function of the concentration also of the media in these two cities.

There is less focus on differences in age structural patterns, or in the aspect of ethnic differentiation – the very significant north-south differences in proportions of the total Māori. Across New Zealand Pakeha are the largest group and generally are a majority, overwhelming so at older ages. That said New Zealand seems to be moving in three directions: most regions are solidly Pakeha, however there are several regions where Maori are concentrated, two of these regions are becoming internally more diverse.

In the long term, it may be the trends and differentials in age structures rather than in cultural patterns that seperate Auckland and Wellington and even Canterbury from the rest of New Zealand. Age structures vary already and are becoming even more diverse as different mixes of migration and the historical effects of fertility (and to a much lesser extent survival), act on earlier age structures to produce very different cohort flows and the overall longer term march towards population ageing. Not only is New Zealand as a whole turbulent in this regard, but so too in different ways are the regions. Moreover, the cultural diversity interacting with age structural differences, particularly at the working ages are what give regions vitality particularly in terms of its human capital, which will be discussed in later papers in this series. Issues of demographic structure will also be addressed: inter-regional and intra-regional aspects of population geography (Pool et al. forthcoming-c).

Age-structural changes are a factor that is driving New Zealand in terms of population composition. There are the "young" regions with low dependency, most notably Auckland, the regions that are ageing (most), and the regions that face dependency burdens at both the young and older ages. All regions face cohort flows that are disordered to some degree, but the major difference is whether these waves bring the numbers at a given life-cycle stage above where they were in the past (the regions that are "included", notably Auckland) or below (the "excluded" regions). These changes are compounded by ethnic and birthplace structures; migration from overseas may "rejuvenate" to a degree the most favoured regions. During the period (Pool 2002) labelled as one of equilibrium (relative) the overseas born were spread more evenly across New Zealand, although Māori were clustered in the north and east of New Zealand and in rural areas. Today Māori are more widely spread, but still cluster in a historical way where in some regions they are now becoming almost half of the total population. The overseas born, however, are increasing in concentration more and more in Auckland and Wellington and in the process may be adding to a division between New Zealand regions.

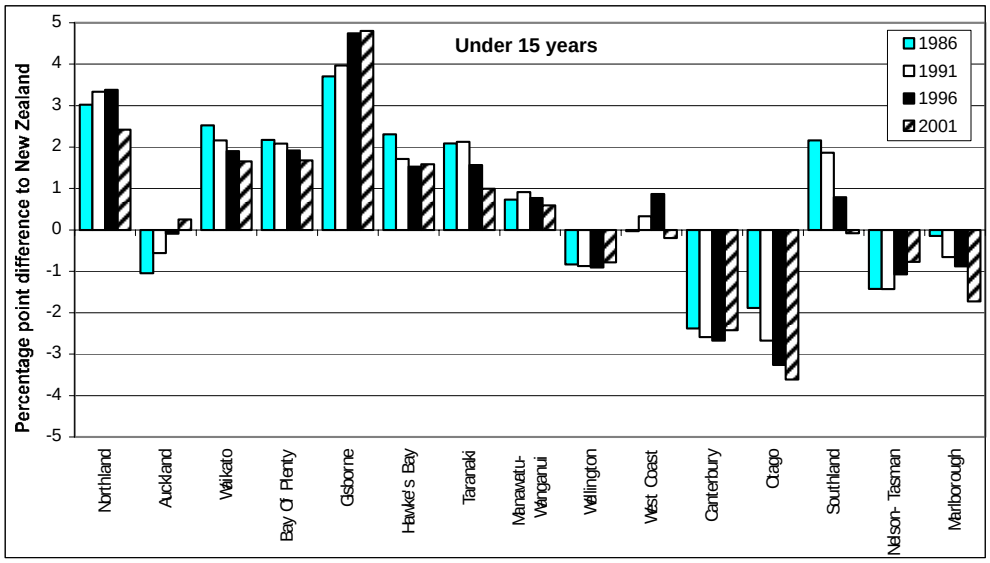
APPENDIX

Appendix Table 1: Age Structures (%) of Populations, by Region, 1991 and 1996

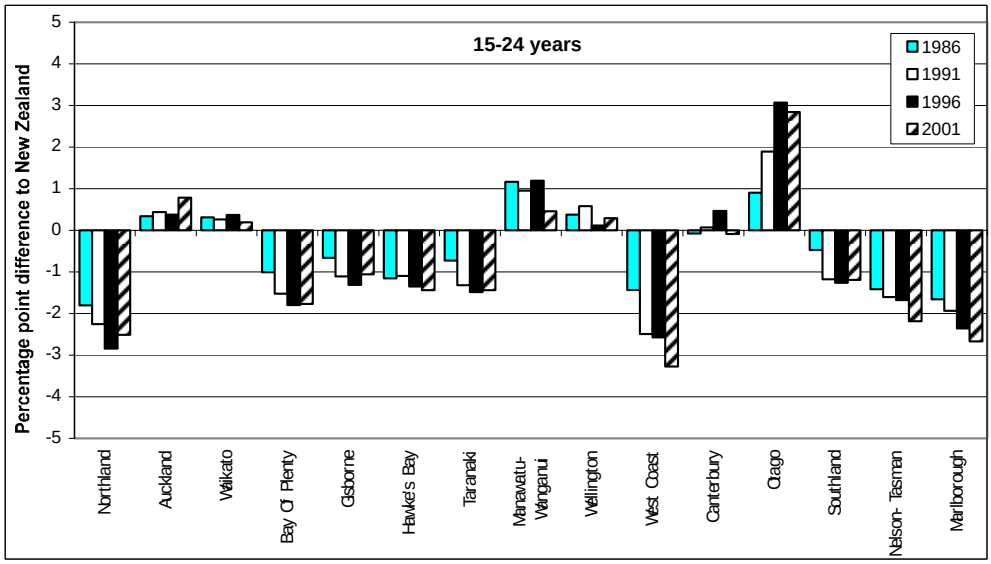
Region	0-14	15-24	25-44	45-64	65-74	75+	Total
				1991			
Northland	26.6	14.2	28.6	19.6	6.8	4.1	100.0
Auckland	22.7	16.9	31.9	18.0	6.1	4.4	100.0
Waikato	25.4	16.7	29.8	18.1	6.1	3.8	100.0
Bay of Plenty	25.3	15.0	28.7	19.1	7.5	4.4	100.0
Gisborne	27.2	15.4	29.0	17.8	6.4	4.3	100.0
Hawke's Bay	24.9	15.4	28.7	18.9	7.1	4.9	100.0
Taranaki	25.4	15.2	29.4	18.3	7.0	4.9	100.0
Manawatu-Wanganui	24.1	17.4	29.0	17.8	6.8	4.8	100.0
Wellington	22.4	17.1	32.2	18.2	6.1	4.1	100.0
West Coast	23.6	14.0	31.0	19.2	7.5	4.7	100.0
Canterbury	20.6	16.6	30.2	19.5	7.8	5.3	100.0
Otago	20.6	18.4	29.3	18.9	7.5	5.4	100.0
Southland	25.1	15.3	30.4	18.6	6.3	4.3	100.0
Nelson-Tasman	21.8	14.9	30.2	19.6	8.2	5.3	100.0
Marlborough	22.6	14.5	28.5	21.1	8.1	5.2	100.0
New Zealand	**23.2**	**16.5**	**30.5**	**18.5**	**6.7**	**4.6**	**100.0**
Range	*6.6*	*4.4*	*3.7*	*3.3*	*2.1*	*1.6*	
				1996			
Northland	26.4	11.9	28.1	21.4	7.6	4.6	100.0
Auckland	22.9	15.2	32.3	19.4	5.9	4.4	100.0
Waikato	24.9	15.2	29.6	19.5	6.5	4.3	100.0
Bay of Plenty	24.9	13.0	28.6	20.5	7.9	5.2	100.0
Gisborne	27.7	13.5	29.0	18.6	6.4	4.7	100.0
Hawke's Bay	24.5	13.4	28.6	20.8	7.4	5.4	100.0
Taranaki	24.6	13.3	29.3	19.9	7.4	5.5	100.0
Manawatu-Wanganui	23.8	16.0	28.9	19.0	7.1	5.2	100.0
Wellington	22.1	14.9	32.4	19.9	6.3	4.5	100.0
West Coast	23.9	12.2	30.4	21.3	7.1	5.1	100.0
Canterbury	20.3	15.2	30.3	20.7	7.8	5.6	100.0
Otago	19.7	17.8	29.2	20.0	7.6	5.7	100.0
Southland	23.8	13.5	30.4	20.5	7.0	4.8	100.0
Nelson-Tasman	21.9	13.1	30.3	21.3	7.7	5.7	100.0
Marlborough	22.1	12.4	28.8	22.4	8.5	5.7	100.0
New Zealand	**23.0**	**14.8**	**30.6**	**19.9**	**6.8**	**4.9**	**100.0**
Range	*8.0*	*5.9*	*4.2*	*3.8*	*2.6*	*1.4*	

Appendix Figure 1: Percentage Point Difference from the New Zealand Level in Age Structure, Functional Age Group, by Region, 1986-2001

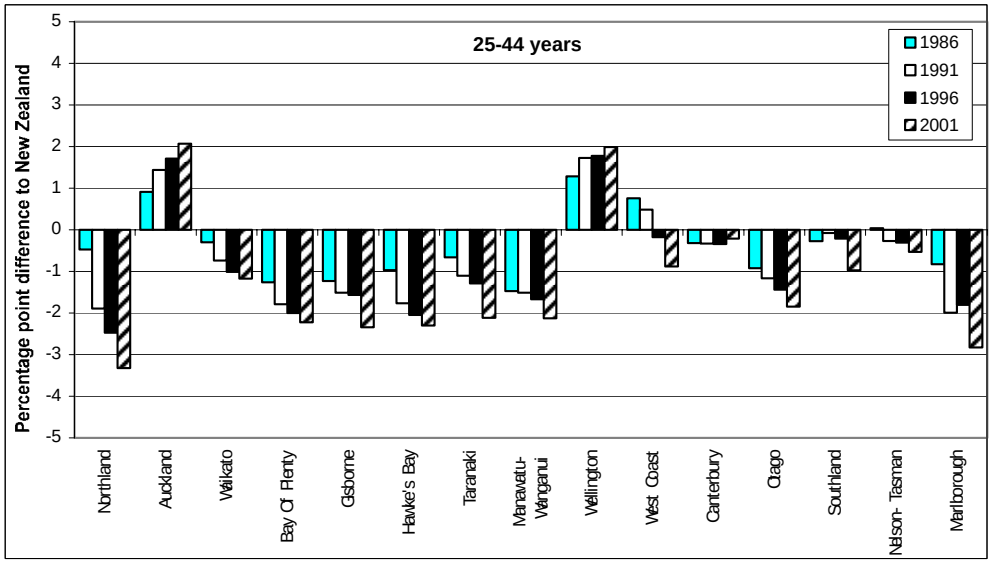
A Fig 1a



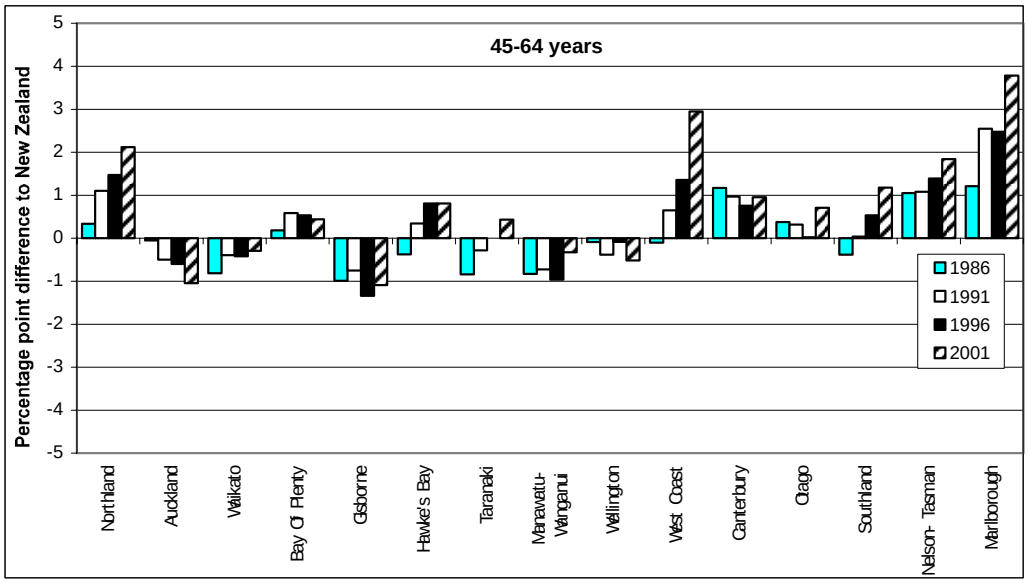
A Fig 1b



A Fig 1c



A Fig 1d



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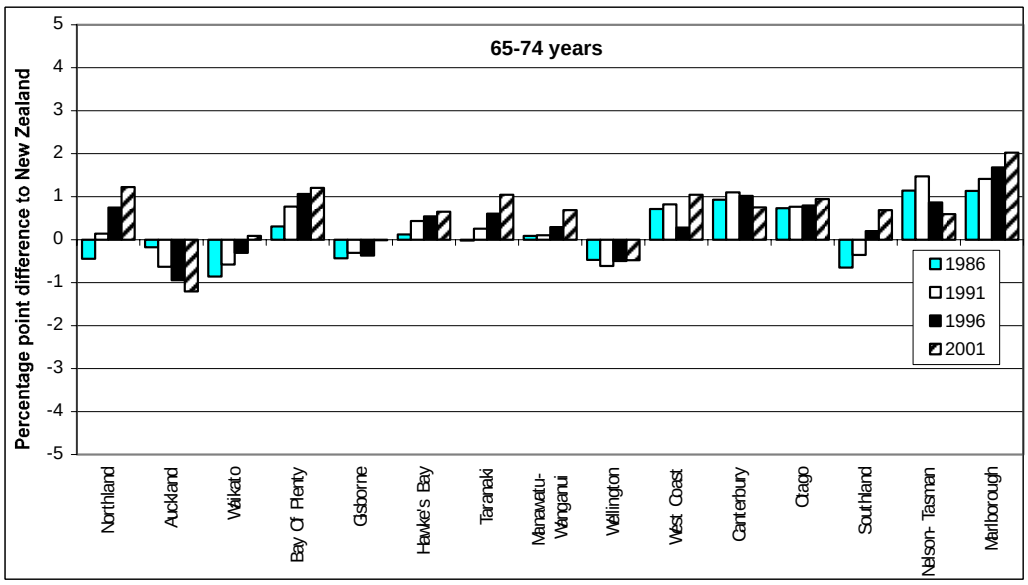

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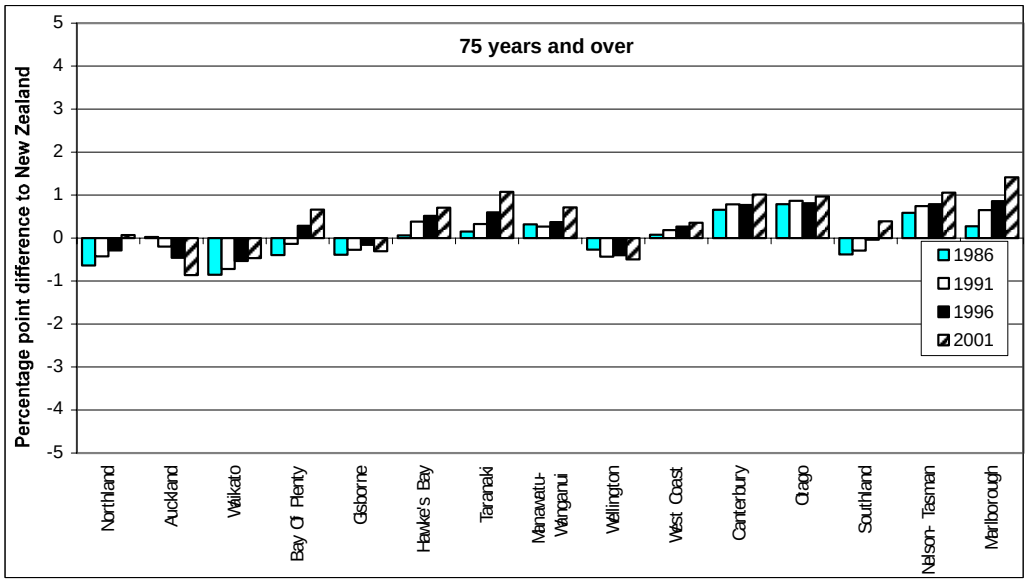

Appendix Table 2: Dependency Ratios, by Region, 1986-2001

Region	Child Dependency Ratio[1]				Aged Dependency Ratio[2]				Total Dependency Ratio[3]			
	1986	1991	1996	2001	1986	1991	1996	2001	1986	1991	1996	2001
Northland	43.3	42.5	42.9	40.8	14.9	17.6	19.7	21.7	58.2	60.1	62.6	62.5
Auckland	35.1	33.9	34.3	34.2	15.6	15.6	15.4	14.9	50.7	49.5	49.7	49.1
Waikato	41.8	39.3	38.7	38.0	13.6	15.4	16.9	18.3	55.4	54.7	55.6	56.3
Bay of Plenty	42.1	40.3	40.1	39.5	16.5	18.9	21.0	22.6	58.5	59.2	61.1	62.0
Gisborne	45.1	43.8	45.4	45.2	15.5	17.2	18.3	19.3	60.6	60.9	63.7	64.5
Hawke's Bay	42.6	39.6	39.1	38.9	17.0	19.2	20.3	21.5	59.6	58.7	59.4	60.4
Taranaki	42.0	40.4	39.3	38.1	16.9	18.8	20.6	22.8	58.9	59.2	59.9	60.9
Manawatu-Wanganui	39.2	37.6	37.2	36.8	17.0	18.1	19.3	21.3	56.2	55.7	56.5	58.0
Wellington	35.3	33.1	32.9	32.7	14.6	15.1	16.1	16.5	49.9	48.3	49.0	49.2
West Coast	37.8	36.7	37.3	35.1	17.5	19.1	19.1	21.0	55.3	55.8	56.5	56.1
Canterbury	33.3	31.2	30.7	30.7	18.3	19.8	20.3	21.0	51.7	51.0	51.0	51.7
Otago	34.3	30.9	29.5	28.5	18.3	19.4	19.8	20.8	52.6	50.2	49.3	49.3
Southland	41.4	39.0	36.9	35.2	14.8	16.5	18.4	20.4	56.2	55.5	55.3	55.6
Nelson-Tasman	35.4	33.7	33.9	34.0	18.8	20.8	20.6	21.3	54.2	54.5	54.5	55.3
Marlborough	37.9	35.2	34.8	33.0	18.6	20.8	22.4	24.4	56.5	55.9	57.1	57.4
New Zealand	**37.4**	**35.5**	**35.2**	**34.8**	**16.1**	**17.2**	**17.9**	**18.5**	**53.5**	**52.6**	**53.1**	**53.2**
Range	*11.7*	*12.9*	*15.9*	*16.7*	*5.2*	*5.7*	*7.0*	*9.5*	*10.7*	*12.7*	*14.7*	*15.4*

(1) Under 15 years/15-64 years * 100
(2) 65 years and over/15-64 years * 100
(3) Child Dependency Ratio + Aged Dependency Ratio

Appendix Table 3: Percentage Point Change in Dependency Ratio, by Region, 1986-2001

Region	Child[1]	Aged[2]	Total[3]
Northland	-2.5	6.8	4.3
Auckland	-0.9	-0.7	-1.6
Waikato	-3.7	4.6	0.9
Bay of Plenty	-2.6	6.1	3.5
Gisborne	0.2	3.8	4.0
Hawke's Bay	-3.6	4.5	0.9
Taranaki	-3.9	5.9	2.0
Manawatu-Wanganui	-2.4	4.3	1.8
Wellington	-2.6	1.9	-0.7
West Coast	-2.7	3.5	0.8
Canterbury	-2.6	2.6	0.0
Otago	-5.8	2.5	-3.3
Southland	-6.3	5.7	-0.6
Nelson-Tasman	-1.4	2.4	1.1
Marlborough	-4.9	5.8	0.8
New Zealand	**-2.6**	**2.4**	**-0.3**

(1) Under 15 years/15-64 years * 100
(2) 65 years and over/15-64 years * 100
(3) Child Dependency Ratio + Aged Dependency Ratio

Appendix Table 4: Inter-censal Percentage Change due to Momentum[1] Effects (Net and Gross), by Age Group, 1986-2001

a) Net[2] Momentum

Region	1986-91						1991-96						1996-01					
	5-14	15-24	25-44	45-64	65-74	75+	5-14	15-24	25-44	45-64	65-74	75+	5-14	15-24	25-44	45-64	65-74	75+
Northland	-1.4	1.8	1.7	1.9	1.9	2.6	1.7	2.5	0.9	3.4	2.3	3.0	0.3	2.9	-1.8	3.3	1.4	3.3
Auckland	-1.2	-1.5	2.9	2.2	1.4	2.7	1.9	-1.6	3.2	4.5	1.4	2.7	1.3	-1.5	0.5	4.3	0.7	2.7
Waikato	-1.0	0.1	3.0	2.1	1.6	2.5	1.5	0.3	2.9	3.7	1.9	2.6	0.6	-0.1	0.5	3.5	1.1	2.9
Bay of Plenty	-1.5	1.0	2.4	1.4	1.8	2.9	1.6	1.6	1.7	3.1	1.8	3.3	0.7	1.4	-0.8	3.1	0.9	3.6
Gisborne	-0.6	0.9	3.2	1.5	1.6	2.7	2.6	1.6	2.3	3.4	2.0	3.0	0.9	2.0	-0.8	4.0	1.4	3.0
Hawke's Bay	-1.9	1.3	2.3	1.7	1.4	3.1	1.2	1.7	1.3	3.7	1.7	3.3	0.4	1.2	-0.8	3.4	0.9	3.6
Taranaki	-0.9	0.3	2.9	1.6	1.4	2.8	1.3	1.5	1.7	3.5	1.6	3.1	-0.1	1.5	-1.1	3.5	0.8	3.4
Manawatu-Wanganui	-0.9	-1.4	4.3	1.3	1.5	3.0	1.7	-0.7	3.8	3.1	1.7	3.2	0.6	-1.2	1.3	3.2	0.9	3.3
Wellington	-1.0	-1.8	3.4	2.1	1.6	2.6	1.9	-2.0	3.5	4.3	1.6	2.7	1.1	-1.8	0.7	3.8	1.0	2.9
West Coast	-1.3	-0.1	2.3	1.6	1.7	3.6	1.7	1.0	1.1	4.0	1.6	3.6	0.9	1.3	-1.6	3.7	1.1	3.6
Canterbury	-1.8	-1.4	3.1	0.9	1.7	3.3	0.9	-1.4	2.6	3.3	1.7	3.5	0.4	-2.1	0.6	3.5	0.5	3.6
Otago	-1.6	-1.9	3.9	0.9	1.5	3.2	0.6	-2.2	3.7	3.1	1.6	3.3	0.1	-3.8	2.3	3.2	0.7	3.5
Southland	-1.2	0.0	3.3	1.8	1.7	2.7	0.5	1.8	1.6	3.7	2.0	3.0	-0.3	1.3	-1.1	3.8	1.2	3.2
Nelson-Tasman	-2.0	0.3	1.5	1.1	1.7	3.3	0.9	0.4	0.5	4.1	1.3	3.6	0.1	0.1	-1.2	3.8	0.4	3.6
Marlborough	-1.5	0.6	1.2	1.3	1.7	3.4	0.3	1.0	1.0	2.8	1.9	3.5	-0.1	1.0	-1.5	2.9	0.9	3.8
Range	*1.4*	*3.6*	*3.1*	*1.3*	*0.5*	*1.1*	*2.3*	*4.8*	*3.3*	*1.7*	*1.0*	*1.0*	*1.7*	*6.7*	*4.1*	*1.4*	*1.0*	*1.2*

(continues on the next page)

Appendix Table 4: (continued)

b) Gross[3] Momentum

Region	1986-91						1991-96						1996-01					
	5-14	15-24	25-44	45-64	65-74	75+	5-14	15-24	25-44	45-64	65-74	75+	5-14	15-24	25-44	45-64	65-74	75+
Northland	1.4	1.8	3.0	1.9	1.9	2.6	1.7	2.5	2.3	3.4	2.3	3.0	1.8	2.9	3.6	3.3	1.4	3.3
Auckland	1.2	1.5	2.9	2.4	1.4	2.7	1.9	1.6	3.3	4.5	1.4	2.7	1.3	1.5	3.5	4.3	0.7	2.7
Waikato	1.1	0.3	3.0	2.1	1.6	2.5	1.5	0.9	2.9	3.7	1.9	2.6	0.8	1.0	1.9	3.5	1.1	2.9
Bay of Plenty	1.5	1.0	2.6	1.8	1.8	2.9	1.6	1.6	2.6	3.3	1.8	3.3	1.1	1.4	2.9	3.1	0.9	3.6
Gisborne	1.9	0.9	4.0	1.5	1.6	2.7	2.6	1.6	3.5	3.4	2.0	3.0	1.5	2.0	2.7	4.0	1.4	3.0
Hawke's Bay	1.9	1.3	2.6	1.9	1.4	3.1	1.2	1.7	2.0	3.7	1.7	3.3	1.0	1.2	2.3	3.4	0.9	3.6
Taranaki	1.0	0.5	3.4	1.8	1.4	2.8	1.3	1.5	2.6	3.5	1.6	3.1	1.4	1.5	2.8	3.5	0.8	3.4
Manawatu-Wanganui	1.2	1.4	4.3	1.4	1.5	3.0	1.7	1.6	3.8	3.1	1.7	3.2	1.1	1.2	2.2	3.2	0.9	3.3
Wellington	1.1	1.8	3.4	2.2	1.6	2.6	1.9	2.0	3.6	4.3	1.6	2.7	1.1	1.8	3.5	3.8	1.0	2.9
West Coast	1.3	0.6	3.2	1.7	1.7	3.6	1.7	1.0	3.2	4.0	1.6	3.6	1.3	1.3	4.1	3.7	1.1	3.6
Canterbury	1.8	1.4	3.1	1.8	1.7	3.3	0.9	1.4	2.6	3.7	1.7	3.5	0.7	2.1	1.2	3.5	0.6	3.6
Otago	1.6	1.9	3.9	1.5	1.5	3.2	0.6	2.7	3.7	3.2	1.6	3.3	0.3	3.8	3.1	3.2	0.7	3.5
Southland	1.2	1.1	3.5	1.9	1.7	2.7	0.5	1.8	3.7	3.7	2.0	3.0	0.6	1.3	3.5	3.8	1.2	3.2
Nelson-Tasman	2.0	0.7	2.5	2.0	1.7	3.3	0.9	1.5	1.0	4.4	1.3	3.6	1.4	1.4	2.5	3.8	0.4	3.6
Marlborough	1.5	1.0	1.9	2.4	1.7	3.4	0.3	1.0	1.6	3.8	1.9	3.5	1.2	1.0	3.0	2.9	1.0	3.8
Range	*1.0*	*1.6*	*2.3*	*1.0*	*0.5*	*1.1*	*2.3*	*1.8*	*2.8*	*1.4*	*1.0*	*1.0*	*1.5*	*2.8*	*2.9*	*1.4*	*1.0*	*1.2*

(1) That part of inter-censal growth not due to migration or natural increase for population 5 years and over.

$$Momentum_x = \left(P_x^{t+5} - P_x^t\right) - \left(-D_x\right) - NetMig_x$$

Where, P = Population,
x = age x (5 years age group),
t = time,
D = Deaths for 5 year period (Calendar years),
NetMig = Net Migration for 5 year period (calculated using the census survivorship method)

(2) The sum of age specific (5 year age groups) momentum taking the sign into account.

(3) The sum of age specific (5 year age groups) momentum regardless of sign.

Appendix Table 5: Percentage of the Usually Resident Population Born Overseas by Country of Birth, by Region, 1986-2001

	Australia	United Kingdom (including Ireland)	North America/ Europe	Pacific Island	Asia	Other	Born Overseas
				1986			
Northland	1.6	6.4	1.8	0.5	0.4	0.4	11.2
Auckland	1.9	11.0	2.3	5.6	1.5	0.6	22.9
Waikato	1.3	6.1	1.8	0.9	0.6	0.3	11.0
Bay of Plenty	1.5	6.7	1.7	0.6	0.5	0.3	11.3
Gisborne	1.0	4.2	0.8	0.4	0.4	0.2	6.9
Hawke's Bay	1.1	6.3	1.1	0.7	0.5	0.2	10.1
Taranaki	1.1	5.2	1.4	0.2	0.4	0.3	8.6
Manawatu-Wanganui	1.1	5.6	1.1	0.6	0.8	0.3	9.5
Wellington	1.5	9.9	2.6	3.0	1.9	0.6	19.4
West Coast	1.2	3.9	0.9	0.1	0.3	0.1	6.6
Canterbury	1.3	6.9	1.7	0.6	0.8	0.3	11.7
Otago	1.1	5.8	1.4	0.6	0.8	0.3	10.0
Southland	0.8	3.4	0.8	0.7	0.2	0.1	6.1
Nelson-Tasman	1.6	7.5	2.1	0.4	0.5	0.4	12.4
Marlborough	1.2	5.6	1.1	0.3	0.3	0.2	8.7
New Zealand	**1.5**	**7.8**	**1.8**	**2.2**	**1.0**	**0.4**	**14.8**
Range	*1.1*	*7.6*	*1.8*	*5.4*	*1.7*	*0.5*	*16.8*
				1991			
Northland	1.6	5.8	1.7	0.6	0.5	0.4	10.6
Auckland	1.8	9.5	2.2	7.3	3.4	0.8	25.0
Waikato	1.3	5.7	1.8	1.0	1.0	0.3	11.2
Bay of Plenty	1.5	6.1	1.7	0.7	0.7	0.3	11.0
Gisborne	0.9	3.6	0.8	0.5	0.6	0.2	6.6
Hawke's Bay	1.1	5.9	1.2	0.8	0.8	0.2	10.1
Taranaki	1.1	4.8	1.3	0.3	0.6	0.3	8.4
Manawatu-Wanganui	1.1	5.3	1.1	0.8	1.2	0.3	9.8
Wellington	1.4	8.9	2.6	3.7	3.0	0.8	20.3
West Coast	1.2	3.5	1.0	0.2	0.3	0.2	6.4
Canterbury	1.3	6.3	1.8	0.8	1.1	0.4	11.7
Otago	1.3	5.5	1.5	0.7	1.1	0.3	10.4
Southland	0.9	3.1	0.8	0.8	0.3	0.2	6.0
Nelson-Tasman	1.7	7.2	2.2	0.3	0.6	0.4	12.4
Marlborough	1.2	5.2	1.1	0.3	0.4	0.2	8.5
New Zealand	**1.4**	**7.1**	**1.8**	**2.9**	**1.8**	**0.5**	**15.6**
Range	*0.9*	*6.4*	*1.8*	*7.1*	*3.1*	*0.6*	*19.0*

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Appendix Table 5: (continued)

	Australia	United Kingdom (including Ireland)	North America/ Europe	Pacific Island	Asia	Other	Born Overseas
				1996			
Northland	1.7	5.4	1.9	0.6	0.7	0.5	10.9
Auckland	1.7	8.1	2.5	6.6	6.7	1.4	27.0
Waikato	1.4	5.3	1.9	1.0	1.6	0.6	11.8
Bay of Plenty	1.6	5.7	1.8	0.7	1.1	0.5	11.5
Gisborne	1.1	3.1	0.8	0.6	0.6	0.3	6.5
Hawke's Bay	1.2	5.3	1.3	0.9	1.0	0.4	10.1
Taranaki	1.3	4.4	1.3	0.3	0.7	0.4	8.5
Manawatu-Wanganui	1.2	4.6	1.2	0.8	1.8	0.5	10.2
Wellington	1.4	7.9	2.8	3.3	3.3	1.0	19.6
West Coast	1.5	3.1	1.2	0.2	0.4	0.3	6.6
Canterbury	1.5	5.8	2.1	0.8	2.5	0.6	13.2
Otago	1.4	5.0	1.8	0.6	2.1	0.5	11.4
Southland	1.0	2.9	1.0	0.5	0.4	0.2	6.1
Nelson-Tasman	1.8	6.7	2.6	0.4	1.2	0.5	13.2
Marlborough	1.4	5.0	1.4	0.3	0.5	0.3	8.9
New Zealand	**1.5**	**6.4**	**2.1**	**2.7**	**3.3**	**0.8**	**16.8**
Range	*0.8*	*5.2*	*2.0*	*6.4*	*6.3*	*1.2*	*20.9*
				2001			
Northland	1.7	5.4	2.0	0.7	0.9	0.7	11.4
Auckland	1.6	7.2	2.6	7.4	9.2	2.6	30.6
Waikato	1.5	5.2	1.9	1.2	2.2	1.0	12.9
Bay of Plenty	1.6	5.6	1.8	0.7	1.5	0.9	12.2
Gisborne	1.1	2.9	0.9	0.9	0.8	0.4	7.0
Hawke's Bay	1.2	5.1	1.4	1.4	1.4	0.6	11.1
Taranaki	1.3	4.3	1.3	0.3	1.0	0.6	8.8
Manawatu-Wanganui	1.2	4.5	1.3	0.9	2.0	0.7	10.6
Wellington	1.4	7.4	2.8	3.5	4.0	1.4	20.4
West Coast	1.4	3.3	1.6	0.2	0.6	0.4	7.5
Canterbury	1.5	5.7	2.1	0.9	3.3	0.8	14.4
Otago	1.6	5.0	2.0	0.7	2.4	0.7	12.4
Southland	1.0	2.9	1.2	0.5	0.5	0.3	6.3
Nelson-Tasman	1.8	6.9	2.9	0.4	1.2	0.6	13.9
Marlborough	1.4	5.2	1.7	0.4	0.8	0.6	10.0
New Zealand	**1.5**	**6.0**	**2.2**	**3.2**	**4.4**	**1.4**	**18.7**
Range	*0.8*	*4.6*	*2.0*	*7.2*	*8.7*	*2.4*	*24.2*

Appendix Table 6: Percentage of the Total Population by Ethnicity and Region, 1986-2001

Region	Pakeha	Māori	Pacific Island	Asian	Other	Not Specified	Total	Ratio of Māori to Pakeha
				1986				
Northland	72.5	25.0	0.7	0.4	0.1	1.3	100.0	0.34
Auckland	76.3	11.2	9.0	2.2	0.2	1.2	100.0	0.15
Waikato	78.9	17.5	1.6	1.0	0.1	0.9	100.0	0.22
Bay of Plenty	72.3	25.1	1.0	0.6	0.1	0.9	100.0	0.35
Gisborne	60.5	37.6	0.6	0.5	0.1	0.8	100.0	0.62
Hawke's Bay	77.4	19.6	1.3	0.8	[0.05]	0.9	100.0	0.25
Taranaki	86.9	11.3	0.4	0.6	0.1	0.8	100.0	0.13
Manawatu-Wanganui	82.2	14.3	1.0	1.2	0.1	1.2	100.0	0.17
Wellington	80.0	10.4	5.1	2.9	0.2	1.3	100.0	0.13
West Coast	92.5	5.6	0.3	0.4	0.1	1.2	100.0	0.06
Canterbury	92.0	4.6	1.0	1.1	0.1	1.1	100.0	0.05
Otago	92.6	3.8	1.0	1.3	0.2	1.1	100.0	0.04
Southland	88.9	8.3	1.2	0.4	0.1	1.1	100.0	0.09
Nelson-Tasman	93.5	4.4	0.5	0.6	[0.04]	1.0	100.0	0.05
Marlborough	91.1	7.1	0.4	0.3	[0.04]	1.2	100.0	0.08
New Zealand	**81.2**	**12.4**	**3.7**	**1.5**	**0.1**	**1.1**	**100.0**	**0.15**
Range	*33.0*	*33.8*	*8.7*	*2.7*	*0.1*	*0.6*		*0.58*
				1991				
Northland	69.2	28.1	0.8	0.6	0.1	1.2	100.0	0.41
Auckland	71.3	11.0	11.1	5.3	0.3	1.1	100.0	0.15
Waikato	77.8	18.1	1.7	1.5	0.1	0.8	100.0	0.23
Bay of Plenty	71.2	26.1	1.1	0.9	0.1	0.7	100.0	0.37
Gisborne	56.8	40.3	0.7	0.8	0.1	1.3	100.0	0.71
Hawke's Bay	76.4	20.4	1.5	1.1	0.1	0.5	100.0	0.27
Taranaki	86.2	11.9	0.4	0.9	0.1	0.5	100.0	0.14
Manawatu-Wanganui	80.9	15.4	1.3	1.8	0.1	0.5	100.0	0.19
Wellington	77.4	10.5	6.1	4.7	0.3	1.0	100.0	0.14
West Coast	91.7	6.4	0.4	0.5	[0.02]	0.9	100.0	0.07
Canterbury	91.4	5.0	1.2	1.5	0.1	0.7	100.0	0.05
Otago	92.2	4.2	1.2	1.7	0.2	0.6	100.0	0.05
Southland	88.5	9.1	1.4	0.5	0.1	0.4	100.0	0.10
Nelson-Tasman	93.3	4.7	0.4	0.7	0.1	0.7	100.0	0.05
Marlborough	90.2	7.9	0.5	0.4	0.1	1.0	100.0	0.09
New Zealand	**78.8**	**12.9**	**4.5**	**2.8**	**0.2**	**0.8**	**100.0**	**0.16**
Range	*36.6*	*36.1*	*10.7*	*4.8*	*0.3*	*0.9*		*0.66*

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Appendix Table 6: (continued)

Region	Pakeha	Māori	Pacific Island	Asian	Other	Not Specified	Total	Ratio of Māori to Pakeha
				1996				
Northland	61.3	30.3	1.2	0.9	0.2	6.1	100.0	0.49
Auckland	62.2	11.8	11.0	9.0	0.7	5.3	100.0	0.19
Waikato	71.4	20.5	1.9	2.3	0.3	3.7	100.0	0.29
Bay of Plenty	65.6	28.0	1.3	1.4	0.1	3.6	100.0	0.43
Gisborne	49.9	42.3	1.1	0.9	0.1	5.7	100.0	0.85
Hawke's Bay	70.1	22.2	1.8	1.4	0.2	4.4	100.0	0.32
Taranaki	80.3	14.1	0.7	1.1	0.2	3.7	100.0	0.18
Manawatu-Wanganui	74.7	17.5	1.5	2.4	0.3	3.6	100.0	0.23
Wellington	71.8	12.0	6.2	5.3	0.6	4.1	100.0	0.17
West Coast	85.9	8.7	0.5	0.6	0.1	4.2	100.0	0.10
Canterbury	85.6	6.6	1.4	3.0	0.3	3.0	100.0	0.08
Otago	86.6	5.9	1.2	2.8	0.3	3.2	100.0	0.07
Southland	84.4	11.0	1.2	0.7	0.1	2.7	100.0	0.13
Nelson-Tasman	87.1	7.2	0.7	1.3	0.2	3.4	100.0	0.08
Marlborough	84.7	10.2	0.7	0.6	0.1	3.7	100.0	0.12
New Zealand	**71.7**	**14.5**	**4.8**	**4.4**	**0.4**	**4.2**	**100.0**	**0.20**
Range	*37.2*	*36.5*	*10.5*	*8.4*	*0.6*	*3.4*		*0.78*
				2001				
Northland	60.5	29.1	1.1	1.2	0.2	8.0	100.0	0.48
Auckland	58.3	11.0	12.0	12.6	1.1	4.9	100.0	0.19
Waikato	70.3	20.4	2.1	3.1	0.4	3.7	100.0	0.29
Bay of Plenty	65.4	26.6	1.4	1.9	0.2	4.6	100.0	0.41
Gisborne	48.6	44.0	1.5	1.1	0.1	4.7	100.0	0.91
Hawke's Bay	69.3	22.4	2.5	1.8	0.2	3.7	100.0	0.32
Taranaki	80.3	14.2	0.6	1.3	0.2	3.4	100.0	0.18
Manawatu-Wanganui	73.9	17.8	1.7	2.7	0.3	3.5	100.0	0.24
Wellington	70.9	12.1	6.6	6.2	0.8	3.3	100.0	0.17
West Coast	86.3	8.4	0.5	0.7	0.2	3.9	100.0	0.10
Canterbury	84.8	6.6	1.6	3.9	0.5	2.7	100.0	0.08
Otago	86.8	5.8	1.3	3.1	0.4	2.6	100.0	0.07
Southland	84.8	11.0	1.1	0.8	0.1	2.1	100.0	0.13
Nelson-Tasman	86.7	7.2	0.8	1.4	0.2	3.8	100.0	0.08
Marlborough	85.3	9.8	0.8	0.9	0.1	3.0	100.0	0.12
New Zealand	**69.8**	**14.1**	**5.4**	**6.1**	**0.6**	**4.0**	**100.0**	**0.20**
Range	*38.2*	*38.2*	*11.5*	*11.9*	*1.0*	*5.9*		*0.84*

Appendix Table 7: Age Structure of the Pakeha Population (%) by Region, 1986 and 2001

Region	Age group (years)						
	0-14	**15-24**	**25-44**	**45-64**	**65-74**	**75+**	**Total**
				1986			
Northland	23.5	14.5	29.9	20.7	7.1	4.2	100.0
Auckland	19.5	16.8	30.3	20.7	7.7	5.0	100.0
Waikato	23.7	17.1	29.5	19.3	6.6	3.8	100.0
Bay of Plenty	22.2	15.1	28.7	21.0	8.5	4.6	100.0
Gisborne	22.8	14.4	29.4	20.1	8.1	5.2	100.0
Hawke's Bay	23.0	15.4	28.8	19.9	7.8	5.0	100.0
Taranaki	24.7	16.5	28.8	18.5	7.0	4.6	100.0
Manawatu-Wanganui	22.4	18.2	27.9	19.0	7.4	5.0	100.0
Wellington	20.6	17.2	30.6	20.2	7.0	4.5	100.0
West Coast	23.4	15.9	30.0	18.8	7.5	4.4	100.0
Canterbury	21.0	17.3	28.7	20.3	7.8	4.9	100.0
Otago	21.7	18.3	28.2	19.3	7.5	5.0	100.0
Southland	24.9	17.0	29.0	18.9	6.3	4.0	100.0
Nelson-Tasman	22.2	16.0	29.1	19.9	7.9	4.8	100.0
Marlborough	23.0	15.7	28.5	20.3	8.0	4.5	100.0
New Zealand	**21.6**	**16.8**	**29.4**	**20.0**	**7.4**	**4.7**	**100.0**
Range	*5.4*	*3.9*	*2.6*	*2.5*	*2.2*	*1.4*	
				2001			
Northland	19.1	8.9	25.4	29.0	10.1	7.5	100.0
Auckland	18.2	11.6	31.5	24.9	7.1	6.8	100.0
Waikato	20.4	11.9	28.4	24.7	8.1	6.5	100.0
Bay of Plenty	19.1	9.7	26.6	26.2	10.0	8.4	100.0
Gisborne	19.8	9.6	26.5	26.2	9.2	8.6	100.0
Hawke's Bay	19.7	10.2	26.8	26.4	9.0	8.1	100.0
Taranaki	21.0	11.0	27.5	24.3	8.6	7.6	100.0
Manawatu-Wanganui	19.6	12.6	27.2	24.2	8.7	7.7	100.0
Wellington	18.4	12.3	31.6	24.0	7.4	6.3	100.0
West Coast	20.9	9.7	28.8	26.2	8.2	6.3	100.0
Canterbury	18.8	12.2	29.3	24.4	8.1	7.2	100.0
Otago	18.1	14.9	27.8	24.0	8.2	7.1	100.0
Southland	20.6	11.4	28.9	24.5	8.0	6.6	100.0
Nelson-Tasman	20.5	10.6	28.8	25.2	7.8	7.1	100.0
Marlborough	19.0	10.0	26.4	27.5	9.5	7.6	100.0
New Zealand	**19.0**	**11.7**	**29.3**	**24.9**	**8.0**	**7.1**	**100.0**
Range	*2.9*	*6.0*	*6.2*	*5.0*	*3.0*	*2.3*	

Appendix Table 8: Age Structure of the Māori Population (%), by Region, 1986 and 2001

Region	Age group (years)						
	0-14	**15-24**	**25-44**	**45-64**	**65-74**	**75+**	**Total**
				1986			
Northland	38.5	20.3	24.0	13.0	2.9	1.2	100.0
Auckland	38.3	24.8	25.6	9.5	1.3	0.5	100.0
Waikato	39.8	22.6	24.9	10.5	1.6	0.6	100.0
Bay of Plenty	38.8	21.9	24.6	11.9	2.1	0.8	100.0
Gisborne	36.7	21.5	25.0	13.1	2.6	1.0	100.0
Hawke's Bay	40.4	21.5	24.6	11.0	1.8	0.7	100.0
Taranaki	39.9	22.5	24.3	10.4	2.0	0.9	100.0
Manawatu-Wanganui	40.0	23.7	24.2	9.9	1.6	0.6	100.0
Wellington	38.7	24.3	26.3	9.1	1.1	0.5	100.0
West Coast	39.3	23.8	24.8	9.6	1.8	0.7	100.0
Canterbury	39.0	24.3	26.0	8.8	1.2	0.8	100.0
Otago	37.7	26.4	24.7	9.0	1.3	0.8	100.0
Southland	41.4	22.2	25.5	9.4	1.1	0.5	100.0
Nelson-Tasman	37.2	24.6	24.9	10.6	1.4	0.9	100.0
Marlborough	40.6	22.7	23.1	11.0	1.5	0.9	100.0
New Zealand	**39.0**	**23.2**	**25.1**	**10.4**	**1.7**	**0.7**	**100.0**
Range	*4.6*	*6.0*	*3.2*	*4.3*	*1.8*	*0.8*	
				2001			
Northland	38.2	14.6	26.8	15.1	3.8	1.4	100.0
Auckland	36.7	18.1	30.3	12.5	1.8	0.6	100.0
Waikato	37.6	17.9	27.8	13.2	2.6	0.9	100.0
Bay of Plenty	37.7	16.2	27.9	14.1	3.0	1.1	100.0
Gisborne	36.1	15.3	27.6	15.7	3.9	1.4	100.0
Hawke's Bay	37.9	17.0	27.6	13.7	2.8	1.1	100.0
Taranaki	38.8	17.0	27.0	13.3	2.8	1.1	100.0
Manawatu-Wanganui	38.4	17.5	27.7	12.8	2.6	0.9	100.0
Wellington	36.4	18.1	30.3	12.7	1.9	0.6	100.0
West Coast	40.5	14.5	26.9	14.4	2.7	1.1	100.0
Canterbury	37.0	18.7	29.2	12.5	2.0	0.7	100.0
Otago	34.9	22.9	27.6	12.1	1.9	0.7	100.0
Southland	38.1	17.9	26.4	14.3	2.5	0.8	100.0
Nelson-Tasman	39.6	16.4	30.2	11.6	1.5	0.7	100.0
Marlborough	37.3	16.4	27.4	15.3	2.5	1.1	100.0
New Zealand	**37.3**	**17.4**	**28.6**	**13.3**	**2.5**	**0.9**	**100.0**
Range	*5.7*	*8.4*	*4.0*	*4.1*	*2.4*	*0.9*	

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