THE NEW ZEALAND INITIATIVE

NEW ZEALAND BY NUMBERS

New Zealand By Numbers

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THE NEW ZEALAND INITIATIVE

The New Zealand Initiative is an independent public policy think tank supported by chief executives of major New Zealand businesses. We believe in evidence-based policy and are committed to developing policies that work for all New Zealanders.

Our mission is to help build a better, stronger New Zealand. We are taking the initiative to promote a prosperous, free and fair society with a competitive, open and dynamic economy. We develop and contribute bold ideas that will have a profound, positive, long-term impact.

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FOREWORD

Reading our daily newspapers or watching the television news, we are constantly confronted with social, economic and political calamities, challenges, and crises. If you follow the news on a daily basis, you might come away with the impression that New Zealand has numerous issues to deal with.

To a degree, this is certainly correct. However, what we see in the news is also distorted by the bias of those producing it. In journalism, bad news is good news. Newspapers sell better by revealing deplorable states of affairs and giving a voice to public anger rather than celebrating success. This is especially true when success does not come suddenly, as in the case of a sporting victory, but when it happens over long periods of time.

The aim of this book, *New Zealand by Numbers*, is to counter the perception that New Zealand is a country riddled with problems. Instead, it celebrates positive developments within our nation that happen too slowly to make the headlines. As you can see in this book, there are many such slow successes – and many reasons to be proud of what New Zealanders have achieved.

To give just a few examples, every public holiday weekend we hear about the number of people killed on our roads. Deplorable as this road toll is – and every person killed on our roads is a tragedy – this over-attention to traffic accidents detracts from the fact that both in absolute and in relative terms, New Zealand's roads have become much safer in recent decades.

The most dangerous year on our roads was more than four decades ago. In 1973, 27.9 people per 100,000 heads of population were killed in motor vehicle accidents. By 2012, this rate had fallen by 75% to 6.9 people. The improvements in road safety are so enormous, that even in absolute terms there has been a marked decline despite a growing population: from 843 fatalities in 1973 to 308 in 2012. Behind this positive development are safer vehicles and safer roads, and both have prevented harm, grief and suffering to many families.

We could also celebrate social successes that rarely make the news. The divorce rate has been falling for a decade, as has the number of abortions. The number of homicides was regularly well above 100 cases in the 1990s, but over the past four years it has varied between 68 and 97 cases – still too many, of course, but the trend is positive.

We can also see that today's younger generation possess a better formal education than their parents. A third of all 55–64 year-olds have a degree from a tertiary education provider, and among 25–34 year-olds nearly one in two (46%) has a degree.

On the economic front, we can see how our terms of trade have improved dramatically in recent years, and how the New Zealand economy today is employing a record number of people. New Zealand's labour force today is more than three times larger than the labour force in the 1960s.

New Zealand has achieved remarkable things as a nation. We should acknowledge and celebrate this.

At the same time, we should also understand that many of the things we celebrate today were only achieved because of a commitment to making things better. We should show the same kind of commitment to the issues where New Zealand can still perform better.

As you will see in this book, there are areas of underperformance. Housing is too expensive because not enough houses are being built, and our education performance at secondary school level is sadly lagging behind the world leaders.

These problems will only be exacerbated in the future as New Zealand's population ages. The median age and proportion of population over 65 will continue to increase, while the total fertility rate is decreasing. Ultimately, this will lead to a larger proportion of the population dependent on a shrinking productive labour force. It also means there will be a greater proportion of the population dependent on public services, at the same time the tax pool is decreasing. New Zealand must be fiscally prepared to deal with such issues, and should welcome immigration as one means of growing our skilled labour force to ease demographic pressures.

The labour force, too, needs attention. The youth unemployment rate has been consistently higher than the total unemployment rate, and requires attention to ensure that all young people are either in education, employment or training. This is not only important to ensure the ageing population is well supported, but to ensure New Zealanders can participate in a globalised workforce.

As technology advances, and overseas labour becomes comparatively cheaper, it is even more pertinent that New Zealanders have the necessary education and skills. This will help close the gap in per capita incomes between New Zealand and the OECD average. It would also give a boost to New Zealand's productivity performance which has been sadly lagging in recent decades.

The New Zealand Initiative is proud to make a contribution to those policy challenges in which we believe New Zealand could, and should, do better. But it does not blind us to recognise the great success story that is our country.

ROGER PARTRIDGE
Chairman
The New Zealand Initiative

CHAPTER ONE

POPULATION

INTRODUCTION

At the heart of all social, political and economic debates are the people that live in our country. The policies we make are for their benefit, and their needs drive our policy developments. It is thus only fitting to begin our journey into New Zealand's data with a look at its population.

Demographics, literally the records (Greek: graphikos) of a people (demos), is the systematic way of looking at the people inhabiting a defined area. It is a crucial undertaking in any country but particularly so for countries experiencing changes in the composition of their population.

New Zealand certainly is experiencing population changes on at least three fronts. First, the New Zealand population is growing. This is nothing new because since colonial times, population growth has been positive every year with very few exceptions, particularly at war times. This population growth has been happening because of both positive net inward migration and natural increases. It is fair to say that population growth has been New Zealand's standard mode.

The second population development worth watching is the changing ethnic composition of New Zealand. From a population that was almost exclusively bicultural with Māori and Pākehā, New Zealand has developed into a more diverse place. Not only have Pākehā changed within themselves to include more non-British European migrants, but in recent decades, the percentage of Asian-descent New Zealanders within the community has also increased. Indeed, many New Zealanders now identify as multi-ethnic.

The third important population development is in the age composition of society. By international, developed world standards New Zealand is still a relatively young nation. But its median age today is higher than at any point in the nation's history, and we know this process of population ageing will continue. This in itself will have policy implications in a number of areas, not least in public finances, health care and housing.

New Zealand's population continues to change, but this is nothing new and this chapter shows how.

1.01 NEW ZEALAND'S POPULATION

New Zealand's population has grown continually since 1840, with immigration playing a prominent role. However, in a global context, New Zealand's population is small, and the country is sparsely populated.

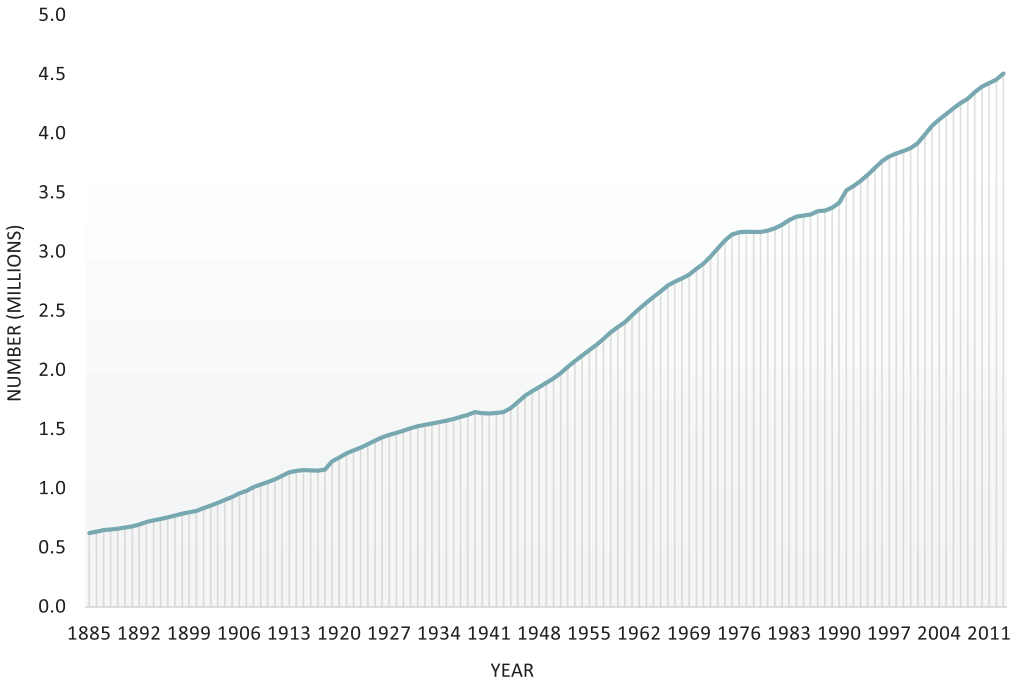
Figure 1.01 shows how New Zealand's population grew seven-fold between 1885 and 2012, from 0.6 million to 4.5 million. The population reached one million in 1908 and 2 million in 1952, and it took longer to double again to four million in 2003.

The chart clearly shows the slowing in population growth during World War II and the effect of the 'baby boom' that followed the service men and women's return. The period of low population growth from the mid-1970s to around 1990 reflects the effect on migration patterns of New Zealand's relatively poor economic performance following the quadrupling of world oil prices in 1973–74.

FIGURE 1.01 NEW ZEALAND'S POPULATION

De facto population basis to 1991, resident basis thereafter

1885–2013



Source: Statistics New Zealand

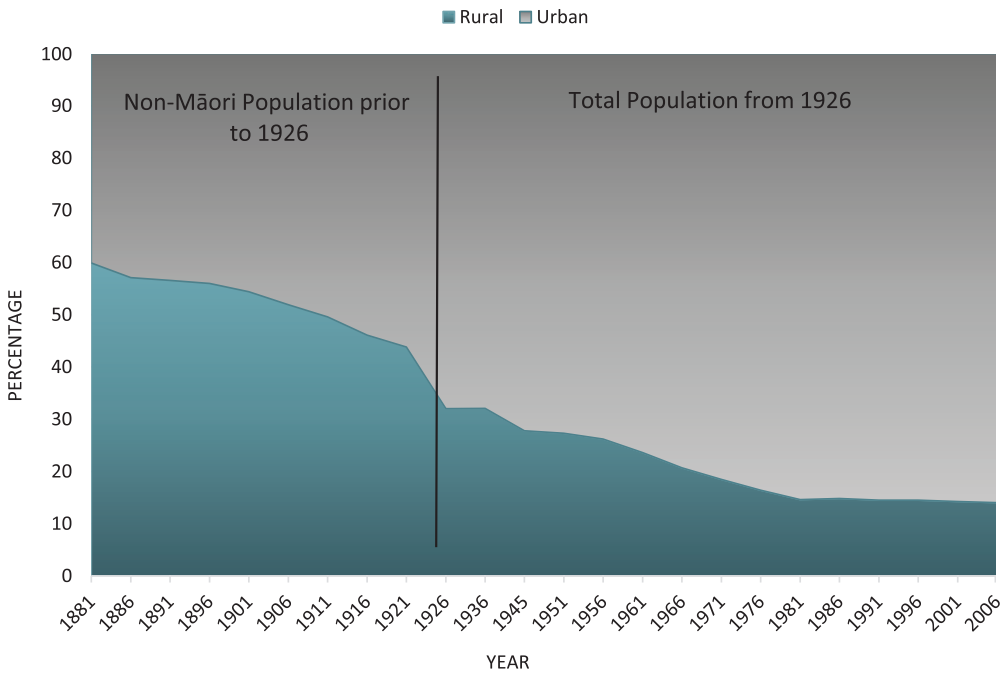
1.02 RURAL-URBAN POPULATION

Figure 1.02 shows New Zealand's non-Māori rural and urban population between 1881 and 1921 and New Zealand's total rural and urban population from 1926 to 2006. In addition, a classification change in 1926 markedly increased the number of communities classified as urban. The vertical line in the chart warns of the break in the series.

In 1881, almost 60% of non-Māori New Zealanders lived in rural communities, dubbed a self-proclaimed rural paradise at the time, according to Statistics New Zealand. By 1911, this ratio had dropped below 50%, causing alarm about urban corruption, decay and the loss of the hardy pioneering spirit. Nonetheless, the allure of cities continued to grow, with 56% of non-Māori urbanised by 1921 and 85% of the total population urbanised by 1981. For Māori, the big migration from land to cities started after 1945 due to a lack of rural jobs.

Interestingly, the urban proportion for the total population has been stable at 85–86% since 1981.

FIGURE 1.02 RURAL-URBAN POPULATION
As percentage of total population
1881–2006



Source: Statistics New Zealand

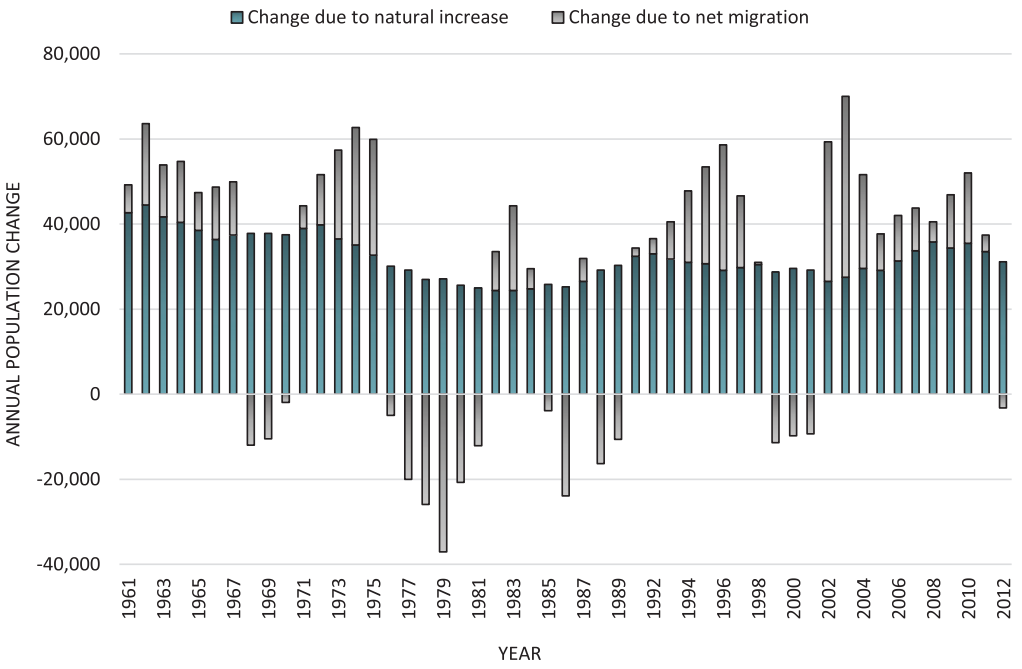
1.03 ANNUAL POPULATION CHANGES

Figure 1.03 shows the contributions of net migration and live births over deaths to the annual changes in New Zealand's population from 1961 to 2012.

Net migration typically contributes positively to population growth in New Zealand, but during recessions it can be negative. Negative contributions occurred during the recessions that followed the 1967 currency devaluation, the quadrupling of world oil prices in 1973–74, and the 1984 fiscal and currency crises.

Even so, natural increase has been the major source of population growth, contributing 32,000 people annually since 1992, compared to an average annual net migration inflow of 4,900. The natural increase is occurring despite the fertility rate in New Zealand being generally below the replacement level of 2.1 births per woman since the 1970s.

FIGURE 1.03 ANNUAL POPULATION CHANGES
1961–2012



Source: Statistics New Zealand

1.04 MEDIAN AGE

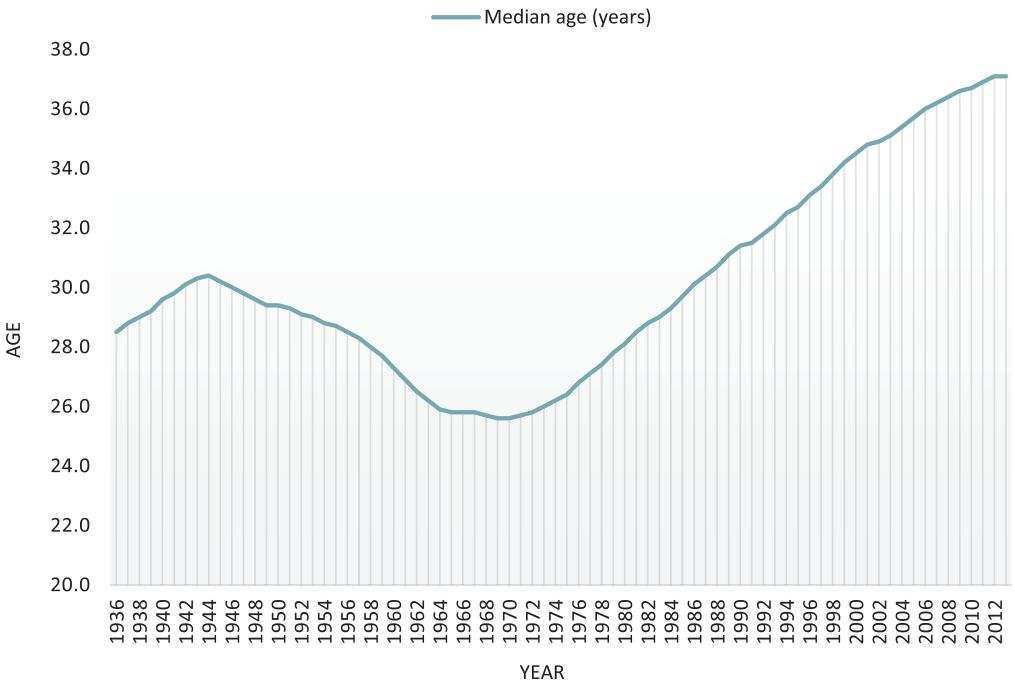
The median age of New Zealand's population has fluctuated markedly between 1936 and 2012.

The median age of New Zealand's population was under 23 years around 1900, but it started to rise as family size began to shrink. Low fertility during the 1930s Great Depression contributed to a rise above 30 years by the mid-1940s.

The sharp fall in the median age to 25.6 years in 1970 reflects the high fertility rate that followed the end of World War II. Lower fertility rates along with increased longevity subsequently saw the median age reach 37.1 years in 2012 for the total population.

According to the 2006 Census results, the median age for New Zealand Europeans, Māori, Asian and Pacific populations were 38, 23, 28 and 22 years, respectively, for an overall average of 36 years.

FIGURE 1.04 MEDIAN AGE OF POPULATION
1936–2013



Source: Statistics New Zealand

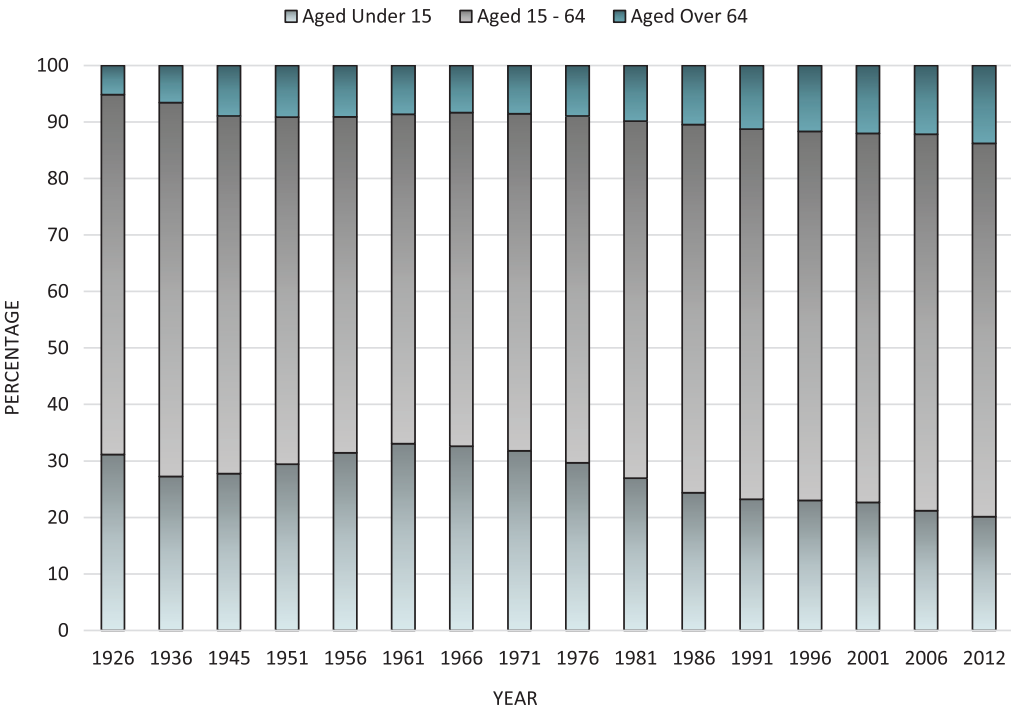
1.05 AGE DISTRIBUTION

Figure 1.05 shows how the proportions of those aged under 15, over 64, and between 15 and 64 have varied between 1926 and 2012.

The most dramatic change is in the proportion of children, which has dropped from 31.2% in 1926 to 20.1% in 2012. The elderly proportion has more than doubled, from 5.1% in 1926 to 13.8% in 2012, but the upshot is that the proportion that is customarily considered to be of working age has risen from 63.7% to 66.1%.

The effect of the post-World War II baby boom is also evident in this figure, with the proportion of children peaking at 33.1% in 1961.

FIGURE 1.05 AGE DISTRIBUTION OF TOTAL POPULATION
1926–2012



Source: Statistics New Zealand

1.06 ETHNICITY

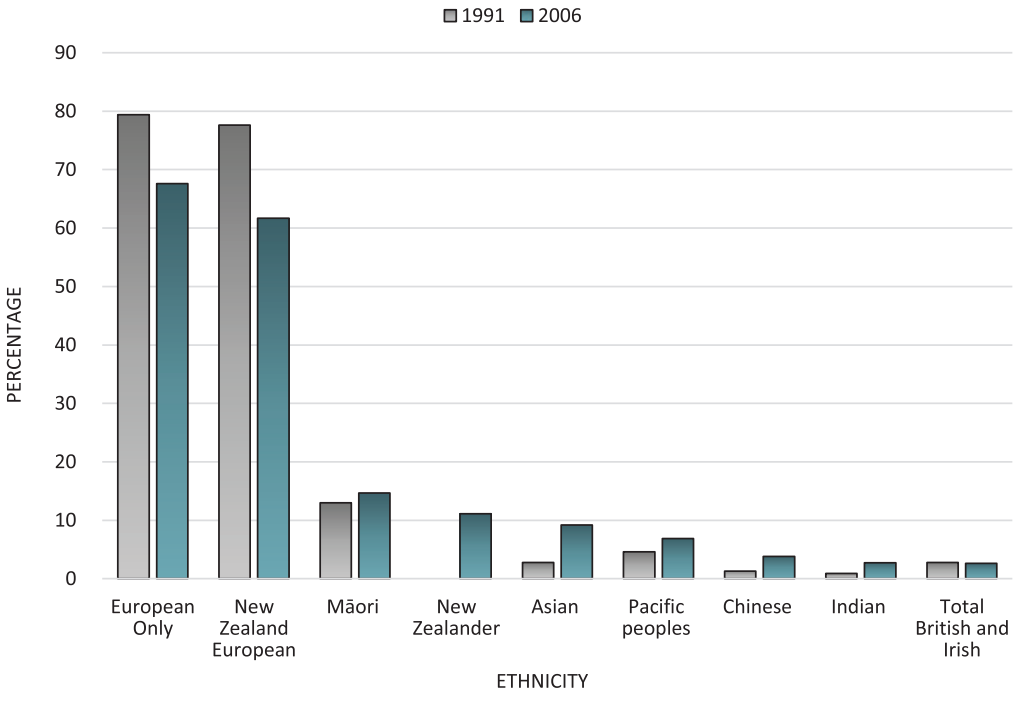
Figure 1.06 shows how the self-reported ethnic composition of the population changed between the 1991 and 2006 censuses.

Ethnicity figures include considerable double counting as many respondents report more than one ethnicity. 'Māori' include all those reporting some Māori ethnicity, whereas 'Pacific Peoples' exclude those reporting some Māori ethnicity.

The most dramatic change is the reporting in 2006, but not in 1991, of the proportion of respondents (11.1%) who merely identified themselves as 'New Zealanders'. It is likely that this mostly accounts for the drop in the proportion of respondents classifying themselves as 'European' and/or as 'New Zealand European' between 1991 and 2006.

Perhaps the clearest message from the chart is the rise in the proportion of the population reporting some Māori, Pacific Island, Asian, Chinese or Indian ethnicity. The statistics published to date for the 2013 Census confirm this trend. The European ethnicity dominates, but on a declining basis.

FIGURE 1.06 ETHNIC COMPOSITION
By major population group
1991–2006



Source: Statistics New Zealand

1.07 POPULATION BORN OVERSEAS

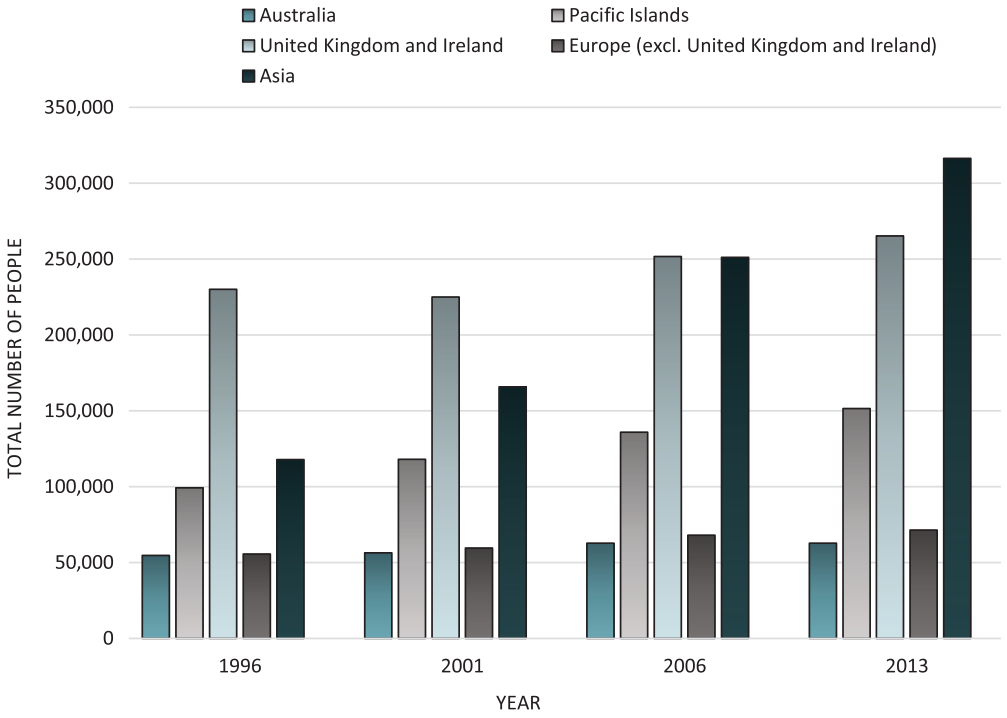
Figure 1.07 shows the changing composition in the country between 1996 and 2013 of the origin of people usually resident in New Zealand who were born overseas. In the 2013 Census, 25% of those reporting their country of birth were born overseas.

Between 2006 and 2013, Asian-born residents came to outnumber UK- and Ireland-born residents for the first time in New Zealand's history. Perhaps surprisingly, the number of New Zealand residents born in Australia has been the most static category between 1996 and 2013, showing even less growth than that of the number born in Europe (excluding the United Kingdom and Ireland). Those born in the Pacific Islands rose by roughly 50% between 1996 and 2013.

FIGURE 1.07 POPULATION BORN OVERSEAS

By country of origin

1996–2013



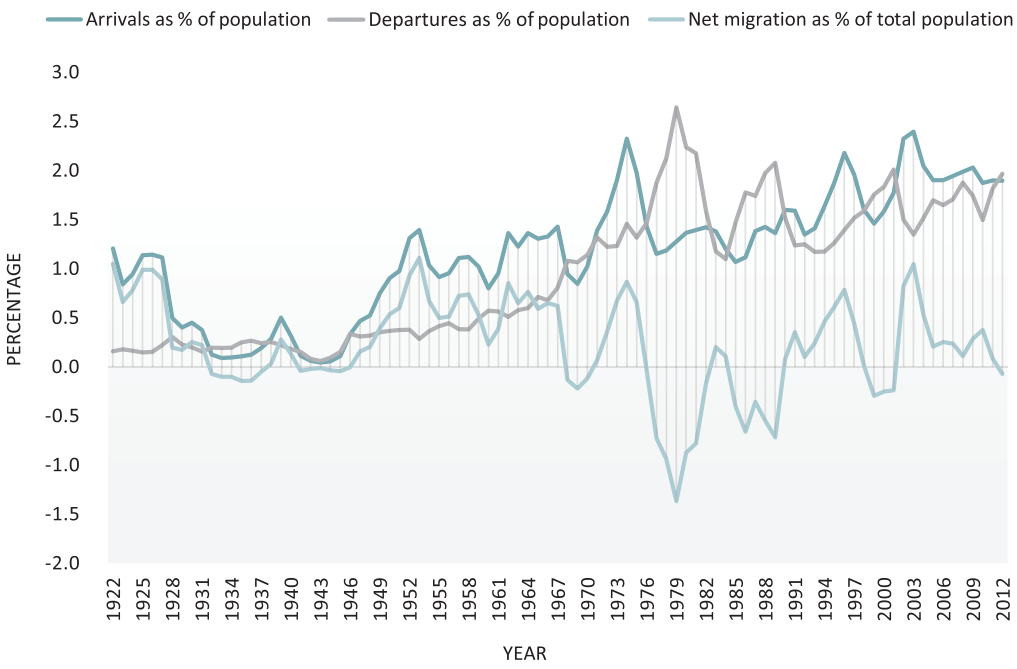
Source: Statistics New Zealand

1.08 PERMANENT ARRIVALS VS DEPARTURES

Figure 1.08 shows permanent arrivals and departures and net permanent migration annually between 1922 and 2012 as a percentage of the total population.

The proportion of the population that arrives or leaves each year on a permanent basis reflects fluctuations in New Zealand's economic circumstances, but appears to have risen markedly overall since the 1930s Great Depression. In 2012, permanent outward and inward migration was equivalent to roughly 2% of the population. The net outflow was particularly marked between 1976 and the late 1980s, as New Zealand became heavily indebted after the quadrupling of world oil prices in 1973–74 and then dealt with the subsequent debt crisis. Since around 1990, net permanent migration has contributed positively to population growth overall.

FIGURE 1.08 PERMANENT ARRIVALS VS DEPARTURES
As percentage of total population
1922–2012



Source: Statistics New Zealand

1.09 PERMANENT DEPARTURES BY DESTINATION

Figure 1.09 shows permanent departures by destination between 1979 and 2012.

Australia has long been the preferred destination for New Zealanders seeking greener pastures during domestic recessions, however since the mid-1990s the chart suggests a non-cyclical upwards trend, both absolutely and relative to permanent departures to the United Kingdom.

The relative ease of entry to Australia, its superior economic performance since the mid-1960s, and the wider range of job opportunities it offers was part of its appeal. In recent years, the per capita income differential in favour of Australia has been the highest in the history of the two countries.

FIGURE 1.09 PERMANENT DEPARTURES
By destination (major categories only)
1979–2012

Source: Statistics New Zealand

1.10 RELIGIOUS AFFILIATION

Figure 1.10 shows the change in New Zealanders' reported religious affiliations between 1936 and 2006.

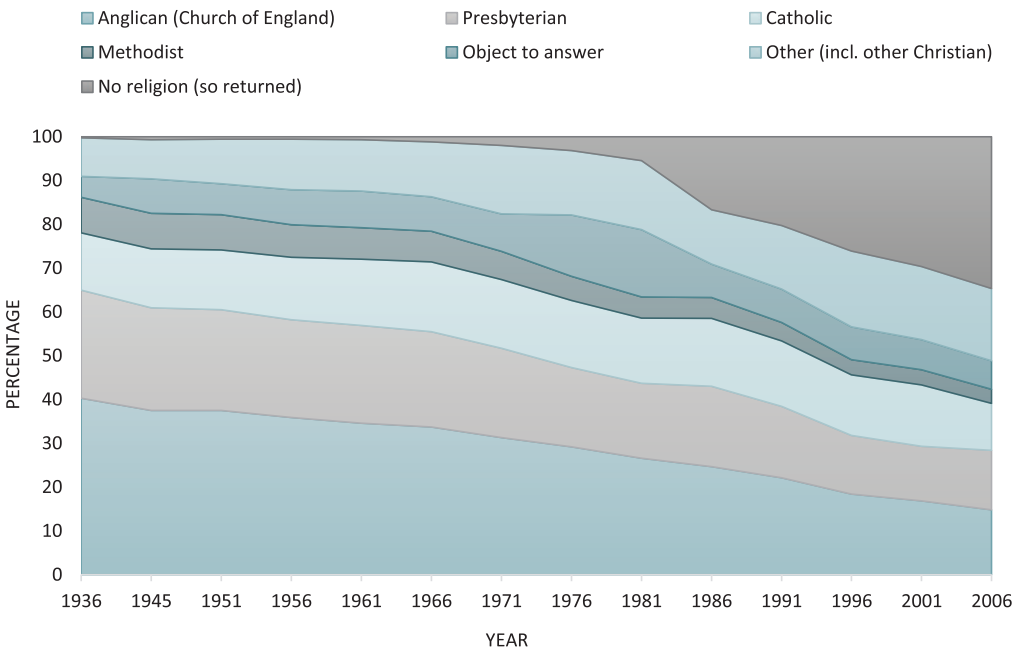
In 1936, 40% of New Zealanders reported themselves to be Anglicans, followed by Presbyterians at 25%, Catholics at 13%, and Methodists at 9%. Only 0.3% were willing to declare they had no religion.

By 2006, Anglicans were down to 15%, Presbyterians 14%, Catholics 11%, Methodists 3%, and 35% declared no religious affiliation. To the degree that these drops in self-reported affiliation are reflected in church attendance, those figures indicate a major setback for the mainstream religions in New Zealand, except for Catholicism.

There is evidence of a rise in allegiance to other religions, from 9% to 17% between 1936 and 2006, as might be expected with the increasing number of people of Asian-descent within the population.

The proportion of those objecting to answer the question on religious affiliation peaked at 15.4% in 1981, but has been below 8% in every subsequent census.

FIGURE 1.10 RELIGIOUS AFFILIATION
1936–2006



Source: Statistics New Zealand

1.11 AVERAGE HOUSEHOLD OCCUPANCY

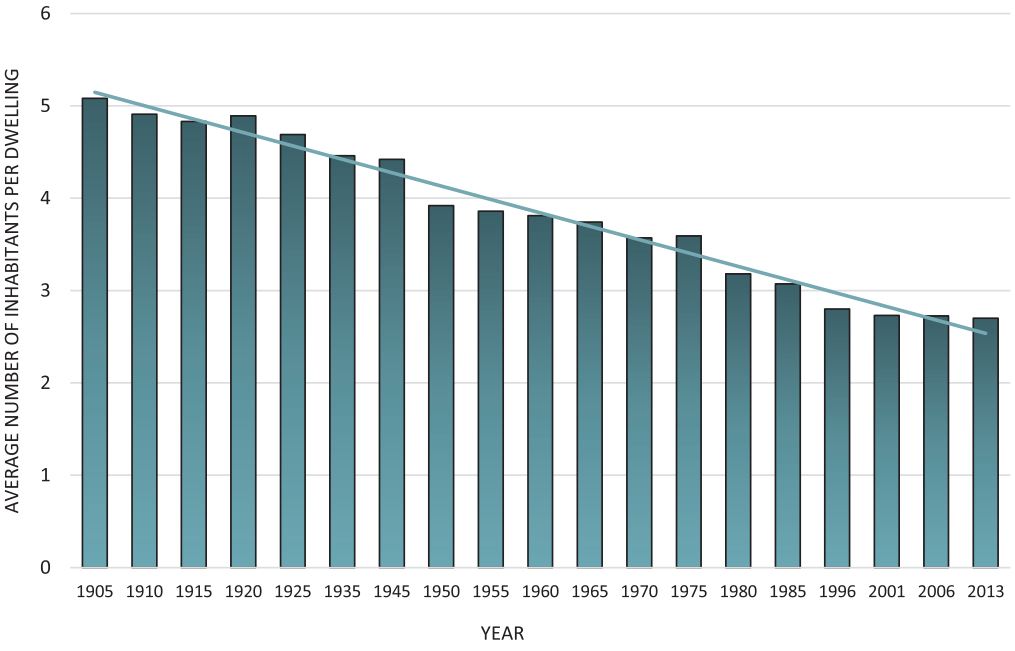
Figure 1.11 shows how the average number of occupants per occupied private dwelling changed in New Zealand from successive census night figures between 1905 and 2013.

In 1905, there were 5.08 persons per household on average; by 2001, this had fallen to 2.7, and has not changed materially since. The long decline reflects falling fertility rates and a reduction in the tendency for elderly parents to live in the same house as their offspring.

Fluctuations around this trend reflect changes in the rate of growth in the stock of occupied private dwellings relative to the rate of growth in the population. For example, one might have expected the occupancy rate to increase rather than fall during the baby-boomer years from 1945 to the mid-1960s. During the 20 years to 1945, the stock of occupied private dwellings rose by 5,200 units a year on average. During the next 20 years, the average annual rate of increase was more than 15,500 units.

FIGURE 1.11 AVERAGE HOUSEHOLD OCCUPANCY

Number of inhabitants per dwelling
1905–2013



Source: Statistics New Zealand

1.12 POPULATION PYRAMIDS

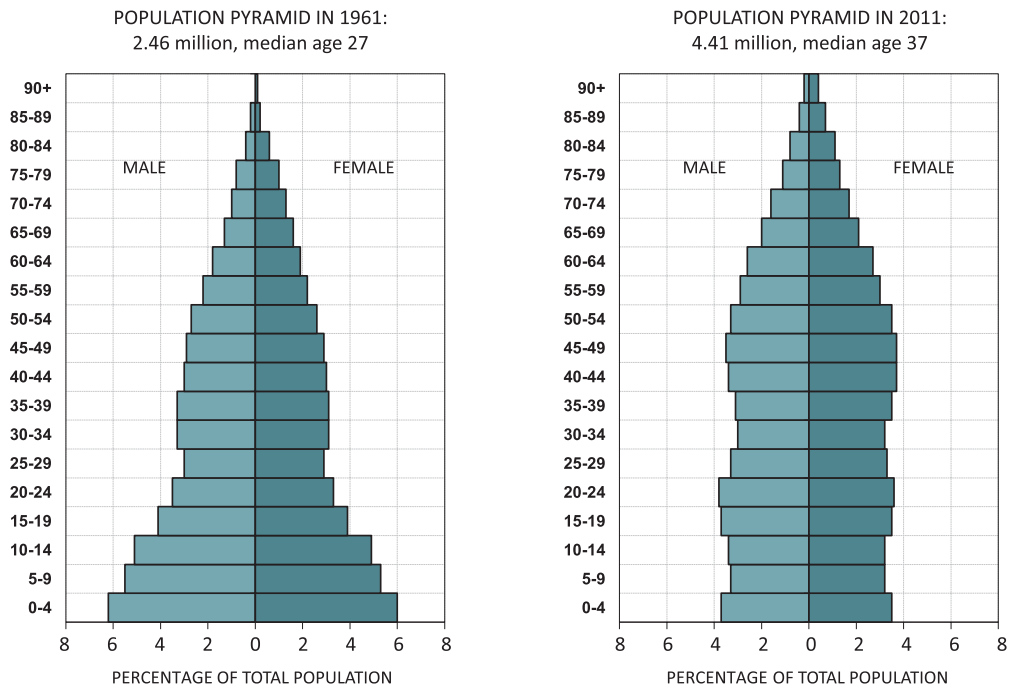
The population pyramids below compare the age distribution of New Zealand's population in 1961, towards the end of the post-World War II baby-boom period, with the age distribution in 2011.

In 1961, the biggest proportion of the population (around 6%) was aged 0–4 years. The pyramid narrowed markedly from there to the 25–29 age bracket, which accounted for about 3% of the population. The pyramid bulged out for the next two age brackets before narrowing continuously to the 90+ age group.

In 2011, the proportion of 0–4-year-olds in the population was under 4%. The age distribution was more of a barrel than a pyramid from there until the 45–49 age bracket, after which it followed a pyramid structure to the 90+ age bracket, which had grown to 0.2% of the population for males and 0.3% for females.

FIGURE 1.12 POPULATION PYRAMIDS

Age structure of population
1961–2011



Source: Statistics New Zealand

CHAPTER TWO

CHILDREN AND FAMILIES

INTRODUCTION

Families are fundamental to the strength and resilience of communities. As a social unit, families play an important part in determining the social and economic wellbeing for children and adults alike, and are a major source of security and connectedness.

While the role and importance of families has remained consistent over the years, the formation and composition of families has changed considerably. The traditional nuclear family is no longer the norm, and is arguably not even the ideal anymore. Family structure has become more diverse due to changes in marriage and divorce rates, fertility rates, and the rise of single parenthood.

These trends are by no means unique to New Zealand, and have been experienced throughout the Western world. Major events such as the world wars and the feminist movement have influenced worldwide trends in family formation.

Family formation has often self-adjusted to changes in financial security, where times of economic uncertainty have influenced couples to have fewer children. This was evident during the two world wars, where there was a dip in marriage and fertility rates, as well as the steep rise in each after World War II, resulting in the baby-boomer generation.

The feminist movement too has had a notable effect on family formation patterns – in particular, the availability of contraception and safe abortions, the destigmatisation of single parenthood, and the steady rise of female labour force participation.

Finally, while families are thought to be a private institution that ought not to be interfered with by government, public policy has a great influence on families and family formation. In New Zealand, the welfare system, in particular, has changed the way families are formed. The introduction of the Domestic Purposes Benefit in the early 1970s gave more financial support to single parents, while the introduction of Working for Families provided more support for middle-class families.

2.01 MARRIAGE RATE

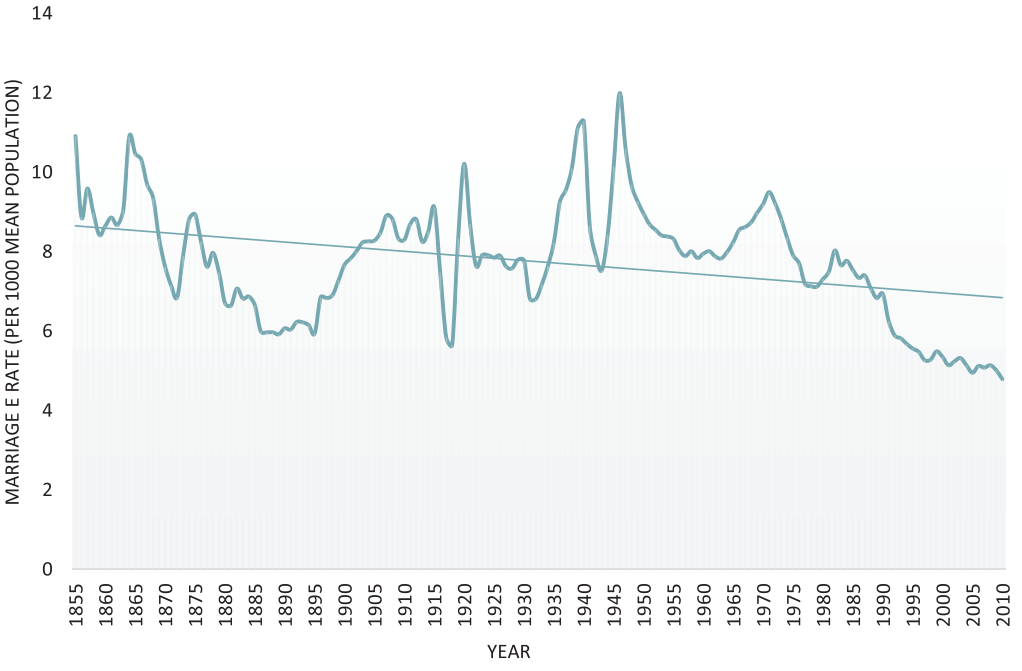
The marriage rate denotes the number of people getting married in any given year per 1,000 of the population (aged 16 and over). Note that it does not distinguish between first marriages and subsequent marriages. While there has been a general decline in the marriage rate since 1855, there have also been large fluctuations over the years.

Some of the most notable rises in the marriage rate have been due to the world wars. For example, the marriage rate rose after the announcement of the beginning of both wars, as single men were the first to be conscripted. There was an even more significant peak after the war, resulting in the baby-boomer generation.

The baby-boomer generation has continued to have a significant effect on the marriage rate. By the late 1960s, the first of the baby-boomers became adults and began to question traditional family life. Thus, the marriage rate declined as social attitudes changed.

Since 1989, the marriage rate declined further still, as ex-nuptial births and non-traditional family structures become more common. Today's marriage rate is characterised by people marrying at an older age, and more people choosing not to marry at all.

FIGURE 2.01 MARRIAGE RATE
Per 1,000 mean population
1855–2010



Source: Statistics New Zealand

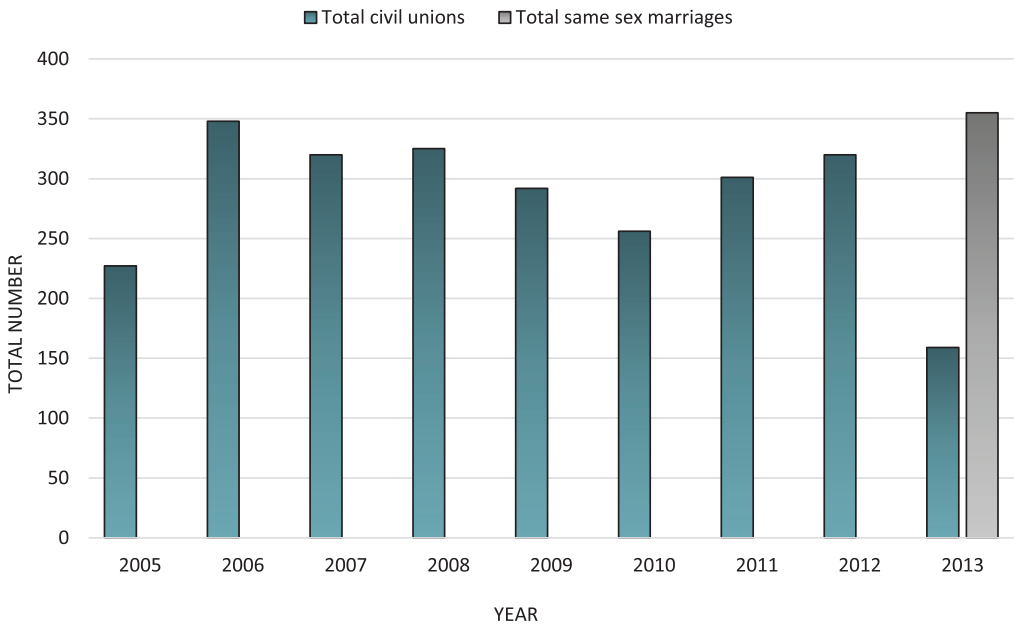
2.02 CIVIL UNIONS AND SAME-SEX MARRIAGE

Civil unions and same-sex marriage are still reasonably new to New Zealand, with the first civil union celebrated in 2005 and the first same-sex marriage in August 2013. Both civil unions and same-sex marriage passed into law as conscience votes, and sparked considerable political and public debate. In both instances, heavy lobbying and protests occurred on both sides of the debate.

Despite the passion and controversy surrounding the issues, the actual number of people involved in same-sex civil unions or same-sex marriage has been low in proportion to the general population. In fact, same-sex civil unions and marriages make up less than 2% of all marriages in New Zealand. This may in part be explained by the declining rate of marriage in general, where more of the population is opting for marriage later in life, or not at all.

The legalisation of same-sex civil unions and marriages is still too recent to comment on observable trends. However, some factors to consider in the future are whether the rate of same-sex marriages will exceed the rate of civil unions, and whether the rates of both will decrease in line with marriage rates. Another interesting aspect to consider is the 'same-sex marriage tourism industry' – overseas residents who travel to New Zealand specifically to marry, as same-sex marriage is still prohibited in many countries.

FIGURE 2.02A SAME-SEX CIVIL UNIONS AND SAME-SEX MARRIAGE
Total number
2005–13



Source: Statistics New Zealand

FIGURE 2.02B CIVIL UNIONS BY TYPE

Total number
2005–2013

Source: Statistics New Zealand

2.03 MARITAL STATUS OF THE POPULATION

Anecdotally, it is often argued that there has been a decline in marriage, an increasing number of marriages are ending in divorce, and marriage itself is an antiquated institution.

Figure 2.03a on marital status, however, tells a different story: The marital status of the working-age population has remained fairly constant over time.

But there are a number of factors to keep in mind when interpreting these results. First, the marital status of a population conceals the difference between marriages and remarriages. In fact, the rate of remarriage has increased significantly since 1968, rising about 10% between 1986 and 2012 (Figure 2.03b).

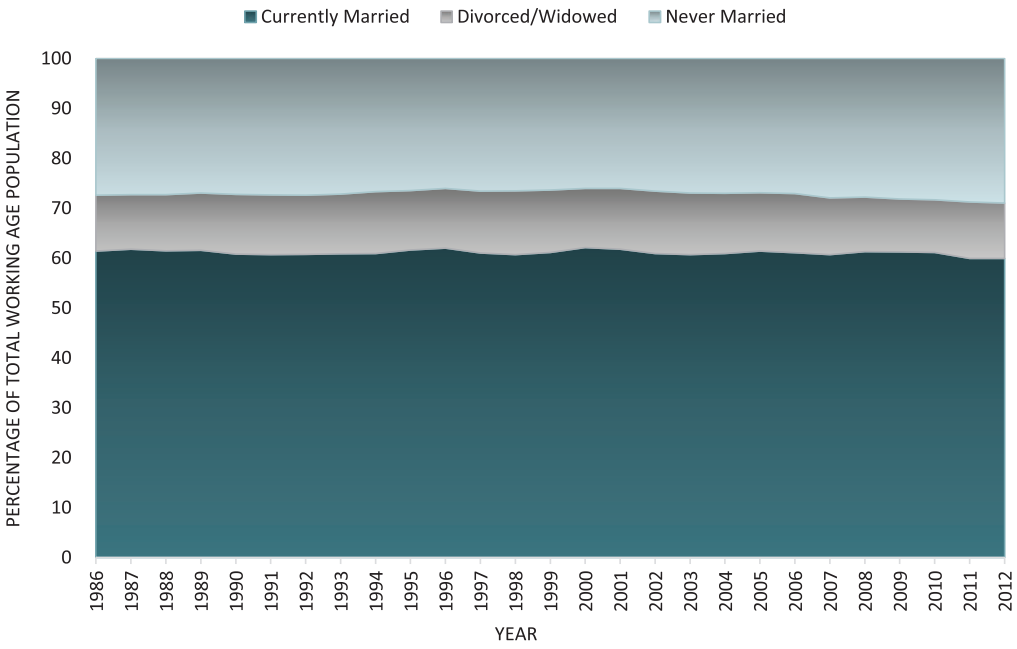
It should also be noted that the marital status of the population depends on the population age structure. Generational changes in attitudes towards marriage, therefore, are not likely to be captured in short-term data.

Nevertheless, from around 2006, there is a visible increase in the proportion of the population 'never married'. This trend may be explained by the increasing median age of marriage, where younger generations are opting to get married later, rather than opting out of marriage altogether.

FIGURE 2.03A MARITAL STATUS OF WORKING-AGE POPULATION

As percentage of total working-age population

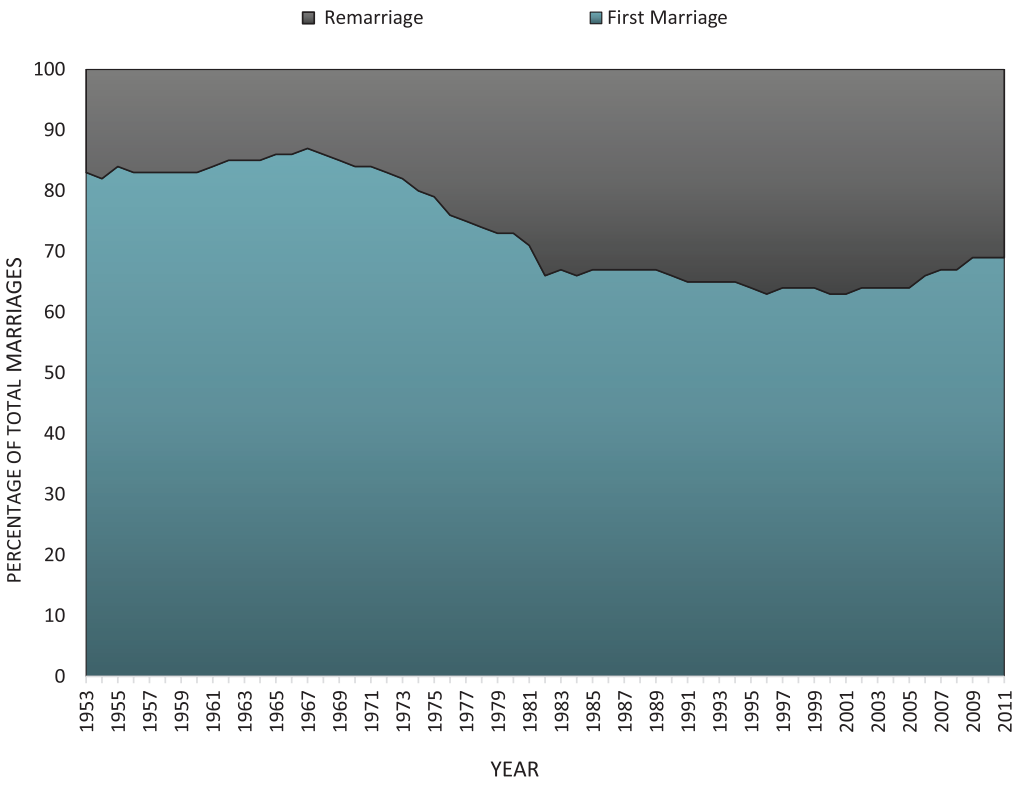
1986–2012



Source: Statistics New Zealand

FIGURE 2.03B FIRST MARRIAGE VS REMARRIAGE

As percentage of all marriages
1953–2011



Source: Statistics New Zealand

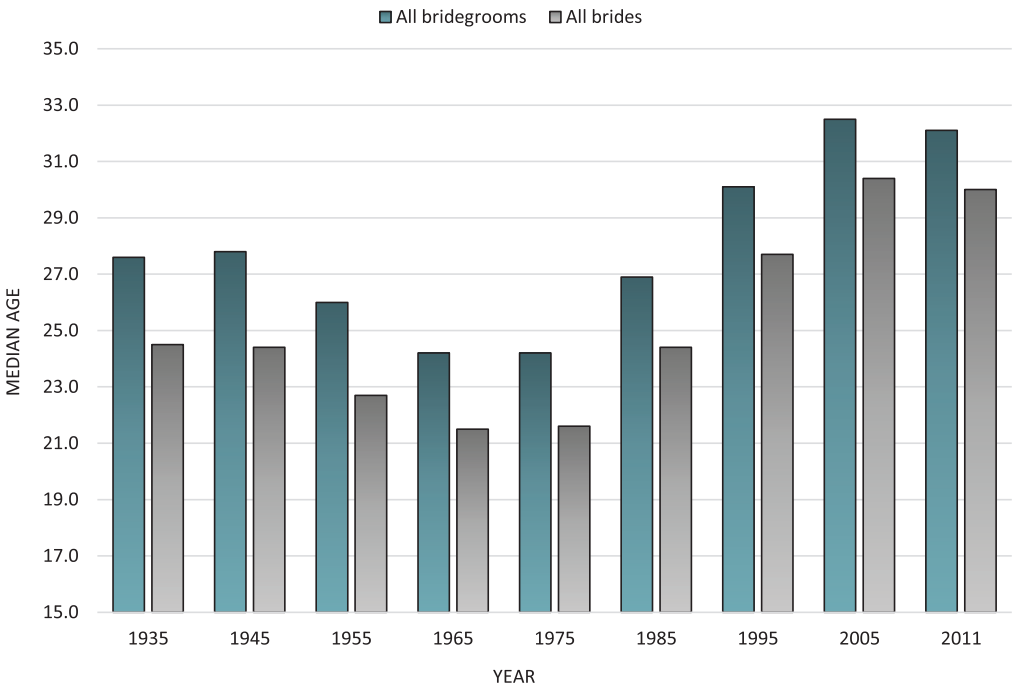
2.04 MEDIAN AGE AT MARRIAGE

The median age of marriage for men and women largely follows broader social trends. The median age of marriage was lowest in the 1960s and 1970s. One explanation is that cohabitation before marriage was less common in that era, so marriage was the main reason for leaving the family home. Given the large families baby-boomers belonged to, there was a greater incentive to move out as soon as possible. The lower median age of marriage also coincided with the loosening of customary and legal rules around marriage.

Since the 1970s, the median age of marriage has risen in response to changes in the female labour force participation rate and social expectations. However, despite many changes in gender roles and norms, the age gap between brides and grooms has only narrowed slightly.

FIGURE 2.04 MEDIAN AGE OF BRIDES AND BRIDEGROOMS

1935–2011



Source: Statistics New Zealand

2.05 DIVORCE RATE

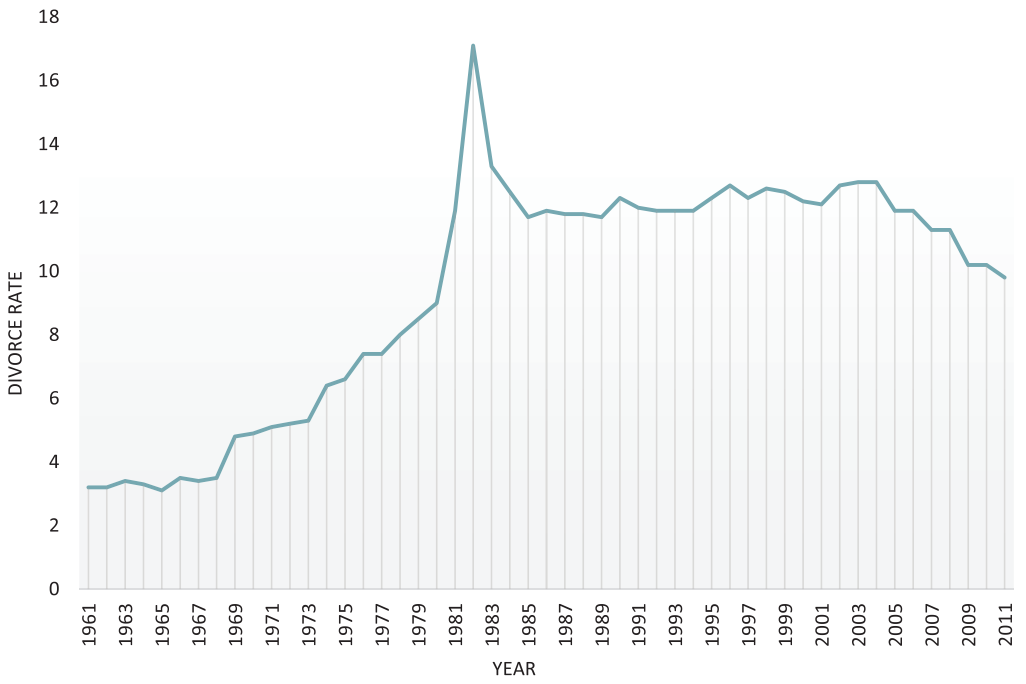
While divorce in New Zealand has technically been legal since 1867, the legislation has changed significantly, with many of these alterations reflected in the divorce rate. The most significant of these legislative changes came into force in 1981, with the amendment of the *Family Proceedings Act 1980*. The Act amended the requirement that someone had to be recognised as 'at fault' for the dissolution of marriage, and instead divorce could be granted on the grounds of 'irreconcilable differences'. The peak in divorces in 1982 reflects the backlog of couples who had separated but not divorced, and were now eligible under the new criterion.

Since this peak, the divorce rate stabilised. In fact, divorce appears to be steadily declining in recent times, with rates the lowest since 1980. While it is easy to conclude that people are more satisfied in their marriage, it could also be that younger generations are less likely to marry.

With a lower rate of marriage, as well as a higher median age of marriage, it could be that those who do get married are more committed to each other than previous generations.

FIGURE 2.05 DIVORCE RATE

Orders for dissolution of marriage granted per 1,000 population
1961–2011



Source: Statistics New Zealand

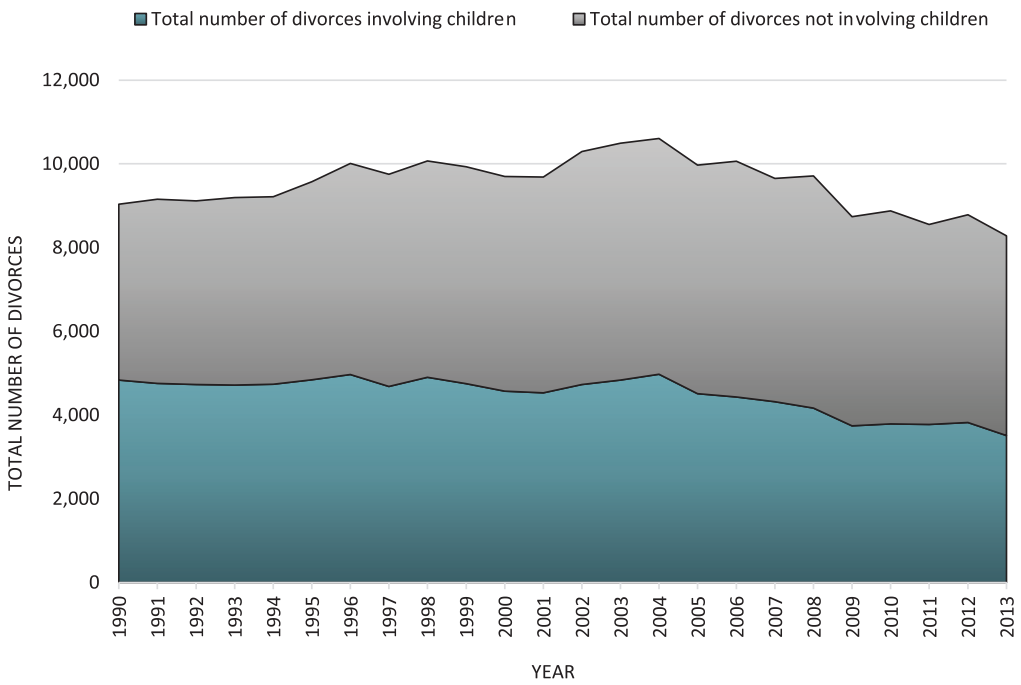
2.06 DIVORCES INVOLVING CHILDREN

Both the total number and proportion of divorces involving children are in decline. The number involving children has historically made up about half of all divorces, with a slowly decreasing proportion from 2004.

While the effects of divorce on the wellbeing of children is contested, and very much dependent on individual circumstances, the figures are important nonetheless when considering the changing structure of families in New Zealand.

It is difficult to make conclusive assumptions on why this trend has occurred. However, it could be because there is more government assistance available for families, rather than just solo parents. It could also correlate with the older median age of marriage and childbearing, leading to greater preparedness for having children.

FIGURE 2.06 NUMBER OF DIVORCES
Total and those involving children
1990–2013



Source: Statistics New Zealand

2.07 CRUDE BIRTH RATE AND FERTILITY RATE

The crude birth rate and fertility rate follow similar patterns: decreasing during the wars, and increasing following the return of servicemen and women. These trends are consistent with many other developed economies. While the crude birth rate refers to the number of live births per 1,000 of the population, the fertility rate refers to the average number of children per woman.

The birth rate in the late 1800s was not only high in domestic terms, it was also one of the highest in the world. Female colonists would often marry young, with each married woman having almost nine births on average.

This began to change around the start of the 20th century, as deliberate attempts to limit the number of children within marriage became more common. Birth and fertility rates declined further during the world wars due to economic instability, shortage of men and financial hardship.

After World War II, New Zealand experienced the start of the baby boom, which continued much longer than in other countries, that is, until the late 1970s.

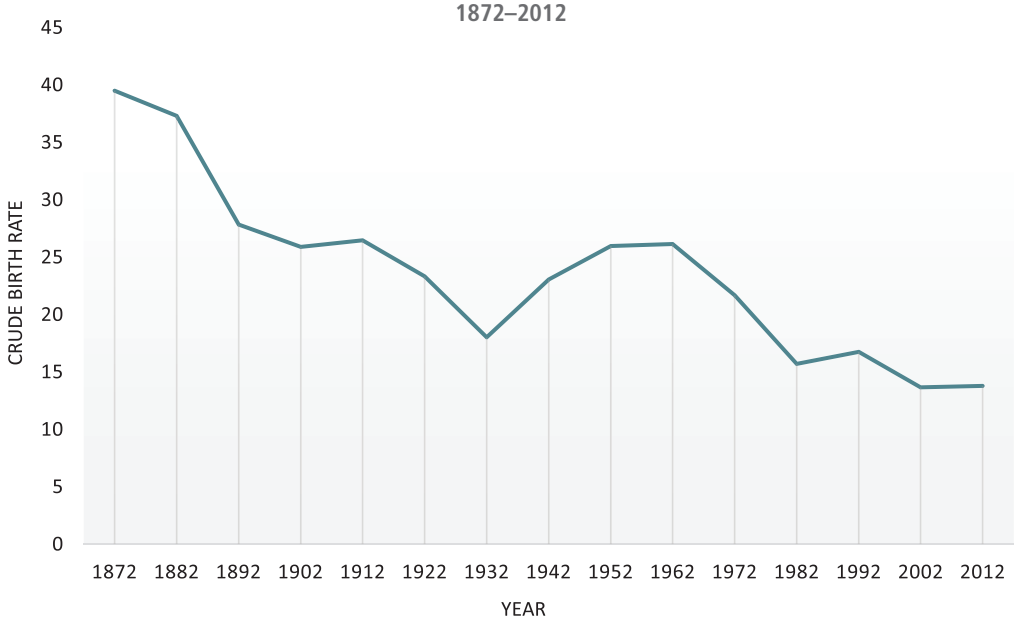
Since then, birth and fertility rates have fallen in line with the rise in female labour force participation, greater fertility control, and changing attitudes towards gender roles.

Birth rates and fertility rates remain a matter of concern for those in public policy. Very high rates could put pressure on public infrastructure and government services, while very low rates can cause shortages for the future labour force and tax revenue stream.

FIGURE 2.07A CRUDE BIRTH RATE

Annual number of births

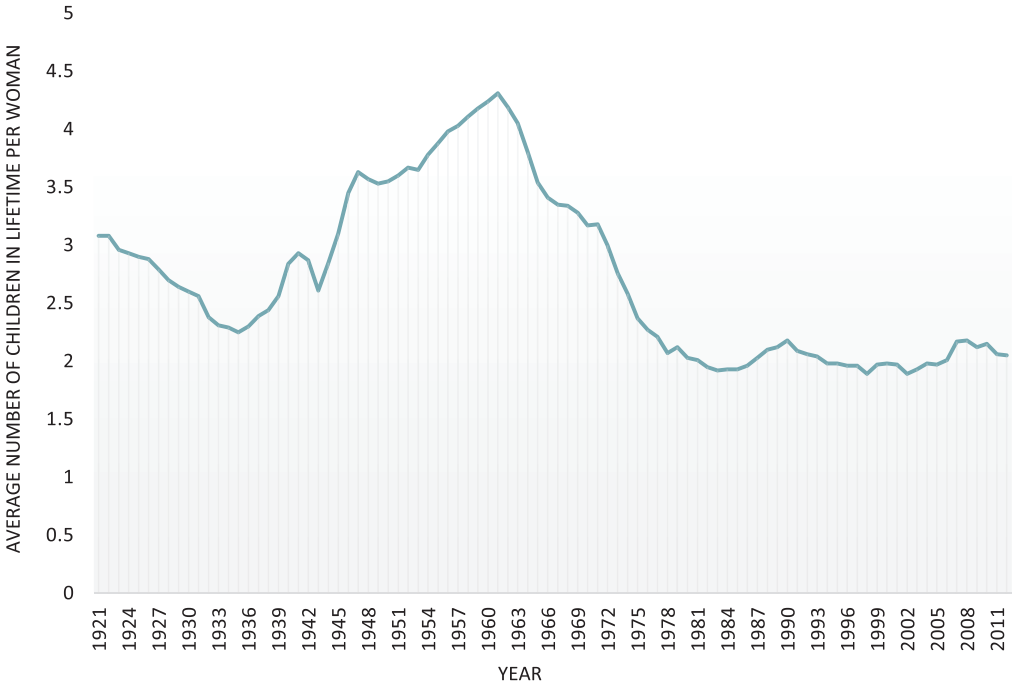
1872–2012



Source: Statistics New Zealand

FIGURE 2.07B TOTAL FERTILITY RATE

Average number of children in lifetime per woman
1921–2012



Source: Statistics New Zealand

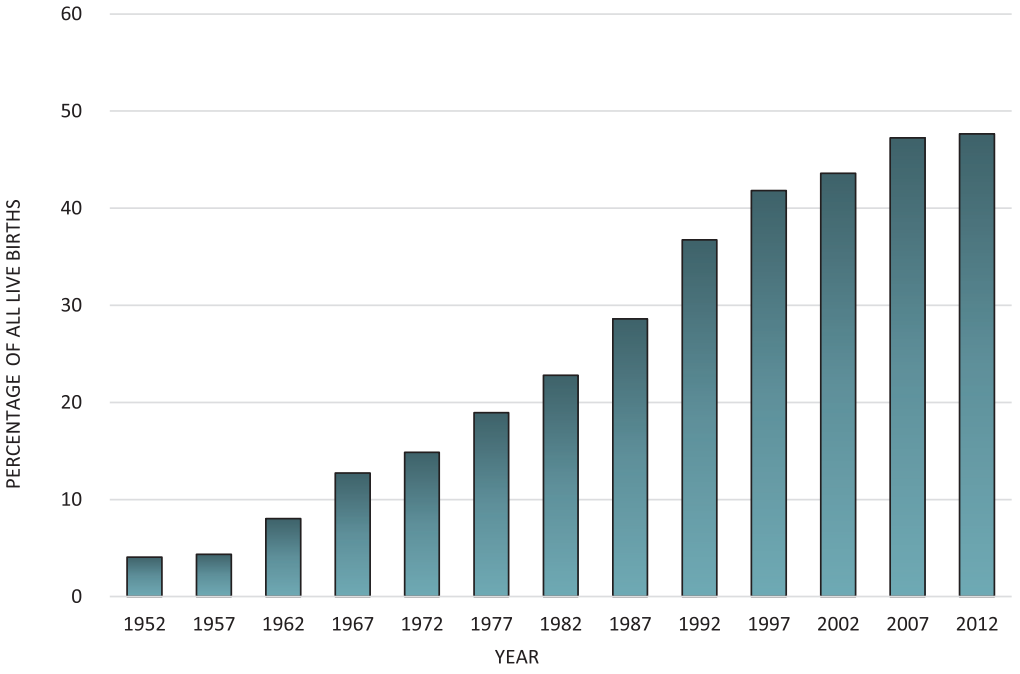
2.08 EX-NUPTIAL BIRTHS

Ex-nuptial births are births that have occurred outside of marriage. Historically, unmarried women who gave birth were encouraged to give their children up for adoption, and up until the late 1970s, abortion under any circumstance was illegal.

The contraceptive pill was first made available in 1961. However, the availability of contraception and safe abortions has appeared to have had little effect on the incidence of ex-nuptial births.

Instead, the dramatic increase since the 1950s suggests that many ex-nuptial births were deliberate personal choices, and coincides with the general decline in marriage. Considering ex-nuptial births make up nearly 50% of all births today, it is clear the expectation of having children within wedlock has all but disappeared as a social norm.

FIGURE 2.08 EX-NUPTIAL BIRTHS
As percentage of all live births
1952–2012



Source: Statistics New Zealand

2.09 SINGLE-PARENT FAMILIES

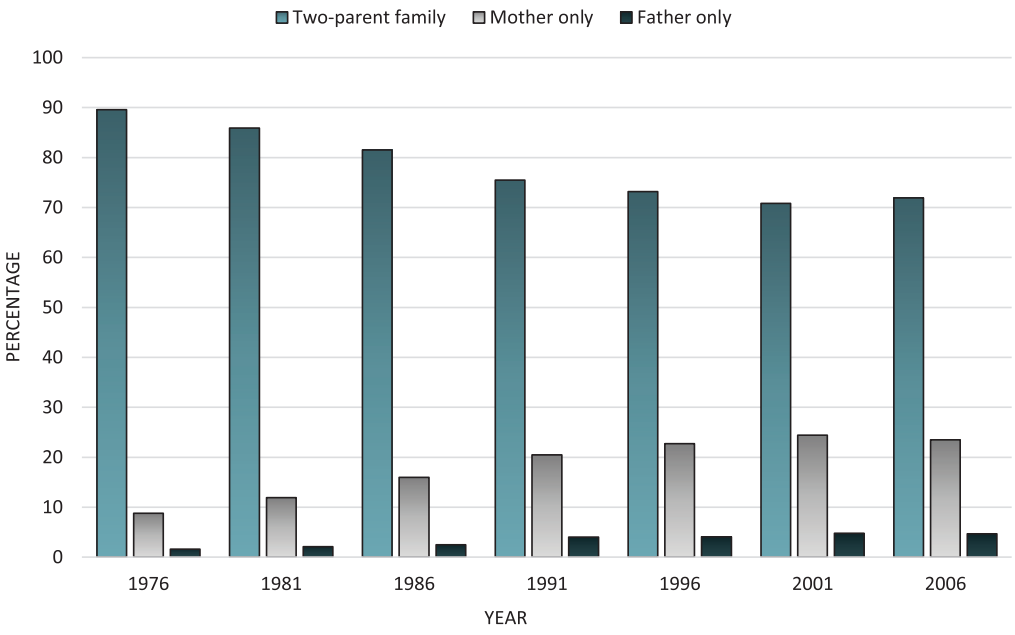
Figure 2.09 shows the decline of two-parent families as a proportion of family type. While two-parent families made up around 90% of all family types in 1976, by 2006 this type was down to around 70%. This correlates with an increasing divorce rate (until around 2004), and an increase in ex-nuptial births.

This may seem counterintuitive as the number of divorces involving children has decreased (Figure 2.06). However, that data fails to encompass parents who were never married.

Meanwhile, the dynamics between mother-only and father-only families has also undergone an interesting shift, where the rate of father-only families has risen. Experts, authorities and the public remain divided over what ought to be the rights of fathers in custody battles. As a proportion of all single parents, mothers remain the dominant group. However, it is unclear from this data whether the rise in the number of single fathers is due to their success in the Family Court.

FIGURE 2.09 FAMILIES WITH DEPENDENT CHILDREN

As percentage of all family types
1976–2006



Source: Statistics New Zealand

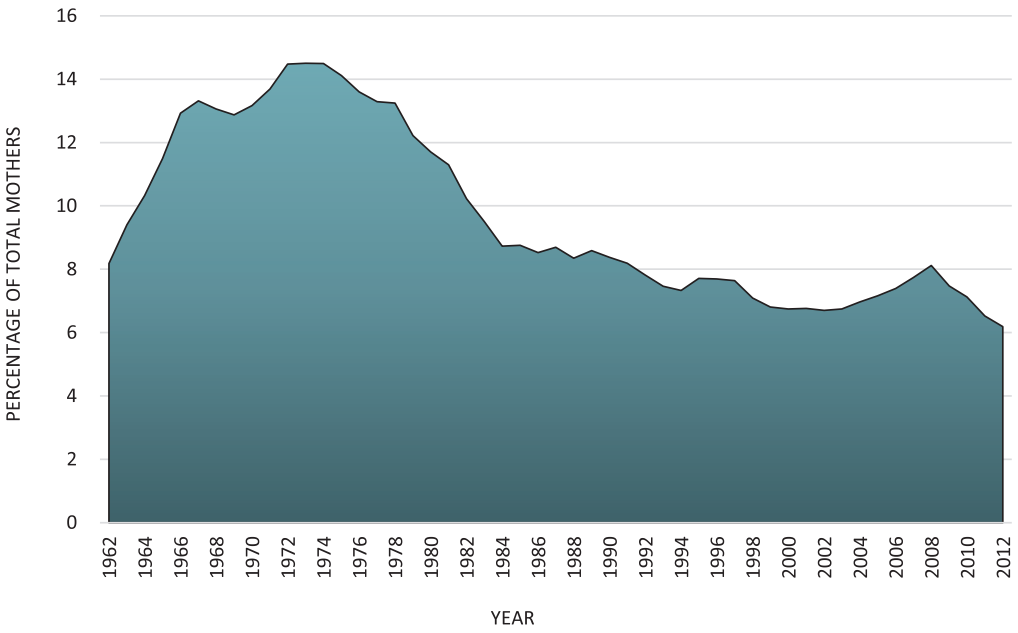
2.10 TEENAGE MOTHERS

The incidence of teenage parents has been a matter of interest to social sectors in recent times because of its long-term effects on socio-economic wellbeing and development. This is due to the lack of preparedness of some young mothers, as well as the costs of interrupted schooling and reduced career prospects.

The trend of teenage mothers follows wider trends of the age of marriage. Up until 1985, the median age of marriage has been under the age of 25.

While New Zealand's teenage pregnancy rate is decreasing, it still ranks highly in the developed world. From a policy perspective, factors that decrease the rate include adequate sexual education, the availability of social welfare, the youth unemployment rate, career prospects, and an emphasis on further schooling.

FIGURE 2.10 TEENAGE MOTHERS
As percentage of total mothers
1962–2012



Source: Statistics New Zealand

2.11 HOUSEHOLD COMPOSITION

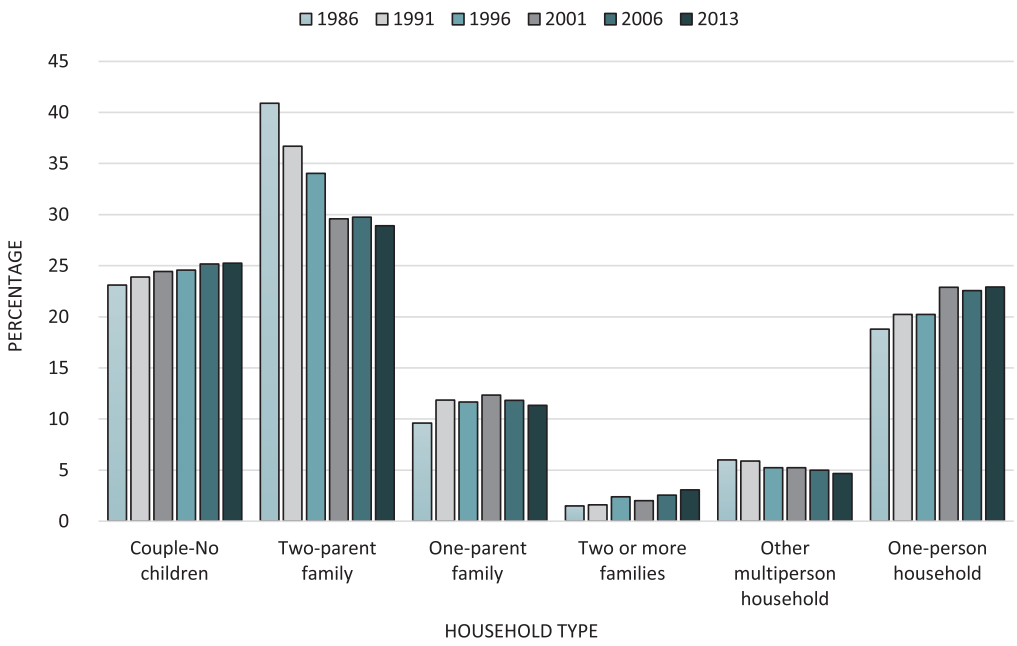
Household composition can say a lot about greater social trends. However, it can also mask generational shifts in social attitudes. Population changes in household composition are often glacial, and are best observed as long-term trends rather than short-term social changes.

According to household composition data, the number of couples without children has only risen slightly (by 2%). However, this figure captures both young couples who are planning to have children, couples who never plan to have children, and couples whose children have since left home. Given trends of increased life expectancy, as well as a declining birth rate, this category captures many demographics at once.

Meanwhile, the number of one-person households is forecast to be the fastest growing household type, for many of the same reasons given above: increased life expectancy, delayed marriage, and delayed fertility. Therefore, this household type too would be composed of both the young and old.

Also of interest is the decline in two-parent families from 41% to 29%; this trend is not met with a steady rise in one-parent families, which only increased by 1% between 1986 and 2013.

FIGURE 2.11 HOUSEHOLD COMPOSITION
As percentage of all household types
1986–2013



Source: Statistics New Zealand

2.12 ADOPTIONS AND ABORTIONS

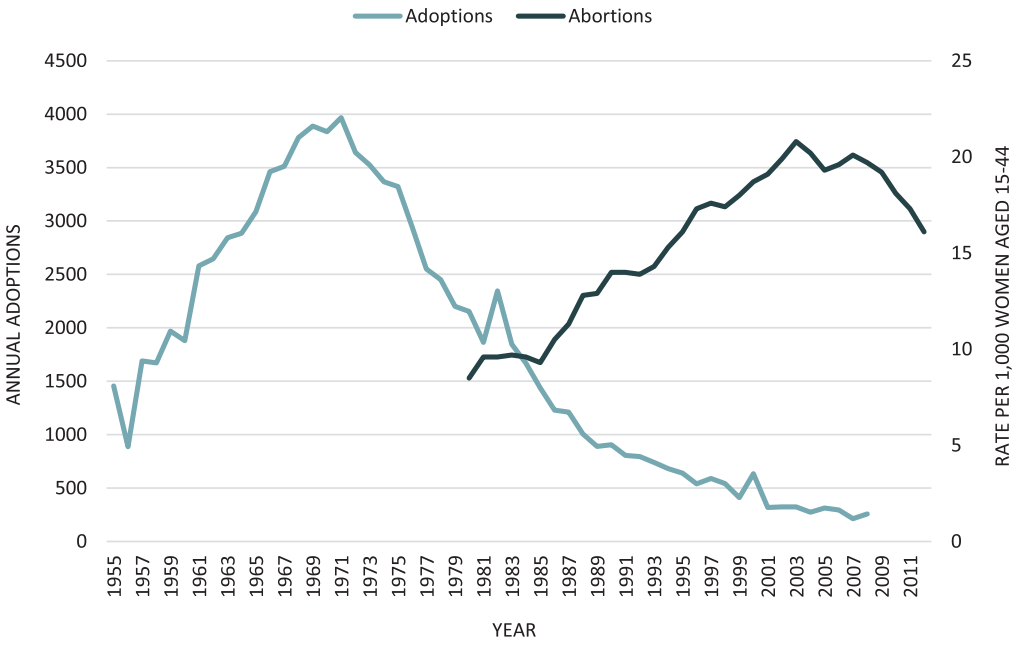
While adoptions and abortions have been displayed side-by-side in Figure 2.12, this by no means implies that the decline of one has led to the rise of the other (or vice versa). Adoptions have been in decline since 1971, while abortions have risen since it was legalised in 1977, only seeing a recent decline from 2007.

The decline in the adoption rate is interesting, given the steady rise of ex-nuptial births. This suggests that in recent times, most women who have children out of wedlock do not adopt out.

While easier access to abortion is often cited as one influence on this decline, other reasons include the abolition of 'illegitimate' status of children in 1969, the introduction of the Domestic Purposes Benefit in 1973, the rise of de facto relationships, easier access to (and more reliable) contraception, and fewer negative perceptions on the impact of adoption on parents and children involved.

The recent decline in the abortion rate has been explained by the increased availability of contraception, changes in welfare entitlements, and better sexual education.

FIGURE 2.12 ADOPTIONS AND ABORTIONS
1955–2012



Source: Child, Youth and Family, and Statistics New Zealand

2.13 WORKING FOR FAMILIES

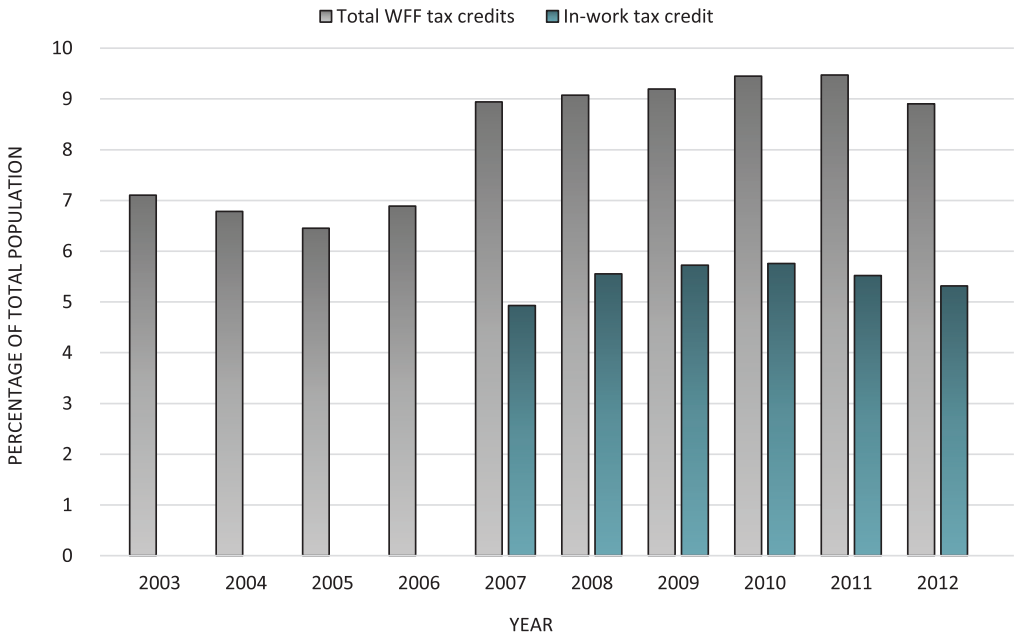
Working for Families is a package of tax credits aimed at low- to middle-income families with dependent children. Before 2004, the package took the form of 'family assistance' tax credits. Between 2004 and 2007, a number of substantial reforms were made, including the expansion of eligibility to middle-income earners, increasing the rates, and introducing the in-work tax credit to support families in employment.

The primary reason for these major reforms was to make working more attractive than being on a benefit by offering a financial incentive to parents who obtained paid employment. The tax credits increase the net return from additional hours worked by lowering the effective marginal tax rates for lower-income earners.

Since its implementation, Working for Families has attracted many critics. Some argue that it incentivises families to have more children, or to have children before they are financially prepared. Other contentious issues include the argument that the in-work tax credit should be extended to the unemployed, that the scheme distorts effective marginal tax rates, and that the scheme is too expensive to be sustainable.

FIGURE 2.13 NUMBER OF FAMILIES ENTITLED TO WORKING FOR FAMILIES

As percentage of total population
2003–2012



Source: Inland Revenue Department

CHAPTER THREE

HEALTH AND MORTALITY

INTRODUCTION

The time series portrayed in this chapter shows considerable gains for New Zealanders in life expectancy and reduced mortality and morbidity, both from accidents and diseases.

Improvements in these indicators are common internationally among the wealthier countries, which continue to enjoy peace at home and increasing prosperity. So how does New Zealand compare internationally?

According to the latest figures in the CIA Handbook Online, 123 countries have a higher death rate than New Zealand's 7.52 per 1,000 population, 143 have a higher maternal mortality rate than our 15 per 100,000 live births, and 183 countries have a higher infant mortality rate than our 184 per 1,000 live births. Only 25 countries have a higher life expectancy at birth, and only 33 countries have a higher adult obesity rate. New Zealand's reported suicide rate is relatively high, but there are cross-country differences in reporting that limit comparisons.

However, compared to Australia and Singapore, New Zealand has higher death, maternal and infant mortality rates; lower life expectancy at birth; and higher incidence of adult obesity.

On World Bank figures, Singapore is achieving superior outcomes while spending only 4.7% of GDP (US$2,426 per capita) on public and private health compared to 10.3% of GDP (US$3,292 per capita) for New Zealand. Singapore has fewer physicians per capita than New Zealand but more hospital beds per capita. Australia has more of both and is spending 9.1% of GDP (US$6,140 per capita) on health.

It is likely that public health spending will continue to rise as New Zealand faces an ageing population. However, as medical technology improves, it is not yet certain how much of a burden this will place on our health system.

3.01 HOSPITAL BEDS

The number of hospital beds in a country is a measure of the health resources and capacity available for the population, defined as the number of beds staffed, maintained and available for immediate use.

The largest spike relative to population growth occurred between 1935 and 1945. This is likely due to the provision of free health care for all under the *Social Security Act 1938*. After that point, although the number of hospital beds increased, it declined per capita.

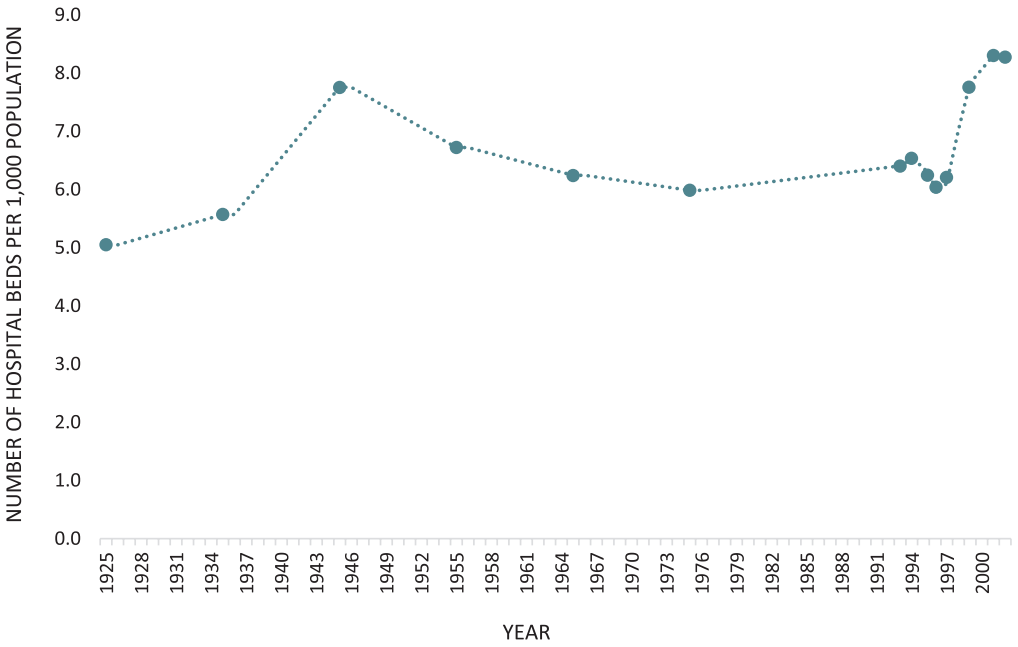
After 1993, the data shows a rapid increase in the number of hospital beds in New Zealand. This was accounted for by an increase in the number of private hospital beds, almost tripling from 7,149 in 1993 to 20,536 by 2002. By contrast, the number of public hospital beds decreased from 15,897 in 1993 to 12,484 in 2002.

Whereas in 1993, private hospitals beds accounted for 31% of hospital beds, they accounted for around 62% by 2002. The large-scale reforms of the public health system in the 1990s may explain the shift towards private health care.

FIGURE 3.01 HOSPITAL BEDS

Number per 1,000 population

1925–2001



Source: Statistics New Zealand

3.02 PRIVATE HEALTH INSURANCE

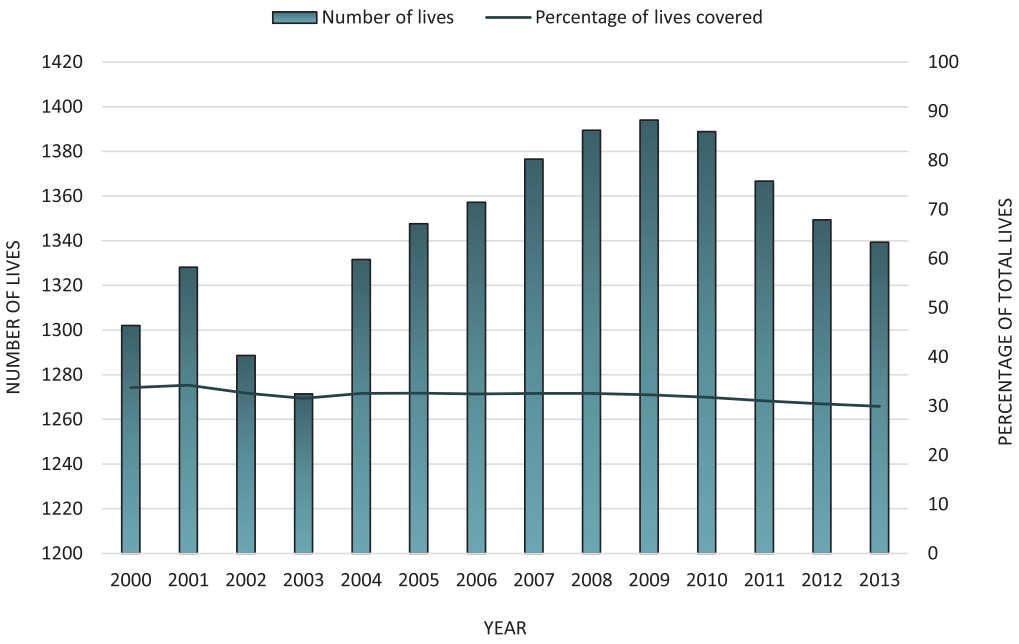
In 1938, the then Labour Party introduced legislation to provide universal medical treatment under the *Social Security Act*. Public hospitals and prescription medicine became free and doctors' fees became subsidised.

Publicly funded health care rose faster than national income in most of the last 60 years. The peak of public spending (relative to total) was in the early 1980s. From 1983, following worldwide trends, a series of reforms were designed to decentralise health care provision to District Health Boards to increase accountability and efficiency.

Figure 3.02b shows that the number of lives covered by private health insurance has declined slightly since 2000 (34%) and 2013 (30%). These figures have declined since the late 1980s, when around 50% of New Zealanders were covered by private health insurance.

FIGURE 3.02A PRIVATE HEALTH INSURANCE

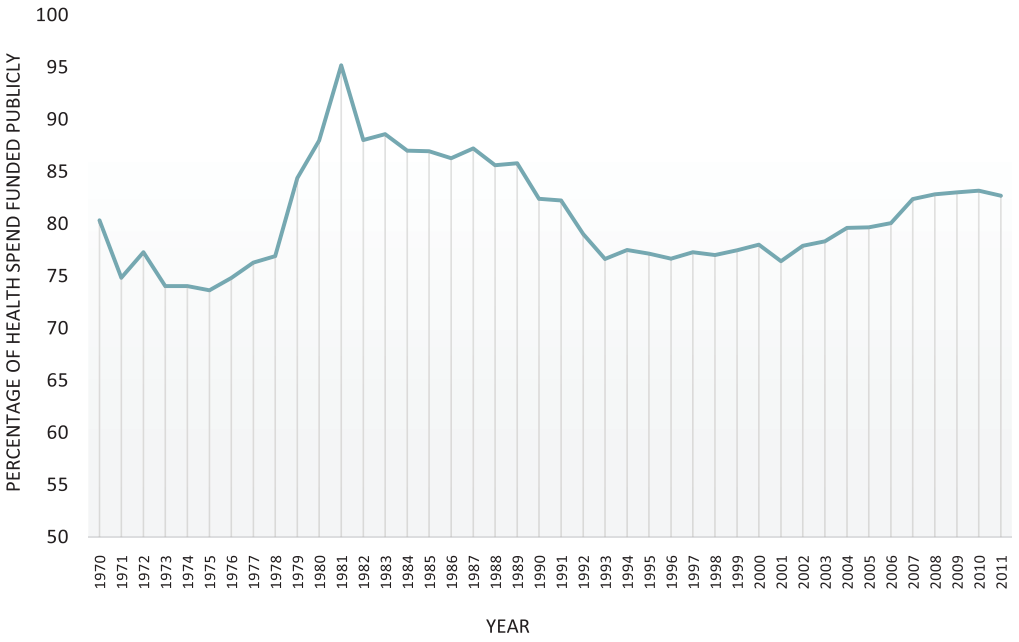
Number and percentage of people covered by private health insurance 2000–13



Source: Organisation for Economic Co-operation and Development (OECD)

FIGURE 3.02B PUBLIC SPENDING ON HEALTH

As percentage of total health expenditure
1970–2011



Source: Organisation for Economic Co-operation and Development (OECD)

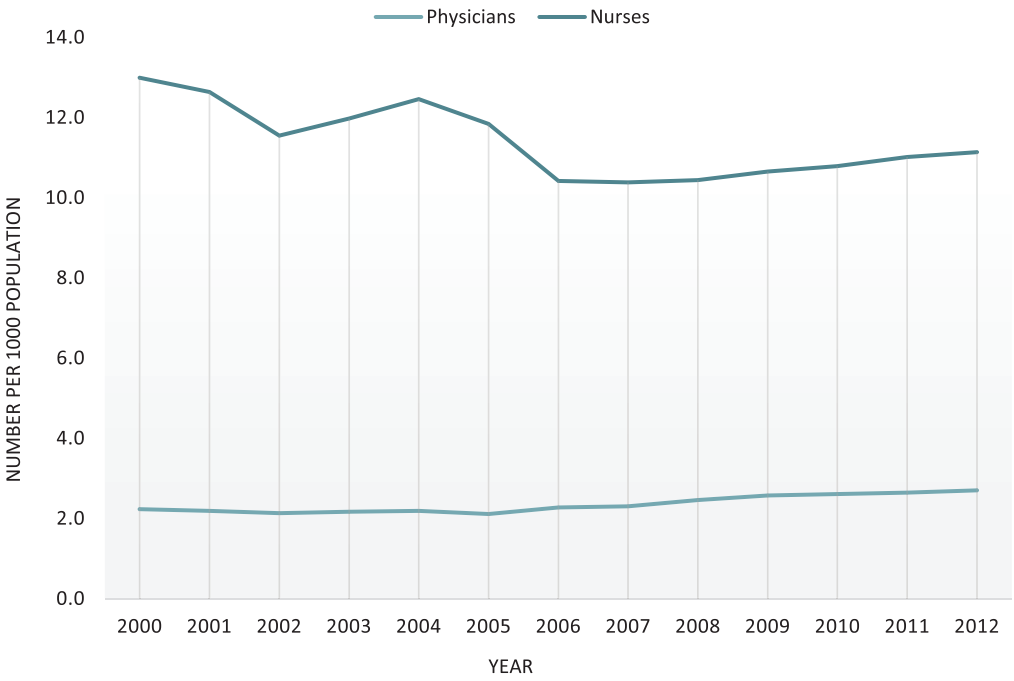
3.03 MEDICAL PRACTITIONERS

General practitioner and nursing care is a major part of our health system. Figure 3.03 shows a slight rise from 2.2 GPs per 1,000 population in 2000 to 2.7 in 2012. The number of nurses has reduced slightly from 13 per 1,000 population in 2000 to 11.1 in 2012.

The increase in the number of GPs per head of population may be partly explained by increasing numbers of women going into medicine – as women tend to take on more child care duties at home than men, they take on fewer work hours, meaning a greater supply of GPs are needed.

FIGURE 3.03 NUMBER OF PHYSICIANS AND NURSES

Per 1,000 population
2000–12



Source: Organisation for Economic Co-operation and Development (OECD) and The Nursing Council

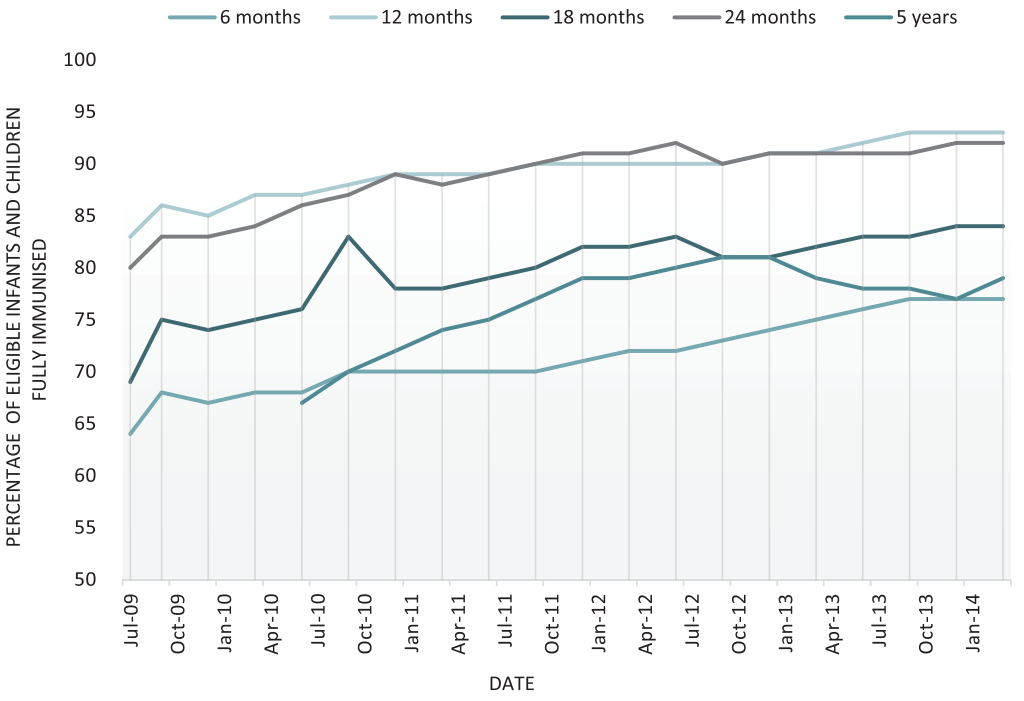
3.04 IMMUNISATION RATES AND INFECTIOUS DISEASES

Immunisation rates have steadily improved for infants and children in the last five years. Free immunisations for young children in New Zealand protect against 10 serious diseases: polio, hepatitis B, diphtheria, tetanus, pertussis (whooping cough), measles, mumps, rubella, haemophilus influenzae type B meningitis, and pneumococcal disease.

Immunisation rates from 1997 to 2012 for the above diseases, which are classed as infectious and 'notifiable' (requiring public health investigation to prevent the further spread of those diseases), are shown in the two charts below. Polio and diphtheria rates are not included as there have been very few cases in the last 50 years. Aside from whooping cough, which breaks out as an epidemic every three to five years in New Zealand, the charts show a general decline in the rate of these infectious diseases.

FIGURE 3.04A CHILD IMMUNISATION RATES

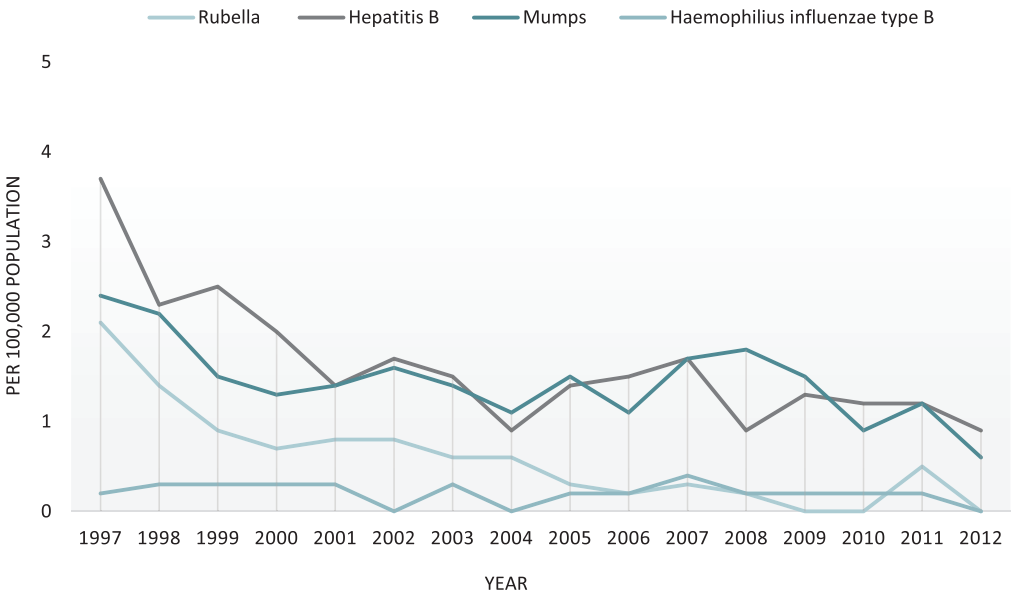
As percentage of eligible infants and children fully immunised 2009–14



Source: Ministry of Health

FIGURE 3.04B RATES OF NOTIFIABLE DISEASES, PREVENTABLE BY VACCINATION

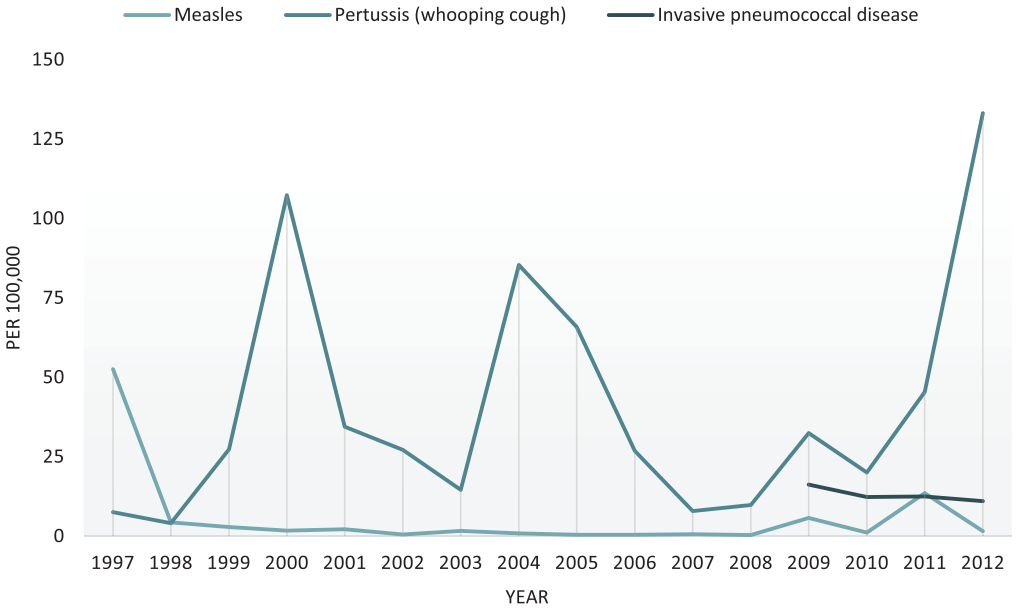
Per 100,000 population
1997–2012



Source: Institute of Environmental Science and Research

FIGURE 3.04C RATES OF NOTIFIABLE DISEASES, PREVENTABLE BY VACCINATION

Per 100,000 population
1997–2012



Source: Institute of Environmental Science and Research

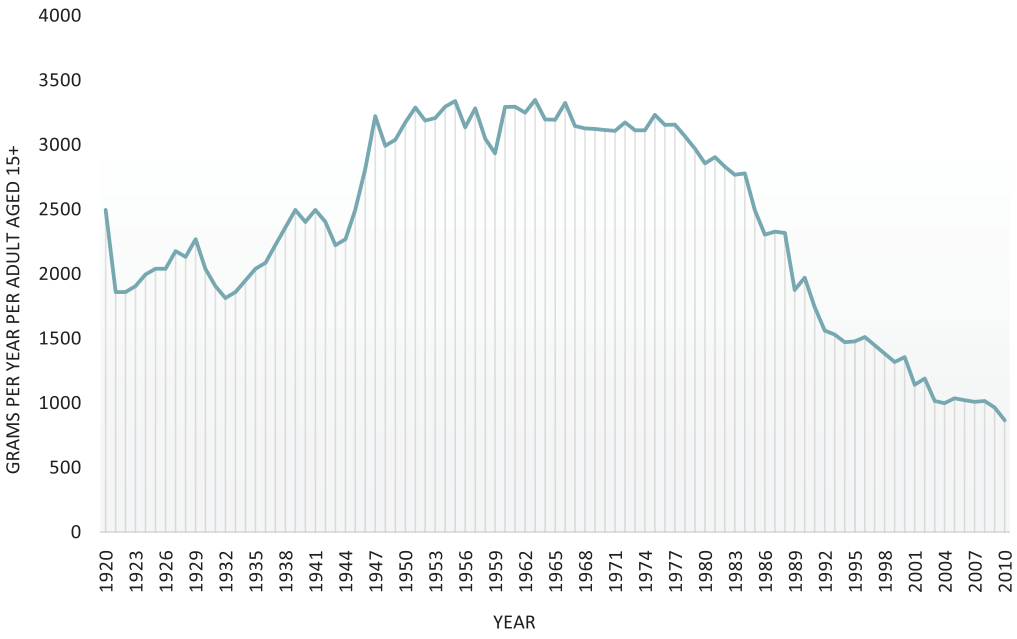
3.05 TOBACCO USE

The consumption of tobacco increased in New Zealand up until the 1980s, and has steadily declined since then. The percentage of the population who smoke on a daily basis also declined steadily between 1983 and 2007. Among teenagers aged 14 to 15 years, daily smoking fell from 15.6% in 1999 to 3.2% in 2013.

From the 1930s to the 1950s, researchers started to realise the health effects of smoking, noting in particular the coincidence of the rise in lung cancer and tobacco use. Tobacco is now widely recognised as the single leading cause of preventable death. It was not until the Surgeon General's 1964 report linking smoking with a range of diseases that governments began implementing tobacco control policies. During the 1960s and 1970s, New Zealand started to require health warnings on cigarette packs and banned tobacco advertising. Since the 1980s, a wide-ranging and comprehensive array of tobacco control policies have been put in place, including increased taxation, cessation assistance, restrictions on smoking indoors, at work and in public, public health campaigns, and full bans on tobacco advertising and sponsorship.

FIGURE 3.05A ANNUAL CONSUMPTION OF TOBACCO

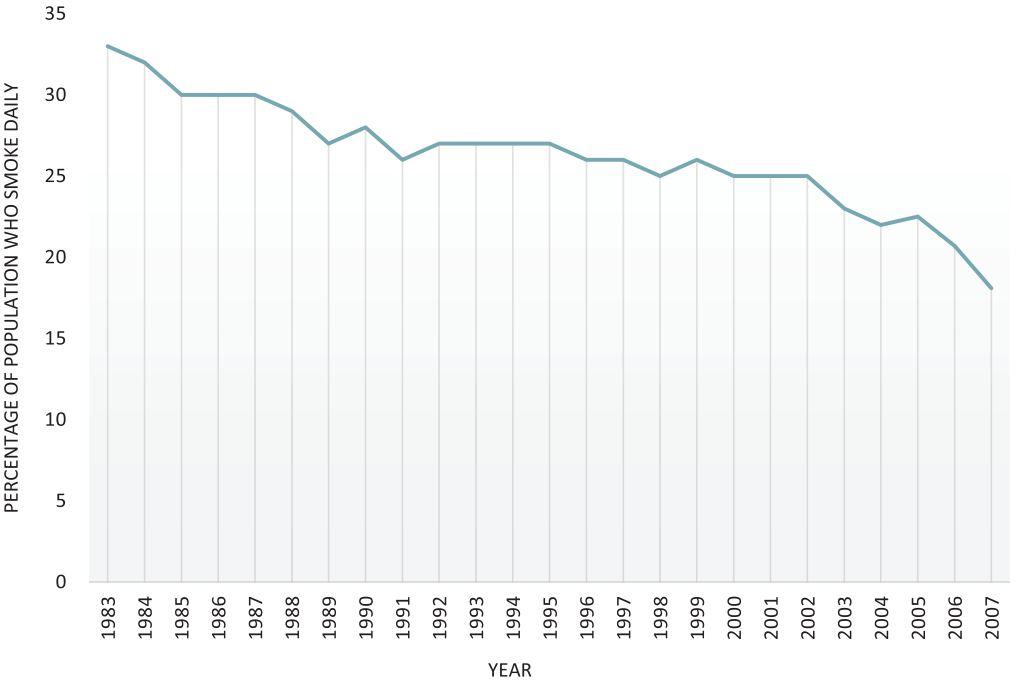
Grams per year per adult aged 15+
1920–2010



Source: End Smoking NZ

FIGURE 3.05B TOBACCO USE

Percentage of population who smoke daily
1983–2007



Source: Organisation for Economic Co-operation and Development (OECD)

3.06 ALCOHOL USE

New Zealand's history of alcohol control policy has been characterised by large swings of the pendulum between control and liberalisation. Trends on alcohol consumption are only available from 1986 to 2013. Figure 3.06 shows that the volume of alcohol on the market appeared to trend downwards in the late 1980s and 1990s, with a slight upward trend from the 1990s onwards.

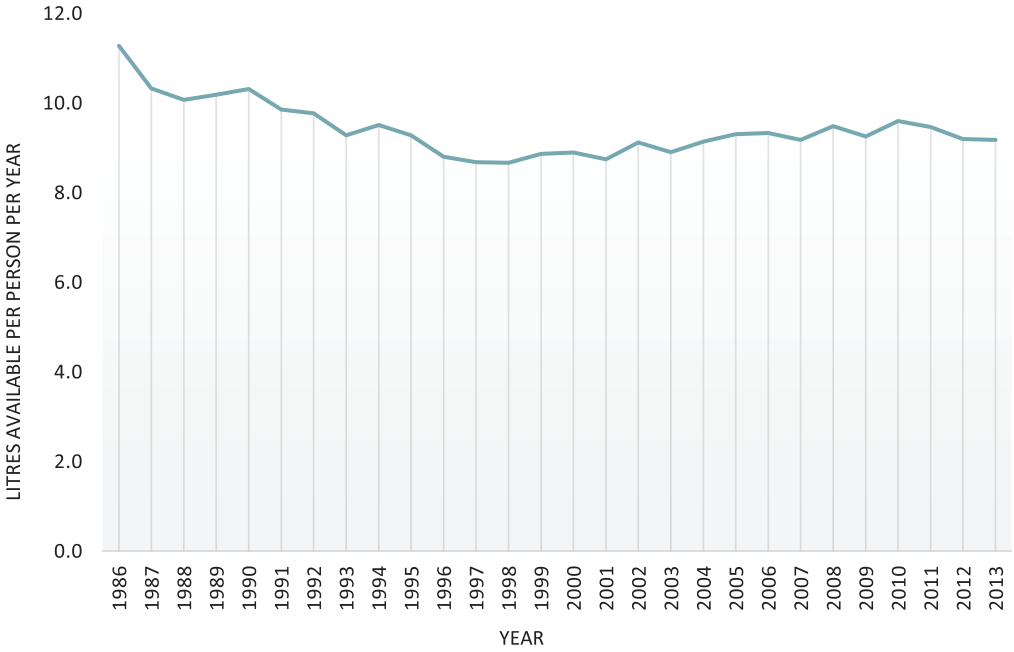
During the pioneering period in the middle of the 19th century, the problem of public drunkenness led to the temperance movement. In 1881, Sunday trading was banned and ratepayers were given control over new liquor licences in their local areas.

Prohibition of alcohol then declined up until World War II, and in 1948, a central authority for liquor licensing was established. The 1960s saw a swing towards liberalisation; the number and types of licences were increased, drinking hours extended, and the purchasing age lowered to 20. Reforms in the late 1980s and 1990s made liquor licences easier to obtain, opened Sunday sales, and further reduced the purchasing age to 18. While these reforms have reduced controls, the excise tax on alcohol has been linked to the Consumer Price Index (CPI) since 1989. This is significant given that taxation is the most effective policy for reducing alcohol consumption.

The *Sale and Supply of Alcohol Act* came into force in December 2012 covering legislative changes including reduced trading hours, banning promotions that encourage excessive drinking, and devolving power to local communities to make decisions on licensing.

FIGURE 3.06 ALCOHOL AVAILABLE FOR CONSUMPTION

Litres available per person per year (aged 15 years and older)
1986–2013



Source: Statistics New Zealand

3.07 OBESITY

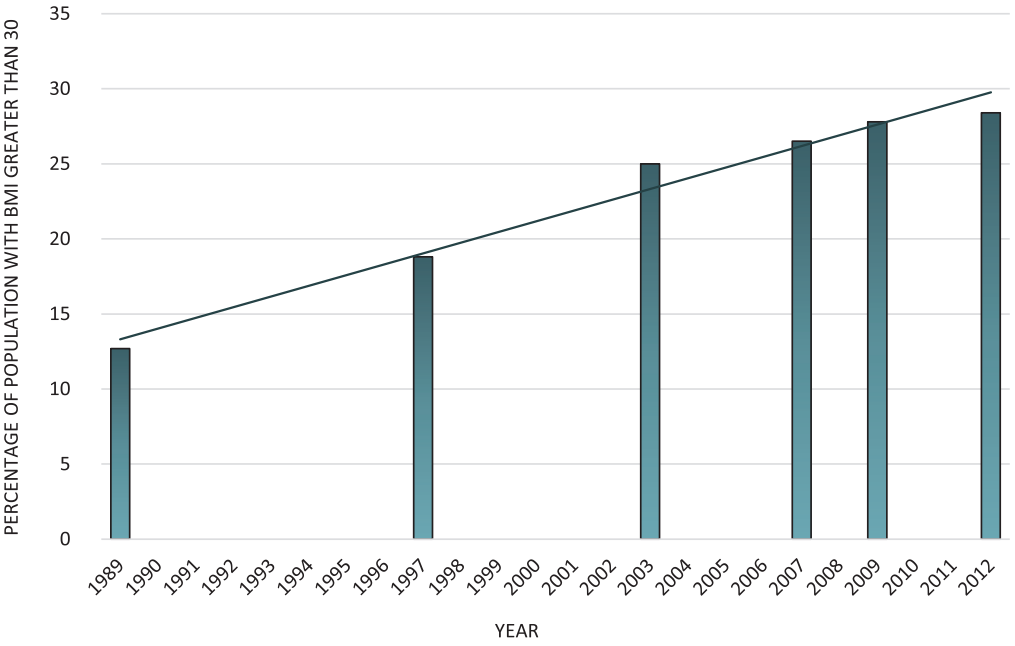
Although data is sparse, there is a trend of increasing rates of obesity among the New Zealand public between 1989 and 2012. While obesity rates have doubled internationally since 1980, New Zealand's obesity rates more than doubled from 12.7% to 28.4%. The World Health Organization describes obesity as an epidemic.

Growing obesity rates have been attributed to an increase in the consumption of energy-dense foods and a decrease in physical activity due to a shift towards more deskbound work and increased urbanisation. Obesity rates are generally higher among lower-income people who tend to eat lower cost food that is less nutritious and higher in fat and sugar.

Public health advocates have been pushing for food regulation, such as taxes on unhealthy food and drink, but largely there has been little in the way of public health intervention to reduce obesity rates in New Zealand.

FIGURE 3.07 OBESITY RATES

Percentage of population with Body Mass Index (BMI) greater than 30
1989–2012



Source: Organisation for Economic Co-operation and Development (OECD)

3.08 MENTAL HEALTH

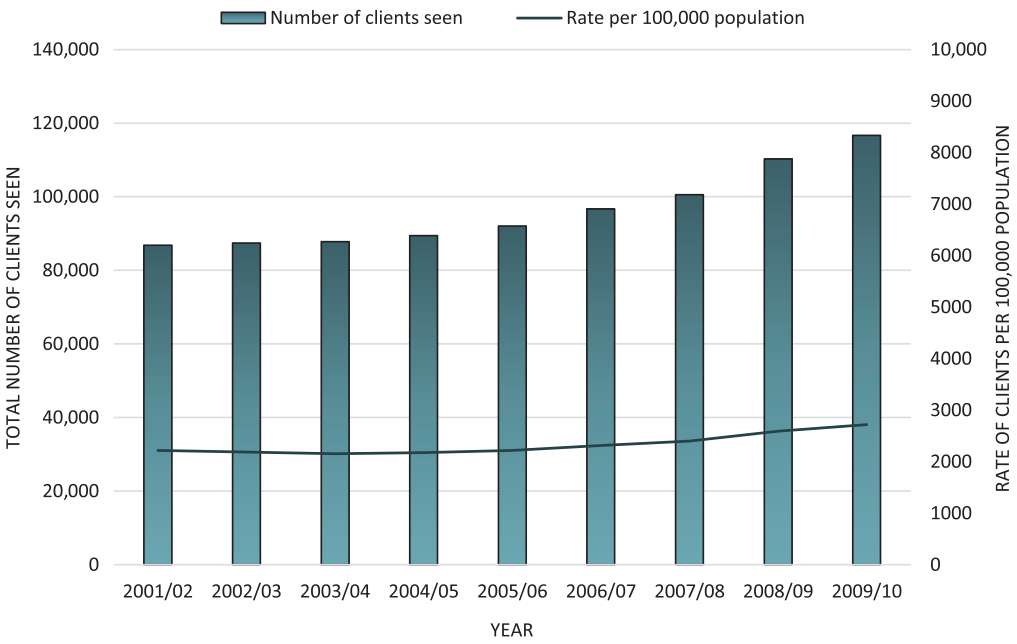
It is very difficult to obtain long-term consistent data on mental health, as methods of collecting data keep changing.

There was an increase in the number of funded anti-depressant prescriptions between 2009 and 2012. In addition, the number of people accessing specialist mental health services increased each year between 2001 and 2010. However, at a population level, the rate and the increase has been marginal (from around 2.2% of the population to 2.7%).

The Mental Health Foundation notes that interpreting apparent increases in the rates of depression is difficult, as the data could be explained by expanding diagnostic criteria and a trend towards pharmaceutical solutions for treating mental health issues. They also note a lack of consensus medically on the definition and treatment of depression. While there is certainly a growing perception that mental health, and depression in particular, is a public health epidemic, the data is not clear as to whether it is a growing problem in reality.

FIGURE 3.08A PEOPLE ACCESSING SPECIALIST MENTAL HEALTH SERVICES

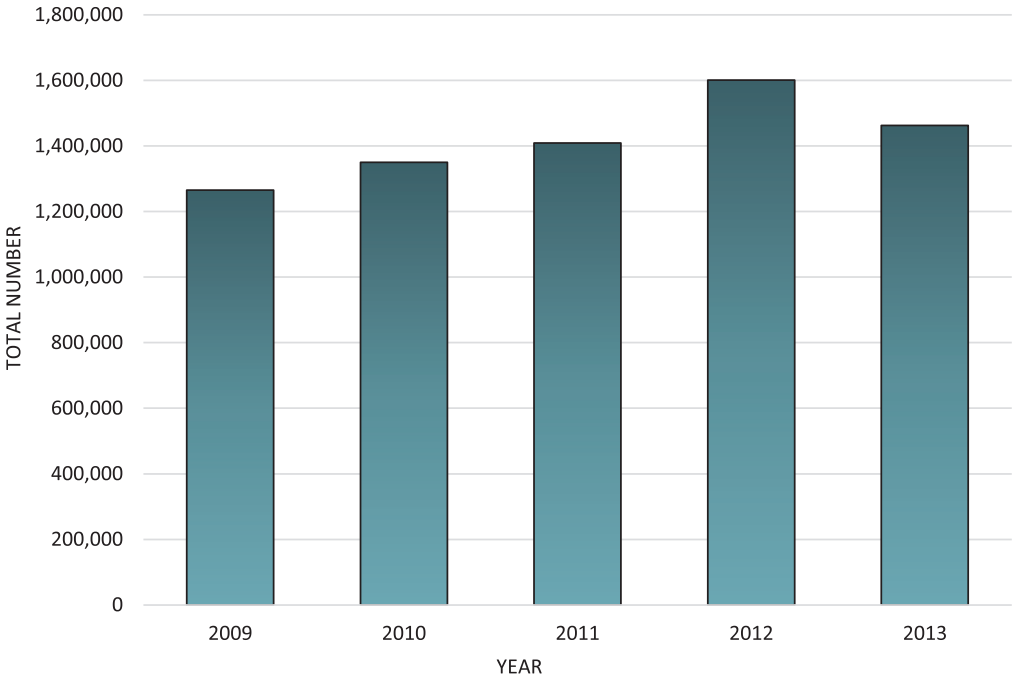
Total number and rate per 100,000 per annum
2001–10



Source: Ministry of Health

FIGURE 3.08B NUMBER OF FUNDED ANTI-DEPRESSANT PRESCRIPTIONS

Total number per year
2009–13



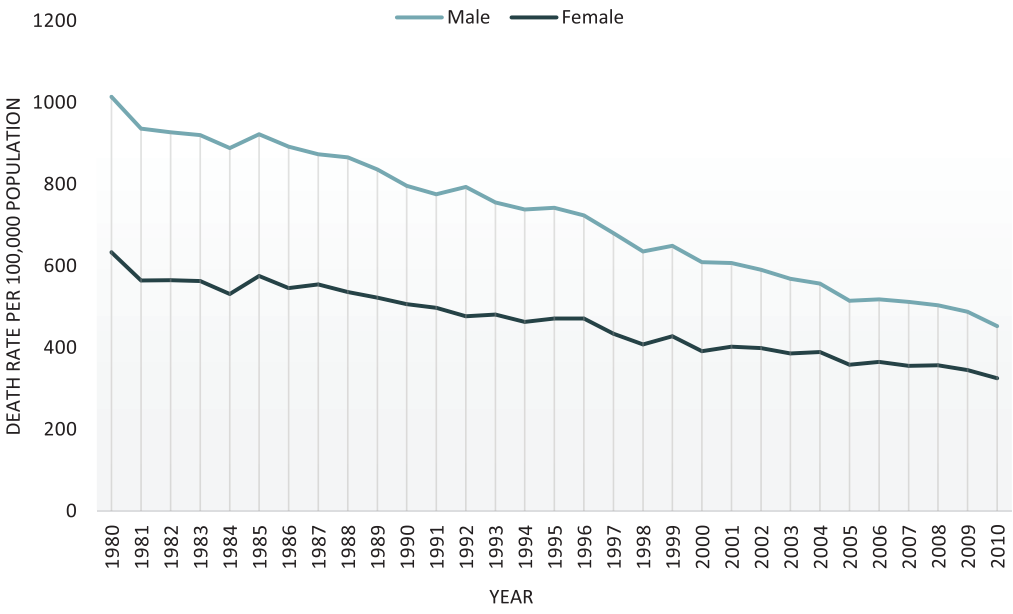
Source: Ministry of Health

3.09 DEATH RATES

The 'epidemiological transition' experienced across the world, and among most societies, has seen diseases of old age and lifestyle replace infections as the main causes of sickness and death. Alongside this trend, there has been a radical improvement in life expectancy and a significant reduction in infant and child mortality, as potentially fatal diseases like smallpox and tuberculosis become more readily treatable and preventable with the aid of modern medicine.

New Zealand has experienced the same global trend – a shift in disease and death patterns along with a long-term decline in death rates and an increase in life expectancies. While a longer term data set would certainly show a much more dramatic result, in just three decades the domestic death rate has decreased tremendously. The average death rate for females has decreased by about 48%, from 633 deaths per 100,000 people in 1980, to just 324 deaths per 100,000 in 2010. The average death rate for males has been even more dramatic, decreasing by 55%, from 1,013 deaths per 100,000 population in 1980, to just 412 deaths per 100,000 population in 2010.

FIGURE 3.09 DEATH RATE
Per 100,000 population
1980–2010



Source: Ministry of Health

3.10 SUICIDE

Figure 3.10 shows the suicide rate among men and women in New Zealand. The overall rate is not exceptional among developed world nations, which is led by South Korea, but New Zealand still ranks in the top third among OECD countries.

Clearly there is no single factor that drives people to take their own lives, but research indicates a link between times of economic hardship and suicide. Historian John Weaver believes this explains why more men than women commit suicide, as men traditionally have taken on the role of the breadwinner.

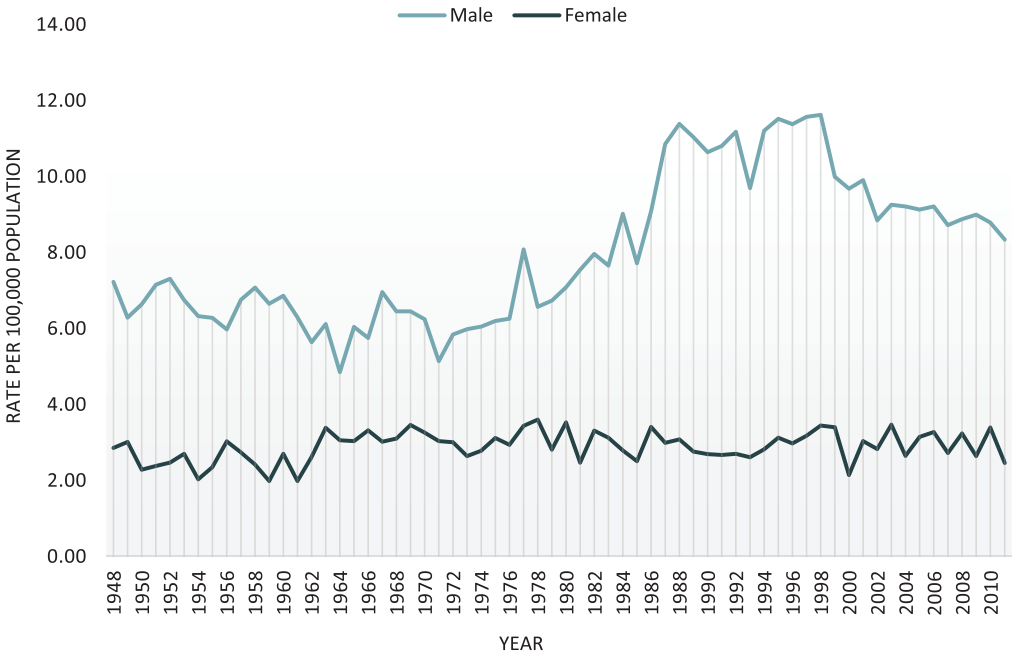
This can be seen in Figure 3.10 with the divergence between female and male suicide rates, which widened as the period of post-war prosperity wound down in the 1970s, increasing economic hardship in the country. This uncertainty later triggered a major period of regulatory reform, which fundamentally changed the shape of the New Zealand economy, and may explain why suicide rates among men peaked in the 1990s.

The male rate has fallen slightly since then, although it is difficult to link this to underlying economic performance as a number of programmes and strategies have been launched since the 1980s to lower the incidence of suicide. These include support groups and a ban on media reporting on the details of a suicide case.

FIGURE 3.10 SUICIDE

Males and females, per 100,000 population

1948–2011



Source: Ministry of Health

3.11 MOTOR VEHICLE DEATHS (15–24 YEARS)

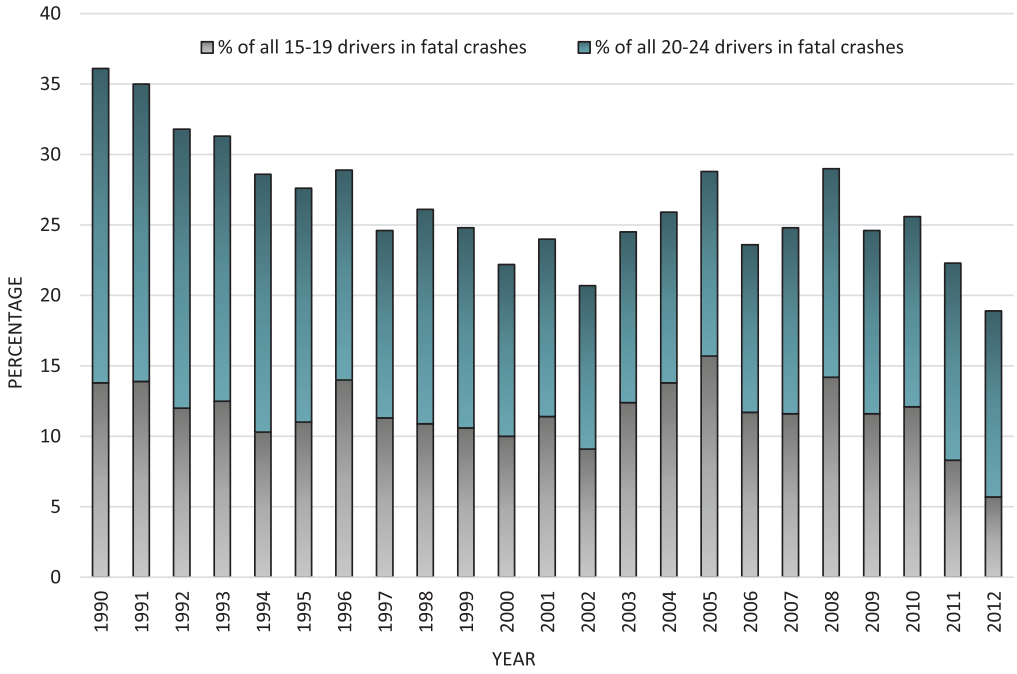
In relation to total population, New Zealand has an alarming number of fatal motor vehicle accidents. While the number of people killed on New Zealand's roads appears to be declining, *Te Ara* (The Encyclopedia of New Zealand) states that the total number of people killed in motor vehicle accidents in 2008 was roughly equivalent to the deaths that would result from three Boeing 737 plane crashes.

Motor vehicle accidents are a major cause of premature death among the younger age groups; those in the 15- to 24-year-old age group are identified as being at a far greater risk of death from motor vehicle crashes than any other group, with males in this age group at a particularly high risk.

The Ministry for Social Development found that between 2005 and 2009, the average annual road user death rate for those aged 15 to 24 years was double that of the population as a whole. However, motor vehicle death rates have fallen steadily for all age groups since the mid-1980s, particularly for the 15- to 24-year-old age group.

This is most probably due to a combination of more stringent licensing requirements, stricter test conditions, and improved safety enhancements in vehicles. In 1990, the number of young drivers in fatal car crashes accounted for 36.1% of all 15- to 24-year-olds, while in 2012, this figure was only 18.9%, a decrease of 17.2%.

FIGURE 3.11 YOUNG DRIVERS IN FATAL CAR CRASHES
As percentage of all fatal crashes
1990–2012



Source: Ministry of Transport

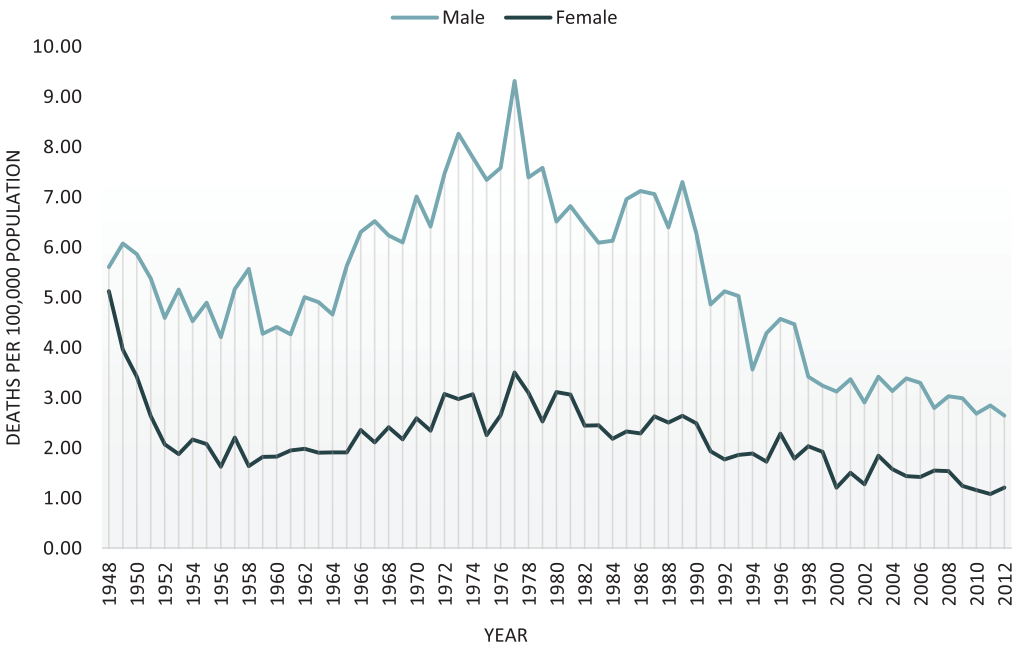
3.12 ADOLESCENT DEATH RATES (15–19 YEARS)

Young people, particularly males, are exposed to a high number of unique mortality factors due to a combination of inexperience and a high tolerance for risk.

Risky behaviour is particularly associated with mortality among young people, with 44% of youth deaths between 2003 and 2008 attributed to unintentional injury, according to *Te Ara*. Of these, more than two-thirds were due to car accidents, with those in their late teens the most at risk.

Suicide is another leading cause of mortality among New Zealanders. According to a study published in the medical journal *Lancet*, New Zealand teens are more likely to die from these two risk factors than in any other developed country, second only to the United States.

FIGURE 3.12 ADOLESCENT DEATH RATES (15–19 YEARS)
Per 100,000 population
1948–2012



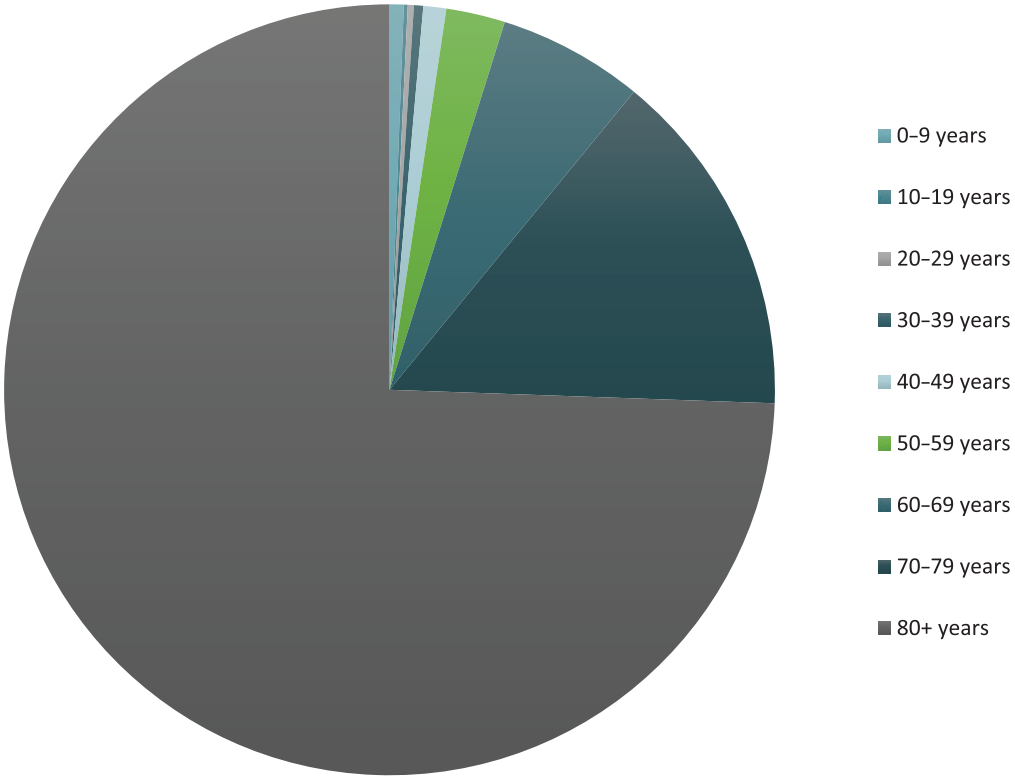
Source: Statistics New Zealand

3.13 DEATH RATES BY AGE

A comparison of the age-specific death rate for the years 1963 and 2013 captures a snapshot of increasing longevity of populations in developed countries. Factors such as greater access to health care, improved medical treatments, and a lower incidence of unskilled labour in the workforce are all factors that have increased longevity.

Awareness of risk factors and healthier lifestyles have also contributed to pushing out the average age of mortality. This can be seen in the charts below, with deaths in the 80+ category accounting for 81% of total mortalities in 2013, up from 74% in 1963. Indeed, with the exception of this category, the death rate across all age groups has continued to improve.

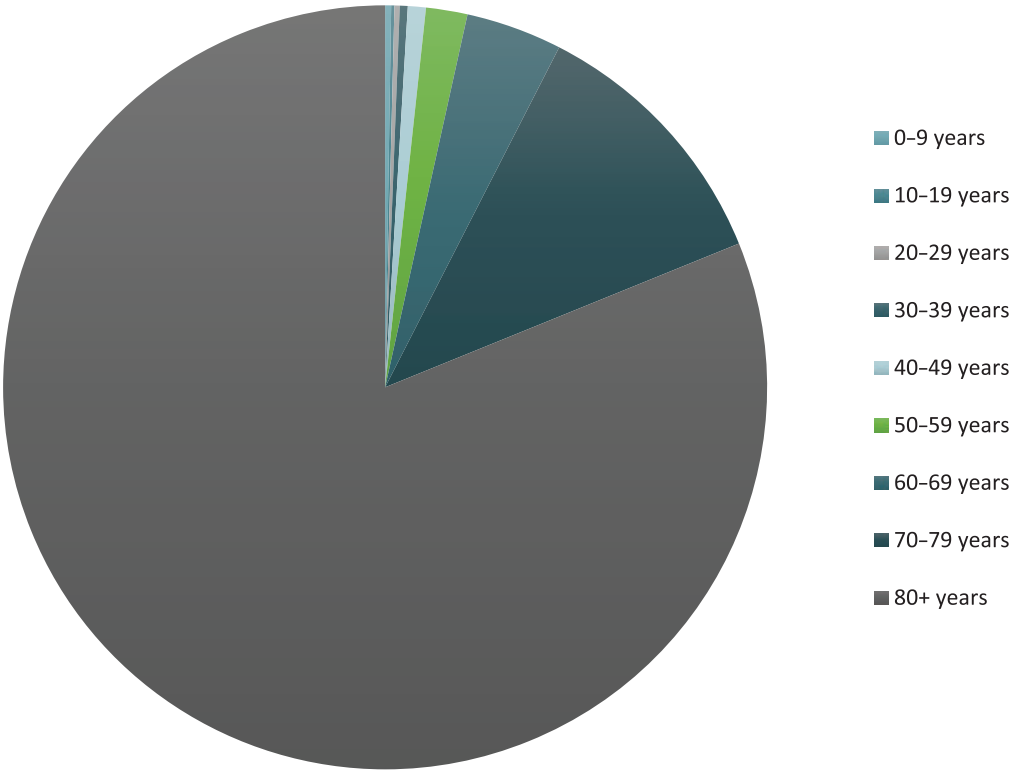
FIGURE 3.13A AGE-SPECIFIC DEATH RATE
1971



Source: Statistics New Zealand

FIGURE 3.13B AGE-SPECIFIC DEATH RATE

2013



Source: Statistics New Zealand

3.14 MOTOR VEHICLE ACCIDENT FATALITIES

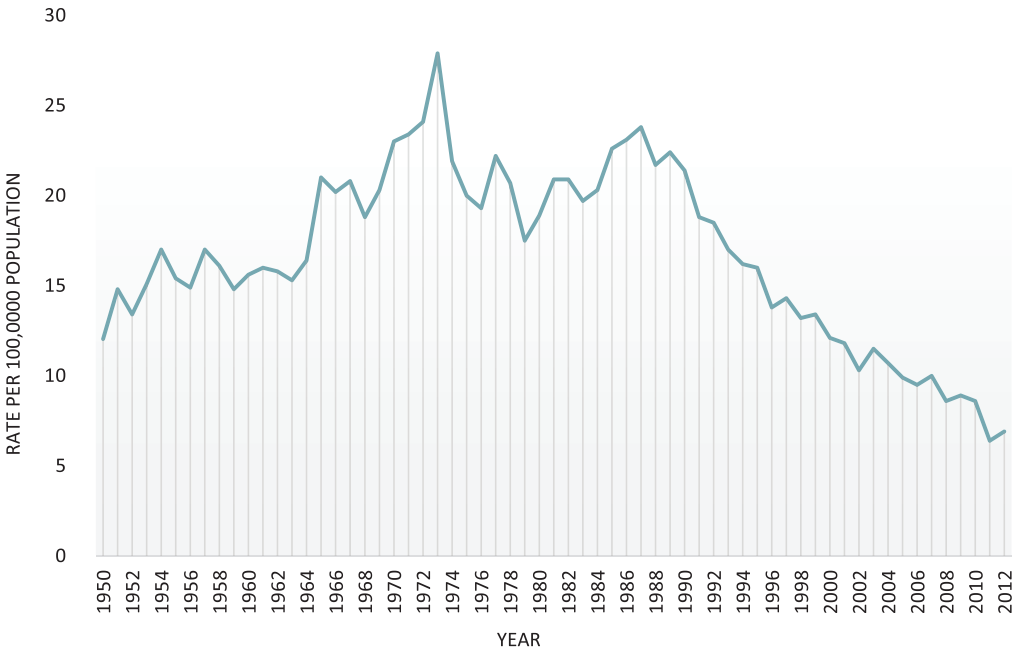
The rise in the number of motor vehicle fatalities after 1945 is explained by the growth in car ownership, with returning service men and women increasingly able to buy private transport in the prosperous post-war years. These were often powerful imported vehicles, which raised driving speeds, and hence the seriousness of accidents.

Socially, New Zealand's binge drinking culture also played a part in the rising level of road fatalities, with bars and pubs forced to close at 6PM until 1967. This put an increased number of drunk drivers on the road at once, with the 6PM to 7PM period then regarded as the most dangerous time to be driving.

Changing attitudes towards drink driving have since seen the trend reverse, helped by the introduction of strict penalties. Since 1975, it has been mandatory to wear a restraint in the front seats, and in 1979 this was extended to the rear seats. Other factors contributing to the decline in road fatalities include greater awareness of hazards, improved policing, better roads, and safer cars.

FIGURE 3.14 MOTOR VEHICLE ACCIDENT FATALITIES

Deaths per 100,000 population, drivers and passengers
1950–2012



Source: Ministry of Transport

3.15 MATERNAL DEATH IN CHILDBIRTH

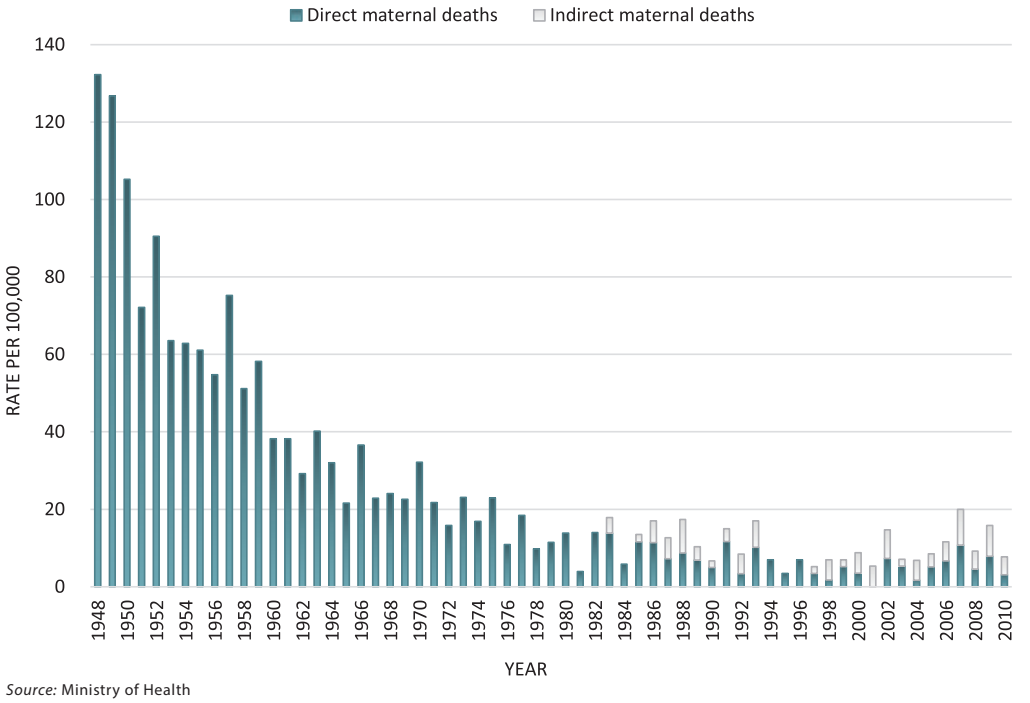
Currently, the life expectancy of New Zealand women tends to be higher than that of men. However, this was not always the case. Also, at particular stages of life, men's life expectancy exceeds that of women, most obviously during the childbearing years. Maternal death rates are often quite high in societies with both high mortality and high fertility rates, as was the case in early colonial New Zealand. Historical trends of poor female survival during the reproductive years can be attributed to the physiological exertion of childbearing combined with complications arising from pregnancy and labour as well as high rates of infectious diseases such as tuberculosis.

Figure 3.15 shows how dramatically rates of maternal death in childbirth have decreased over the past 60 or so years. In 1948, approximately 132 out of 100,000 women died directly as a result of childbirth. In 2010, however, this figure was only 3 out of 100,000, a total decrease of 97.5%. However, indirect maternal deaths (deaths as a result of pre-existing or newly developed health problems unrelated to pregnancy) have remained largely stable since 1983, fluctuating by 1 or 2 deaths per 100,000 each year. There were approximately 4 cases of indirect maternal deaths per 100,000 women in 1983, compared to 4.6 in 2010.

Dramatic improvements in modern medicine and technology, as well as early detection of many diseases, have contributed and will continue to contribute to ever-falling maternal death rates.

FIGURE 3.15 MATERNAL DEATH IN CHILDBIRTH

Rate per 100,000 live births
1948–2010



Source: Ministry of Health

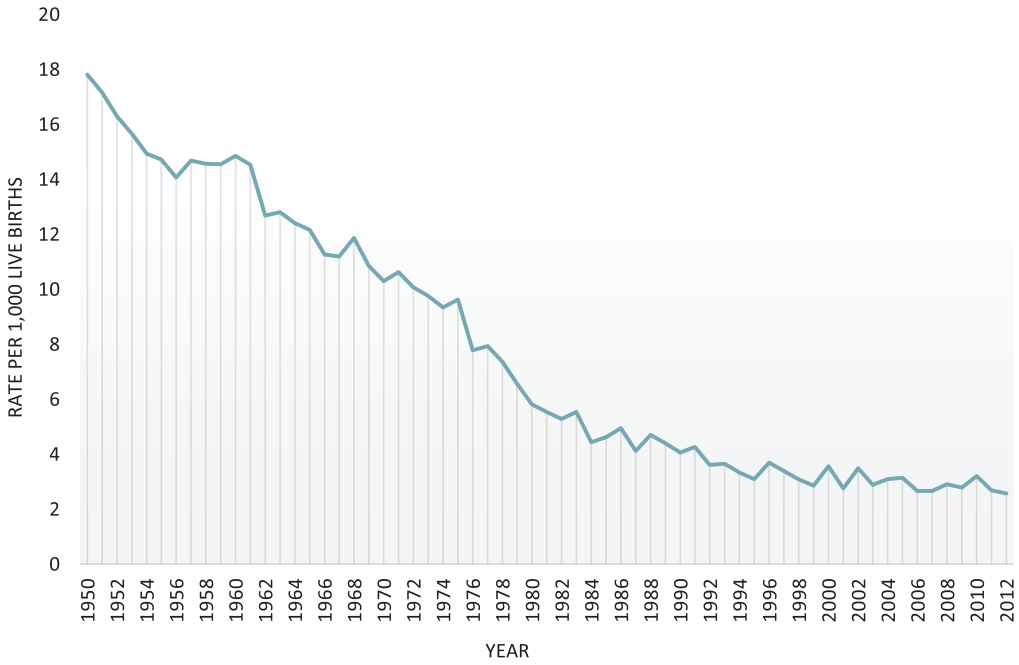
3.16 NEONATAL MORTALITY

New Zealand, like many developed countries, has seen a steady decline in neonatal and infant death rates as access to health care has increased and medical practices have improved. At a rate of 2.58 neonatal deaths per 1,000 live births in 2012, this is a decline of over 85% since 1950.

Ongoing improvements in child delivery practices and awareness of factors that contribute to oxygen deprivation around the time of birth have continued to push the neonatal death rate lower.

However, the top line figures obscure a higher death rate among babies born from multiple births (twins, triples, etc.) – 53 per 1,000 (multiple) births in 2011. Additionally, women of Māori, Pacific and Indian ethnicity are significantly more likely to experience a perinatal death due to socio-economic deprivation, according to the Health Quality and Safety Commission.

FIGURE 3.16 NEONATAL MORTALITY
Rate per 100,000 live births
1952–2012



Source: Ministry of Health

CHAPTER FOUR

EDUCATION

INTRODUCTION

American reformer and politician Horace Mann captured the benefits of education when he said "Beyond all other devices of human origin, [education] is the great equaliser of the conditions of men, the balance-wheel of the social machinery".

Those benefits are apparent in New Zealand today; the country belongs to the most prosperous nations on earth and is ranked sixth on the Human Development Index.

This egalitarian society is no accident. Early on in the nation's history, New Zealand's government recognised the importance primary education, making it compulsory for all children between the ages of 7 to 13 as far back as 1860. The effect is that the country has achieved nearly full student enrolment since this time. The high uptake of early childhood education, which stood at 95% by 2009, reflects social changes such as the number of women active in the workforce, and illustrates the country's willingness to provide equal access to early childhood learning in these critical years of development.

New Zealanders have also placed increasing importance on secondary and tertiary qualifications as the economy rewards skilled workers with higher wages. Most recently, over 80% of 25- to 34-year-olds held a high school qualification, while almost half of the same age group held bachelor's degrees.

Indeed, the quality of the country's education system attracts large numbers of foreign students, particularly from China, but New Zealand must continue to uphold the highest standards of tertiary education if it is to compete on the world stage for the lucrative international market.

Education in New Zealand is not without its challenges. International measures of performance among 15-year-olds show that while New Zealand still has a world class education system, the level of competency in mathematics, science and reading is starting to decline. It is particularly concerning that almost one-quarter of 15-year-olds cannot do mathematics at a basic level. Lifting achievement for this group of low performers is crucial in the changing economy which demands high levels of mathematical competency, in particular.

The aim behind the data gathered in this chapter is to highlight the role that education has played in the history of New Zealand so far, and galvanise support for continued work in the education sector so this country can continue to progress, especially for those who start off with a disadvantage.

4.01 PUBLIC AND PRIVATE EDUCATION

In New Zealand, most schooling is provided by the public sector, and in 2013, 96% of students were enrolled in public schools.

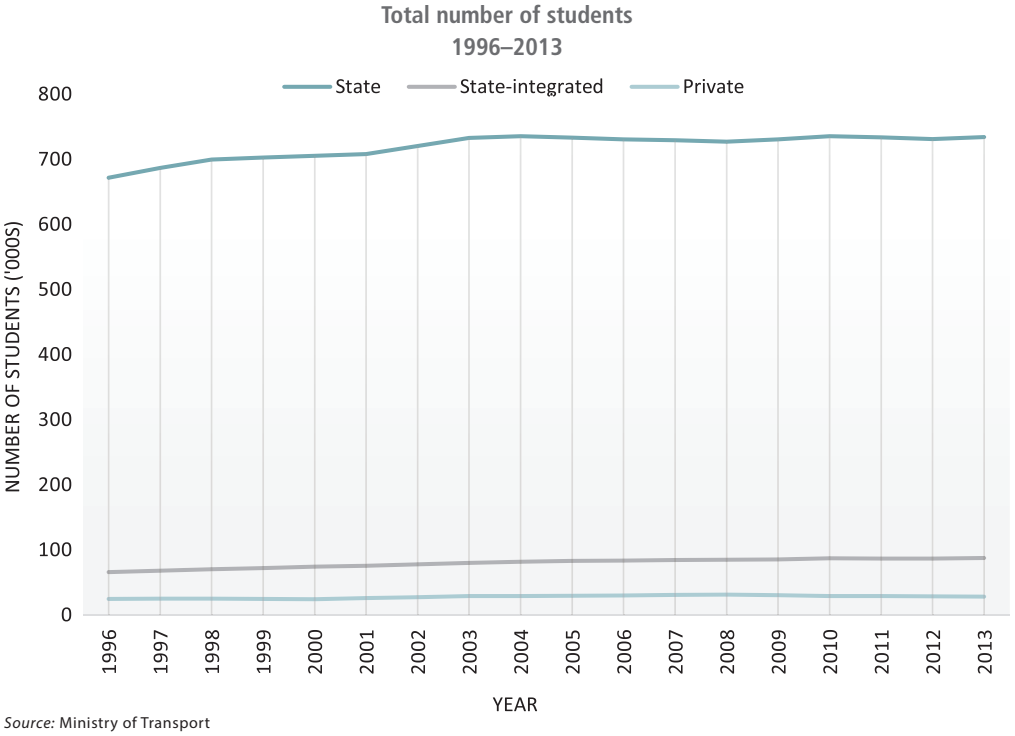
Post World War II, religious private school networks struggled to keep up with the quality of state education, and faced severe financial pressures by the end of the 1960s. To prevent a sudden influx of students should the private system collapse, the government gradually integrated these schools into the public system between 1977 and 1984.

Proprietors of these state-integrated schools own the land and buildings and preserve each school's special character (religious or philosophical), but otherwise they run as state schools – following the national curriculum and employing registered teaching staff. Preferential enrolment is allowed, and parents pay special fees for capital costs.

Conversely, private schools are funded by mandatory school fees, but do receive some government funding.

The mix of state, state-integrated, and private schooling has remained steady over time. Partnership Schools, a new model of schooling where schools are privately owned, publicly funded, and contracted to reach set targets, were initiated in 2014. So far it is a policy at the margins; five schools have been contracted to educate a total of 369 students, figures too small to feature in Figure 4.01. A second round of tenders is under consideration for a set of new Partnership Schools for 2015.

FIGURE 4.01 STATE, STATE-INTEGRATED, AND PRIVATE SCHOOL ENROLMENTS



Source: Ministry of Transport

4.02 STUDENT-TEACHER RATIO

According to the OECD, the student-teacher ratio is "an important indicator of the level of resources devoted to education". The New Zealand government does not regulate class size in that it does not prescribe how teachers are deployed across each school. However, there is a maximum student-teacher ratio for different year groups (shown in Table 4.02), which is used to calculate staffing entitlement funding for schools.

The way the funding formula works means that some small schools may end up with higher ratios than intended. To correct for this, the Ministry of Education operates a 'Maximum Class Size Average' policy of 25 students per teacher, calculated after the entitlement funding formula is applied.

Dividing the total student enrolment figure by the total number of full-time teachers, the overall actual ratio in 2012 was 23.6 students per teacher. Taking into account school management, the ratio is 16.4 students per teacher. These figures corroborate with OECD calculations (see table below).

TABLE 4.02 STUDENT-TEACHER RATIO (POLICY AND ACTUAL)

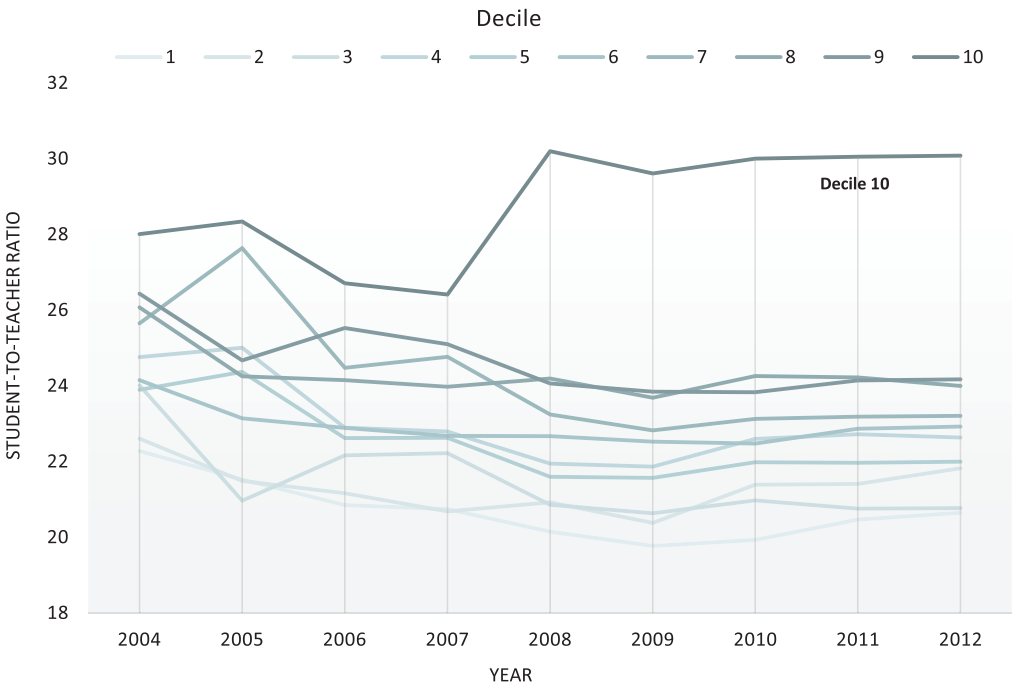
	PRIMARY				SECONDARY		
YEAR	1	2–3	4–8	9–10	11	12	13
Student-teacher ratio – policy	15	23	29	23.5	23	18	17
Student-teacher ratio – actual (OECD)	16.3				13.9		

Figure 4.02 shows two trends. First, the number of students per teacher has declined over the past decade from 25.5 students per teacher in 2004 to 23.6 in 2012. Second, lower decile schools employ more teachers per student. This is despite a school's decile rating not factoring into the number of teaching staff schools are entitled to. However, a school's operational funding does differ by decile, and school boards may employ teachers from their own resources, including operational funding.

The clear pattern of student-teacher ratio by decile indicates that schools serving a higher proportion of disadvantaged students may be using their operational funding to employ more teachers.

FIGURE 4.02 STUDENT-TEACHER RATIO

By decile
2004–12



Source: Ministry of Education

4.03 PISA SCORES

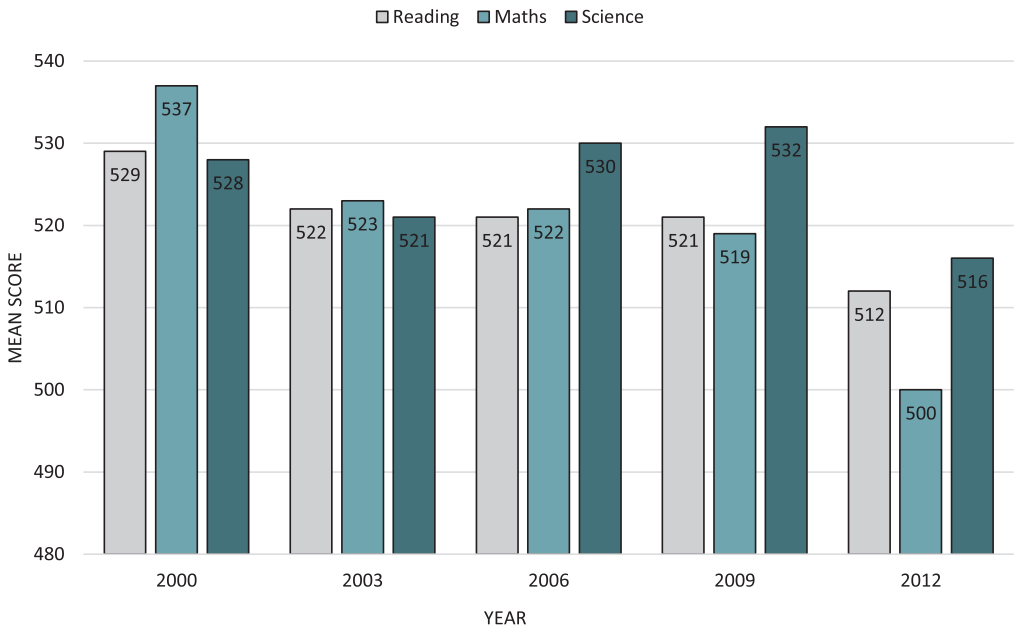
The OECD's Programme for International Student Assessment (PISA) measures the ability of 15-year-olds to apply reading, mathematics and science literacy to real-world problems. Beginning in 2000, it is the most cited study of internationally comparable student achievement, and has been influential in education policymaking around the world.

For reading and mathematics, there was a slight decline in mean performance over time in New Zealand, and most of this was explained by statistically significant declines between 2009 and 2012. For science, 2006 was the first year the full breadth of ability was measured, meaning scores are only comparable between 2006 and 2012. The mean science score increased from 2006 to 2009 but declined to pre-2006 levels in 2012.

To put these numbers into context, 40 points on the PISA scale is equivalent to about a year's worth of schooling. New Zealand's 15-year-olds in 2012 were roughly half a year behind in reading and almost a full year behind in mathematics, compared with their 2000 counterparts. In science, 15-year-olds in 2012 were around a third of a year behind compared with their 2006 counterparts.

FIGURE 4.03 PISA SCORES

Mean scores for reading, mathematics and science, 15-year-olds
2000–12



Source: Education Counts

4.04 TERTIARY ENROLMENT

In 1880, there were 211 students enrolled in tertiary study in New Zealand. By 2011, almost 45,000 students were enrolled.

The number of enrolments peaked in 2005 but Figure 4.04a shows a steady decline since then, which is mostly explained by a reduction in polytechnic enrolments. University enrolment has remained fairly steady.

The overall trend towards more enrolment in higher level tertiary study reflects a shift in developed economies away from manufacturing and primary industries towards the service economy.

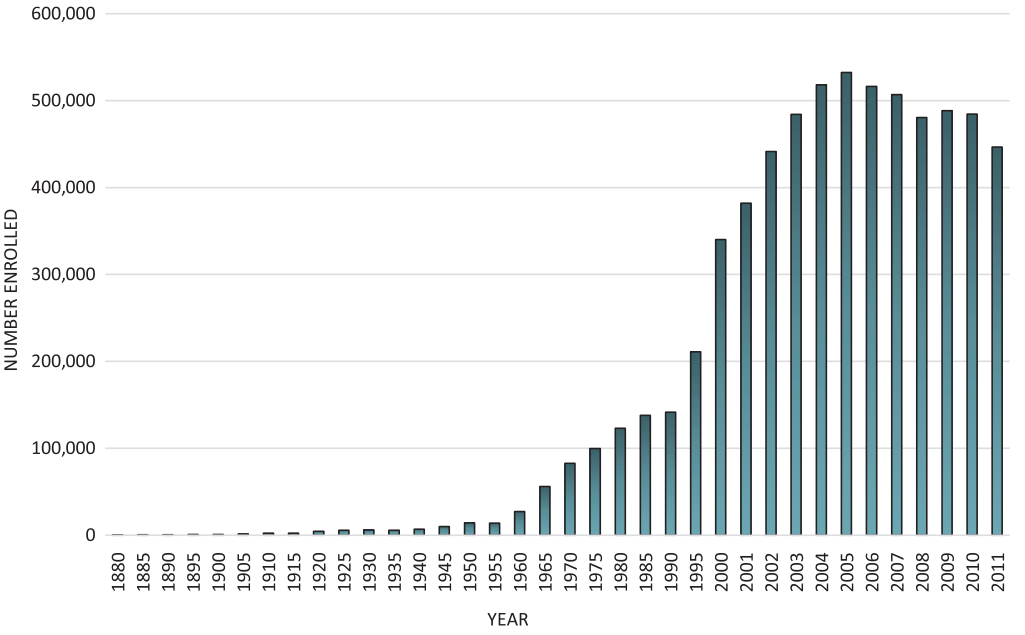
Figures from 1994 are not comparable. Colleges of Education were merged with universities between 2005 and 2007.

Figure 4.04b shows the number of domestic students enrolled in different types of courses between 2006 and 2012. The largest two categories of enrolment by far are 'society and culture' and 'management and commerce'.

Although the number of students enrolled in science courses has remained steady, the chart shows declining enrolments in information technology, engineering, agriculture and environment, and management and commerce, roughly reflecting the decline in interest in the STEM (science, technology, engineering, maths) subjects – where there is growing demand for skilled professionals. Science and agriculture was given a boost by the 2014 Budget, with subsidies for enrolments in these courses.

FIGURE 4.04A STUDENTS ENROLLED IN TERTIARY EDUCATION

Total number
1880–2010

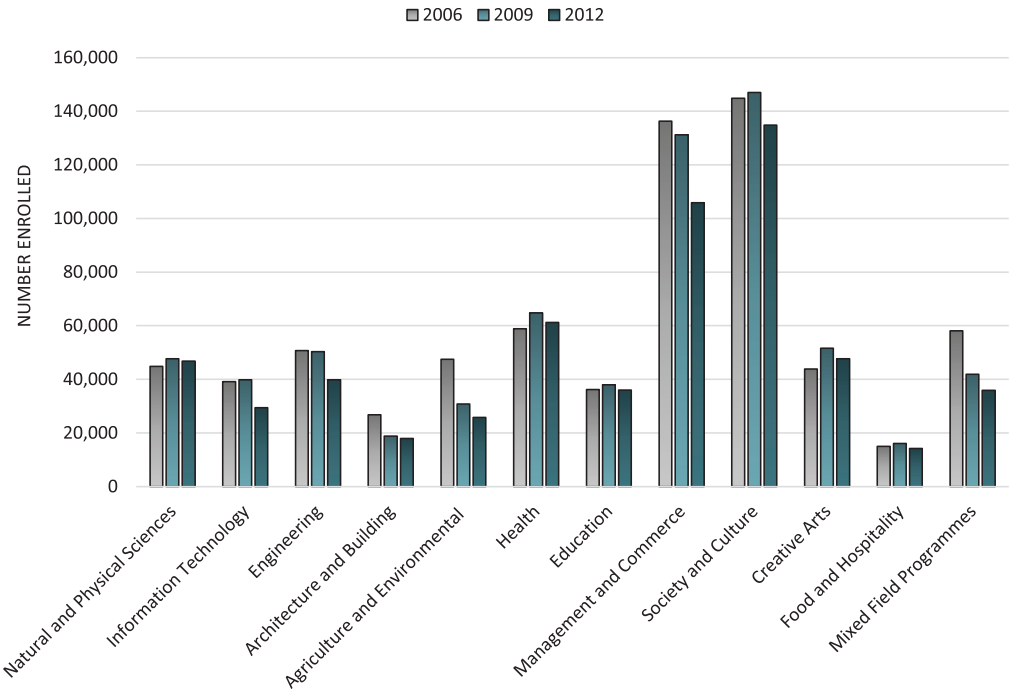


Source: Education Counts

FIGURE 4.04B NUMBER OF DOMESTIC STUDENTS ENROLLED IN FIELDS OF STUDY

Total number

2006–12



Source: Education Counts

4.05 EDUCATIONAL ATTAINMENT

The proportion of the population with at least secondary qualifications increased from 62% in 1991 to 76% in 2013. Census data from 1981 to 2001 (not shown here due to differences in methodology) support the overall trend of greater educational attainment over time.

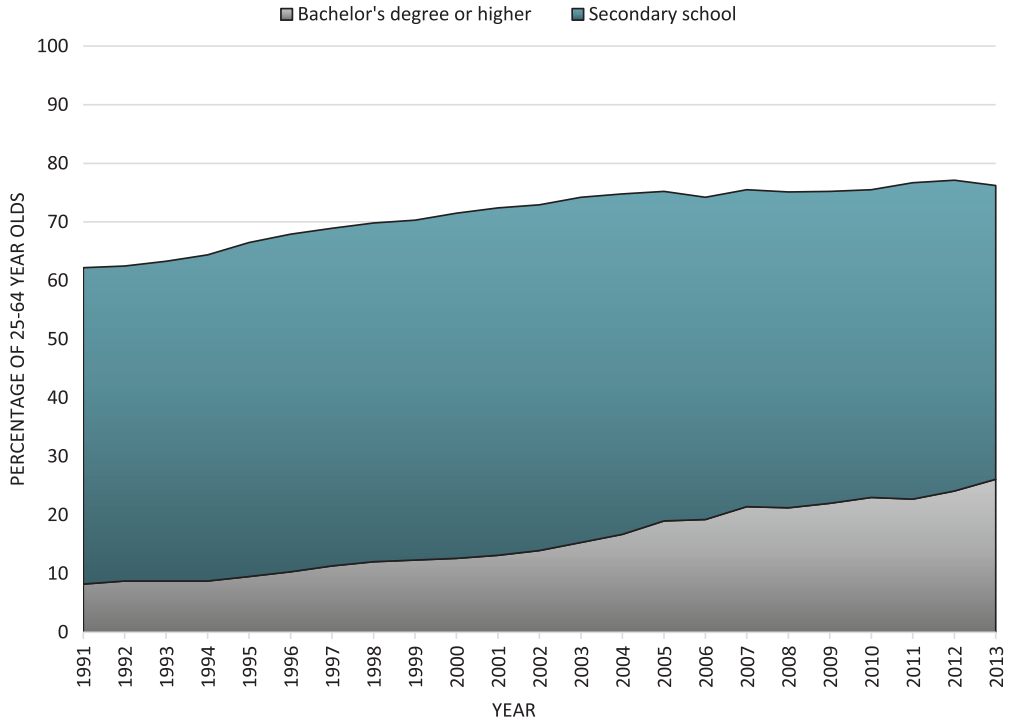
The rise in attainment between 1991 and 2013 is mostly explained by a tripling of those with bachelor degrees, from 8% to 26%, while the proportion with secondary school qualifications stayed relatively steady.

The increase in population education levels is also broken down by age in Figure 4.05b. The attainment of the 25- to 34-year-old group is considered an important indicator of the country's future. Most (81%) of this age group has at least secondary school qualifications, compared with 64% for 55- to 64-year-olds.

The level of tertiary qualification attainment among 25- to 34-year-olds increased from 29% to 46% between 2000 and 2011. As per the previous section, this reflects a shift away from manufacturing and primary industry towards a service economy.

FIGURE 4.05A EDUCATIONAL ATTAINMENT

Percentage of 25- to 64-year-olds with secondary school and undergraduate qualifications 1991–2013

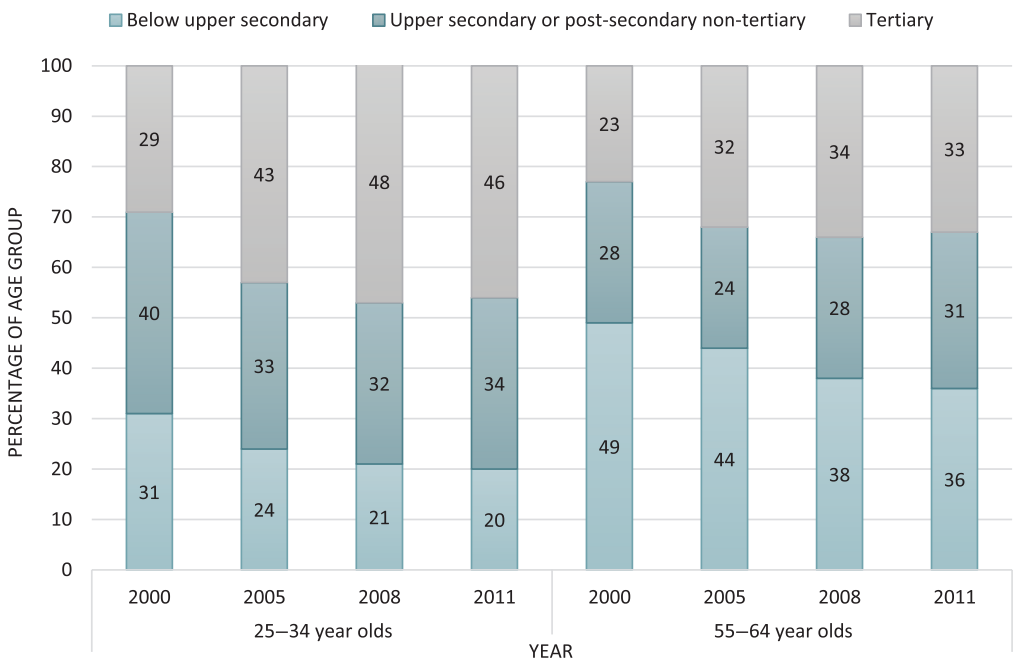


Source: Organisation for Economic Co-operation and Development (OECD)

FIGURE 4.05B HIGHEST QUALIFICATIONS ATTAINED

By percentage of age group

2000–11



Source: Organisation for Economic Co-operation and Development (OECD)

4.06 INTERNATIONAL UNIVERSITY STUDENTS

International education is valued at $2.6 billion to the New Zealand economy, and the government aims to double this figure by 2025. It is also a highly competitive market. As such, Education New Zealand, which is responsible for student recruitment and business growth, has identified key markets of potential growth.

The vast majority of international students enrolled in tertiary education in New Zealand are citizens of China. The number of Chinese students dropped by more than half between 2005 (27,003) and 2008 (13,211) with slight rises since then, but is expected to double again by 2025.

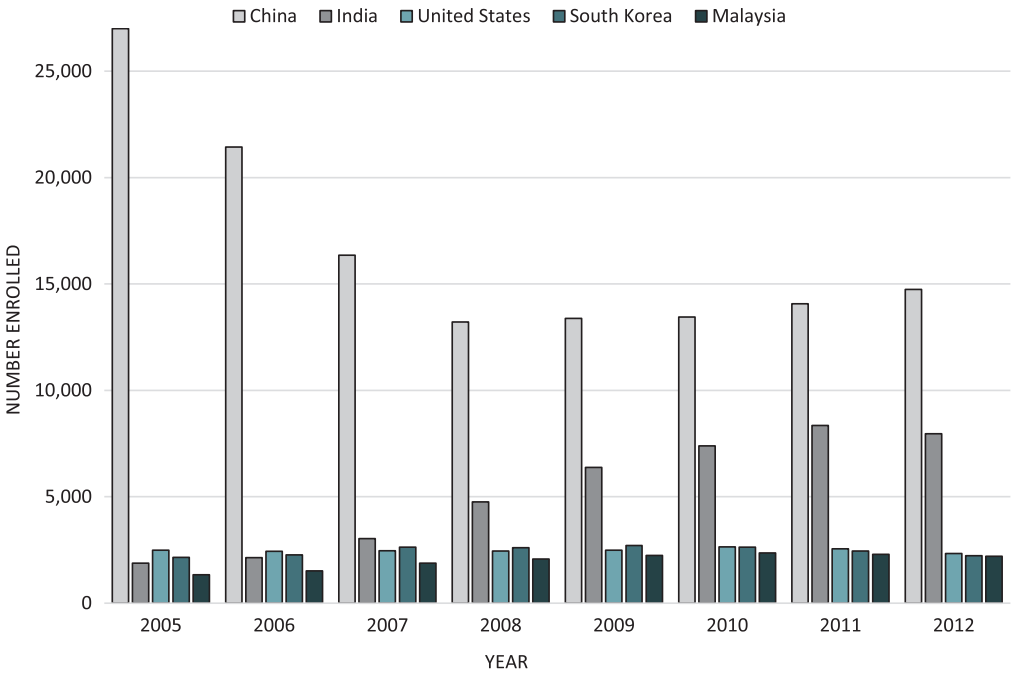
India is the second-largest and fastest-growing market. The number of Indian students enrolling in New Zealand tertiary education increased steadily from 2005 (1,879) to 2012 (8,345).

Indonesia too has been identified as a priority market to target. Although small at present (447 students in 2012), New Zealand has identified it as a growth opportunity.

In 2013, the government changed the visa policy for international students, allowing students to work while they study, with the aim of increasing the number of international students enrolling with New Zealand education providers.

FIGURE 4.06 INTERNATIONAL UNIVERSITY STUDENT ENROLMENTS

By country of citizenship (major population groups)
2005–12



Source: Education Counts

4.07 EDUCATION ENROLMENTS

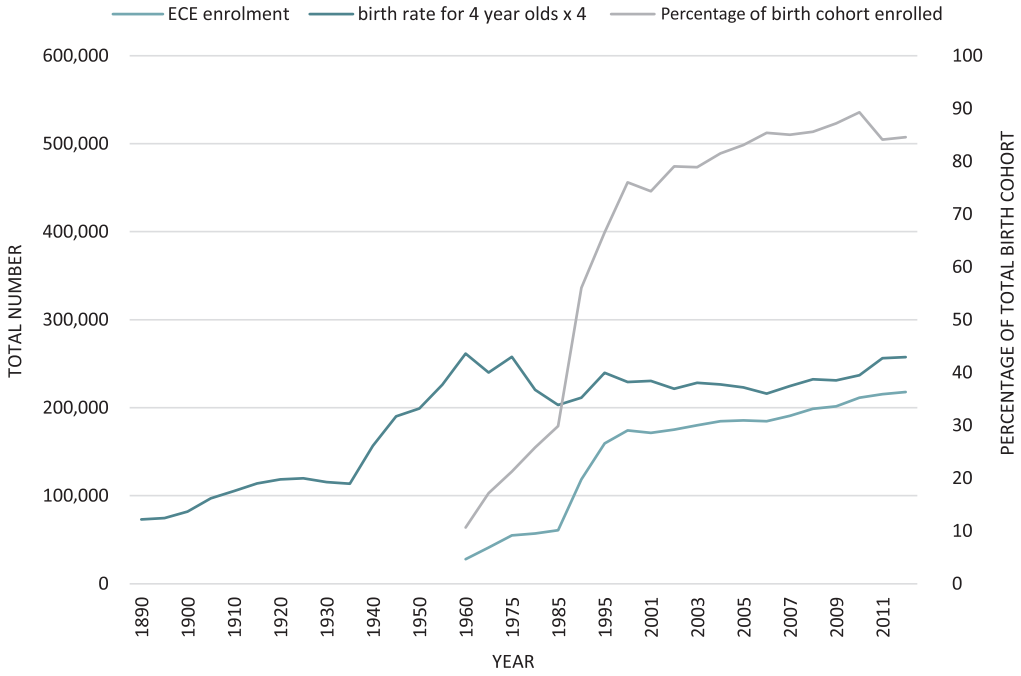
Figures 4.07a, 4.07b and 4.07c show the number of students enrolled in primary and secondary education from 1890 to 2012, and from 1960 to 2012 for early childhood education (ECE). These are presented alongside approximates of the size of the cohort to illustrate roughly the proportions of the respective populations enrolled in each education sector across time.

EARLY CHILDHOOD EDUCATION

The government started part funding kindergartens, the main type of pre-school education (up until the end of the 20th century) in 1904. The parent-led playcentre movement began in the 1940s, and playcentres started receiving some government funding in 1946. In 1947, the government boosted funding for state-funded privately run ECE centres, providing annual grants to kindergartens and playcentres.

Enrolments in ECE (playcentres and kindergartens) are shown in Figure 4.07a from 1960 to 1990. The increase in the 1960s and 1970s reflects greater workforce participation and independence. In 1989, reforms increased parental choice, opening up funding for other education and care centres (kōhanga reo, home-based services, and playgroups) – included in the data from 1990 onwards. Since then, enrolment has increased steadily. By 2009, the proportion of children in the first year of primary school who had attended an ECE was 95%.

FIGURE 4.07A EARLY CHILDHOOD EDUCATION ENROLMENT
Relative to 4-year-old cohort size
1890–2012



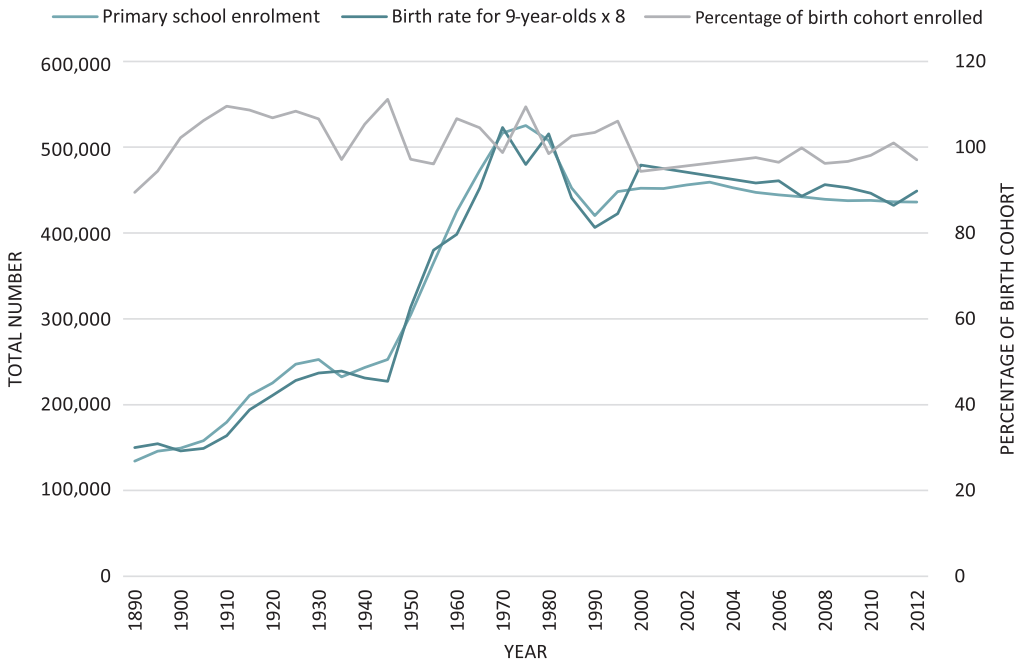
Source: Statistics New Zealand

PRIMARY EDUCATION

In 1866, education became compulsory in New Zealand for children between 7 and 13 years, and those between 5 and 15 were entitled to a free, secular education. Figure 4.07b shows that since 1890, virtually all children have enrolled in primary school in New Zealand. The largest spike in enrolments can be seen where the baby-boomer generation (the population spike group born between 1946 and 1965 post World War II) came of primary school age.

FIGURE 4.07B PRIMARY SCHOOL ENROLMENT

Relative to 9-year-old cohort size
1890–2012



Source: Statistics New Zealand

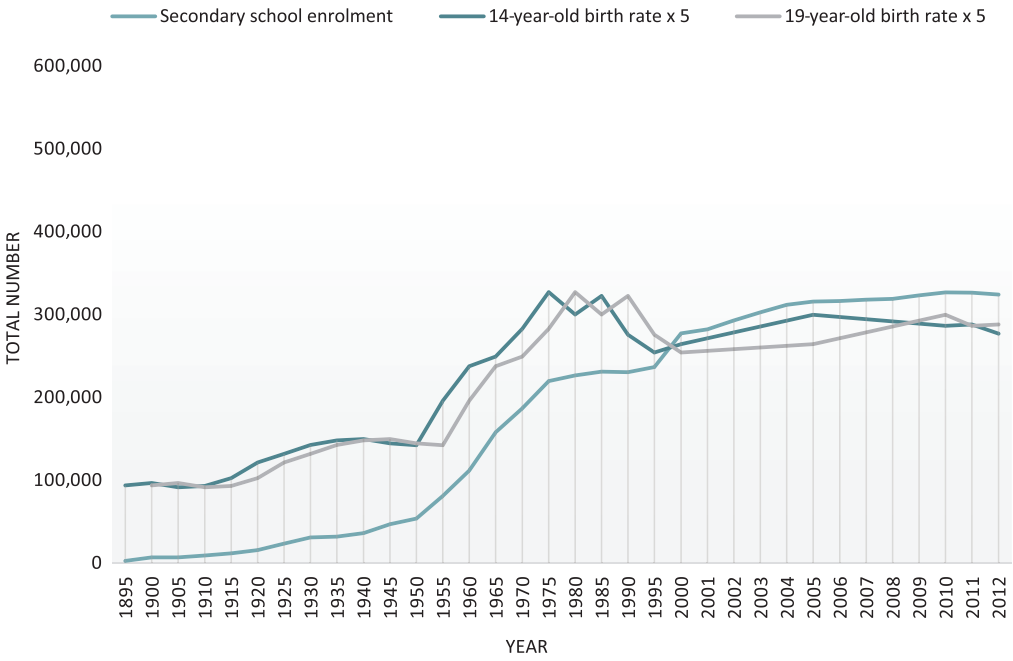
SECONDARY EDUCATION

There are two periods where the growth in secondary school enrolment seemed to outpace growth of the secondary school-age population. First, in 1944, the school leaving age was raised to 15. While the size of the school-age population was relatively stable over the following 10 years, secondary enrolment increased dramatically – indicating that raising the school leaving age had a marked effect.

Figure 4.07c also shows an increase in enrolment between 1990 and 1995, and a sharper increase between 1995 and 2000. Again, the chart illustrates that this was not due to an increase in the population size of secondary-school age children, which seemed to stabilise during this period. It was most likely the outcome of a 1989 policy where the school leaving age was increased to 16.

FIGURE 4.07C SECONDARY SCHOOL ENROLMENT

Relative to secondary age cohort size
1895–2012



Source: Statistics New Zealand

CHAPTER FIVE

CRIME AND JUSTICE

INTRODUCTION

No snapshot of the nation would be complete without crime and justice. While often representing the underbelly of the country, statistics on crime and justice tell a lot about a country's sense of freedom and security, and the strength of its legal systems. Unfortunately, statistics on crime are difficult to compare internationally, as countries define, record and punish crime in different ways. Nevertheless, domestic statistics on crime and justice tell an interesting story of New Zealand over time.

But first, a word of warning. Statistics on crime and justice can also conceal more than they reveal.

For instance, the increase in sexual assaults and related offences may not be due to an actual rise in gross crime, but an increase in the number of crimes reported. Legislative changes have encouraged victims to report offences, while expanding what is included as a sexual crime. Therefore, a rise in crime statistics does not necessarily mean there is a rise in gross crime.

Likewise, the rise in assault and other violent crime does not necessarily mean gross crime has increased. Again, it is more likely a result of legislative amendments, changes in public attitude, and lower tolerance of such violence.

Finally, interpreting prison population numbers requires caution. A rise in prison population numbers does not necessarily represent a rise in crime. Rather, it could reflect changes in sentencing and rehabilitation methods.

Despite fluctuations in certain crimes, the total criminal offence rate has declined, though there are still large discrepancies between recorded and resolved crime. With increases in technology, greater communication networks, and holding the crime and justice sector up to public scrutiny, closing the gap between recorded and resolved crime is conceivable.

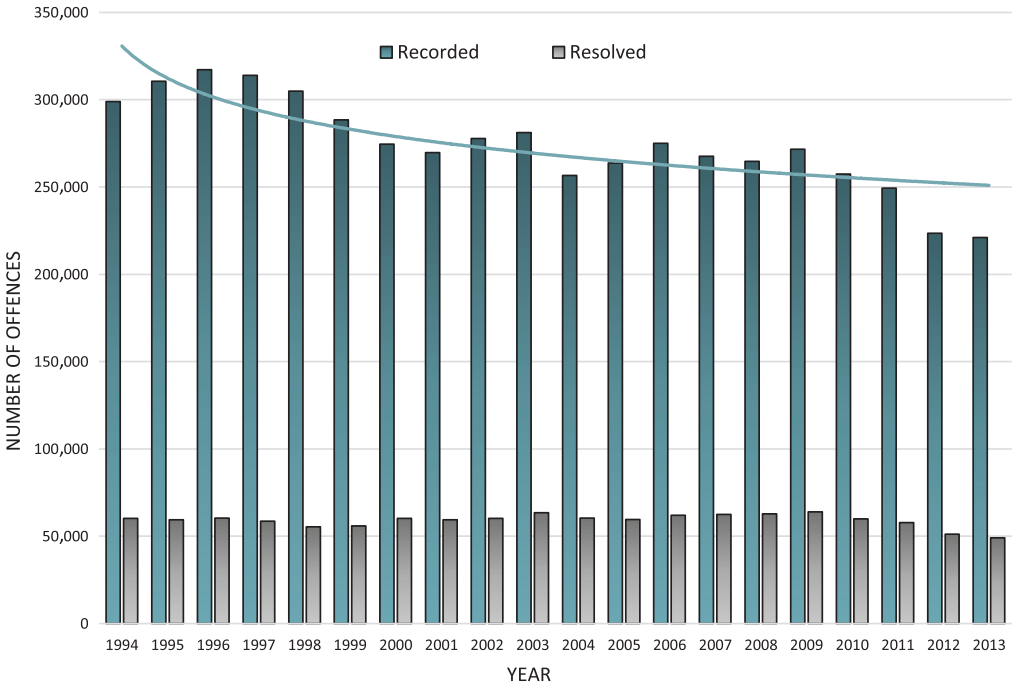
5.01 PROPERTY CRIME

Theft, burglary, property damage, fraud and tax evasion are all categorised as property crimes. Excluding traffic offences, property crimes account for the overwhelming majority of all crime in New Zealand. Theft and burglaries are the most commonly reported property crimes; however, they also have the lowest resolved rates. Unfortunately, many property crimes go unreported for a number of reasons: the crimes may involve family or friends, missing stock is attributed to breakage or stocktake errors, the value of stolen goods is not worth the trouble, or higher expenses go unnoticed.

Despite property crimes being the most common form of crime in New Zealand, Figure 5.01 shows that the number of recorded crimes has slowly decreased over the past two decades. In 1994, there were 298,877 recorded offences, 60,246 of which were resolved, making the resolved rate 20%. In 2013, there were a total 221,037 recorded offences, a 26% decrease from the 1994 figure. Of these, 49,144 were resolved, a marginal improvement of the resolved rate to 22%. Continued trends should see these figures decline further, and hopefully, improved technology and police resources will see resolved offences as a proportion of recorded offences increase dramatically.

FIGURE 5.01 ANNUAL PROPERTY RELATED CRIME

Recorded and resolved
1994–2013



Source: Statistics New Zealand

5.02 HOMICIDE

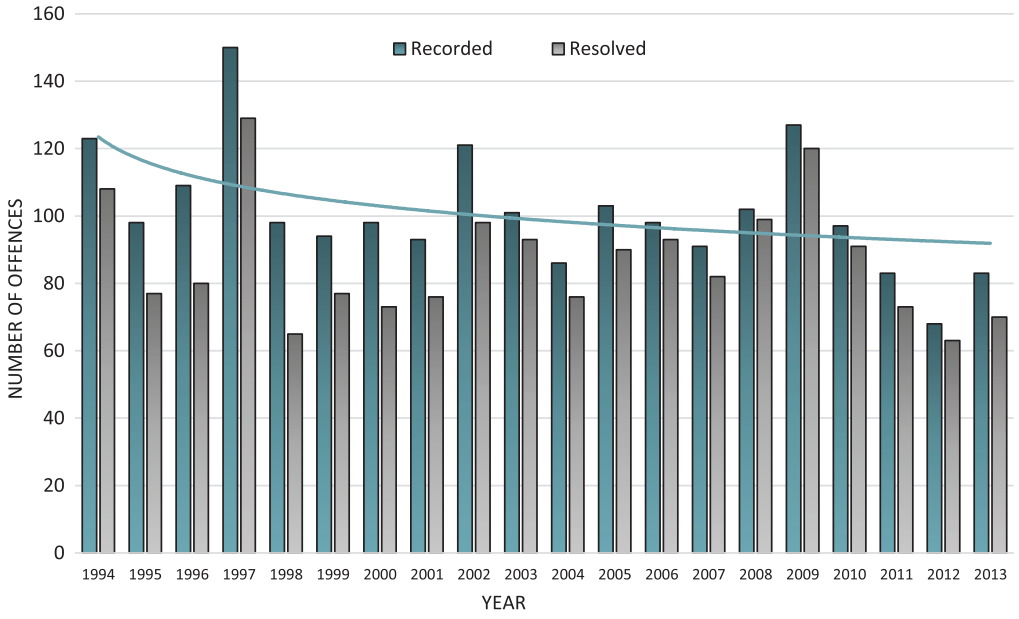
Murder and manslaughter are the two main categories of culpable homicide, or the illegal killing of one person by another. Murder usually entails the deliberate, intentional harm of another person with the knowledge that death is likely, while manslaughter refers to accidental death usually arising from an unlawful act or neglect where death could not be reasonably predicted.

High rates of unemployment often coincide with high rates of homicide due to economic dissatisfaction and social unrest. This may explain the extraordinarily high 1997 figure, which could be attributable to higher unemployment as a result of the 1997 Asian financial crisis.

While the homicide rate has fluctuated over the past two decades, the trend for recorded homicides is downwards. There are a number of reasons for the decreasing homicide rate, the most important of which include much firmer gun control laws (following the Aramoana massacre), the expansion of women's refuges (reduction in the number of domestic violence charges), and improvements in medical technology, which have likely reduced deaths that could occur from potentially fatal trauma.

Reassuringly, the proportion of resolved against recorded homicide offences has remained relatively high. Of the 123 recorded offences in 1994, 108 were resolved (88%). Of the 83 recorded offences in 2013 (a 32% decrease in recorded homicides), 70 were resolved (84%).

FIGURE 5.02 ANNUAL HOMICIDE OFFENCES
Recorded and resolved
1994–2013



Source: Statistics New Zealand

5.03 SEXUAL ASSAULT AND RELATED OFFENCES

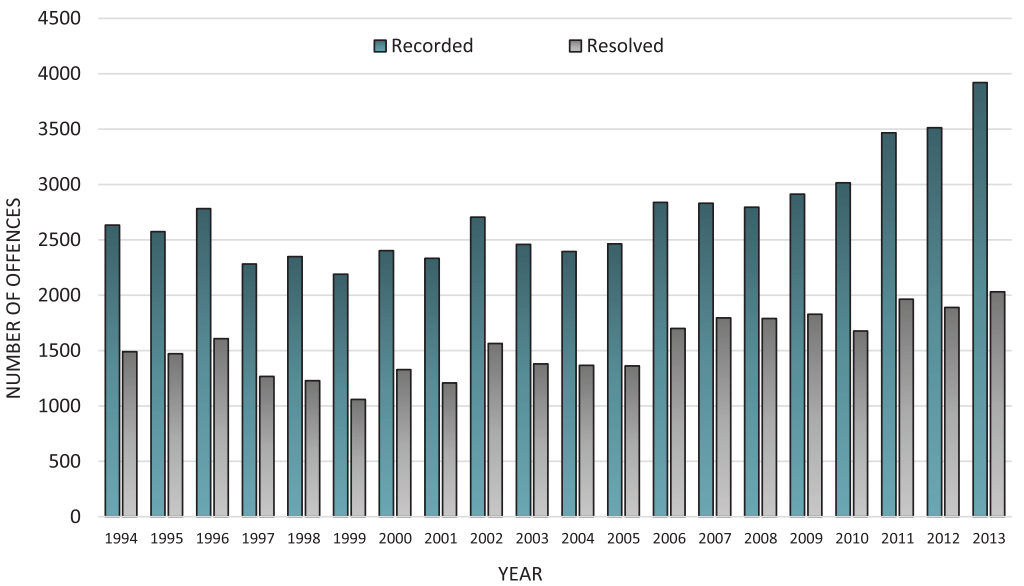
Sexual assault, rape and related crimes became a significant public issue in New Zealand during the 1970s, as politicians were lobbied by community groups like Rape Crisis to amend the laws and policing practices. These groups criticised the focus on the sexual history of victims, and the reporting procedure, which discouraged victims from making rape or sexual assault complaints. Women's rights activists have argued that sexual assault and rape victims – female and male – experience a 'double violation' through the stress and intrusiveness of reporting such crimes.

At first glance, Figure 5.03 shows a dramatic increase in the number of recorded sexual offences. However, this is likely due to the increase in crimes reported, rather than an increase in gross offences alone. Legislative changes have concurrently encouraged victims to report all offences, while expanding what is included as a sexual crime.

The proportion of resolved crimes against reported crimes remains relatively low, and has actually increased over the past two decades despite increasing police numbers, legislative changes, and improved police technology and equipment. Of the 2,633 recorded offences in 1994, only 1,491 were resolved (56%). Of the 3,919 recorded offences in 2013, only 2,030 were resolved (52%).

FIGURE 5.03 ANNUAL SEXUAL ASSAULT AND RELATED OFFENCES

Recorded and resolved
1994–2013



Source: Statistics New Zealand

5.04 ASSAULT AND OTHER VIOLENT CRIMES

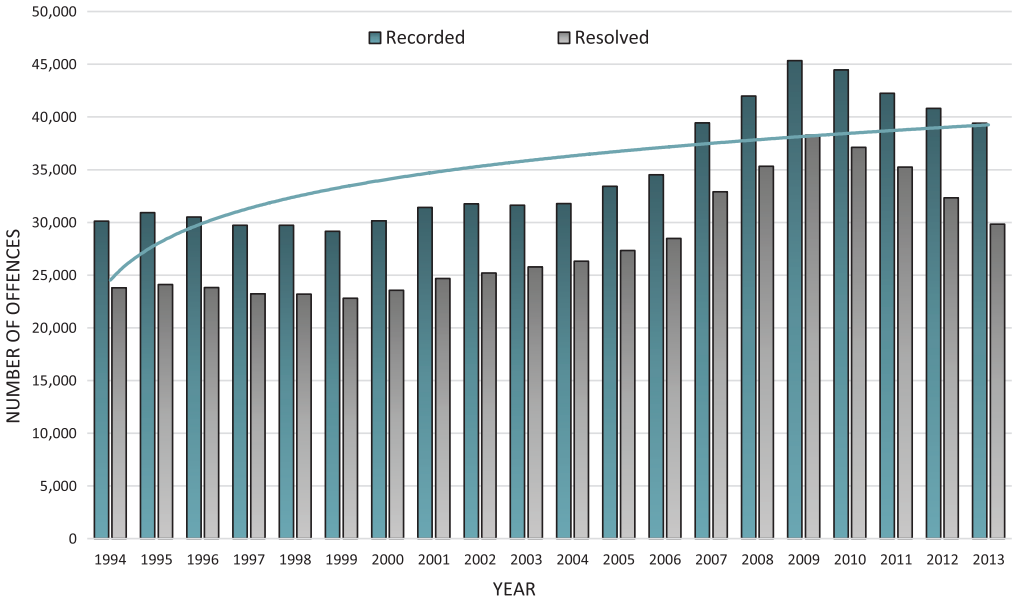
Assault and violent crime attracts more public attention than any other form of crime, even if it accounts for the smallest proportion of total crime. Violent crime dominates news headlines and elicits public calls for harsher sentences for perpetrators – and better support systems for victims and their families.

Social abhorrence of assault and violent crime is readily reflected in the prison sentences for the perpetrators of such crimes. The *Criminal Justice Act 1985* made imprisonment largely mandatory for violent offences. Release conditions have also been tightened, as have non-parole periods and average sentence lengths.

Rates of violent crime and assault have increased steadily across all forms in New Zealand since World War II. Recent increases, as reflected in Figure 5.04, are largely attributable to a dramatic increase in domestic violence. This is more likely a result of legislative amendments, changes in public attitude, and lower tolerance of such violence. This has led to increased willingness to report offences as well as increased police responsiveness to such crimes.

Of the 30,127 recorded offences in 1994, 23,787 were resolved (79%). However, of the 39,418 recorded offences in 2013, only 29,836 were resolved (75%). The difference may be marginal, but future statistics should see recorded offences decrease and the resolved proportion increase, reflecting better police resources and technology to catch or prevent potential perpetrators.

FIGURE 5.04 ANNUAL ASSAULT OFFENCES
Recorded and resolved
1994–2013



Source: Statistics New Zealand

5.05 ILLICIT DRUG CRIME

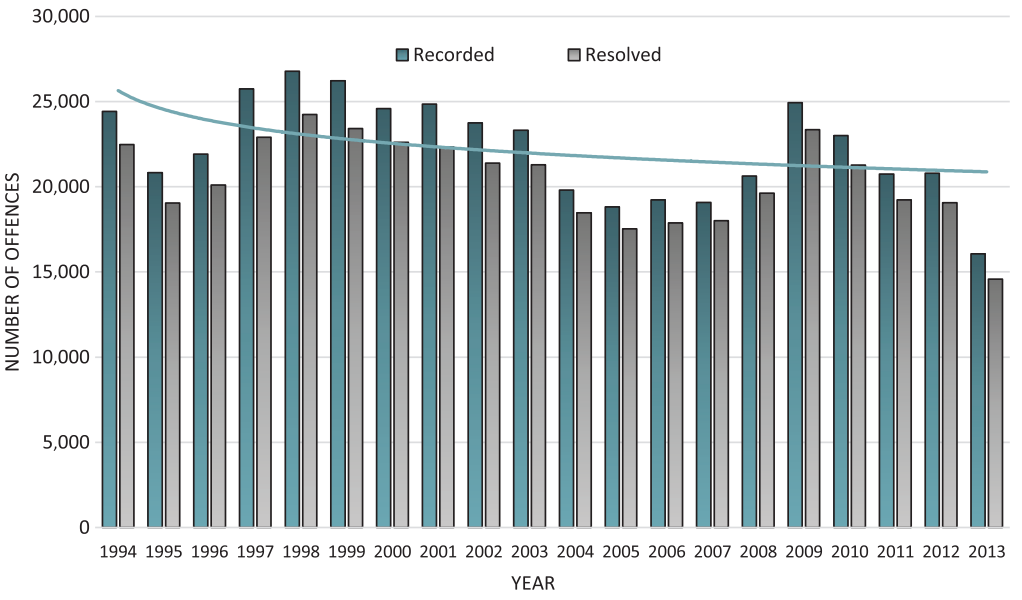
Drugs are substances that affect either the mind or the body, with medical drugs prescribed to treat illnesses, and recreational drugs taken primarily for pleasure. The large overlap between medical drugs taken for pleasure means there is no precise distinction between medical and recreational drugs. However, most recreational drugs affect a person's perception, consciousness and behaviour – such drugs include opiates (heroin), stimulants (cocaine and amphetamines), depressants (alcohol and tobacco), and hallucinogens (LSD and cannabis).

Government agencies such as the Ministry of Education, and voluntary organisations such as the Drug Foundation, have put immense time and energy into drug education. Despite calls to legalise 'soft drugs' like cannabis, public opinion is becoming overwhelmingly intolerant of recreational drug use, with the media spotlight fixated on synthetic drugs and their unknown effects on young minds.

Increased drug-taking during the 1960s prompted legislative changes, and the *Narcotics Act 1965* distinguished between dealing and possession. The *Misuse of Drugs Act 1975* prohibited the manufacture, import, supply and possession of controlled drugs, and implemented the three-class categorisation (A, B and C) of drugs.

Figure 5.05 shows that the number of annual drug offences has fallen steadily over the past two decades. There were 24,418 recorded offences in 1994, 22,471 of which were resolved (92%). In comparison, 2013 saw 160,070 recorded offences, a 34% decrease in total offences from 1994. Of these, 91% were resolved.

FIGURE 5.05 ANNUAL ILLICIT DRUG OFFENCES
Recorded and resolved
1994–2013



Source: Statistics New Zealand

5.06 WHITE COLLAR CRIME

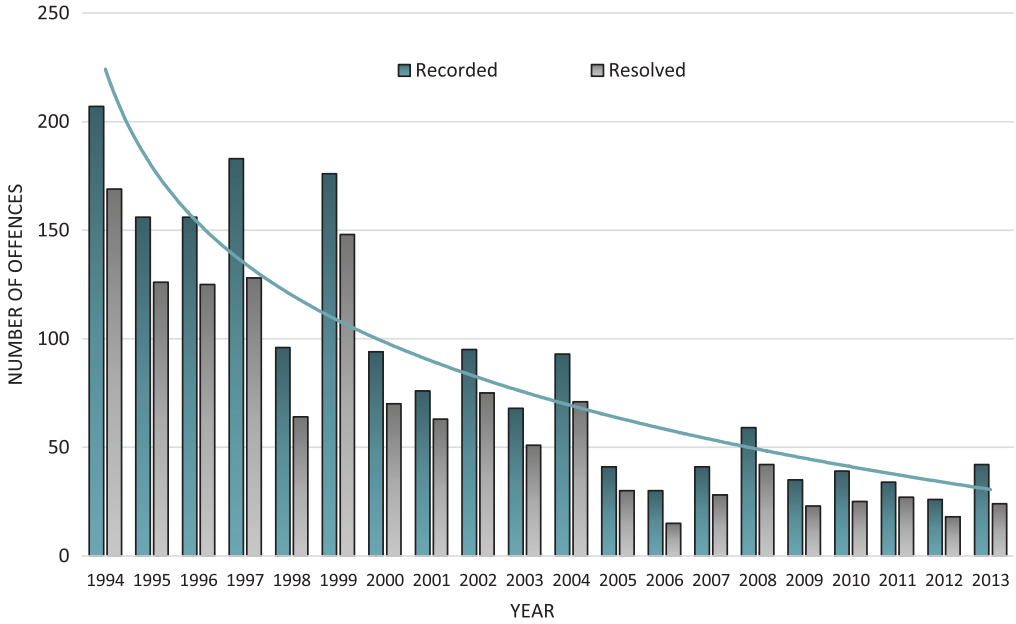
White collar crime encompasses a range of fraudulent crimes committed by business and government professionals. The effects can be devastating, destroying companies and families by wiping out life savings and costing investors billions. While authorities now have greater resources and technology at hand to prevent or discover and apprehend such crimes, fraudulent practices and deceptive business and government offences are becoming more sophisticated than ever and, as a result, more difficult to apprehend.

The 1987 stockmarket crash saw increased suspicion over corporate crime, to which the government responded by setting up the Serious Fraud Office in 1990. Led by capable investigators with backgrounds in law, accountancy and senior police work, the impact of the Serious Fraud Office on fraudulent practices has been considerable. Furthermore, in July 2008 (before the global financial crisis had really begun to wreak havoc), the Organised and Financial Crime Agency of New Zealand was set up within the police force to tackle organised crime. Fraudulent business crimes, in particular, had become increasingly technical, with perpetrators using international financial networks to launder money.

Figure 5.06 shows how dramatically deceptive business and government practices have decreased over the past two decades. There were 207 recorded offences in 1994 (of which 82% were resolved), compared to just 42 recorded offences in 2013 (only 57% were resolved), indicating an 80% decrease in white collar crime between 1994 and 2013.

FIGURE 5.06 ANNUAL DECEPTIVE BUSINESS/GOVERNMENT OFFENCES

Recorded and resolved
1994–2013



Source: Statistics New Zealand

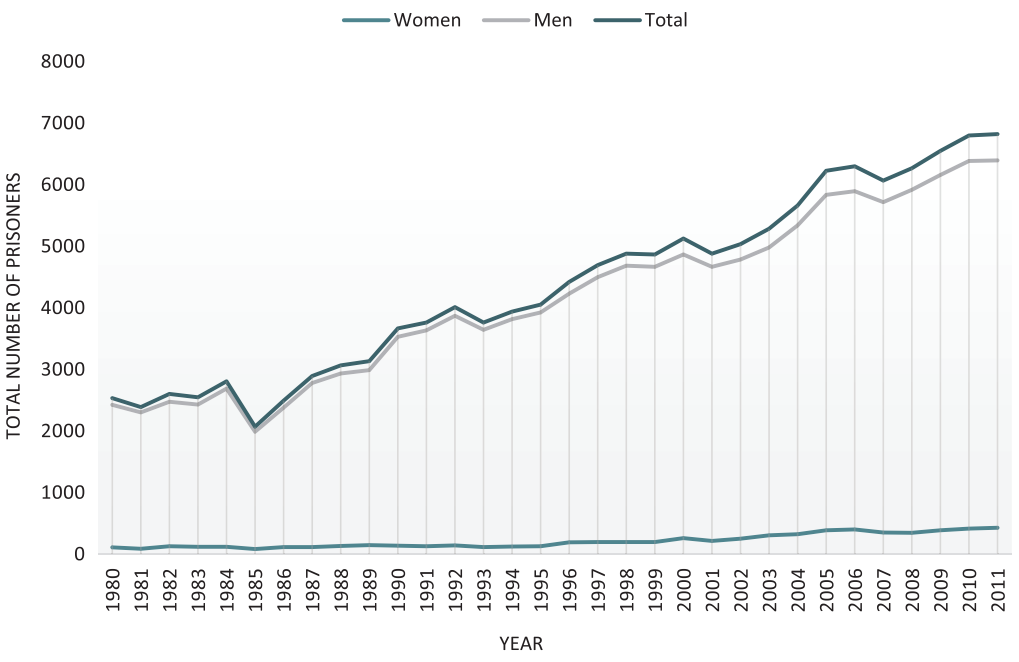
5.07 PRISON POPULATION

As of June 2011, New Zealand had a prison population of 6,823 out of a total population of 4.42 million. New Zealand has one of the highest incarceration rates among OECD nations. While general crime has declined over the past few decades, violent crime has increased alongside the prison population rate.

The *Sentencing Act 2002* and the *Parole Act 2002* were passed following a number of high-profile violent crimes in the early 1990s. These legislative changes introduced much tougher sentences and stricter parole conditions, and greatly increased the likelihood of receiving a prison sentence for criminal acts. Growing prison populations resulted in the establishment of four new prisons during 2005–07; from 2010, some prisoners have been kept in refitted shipping containers to ease the pressure on existing prisons.

Men constitute the overwhelming majority of the total prison population, and the number of incarcerated men has risen astronomically in just under two decades, by 62% from 2,427 in 1980 to 6,393 in 2011. Women make up a tiny proportion of the total prison population, constituting only 6.3% in 2011. Figure 5.07 shows the dramatic increase in the male prison population, and how the number of women in prisons has increased even more dramatically, by 75% from 109 in 1980 to 430 in 2011.

FIGURE 5.07 ANNUAL PRISON POPULATION
By gender
1980–2011



Source: Statistics New Zealand

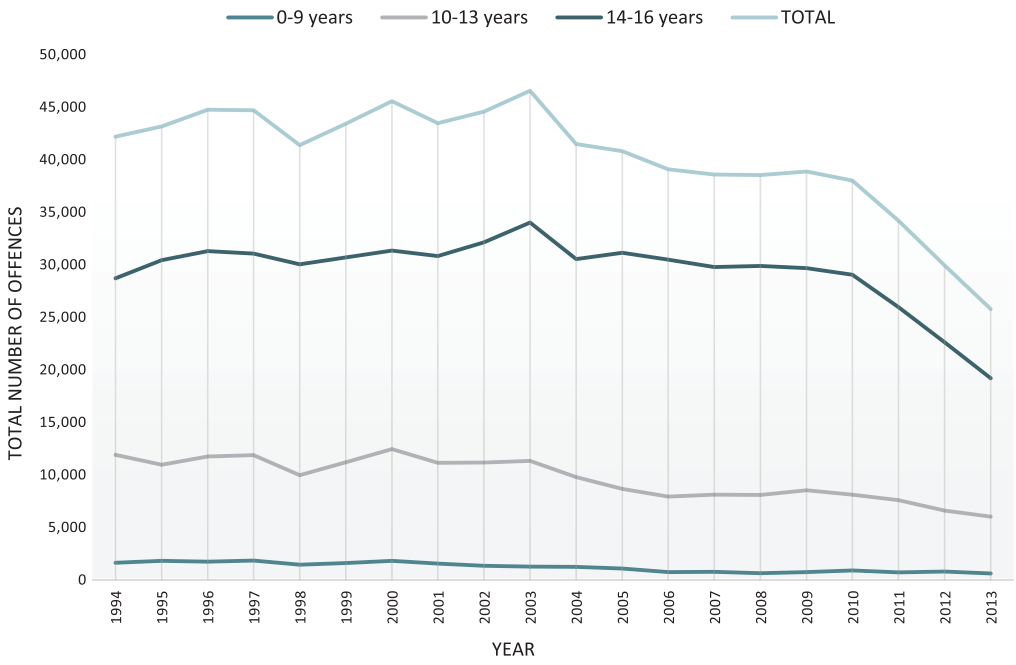
5.08 JUVENILE CRIME

In early 19th century New Zealand, juveniles were tried in the same courts as adults and given the same punishments – usually prison or flogging. It wasn't until 1925 that the national Children's Court was established to deal with youth offenders; in 1958, the national police force established the Juvenile Crime Prevention division to educate and encourage youths away from crime and into healthy and productive activities. However, it was the *Children, Young Persons, and Their Families Act 1989* that changed the way the youth justice system worked. Instead of punishing youth offenders, the focus was recalibrated towards more family involvement with rehabilitation and encouraging offenders to take responsibility for their crimes.

Juvenile crime across the three main age categories (0–9 years, 10–13 years, and 14–16 years) has steadily declined, most likely a result of these legislative changes. There were a total of 25,739 juvenile offences committed in 2011, a 39% decrease from the 42,156 offences committed in 1994.

FIGURE 5.08 ANNUAL JUVENILE CRIME

Total number of offences by age
1994–2013



Source: Statistics New Zealand

5.09 DOMESTIC POLICE FORCE

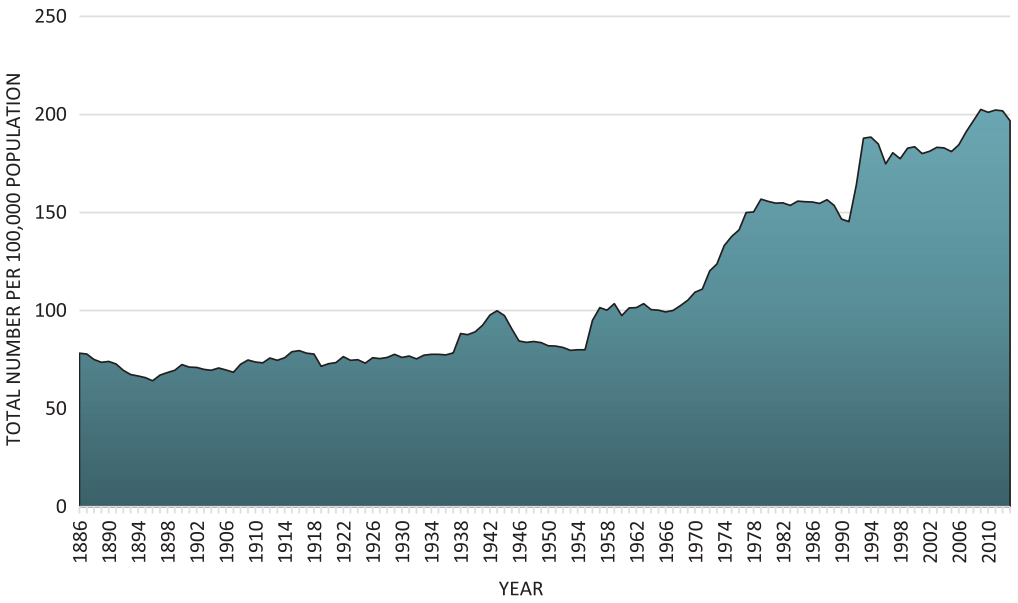
The New Zealand Police has undergone dramatic changes since the British colonial times. The first Armed Police Force (APF) was established in 1946, including Māori police, but it was not completely centralised until 1977. The national New Zealand Police was founded as a separate organisation from the military in 1886. Modern policing has not only become significantly more specialised with distinct divisions, including search and rescue and anti-terrorism forces, but has also readily adopted new technology, improving capacity and efficiency to carry out tasks. The Armed Offenders Squad (AOS) was established in 1964 to deal with especially dangerous and volatile situations likely involving weapons; however, the majority of police personnel today do not carry guns.

New Zealand Police maintains an international reputation for lack of corruption, a relatively mild manner of policing, and freedom from government interference in operational matters. The *Policing Act* was introduced in 2008 to provide a framework to advance New Zealand Police's vision of 'Safer communities together'.

Figure 5.09 shows how dramatically the number of police personnel per 100,000 people has increased. In 1886, there were approximately 78 police per 100,000 population; in 2010, there were 197 police per 100,000 population, an increase of 60%. This growth in police personnel coincides with the increase in prison population and decline in crime rates, perhaps because of greater police force resources to deal with, and apprehend, such crimes.

FIGURE 5.09 TOTAL FULL-TIME EQUIVALENT POLICE

Per 100,000 population
1980–2011



Source: New Zealand Police Force

5.10 BENEFIT FRAUD

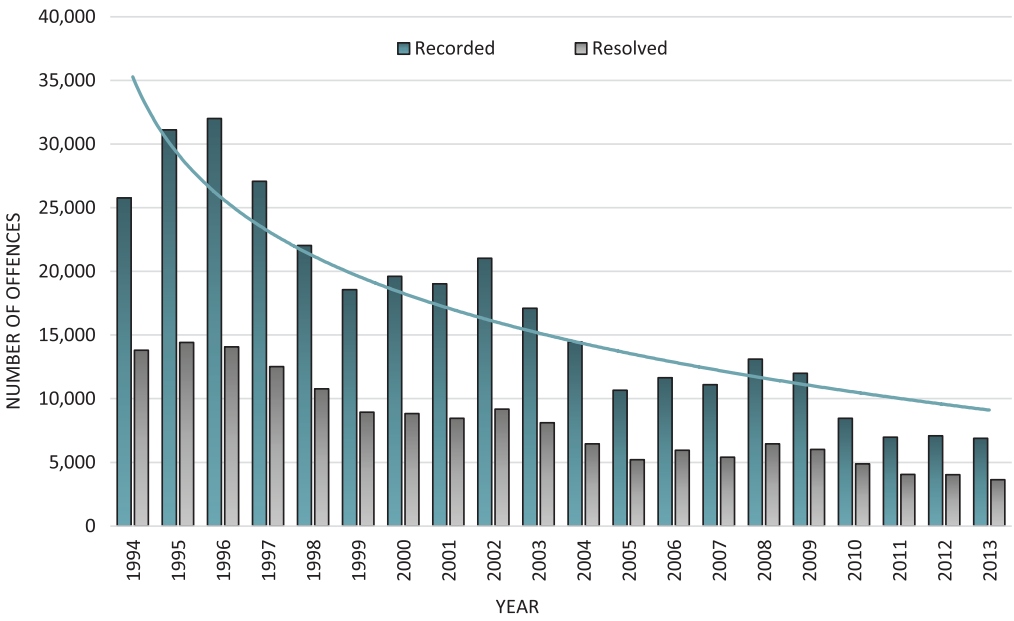
Benefit, or welfare fraud, refers to the intentional misuse of the state welfare system by withholding information, or giving false or inaccurate information. The prevention, detection and investigation of benefit fraud is critical for maintaining the integrity of New Zealand's welfare system, and ensuring that social assistance goes only to those who are eligible.

New tools were introduced by the Ministry of Social Development in early 2013 to clamp down on benefit fraud. These include requiring greater verification of applicants' information, and less access to self-service welfare transactions. Also introduced was an initiative to formalise information sharing links between the Ministry of Social Development, Accident Compensation Corporation, Inland Revenue Department, Housing New Zealand Corporation, and New Zealand Police, organisations that have a vested interest in reducing social assistance fraud.

Cases of benefit fraud have declined significantly over the past two decades. This may largely be due to recent measures implemented by the Ministry of Social Development to prevent, detect and catch such fraudulent behaviour, as well as vast improvements in technology and resources for detecting such crimes. There were 6,885 recorded cases of benefit fraud in 2013 compared to 25,775 cases in 1994, a decrease of approximately 73%. With 3,644 of the total cases resolved in 2013 and 13,818 in 1994, the proportion of resolved cases to recorded cases has remained largely unchanged at about 53%.

FIGURE 5.10 ANNUAL BENEFIT FRAUD CRIMES

Recorded and resolved
1994–2013



Source: Statistics New Zealand

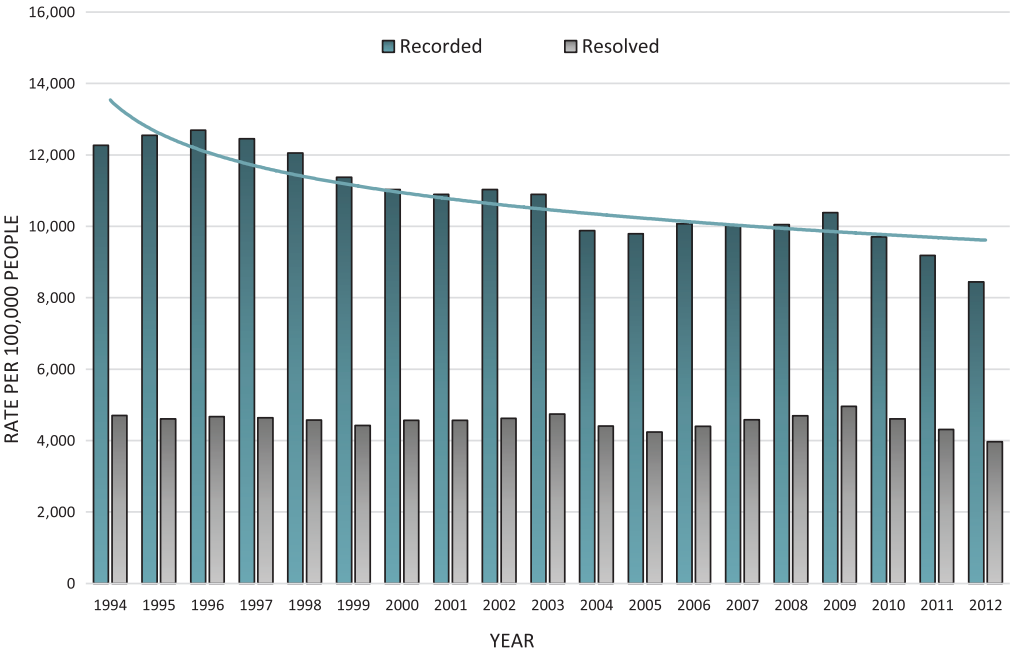
5.11 TOTAL CRIMINAL OFFENCES

Te Ara (Encyclopaedia of New Zealand) states that in a 1995 survey of 300 randomly selected people in Auckland, Wellington and Christchurch, most respondents felt that the number of criminal offences was increasing. However, while violent crime rates rose up until the mid-1990s, rates have steadily declined in the 2000s, due to the combination of a bigger police force, improved technology, harsher sentences, and improved resolved rates.

Despite the statistical evidence, public fears of crime, particularly violent crime, remain unchanged. This may be due to changes in how and what crimes are reported and the significantly increased coverage by mass media, not to mention the sensationalism of crimes by popular media outlets.

In fact, crime news coverage within traditional newspapers increased from 16.4% of total content in 1992 to 19.6% in 2001. An international 2008 study of leading newspapers found that New Zealand ranks third in the world in the number of news stories on crime and violent deaths.

FIGURE 5.11 ANNUAL OFFENCES
Recorded and resolved per 100,000 population
1994–2012



Source: Statistics New Zealand

CHAPTER SIX

COMMUNICATION AND TECHNOLOGY

INTRODUCTION

The rise of the Internet over the last 20 years has transformed the way we communicate, work, spend our leisure time, and shop in an increasingly global society and economy. For geographically isolated New Zealand, the Internet is enabling us to play on the world stage.

The data selected for this chapter illustrates just how rapid this transformation has been. Whereas in 1987, only 1 in 10 New Zealand households had computer access, this figure multiplied eight-fold by 2009. In tandem, access to the Internet skyrocketed. In 2001, just over a third of households had dial-up access. This plummeted to only 4% by 2012 as demand for faster and higher quality Internet access via broadband took over the dial-up market: In 2012, three-quarters of New Zealanders had broadband access. Cell phone use too saw huge growth in the 2000s. Cell phones are now ubiquitous, and smart phones, which connect us to the world anytime and virtually anywhere, are the new norm.

Our data shows a trend towards more online shopping, and the fall in traditional daily newspaper readership reflects just how much the Internet has changed the way we access media.

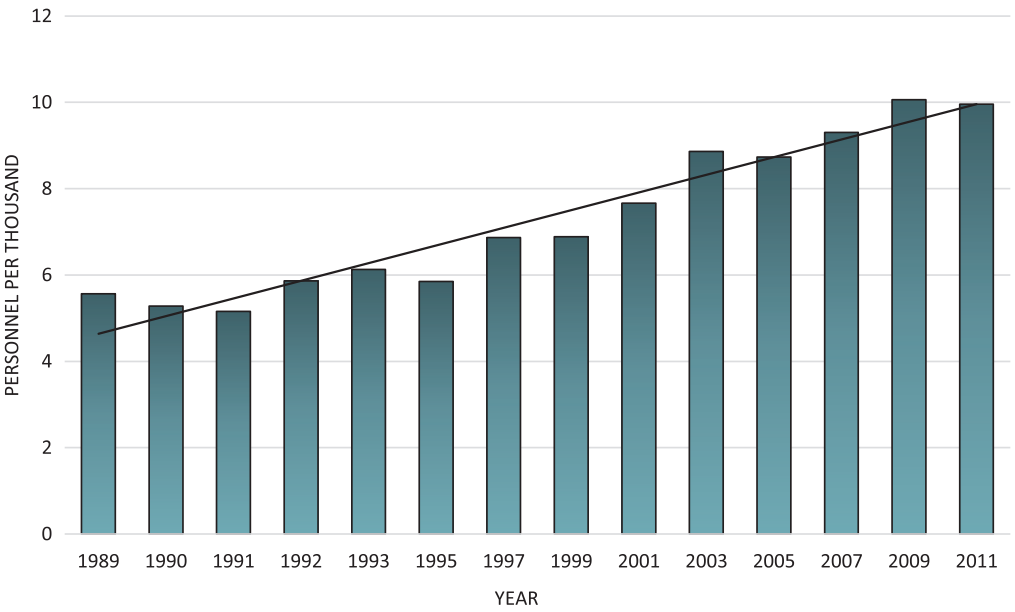
The Internet revolution comes at the same time that many Western economies are moving into a new stage of the industrial development cycle. The extent to which Western economies are moving away from manufacturing economies into higher value scientific and creative economies is indicated by the level of research and development (R&D) investment in a country. Indeed, our data shows increasing investment in R&D between 1997 and 2009. Private sector investment is perhaps a more reliable indicator as it shows whether there is a return to be made. Encouragingly, the data indeed shows that business enterprises are sourcing a larger share of R&D investment.

6.01 RESEARCHERS ENGAGED IN R&D

Research and development (R&D) is critically important for economic growth and sustaining a dynamic domestic economy. The purpose of R&D is not only to develop new products but also to discover and create new knowledge about scientific and technological areas to encourage and develop valuable new products, processes and services. R&D can also contribute to greater firm productivity, especially within high-tech firms.

Figure 6.01 shows just how substantial the increase has been in the number of people employed in R&D in New Zealand in 22 years, almost doubling from 5.5 to 10 employees per 1,000 of the total labour force. Given as a proportion per 1,000 of the total labour force, it is perhaps indicative that working in R&D has become more valuable and viable as a career path, and may also imply larger and more easily accessible sources of funding for R&D.

FIGURE 6.01 TOTAL R&D PERSONNEL
Per 1,000 labour force
1989–2011



Source: UNESCO Data Centre

6.02 EXPENDITURE ON R&D

R&D spending has continued to grow at a steady pace around the world, despite the onset of the global financial crisis in late 2007. However, a study by US multinational technology and consulting corporation, IBM, found that New Zealand's proportion of GDP spent on R&D continues to lag behind that of other OECD member countries.

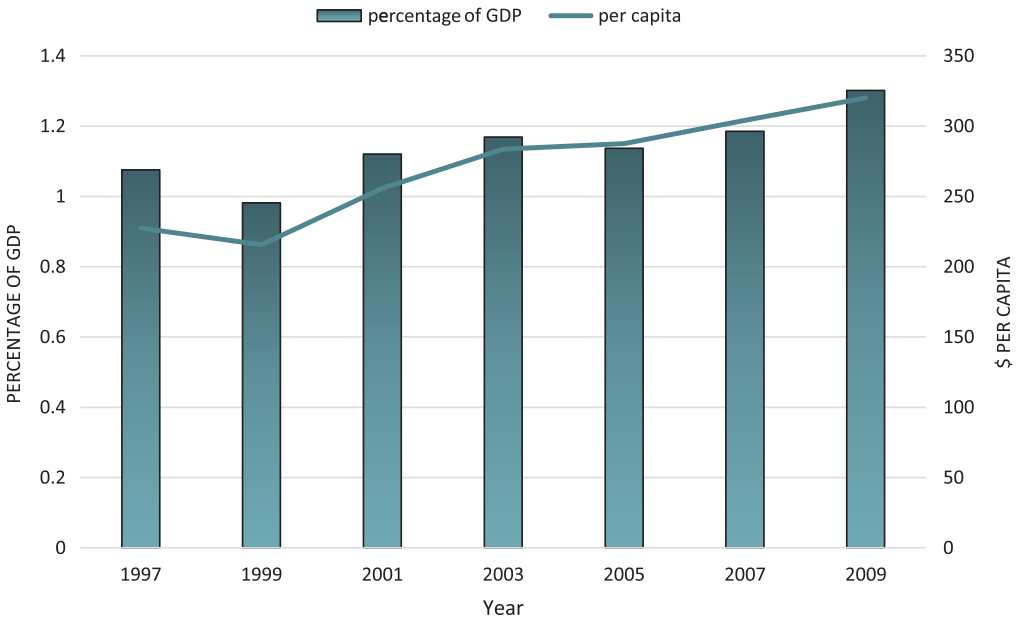
Figure 6.02a shows that R&D expenditure in New Zealand has been steadily increasing, both as a proportion of GDP and in dollars per capita. This perhaps reflects a recognition of the strong relationship between greater R&D expenditure and enhanced economic growth and productivity.

Figure 6.02b shows that while R&D spending has been steadily increasing, the actual sources of that expenditure have remained largely unchanged for just over a decade, the most obvious fluctuations occurring between Government and business enterprise, which constitute the overwhelming majority of R&D expenditure.

Nevertheless, there is still scope for New Zealand to increase R&D expenditure, particularly in comparison to faster-growing and more productive economies like Finland where close to 4% of GDP was spent on R&D in 2013.

FIGURE 6.02A EXPENDITURE ON R&D

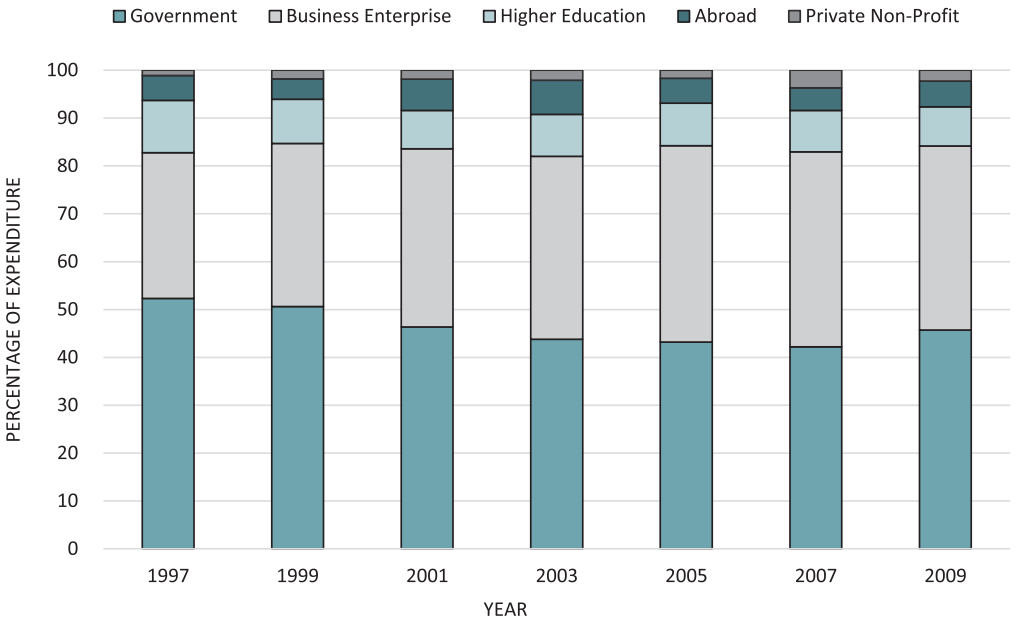
Percentage of GDP and per capita (2005 PPP constant dollars)
1997–2009



Source: UNESCO Data Centre

FIGURE 6.02B SOURCE OF EXPENDITURE ON R&D

Percentage of total expenditure
1997–2009



Source: UNESCO Data Centre

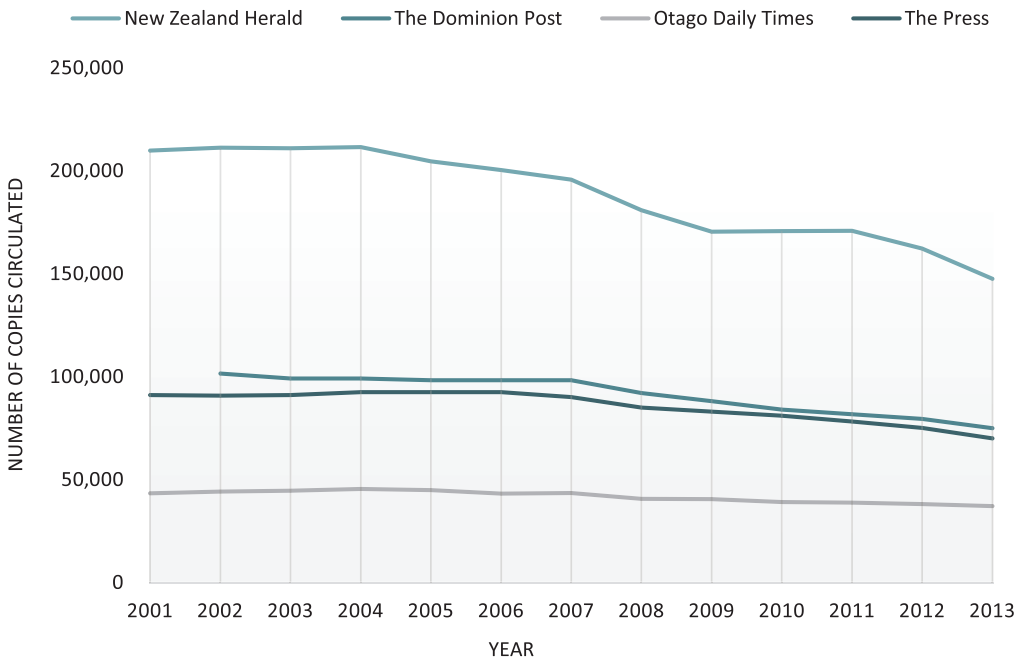
6.03 CIRCULATION OF DAILY NEWSPAPERS

The circulation of print media has declined significantly over the past decade, particularly the circulation of daily newspapers. However, that fewer national newspapers are sold today than at any time over the past half century is attributable both to unprecedented access to the Internet and the fragmentation of both media and society as a whole.

While the ever-increasing availability and ease of accessibility to information through the Internet and information and communications technology (ICT) devices has certainly perpetuated decreasing newspaper circulation, the gradual decline in print media has pre-dated the widespread extension of the Internet.

Nevertheless, while changes in modern culture, lifestyle, work and demographics have been critical factors in plummeting newspaper sales, the proliferation of the Internet has had the single greatest recent impact. Figure 6.03 shows that the *New Zealand Herald* has experienced the biggest decline in circulation among national dailies. However, all its articles are now available for free online, reflecting a consumer preference for the ease and accessibility of online news over hard copy newspapers, particularly as the increase in the price of print newspapers induces more substitution in favour of an online format.

FIGURE 6.03 ANNUAL CIRCULATION OF DAILY NEWSPAPERS
More than 25,000 copies
2001–13



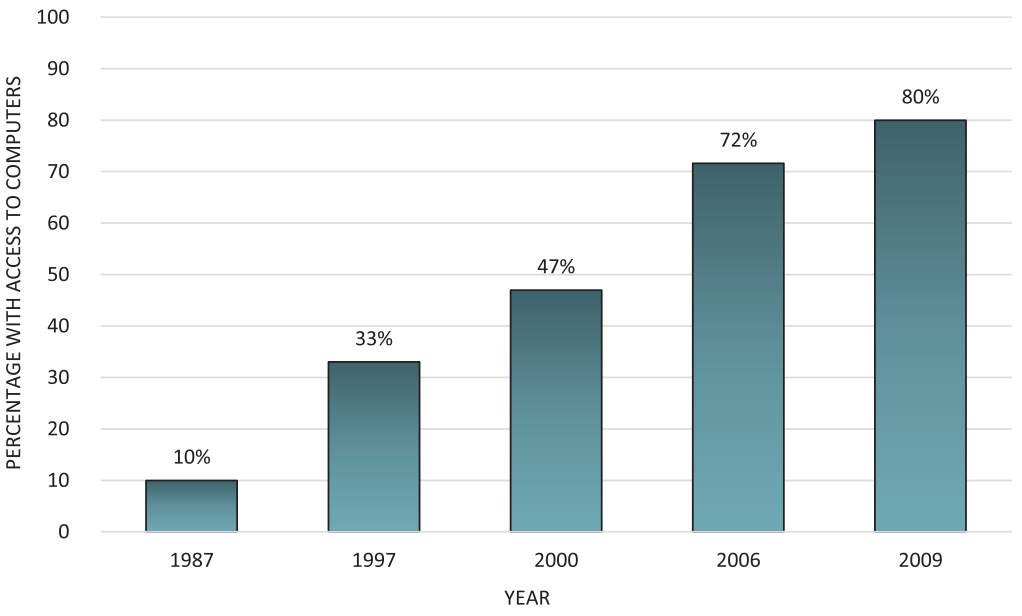
Source: Audit Bureau of Circulation

6.04 HOUSEHOLD ACCESS TO COMPUTERS

The percentage of New Zealand households with access to computers of some description has increased phenomenally over the past three decades, reflecting the growing importance of computers for educational and social purposes. Increased access to computers is also due in large part to the pushing down of prices as a result of increased competition among computer manufacturers. However, access to computers was still not 100% as of the last survey, indicating that there is still something of a digital divide in New Zealand.

FIGURE 6.04 PERCENTAGE OF NEW ZEALAND HOUSEHOLDS WITH ACCESS TO COMPUTERS

1987–2009



Source: Statistics New Zealand

6.05 HOUSEHOLD ACCESS TO THE INTERNET

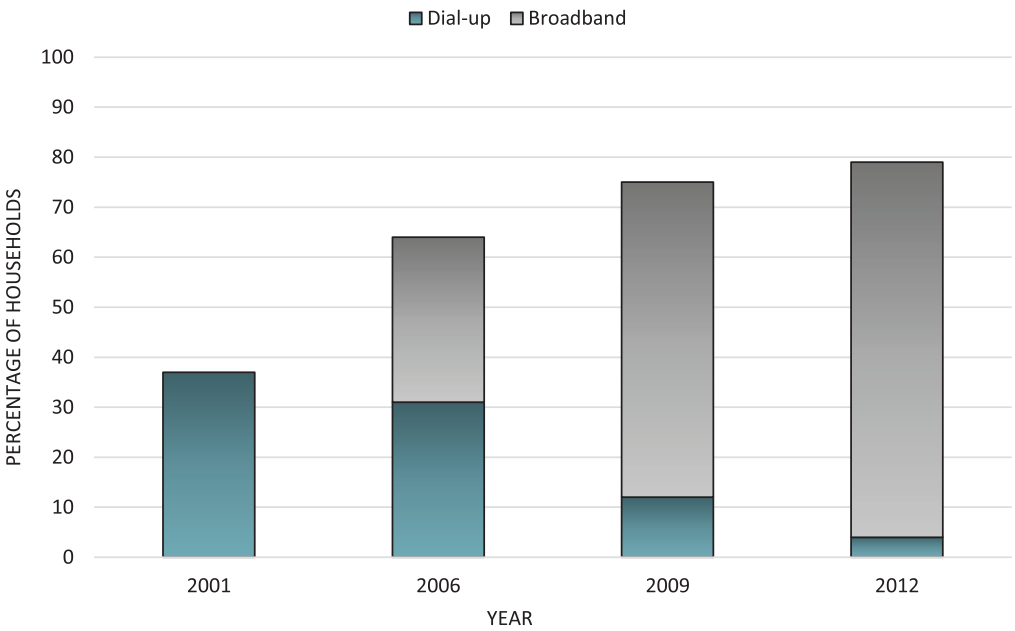
The Internet is a global system of interconnected computer networks that link several billion devices worldwide.

The use of, and access to, the Internet in New Zealand continues to rise at remarkable rates. Almost 80% of all households had access to the Internet as of 2012, compared to only 37% in 2001. Concurrent to this trend, New Zealand-wide access to more efficient and faster Internet connections via superfast broadband has increased significantly, from 33% of all households in 2006 to 75% in 2012. Broadband has rapidly replaced the largely outdated dial-up process, which has decreased in uptake from 37% in 2001 to just 4% in 2012.

Access to the Internet has also been improved through greater mobility offered by wireless devices, as well as the growing importance and necessity of the Internet in everyday home life. Internet NZ reports that nearly 60% of Internet users surf the web every day, from checking the news to engaging in social media sites. The use of the Internet for business transactions and marketing has also grown markedly, improving the efficiency, timeliness and cost-cutting endeavours of firms.

With many lower-income and elderly households still without Internet access, there is still something of a minor digital divide. However, all things being equal, continuing trends will see Internet access soon approach saturation, bringing New Zealand closer to other comparable countries on the technology frontier.

FIGURE 6.05 PERCENTAGE OF NEW ZEALAND HOUSEHOLDS WITH ACCESS TO INTERNET
2001–12



Source: Statistics New Zealand

6.06 INDIVIDUAL ONLINE PURCHASES

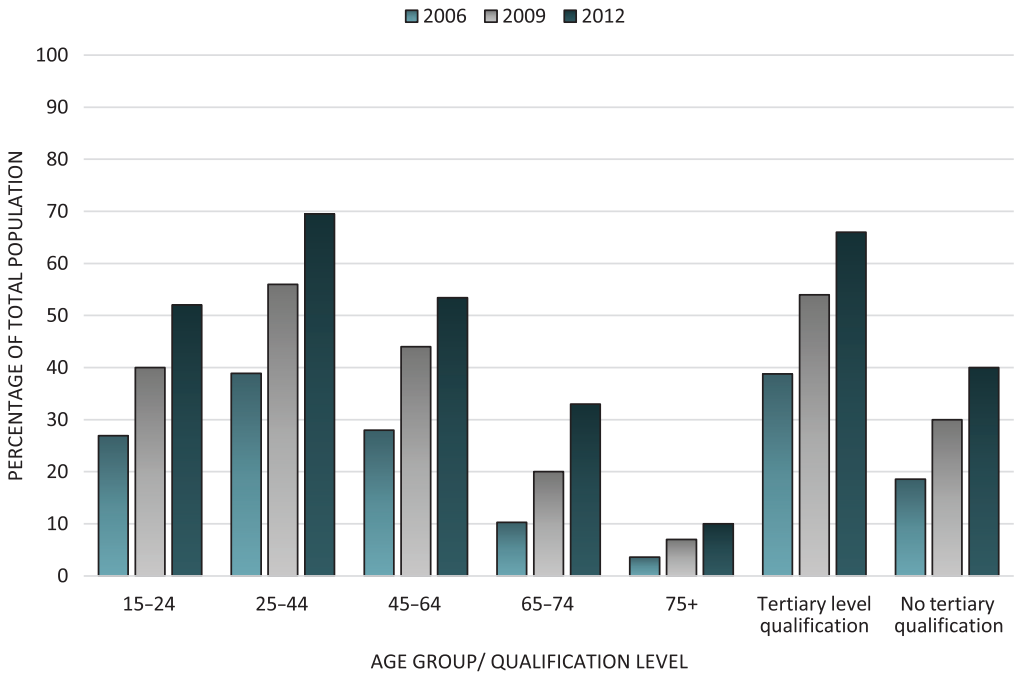
Online shopping has become increasingly popular in recent years – and for a variety of reasons. Increasing petrol prices, difficulties of getting to traditional retail outlets on a day-to-day basis, time costs associated with going to physical stores – all have contributed to the proliferation of online shopping.

Figure 6.06 shows that online individual purchases as a percentage of total population have increased moderately across the board, for all age groups as well as for those with a tertiary level qualification and those without a tertiary qualification. Those aged between 24 and 44 are the most likely to make online purchases, and those in the 75+ category the least likely. Interestingly, those with a minimum tertiary level qualification are also more likely to make online purchases than those without a tertiary qualification.

These trends are also concurrent with increasing access to the Internet among New Zealand households. Falling domestic and international shipping costs, combined with greater consumer accessibility to more choice in global brands, may also be a critical factor in the upwards trend of online shopping. For New Zealand consumers, who are geographically isolated from major retail centres in the world, these benefits are amplified.

FIGURE 6.06 INDIVIDUAL ONLINE PURCHASES PER YEAR

Percentage of total population by age or qualification
2006, 2009, 2012



Source: Statistics New Zealand (infoshare)

CHAPTER SEVEN

LABOUR MARKET

INTRODUCTION

It is important for people to be in productive employment both for the economy-at-large and for individuals' sense of purpose and pride – and, of course, so people can earn income to support themselves and their families. Global economic trends have a large impact on employment, but government policies have an impact too.

The charts in this chapter clearly show the impact of global economic forces on unemployment rates in New Zealand. Spikes in unemployment can be seen in 1998 following the Asian financial crisis, and after 2008 with the onset of the global financial crisis.

Unemployment has always been higher among young people but rose faster for 15- to 19-year-olds in the 2000s, possibly reflecting changes to labour laws where minimum youth unemployment rates were abolished, removing incentives for employers to give young people a chance in employment.

Union membership halved in New Zealand from 45% in 1989 to 18% in 2013, reflecting a shift towards more professional employment as well as legislative changes in the late 1980s and the 1990s, which made union membership optional. Interestingly, the decline in union membership came at a time of increased employment, possibly reflecting high employment negating the need for worker protection provided by unionisation.

So what about gender differences in workforce participation? While there is still a gap between male and female labour participation, as women still tend to take on greater family responsibilities, the gaps have narrowed. There was also faster growth in female earnings over the same time relative to male earnings, which is partly explained by longer working hours for women.

Incomes rose for higher decile households at a faster rate than for lower decile households, which may be explained by an increasing demand for higher skilled workers and reduced demand for low-skilled labour. This shows just how important it is to lift achievement among those at the bottom end of educational achievement, and ensure that all children have equal access to educational opportunities.

Welfare rates ebb and flow in tandem with unemployment, but there have also been some significant changes over time to the types of benefits that people receive. The numbers of people on benefits rose rapidly during the 1980s and 1990s but have declined since the peak of the early 1990s. Sharp declines in the 2000s coincided with an increase in the number of people on sickness benefits. This is surprising given better access to health care and higher standards of living.

7.01 LABOUR FORCE PARTICIPATION

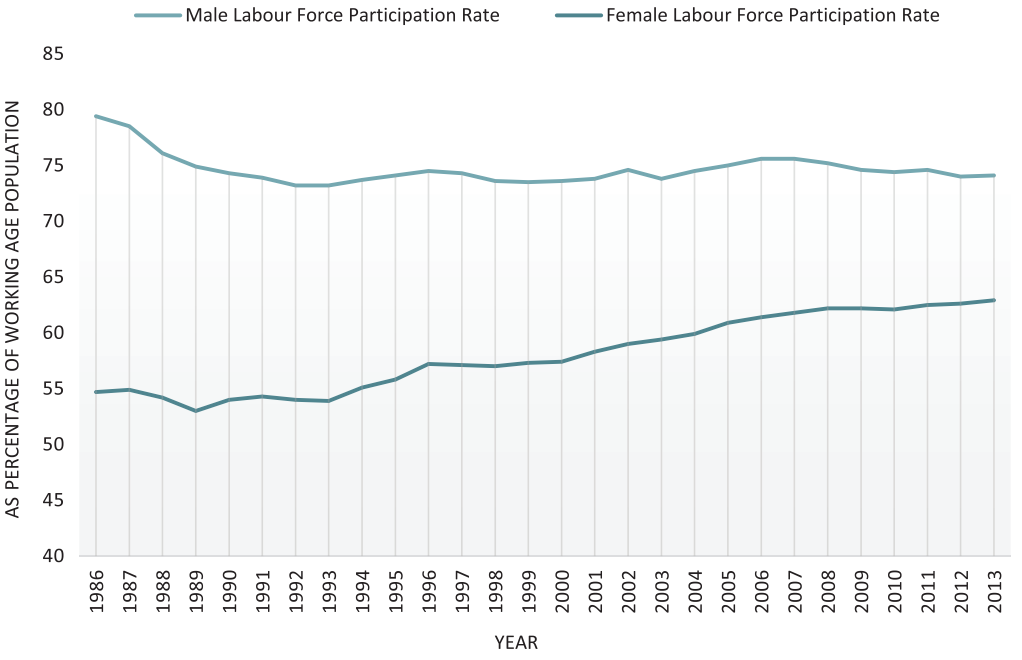
Figure 7.01 shows the changes in labour force participation for males and females between 1986 and 2012.

Women continue to be dominant in child rearing but, even so, the female participation rate in the labour force rose markedly from 54.7% in 1986 to 62.9% in 2012. Its lowest point was 53% during the 1989 recession.

The male participation rate too fell from 79.4% to 74.1% during this period, although the lowest point was a participation rate of 73.2 in 1992.

The male rate has been trending down in recent years while the female rate is slowly rising, which is why questions remain unanswered at this stage as to whether future equality is achievable.

FIGURE 7.01 LABOUR FORCE PARTICIPATION
As percentage of total working-age population
1986–2012



Source: Statistics New Zealand

7.02 WORKING HOURS

Figure 7.02 shows the movement in average weekly paid hours for males and females between 1989 and 2013.

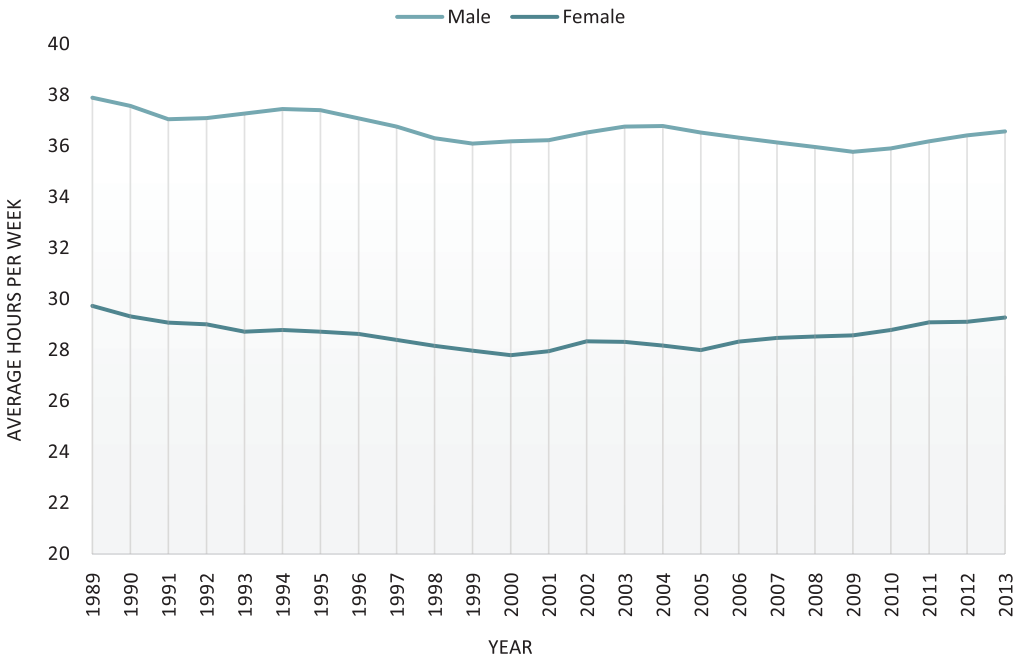
Average weekly paid hours for females dropped from 29.7 in 1989 to 27.8 in 2000, but have since risen, reaching 29.3 in 2013. There is a more marked overall decline in average weekly paid hours for males. It slid unevenly from 37.9 in 1989 to 36.6 in 2013.

Even so, the gap between men and women has not closed very much. Males worked 8 hours a week (28%) more than females on average during this period; in 2013, the gap was 7.3 hours (25%).

The long decline in each series during the 1990s cannot be attributed to recession as this was a period of strong economic growth.

Still, the rate of change over this period is relatively modest compared to the start of the 1900s, when the average worker spent 48 hours each week at work.

FIGURE 7.02 AVERAGE WEEKLY PAID HOURS
1989–2013



Source: Statistics New Zealand

7.03 TRADE UNION MEMBERSHIP

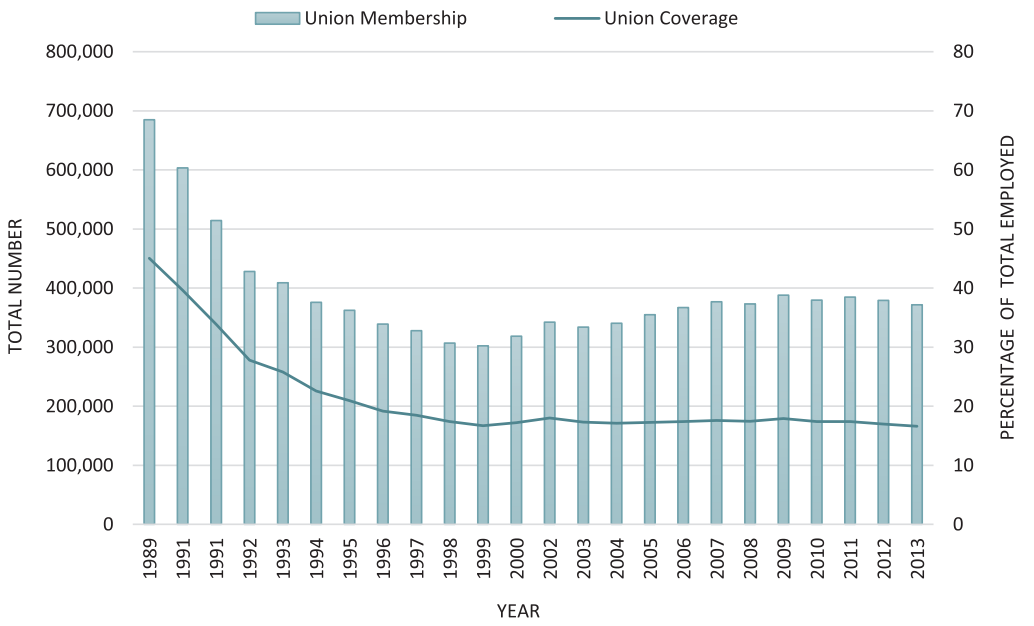
Figure 7.03 shows the changes in trade union membership between 1989 and 2013, both numerically (left-hand scale) and as a percentage of total employment (right-hand scale).

Trade union membership more than halved between 1989 and 1999, while union coverage declined from 45% of the workforce to 18%. Member numbers increased modestly after 1998, but not as a percentage of total employment.

Key legislative events included the *Labour Relations Act 1987*, the *Employment Contracts Act 1991*, and the *Employment Relations Act 2000*. The first Act ended compulsory arbitration. The second Act ended compulsory unionism, national awards, and the trade unions' exclusive right to represent workers. It also replaced collective contracts by individual contracts, abolished the Arbitration Court, and broadened the scope for unjustified dismissal actions.

To gain legal recognition, employee organisations had to become incorporated societies with at least 1,000 members. Small unions could not do this. The third Act attempted to reinstate unions by giving them legal recognition and specifying that employees could only be represented by a registered union if involved in collective bargaining.

FIGURE 7.03 TRADE UNION MEMBERSHIP AND COVERAGE
1989–2013



Source: Statistics New Zealand

7.04 AVERAGE WEEKLY EARNINGS

Figure 7.04 shows the movement in calendar average weekly earnings for males and females, individually and combined, between 1989 and 2013 when expressed in 2013 dollars using the CPI.

The annual average compounded rate of growth in real average weekly earnings during this period was 0.9% for females, which was 50% higher than the 0.6% rate for males. The wage gap did not change much in terms of 2013 dollars, averaging $1,333 a week for the entire period, and ending at $1,328 a week in 2013.

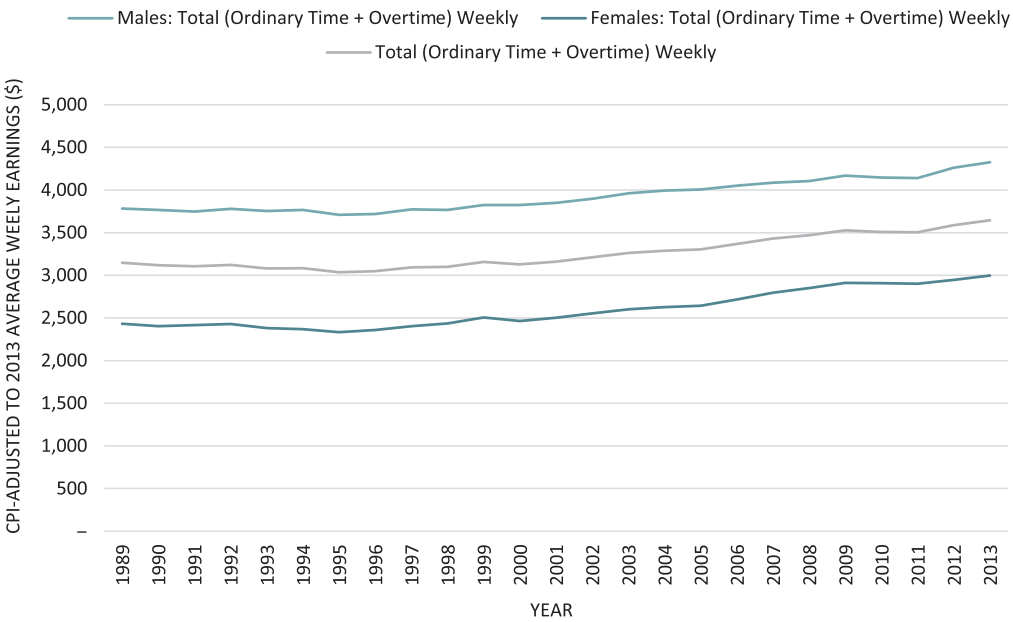
However, the faster growth in female earnings saw the gap close from 55% in 1989 to 44% in 2013, for an average of 52%. The earnings gap is larger than the gap in average weekly hours worked.

Average weekly earnings will weaken if more relatively unskilled workers obtain employment. This occurred during the 1990s when unemployment was sharply reduced.

In the long run, real wage rate growth should track labour productivity growth. New Zealand's average annual compounded rate of growth in economy-wide labour productivity between 1989 and 2013 was 0.9%, according to the OECD's November 2013 Economic Survey. Reduced weekly hours worked and changes in the skills composition of the workforce could help to explain why real average weekly earnings, male and female combined, grew somewhat more slowly, at 0.6% per annum on average.

FIGURE 7.04 CPI-DEFLATED AVERAGE WEEKLY EARNINGS

CPI-adjusted to 2013 dollars
1989–2013



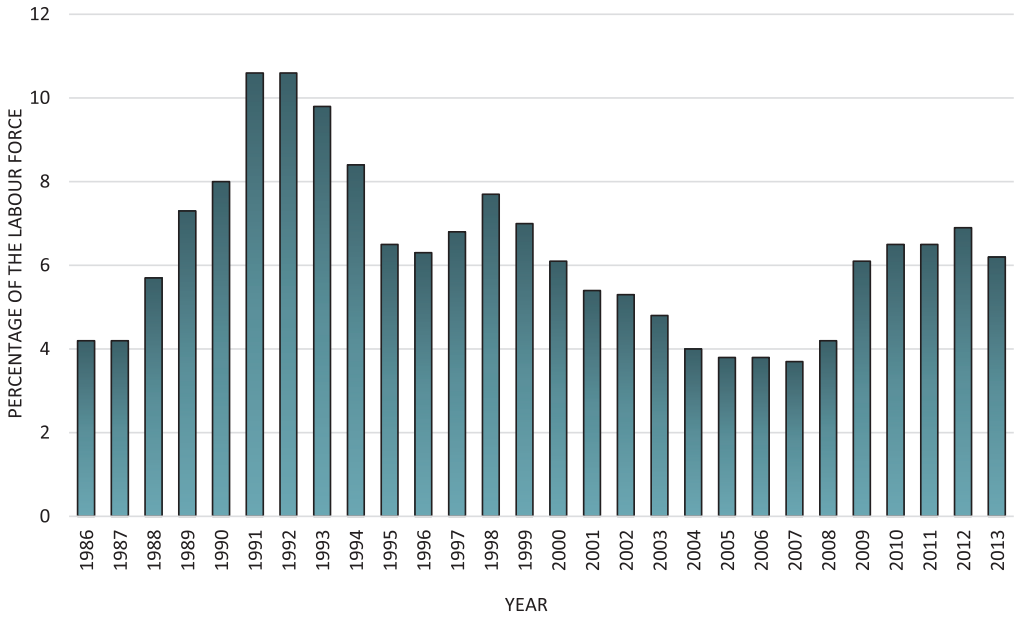
Source: Statistics New Zealand

7.05 UNEMPLOYMENT RATE

New Zealand's official unemployment rate averaged 0.6% of the labour force in the 1960s, 1.1% in the 1970s, 4.1% in the 1980s, and 7.9% in the 1990s after peaking at 10.6% on a calendar year average basis in 1991 and 1992. The declining rate during the 1990s continued into the 2000s to reach a low of 3.7% in 2007. The aftermath of the global financial crisis saw it peak at 6.9% in 2012.

The sharp lift in the unemployment rate to 1991 followed with the deep recession that ensued after the collapse of the share market in 1987 and the reforms ushered in by the Lange-Douglas Labour government in 1988. It also coincided with the need for ongoing fiscal and monetary policy restraint following a decade of profligate government borrowing and the inflationary spurt that followed the 1984 currency devaluation. Necessary shake-outs from restructuring the economy added to the unemployment woes.

FIGURE 7.05 UNEMPLOYMENT RATE
As percentage of total labour force
1986–2013



Source: Statistics New Zealand

7.06 INCOME DISTRIBUTION

Figure 7.06 shows the changes in real equivalised household incomes between 1982 and 2012 for the 10th, 50th, 60th and 90th percentiles. These statistics are equivalised in the sense that they normalise for differences between actual households in matters such as family size.

Between 1982 and 2012, the real equivalised household incomes rose by 14%, 20%, 22% and 40%, respectively, for the 10th, 50th, 60th and 90th percentiles. The rises took place after 1994, with incomes being lower in that year than in 1982 in each case.

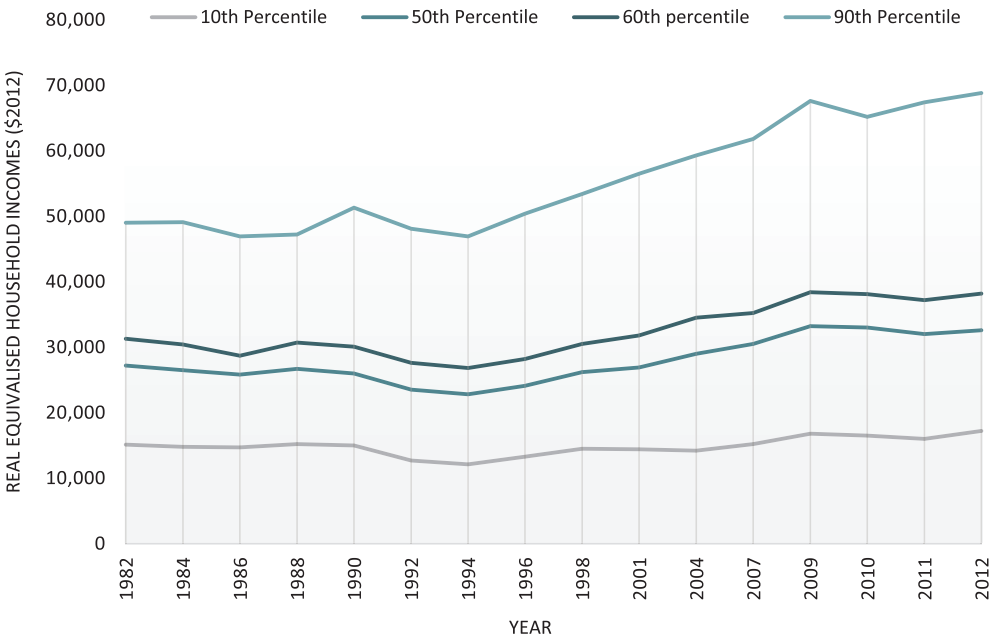
Real equivalised household incomes for the 10th percentile fell from 0.6% of the level for the 50th percentile in 1982 to 0.5% in 2012, whereas for the 90th percentile they rose from 1.8 times the 50th percentile level to 2.1 times.

The widening of the income distribution has been uncomfortable, but the growth in job opportunities for those with technological skills for the Internet age stands in contrast with the threat to jobs for relatively unskilled workers from competition with countries like China and India.

FIGURE 7.06 INCOME DISTRIBUTION

Expressed as real equivalised household incomes (2012)

1982–2012



Source: Statistics New Zealand

7.07 UNEMPLOYMENT RATE BY AGE

Figure 7.07 shows how the calendar year average rate of unemployment varied between 1986 and 2012 for three age groups: 15–19, 20–24, and 55+. The chart depicts the degree to which the 15–19 unemployment rate has exceeded the 20–24 rate.

The unemployment rate has been persistently markedly higher for 15- to 19-year-olds than for any other group. The unemployment rate for 20- to 24-year-olds has been persistently higher than the national average. The unemployment rate for those aged at least 55 years has been above the national average in some years and below it in others. Since 2008, it has been higher than the national average, which has been under 7%.

Since 2008, the 15–19 unemployment rate has exceeded the previous peak of 23% that was reached in 1992. The decline in youth employment since the since the mid-2000s coincides with policy measures aimed at stopping youths from working at less than the adult minimum wage.

FIGURE 7.07 UNEMPLOYMENT BY AGE
As percentage of total labour force
1986–2012

Source: Statistics New Zealand

7.08 WELFARE NUMBERS

Figure 10.10 shows the changes between 1960 and 2012 in the proportion of the population on three categories of welfare benefits, the unemployment benefit, the sickness and invalid's benefits combined, and the Domestic Purposes Benefit (DPB), which is largely paid to single mothers with dependent children.

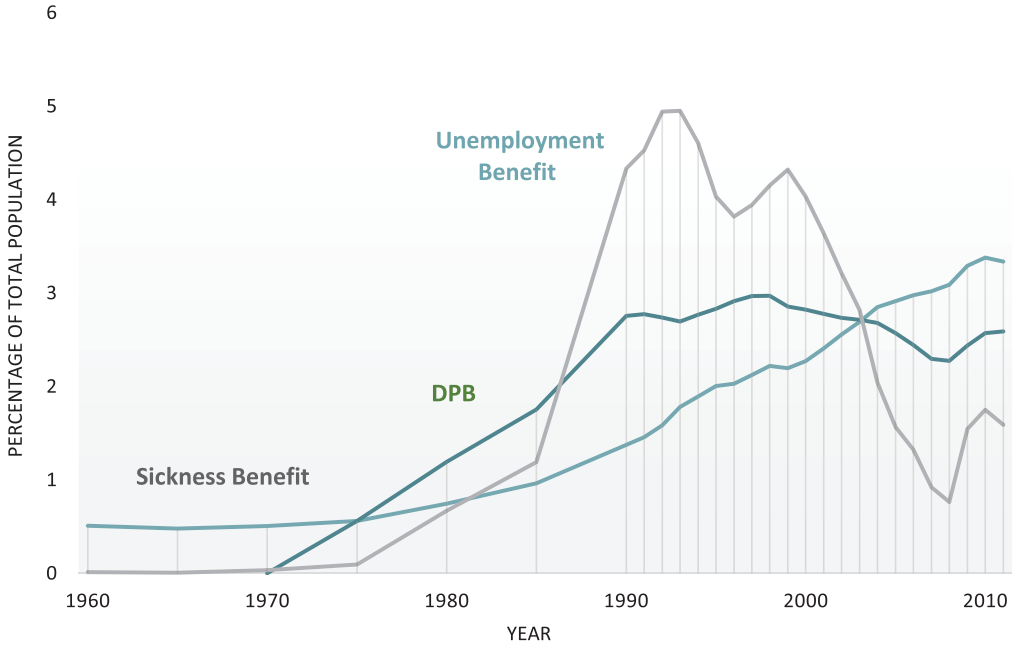
The rise and fall in the proportion of the unemployment benefit tracks the unemployment rate closely enough to require no further discussion.

The proportion of the population obtaining a sickness or invalid's benefit rose six-fold from 0.5% in 1960 to 3.3% in 2011. The DPB was introduced in 1973 and rose to cover 3% of the population by 1998, before dropping to 2.6% in 2011.

The rise in dependency on the DPB has been controversial because of fears that the state was subsidising marriage breakup, or the failure to form a family in the first place.

The rise in dependency on sickness and invalid's benefits has been puzzling because population health should have been improving along with the rise in real incomes per capita. Many contributing factors have been suggested, including the administration of eligibility criteria, the relatively high minimum wage rates in New Zealand (likely to penalise the most marginal workers), and the reduced institutionalisation of those with disabilities.

FIGURE 7.08 WELFARE NUMBERS
As percentage of total population
1986–2012



Source: Statistics New Zealand

CHAPTER EIGHT

DOMESTIC ECONOMY

INTRODUCTION

Throughout history, humans have striven to use whatever means at hand to improve their circumstances. Good institutional arrangements allow them to do so through mutually beneficial exchanges; bad ones lead to sub-optimal and inefficient outcomes.

Real Gross Domestic Product (GDP) per capita is an imperfect but nonetheless useful indicator of increases in material standards of living through time. The evolution of GDP per capita between New Zealand and Australia from 1895 has historically seen the two economies grow in tandem. However, from 1964, the gap between Australia and New Zealand has widened. Closing this gap remains a challenge for policymakers.

The terms at which New Zealanders can exchange exports for imports have fluctuated markedly during the last 100 years with significant implications for the levels of unemployment, external debt, and the purchasing power of national income. This volatility has been attributed to the difference in composition between exports and imports. Prior to British entry to the European Union, New Zealand predominantly exchanged exports and imports with the United Kingdom and Australia. Australia subsequently became New Zealand's dominant trading partner, however in more recent years our dominant trading partner has been China.

Nations with relatively poor economic management will tend to have relatively high rates of inflation and depreciating currencies. Tracking New Zealand's progress in these areas is therefore vital for considering the health of the entire economy.

New Zealand's comparative advantage changes continually with new technologies and external and domestic pressures. Resilient, flexible economies can shift resources from contracting to expanding areas with minimal disruption.

The ability to control the public finances, and thus avoiding public debt blowouts, is another test of the quality of a nation's economic management.

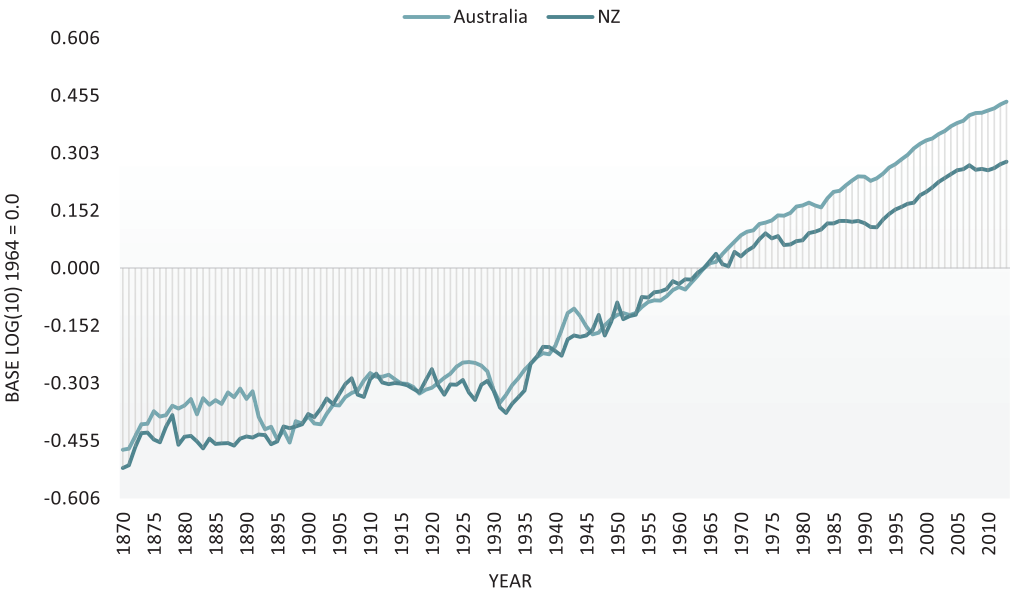
8.01 REAL GDP GROWTH PER CAPITA

Real GDP per capita was broadly comparable between Australia and New Zealand between 1895 and 1964. It roughly doubled between 1930 and 1964 for each country. It took another 34 years for real GDP per capita to double for Australia, but 49 years later New Zealand's had still not quite doubled.

The marked divergence between the two economies appears to have started in the mid-1960s, but New Zealand hit the wall in the debt and foreign currency crisis of the mid-1980s. Fast economic growth was achieved from the early 1990s, but the Australian economy was also doing well, so a large income gap remained.

The boom of the global economy in the early 2000s maintained GDP per capita-growth at a healthy pace until the onset of the global financial crisis, when negative growth occurred for the first time in 16 years. However, high Asian demand for New Zealand exports and increased domestic spending associated with the Christchurch earthquake rebuild subsequently lifted GDP per capita again.

FIGURE 8.01 GDP GROWTH PER CAPITA
1870–2010



Source: Maddison series linked to Conference Board series at 1950, US$ GDP (converted to 2013 price level with updated 2005 EKS PPPs)

8.02 MERCHANDISE TERMS OF TRADE

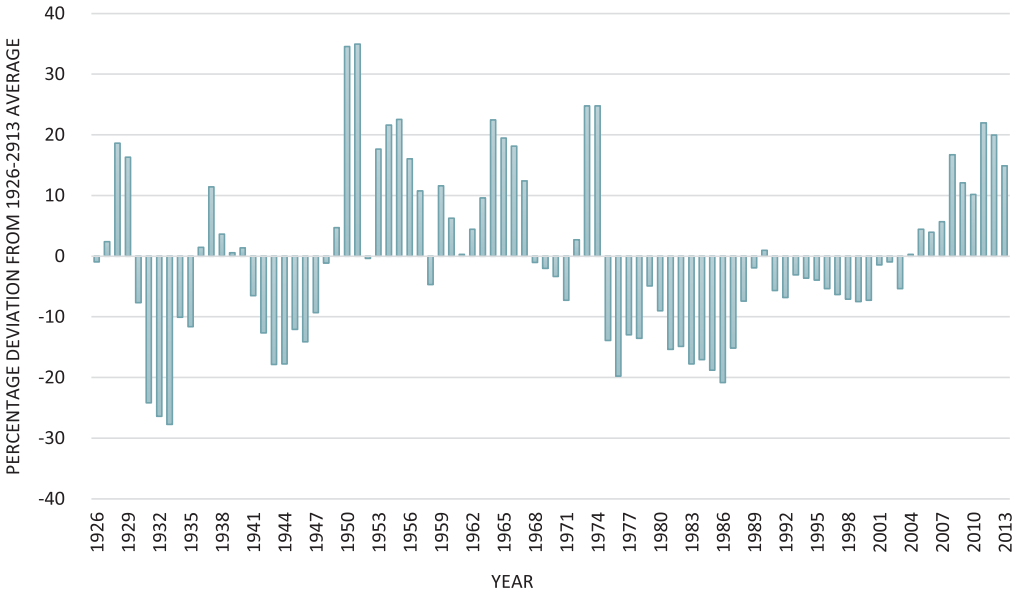
The merchandise terms of trade measure the ratio of export prices to import prices. The higher the ratio, the greater the volume of imports that can be bought with a given volume of exports.

Historically, New Zealand's terms of trade have been volatile, making them a significant source of fluctuations in domestic economic activity. The volatility arose because the composition of New Zealand's exports is very different from the composition of its imports, the former being largely land- and sea-based primary products and the latter being petroleum products, inputs for industry, and a wide range of other commodities.

New Zealand's terms of trade were 28% below their long-run average in 1933 (the Great Depression) and 35% above in 1951 (the Korean War boom). Those were the extreme values. The terms of trade were relatively buoyant through the 1950s and 1960s, except for 1958, the year of the 'Black Budget', and the late 1960s when wool prices crashed, the government devalued, and the Arbitration Court's nil general wage order was overturned, leading to the inflation of the 1970s.

The marked terms of trade boom in 1973–74 ended when world oil prices quadrupled, taking the terms of trade from 25% above the long-run average to 20% below in just two years. It was only in the mid-2000s that the terms of trade climbed above the long-term average. This is partly explained by diversification in primary exports as well as a move up the value chain on these goods, which command a premium in Asia. In addition, the emergence of China as a global factory has helped suppress import prices, which has sustained the terms of trade ratio.

FIGURE 8.02 MERCHANDISE TERMS OF TRADE
1926–2013



Source: Statistics New Zealand

8.03 EXPORTS AND IMPORTS BY DESTINATION

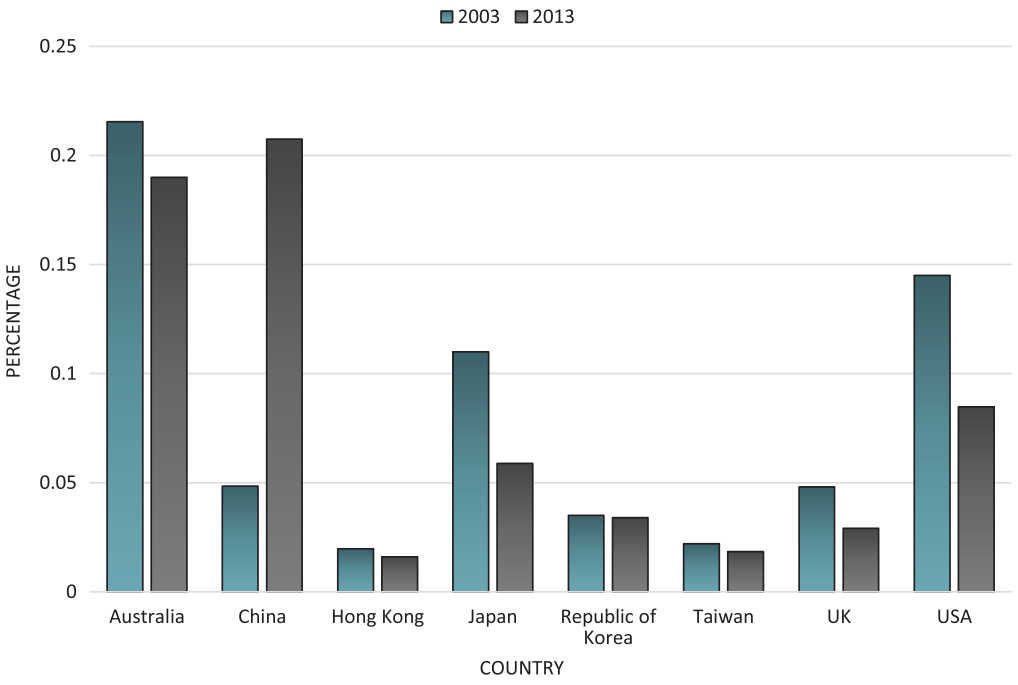
The integration of the Asian countries into the global economy has significantly changed the structure of New Zealand's trade relationships, both as an export destination and as the primary producers of imported goods.

The shift in exports has been helped by rising levels of wealth in the East, which has increased demand for New Zealand produced primary goods, particularly food related items such as dairy and meat. New Zealand's 2008 free-trade agreement with China, in particular, has been instrumental in opening up markets in the world's second-biggest economy to New Zealand goods.

On the import side, China's emergence as the 'world's factory' has also seen a shift in traditional import patterns, usurping the place of traditional goods suppliers, including Australia, Japan, Europe and the United States.

By 2013, China had become our largest export customer and our largest supplier of imports. Only 10 years ago, in 2003, Australia was our biggest trading partner in both respects.

FIGURE 8.03A EXPORTS
By destination
2003 and 2013

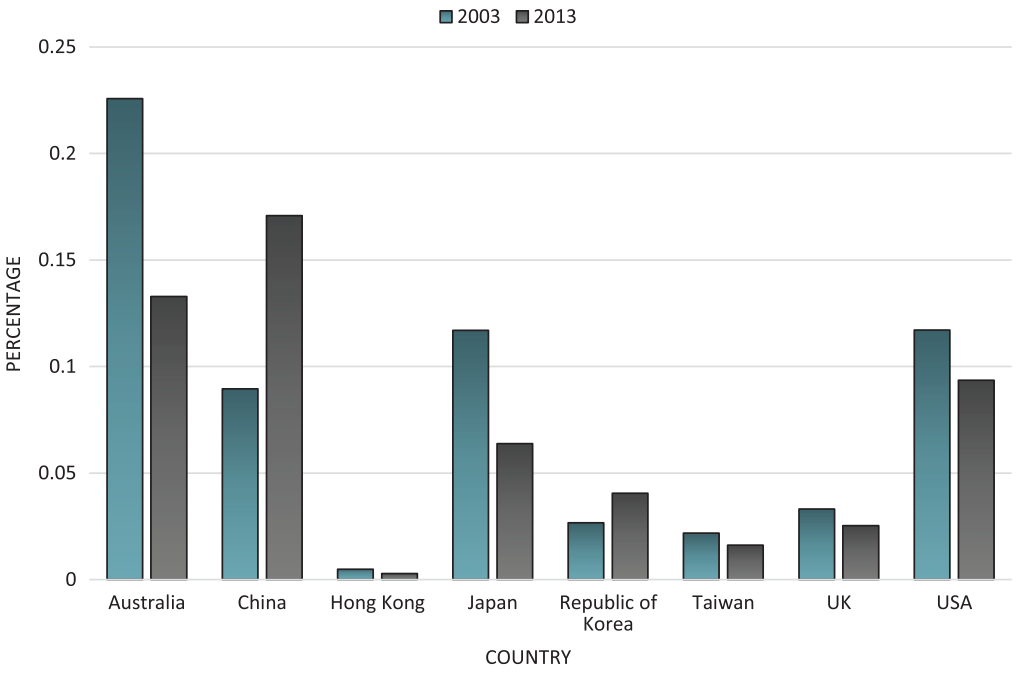


Source: Statistics New Zealand

FIGURE 8.03B IMPORTS

By origin

2003 and 2013



Source: Statistics New Zealand

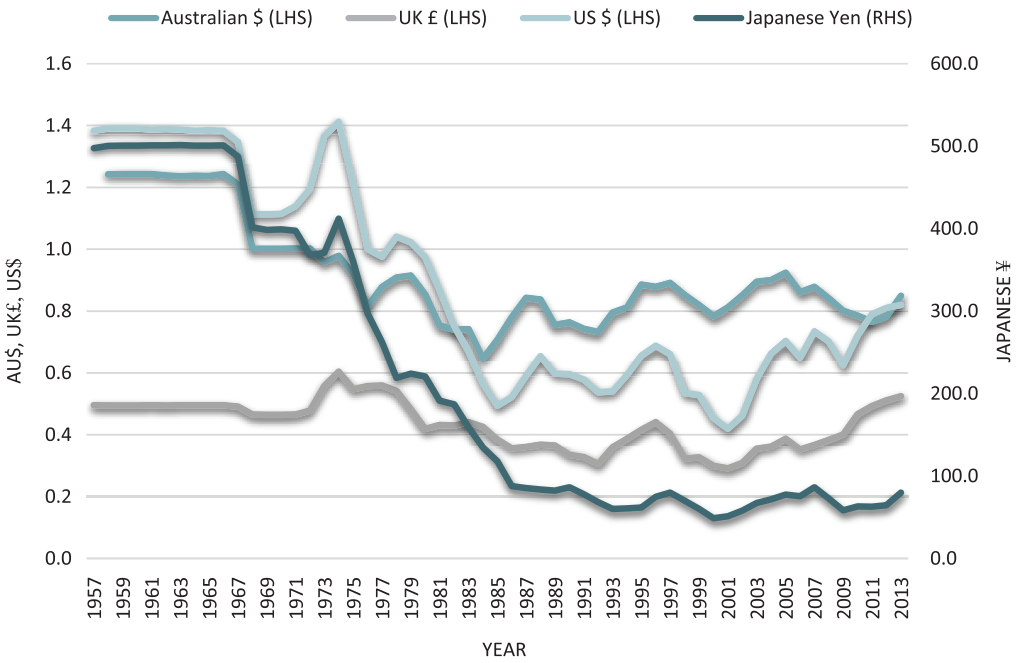
8.04 EXCHANGE RATES

The New Zealand dollar moved from parity with the British pound sterling to parity with the Australian dollar in 1967, when all three currencies were expressed in pounds. Thereafter, New Zealand inflated faster than Australia, Japan and the United States, causing the New Zealand dollar to fall in value against these currencies. New Zealand depreciated to a lesser degree against the pound sterling until around 2000 because of the higher inflation rate in the United Kingdom.

While New Zealand first introduced its own currency in 1935, it was largely a mirror of the British fractional system. Only in 1967 was the decimal-based New Zealand dollar introduced. The growing divergence of inflation rates from the 1970s undermined the fixed exchange rate system. New Zealand moved to a 'crawling peg' system in the 1970s, but was unable to sustain even this system in the currency and constitutional crisis that occurred with the July 1984 general election. A large devaluation in July 1984 eased the situation, but only for a few months.

In 1985, the New Zealand dollar was floated to shift currency risks from taxpayers to private market participants. No currency crises have occurred since, not even during the 2008 global financial crisis.

FIGURE 8.04 EXCHANGE RATES
Value of 1 NZD
1957–2013



Source: Organisation for Economic Co-operation and Development (OECD)

8.05 EMPLOYMENT BY INDUSTRY

The distribution of employment by industry for 1963 and 2013 captures a snapshot in an overarching trend experienced by many developed economies, namely the shift away from manufacturing and primary industries.

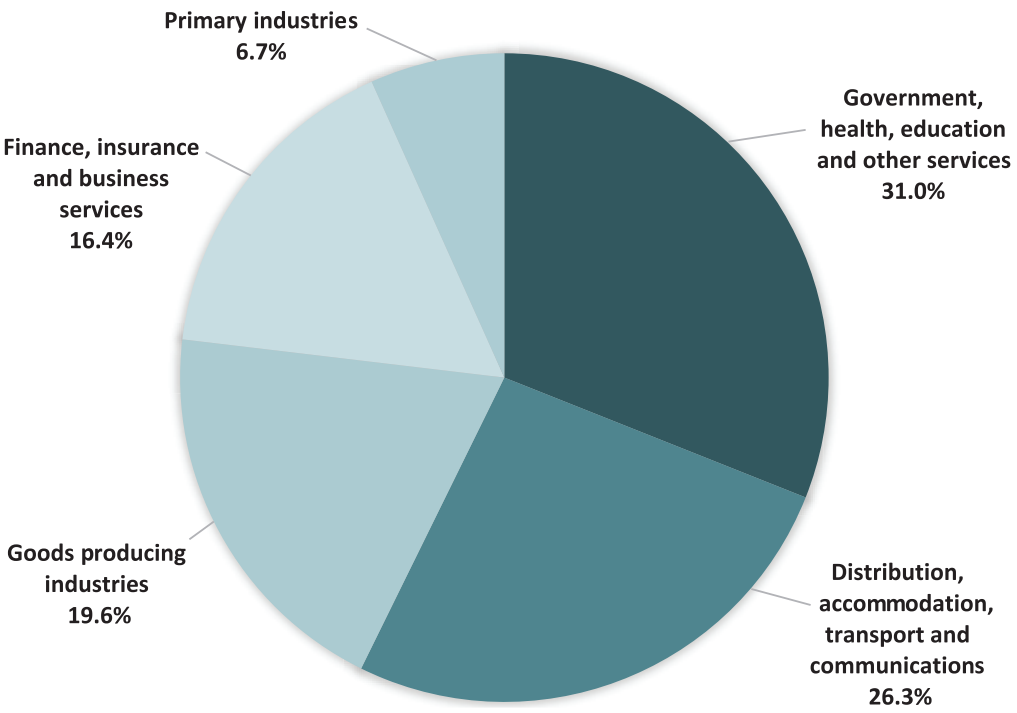
At the beginning of the 20th century, almost 2 in 5 workers were employed on farms, or in the forestry and mining sectors. That fell to 1 in 7 by 1963, and to 1 in 14 by 2013 as more productive machinery replaced manual labour in the respective sectors.

Many of these jobs moved into manufacturing, which accounted for over one third of total jobs in 1963. However, as government support for the sector was withdrawn since the 1970s and developing countries joined the global economy, so the sector has accounted for fewer jobs in New Zealand.

Rising levels of education have seen the share of jobs in New Zealand's service sector almost triple. Similarly, improvements in health care and the government's growing involvement in the economy have seen the share of jobs in these sectors grow by 50%.

FIGURE 8.05A EMPLOYMENT BY INDUSTRY

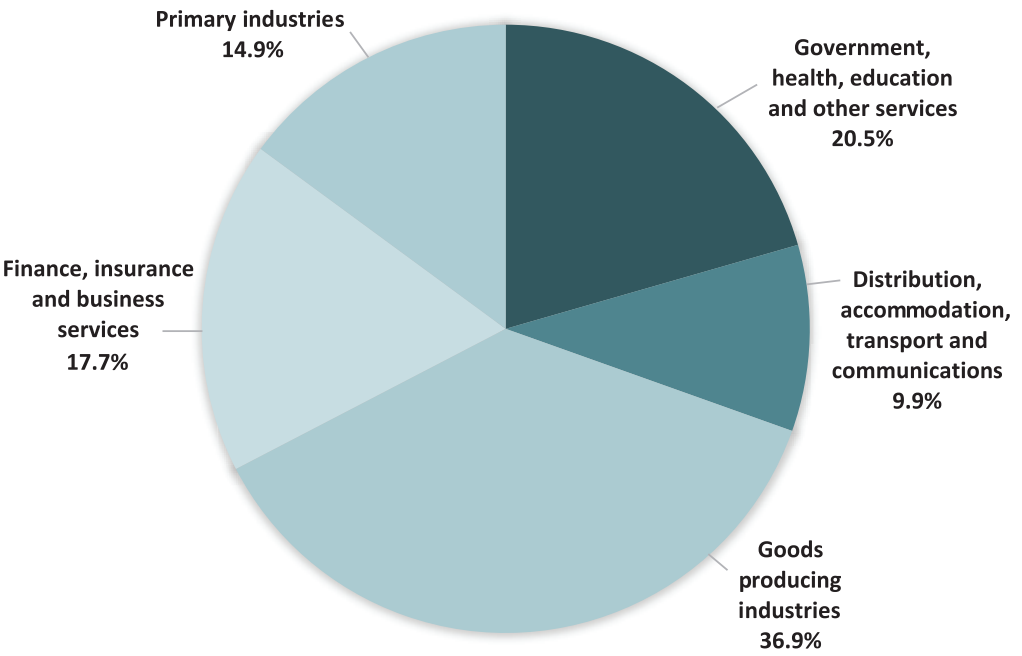
As percentage of all industries
2013



Source: Statistics New Zealand

FIGURE 8.05B EMPLOYMENT BY INDUSTRY

As percentage of all industries
1963



Source: Statistics New Zealand

8.06 CONSUMER PRICE INDEX

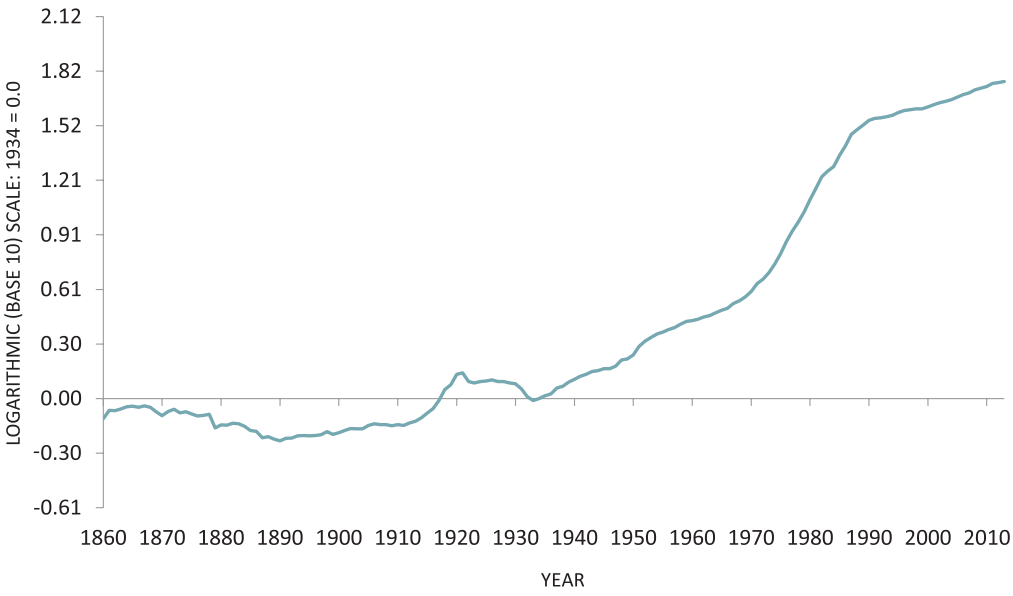
New Zealand experienced very little inflation before the United Kingdom went off the gold standard in 1914. Some inflation followed until the deflation of the 1930s. Inflation really took off after the formation of the Reserve Bank in 1934, with the 1935 Labour government deeming the 1% Reserve Bank credit to be a fine thing.

Figure 8.06 uses a logarithmic scale to better identify how many years it took the CPI to double. It doubled four times between 1934 and 1990, taking only five years to do so between 1977 and 1982 (the government imposed a comprehensive wage and price freeze in June 1982).

The *Reserve Bank Act 1989* made it much harder for governments to print money, and the CPI has stopped doubling every few years. To illustrate the contrast, in the 20 years to 1989, the CPI increased at an average annual rate of 11.6%, while in the last 20 years to 2013 it has averaged 2.3%.

FIGURE 8.06 CONSUMER PRICE INDEX

Jacobsen series before 1891, Statistics New Zealand series subsequently
1860–2010



Source: Capital Economics and Statistics New Zealand

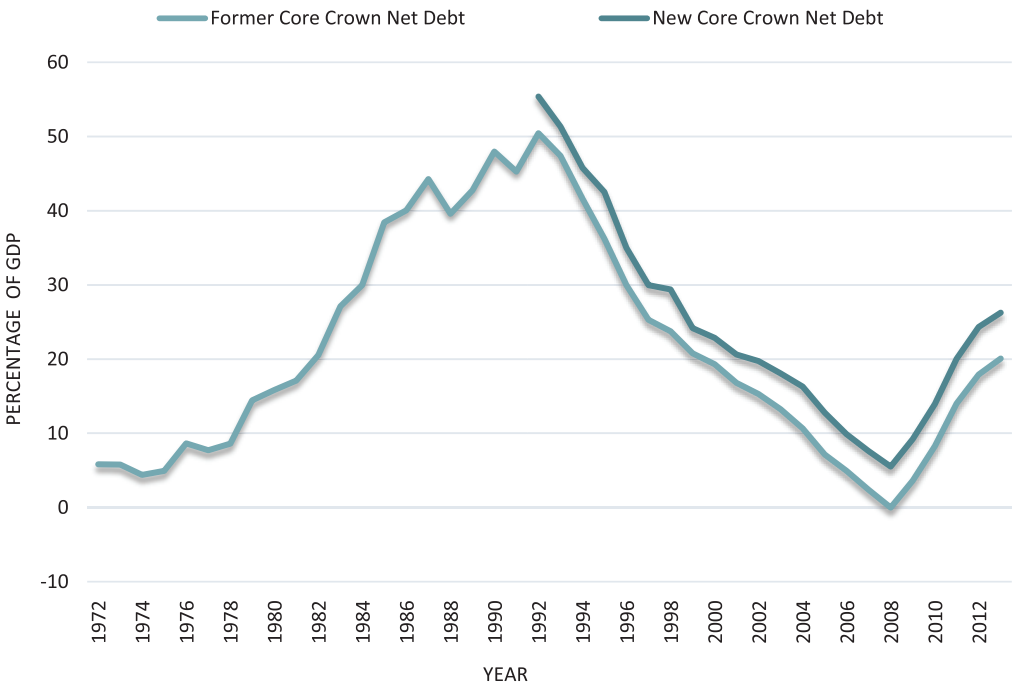
8.07 GOVERNMENT DEBT

The net public debt peaked in the early 1990s at over 50% of GDP. This reflected years of heavy government overseas borrowing to fund both the current account deficits that followed the 1973–74 world oil price rises and the ongoing fiscal deficits. Floating the exchange rate in 1985 removed the need for the government to borrow from overseas to defend a fixed exchange rate and allowed the government to reduce taxpayer exposure to foreign currency government bond risks.

Government was able to reduce the net public debt initially through asset sales and eventually through fiscal surpluses.

The effect was such that by 2008, net public debt was eliminated on the older measure and under 6% of GDP on the current measure. However, when revenue fell in the wake of the global financial crisis, fiscal deficits resumed. Further spending occasioned by the Christchurch earthquakes saw net debt levels quickly rise by 20% of GDP from 2008.

FIGURE 8.07 CORE CROWN NET DEBT
As percentage of GDP
1972–2013



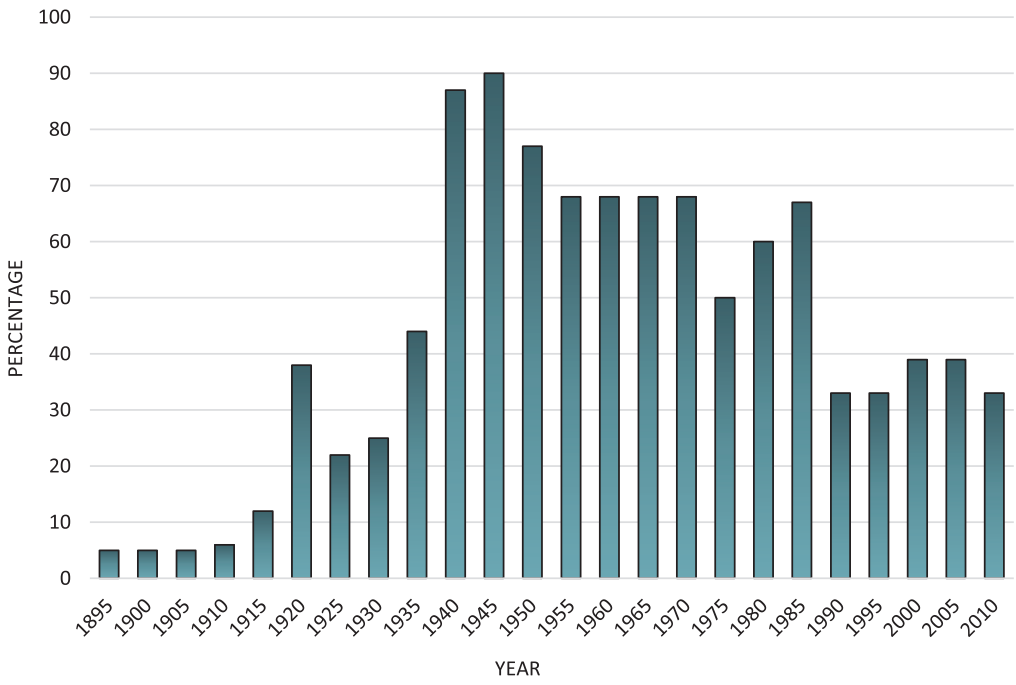
Source: New Zealand Treasury

8.08 TOP MARGINAL INCOME TAX RATE

Figure 8.08 displays the top rate of income tax in New Zealand between 1895 and 2010 based on Paul Goldsmith's book *We Won, You Lost. Eat That!* – updated with the most recent changes for October 2010.

New Zealand prides itself on a tax system characterised by clear rules and minimal loopholes. However, this wasn't always the case. In the post-war years personal rates remained high, with 66 cents in every dollar being paid to the government at the top end of the scale, which came into effect at a relatively low level of $38,000. By the mid-1980s, legislation simplified the income tax system and broadened the tax base while flattening the tax scale, with the top tax rate falling to 33%. Further reforms were made to the tax scale in the 1990s, although the top personal tax rate remained unchanged. In 1999, when the Labour Party was voted into government the upper tax rate was raised to 39%. After the National Party was voted into government in 2008, the top tax rate was again cut to 33%, where it stands now, while GST was raised from 12.5% to 15%.

FIGURE 8.08 TOP MARGINAL INCOME TAX RATE
For individuals
1895–2010



Source: Paul Goldsmith

8.09 PRIVATE DEBT

Governments can reduce net public debt by selling assets and running fiscal surpluses.

New Zealand's external debt liabilities remained very high as the government reduced the net public debt. The floating exchange rate and lack of currency intervention by the authorities saw the large ongoing net deficit on investment income in the current account of the balance of payments funded by a net private capital inflow.

The result is that private external debt in New Zealand now stands equivalent to 150% of GDP. Most of this is borrowed by New Zealand's banking system and is currency hedged. New Zealand's banks are largely Australian owned.

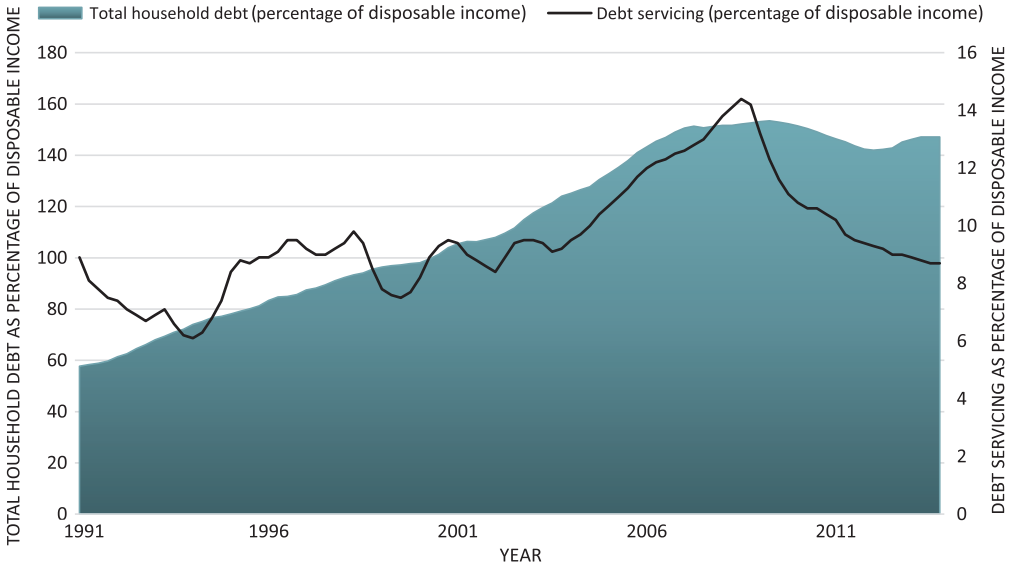
At the same time, as the banking system has been borrowing from overseas to fund the current account deficits in the balance of payments, an increasing shortage of land for housing has driven up land values faster than incomes.

This, in conjunction with the fiscal surpluses, has forced households buying houses to increase mortgage borrowing at a much faster rate than the increase in their incomes. According to the Reserve Bank of New Zealand, in the 20 years to 2011, housing and consumer loan debt rose six-fold, and the ratio of debt to household disposable income peaked at 153% in 2009.

That figure pared back during the global financial crisis as households sought to de-leverage their balance sheets, but as the economy has recovered, so too have land values and the need for home buyers to increase debt. Concerns around credit growth saw the Reserve Bank introduce loan-to-value restrictions, which limited banks from lending to low equity borrowers.

FIGURE 8.09 HOUSEHOLD DEBT AND SERVICING

1991–2011



Source: Reserve Bank of New Zealand

CHAPTER NINE

HOUSING

INTRODUCTION

A house is more than just four walls with a roof on top. 'An Englishman's house is his castle,' as they say in the Old Land. Similarly, in New Zealand, we have an emotional relationship with our houses that goes beyond their function as providers of shelter from the element. It is no coincidence that we often refer to our houses as homes. This more affectionate term conveys emotional attachment.

A more statistical look at housing market data does not and cannot do justice to such emotional undertones. But it can explain some other things, not least why houses have become so dear to us – in a financial sense.

Comparing the data about building consents and mortgage approvals in this chapter to the first chapter's population data reveals a significant undersupply of housing in New Zealand. This has been a matter of great political debate, and The New Zealand Initiative has made its own contribution to the discussion in the form of a series of reports on housing and planning.

It is this lack of housing supply against an increasing housing demand that is responsible for house prices that are now far higher than they used to be – and much higher than they would have been if only we had kept building at rates of the past. It is a great challenge for New Zealand to correct this imbalance between housing demand and supply. As this chapter shows, any housing policies worth their salt should start with an understanding that the solution to the affordability crisis can be found on the supply side.

Our houses are very dear to us. They may be our castles. But they should not have to cost the world.

9.01 RESIDENTIAL HOUSE PRICES

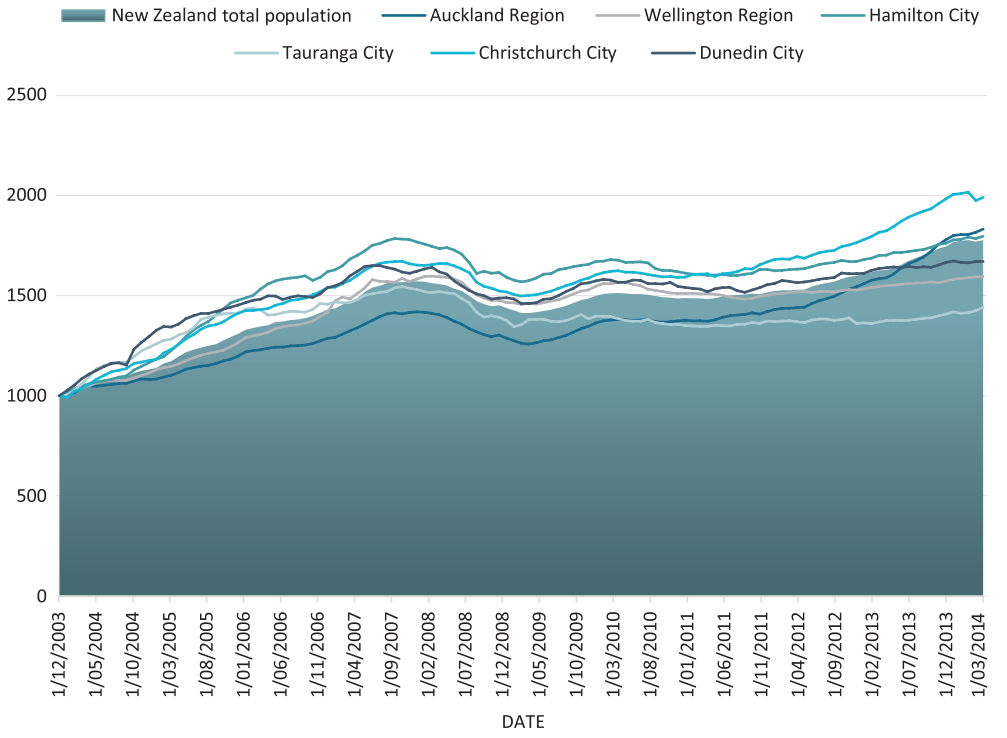
New Zealand did not experience significant house price inflation in real terms until the late 1990s, as rising incomes in the post-reform period kept pace with house prices. However, this relationship began to break down at the turn of the millennium as building rates fell due to anti-development attitudes, tighter building regulation, and artificial land restrictions.

The effect was such that between 2002 and 2007, house prices outpaced income. While income from wages rose by an average annual rate of 4.8%, annual house price increases averaged 12.6% over the same period.

Auckland led the country's housing boom, with prices rising 77.6% in nominal terms between 2002 and 2007, but all regions experienced significant increases as consumers sought to invest in property.

Unadjusted house prices hit a record high in 2008, but declined again as the global financial crisis reduced the availability of credit and consumers sought to deleverage the household balance sheet. However, since then, a build up in demand, record low interest rates, and a recovering economy not only helped sustain price levels but also saw them eclipse those last seen before the recession.

FIGURE 9.01 RESIDENTIAL PRICE MOVEMENT INDEX
2003–13



Source: QV Property Valuation

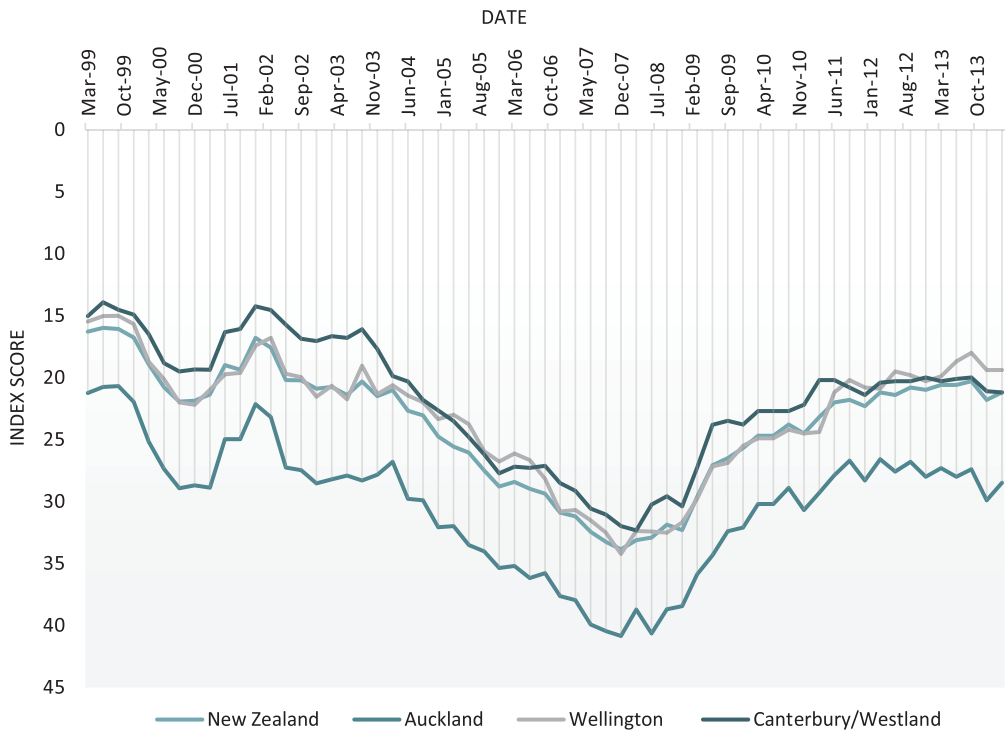
9.02 HOUSING AFFORDABILITY

The Massey University Home Mortgage Affordability Index takes into account median sales prices, average weekly earnings and mortgage interest rates. It aims to provide a holistic view of housing affordability by factoring credit costs into the equation. Movements in Figure 9.02 towards zero indicate housing is more affordable, while movements away from zero indicate decreased affordability.

Figure 9.02 captures much of the housing boom in New Zealand from March 1999 to March 2008. During this period, the buoyant economy, growing population, and constrained housing supply saw prices rise sharply, outstripping the dampening effects of interest rates. As a result, affordability declined to its lowest levels in 2007.

The slowdown of the global economy from late 2007 onwards and the subsequent global financial crisis saw demand for housing decrease as households sought to deleverage their balance sheets. This, combined with record low interest rates, helped improve housing affordability. However, the pace of improvement has tailed off amid the recovery of the domestic economy, easy credit conditions, and increasing house prices.

FIGURE 9.02 MASSEY HOME MORTGAGE AFFORDABILITY INDEX
1999–14



Source: Massey University

9.03 MORTGAGE APPROVALS

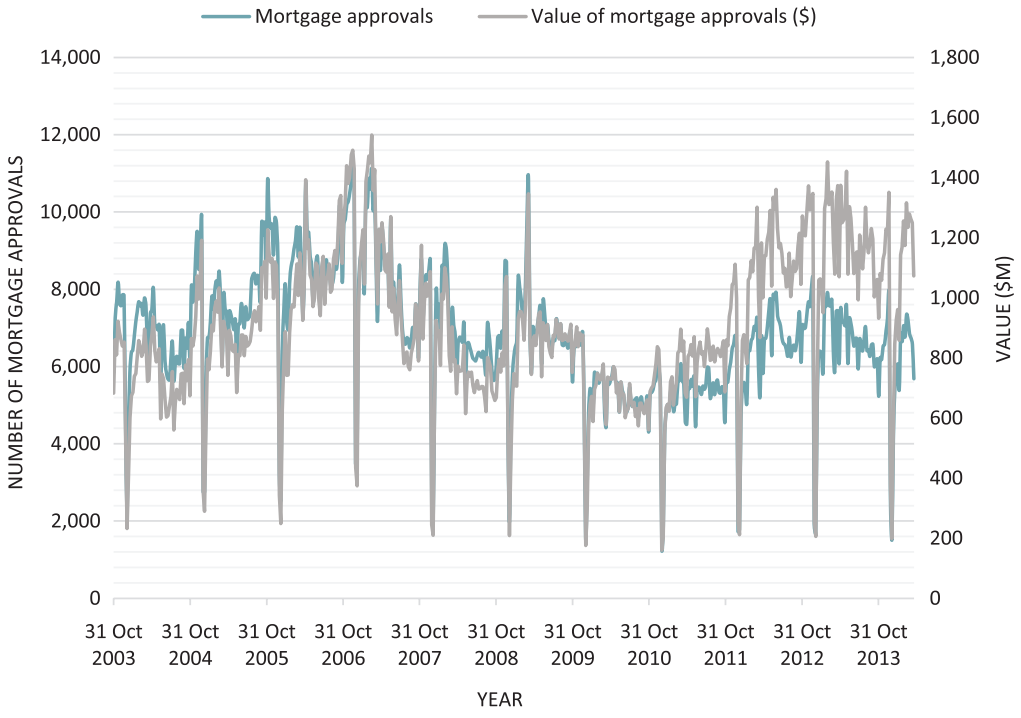
Mortgage approvals and the value of these loans moved in lockstep for much of the boom years in the property market. This relationship held even as the New Zealand economy began to slow in 2007, and the global economy descended into a full blown financial crisis in 2008.

A divergence between value and the number of approvals emerged in early 2011, amid a spike in demand for housing in the rapidly growing city of Auckland, and the earthquake-related destruction of housing in Christchurch.

The latest decline in prices and number of mortgage approvals from October 2013 appears to be as a result of introduction of tighter loan-to-value ratios, which the Reserve Bank introduced to rein in credit growth. However, the divergence between the two measures has persisted.

Of note are the sharp, regular dips in the approval and value rates that occur in December and January, when the property market experiences a cyclical slump over the traditional holiday period.

FIGURE 9.03 MORTGAGE APPROVALS
2003–13



Source: Reserve Bank of New Zealand

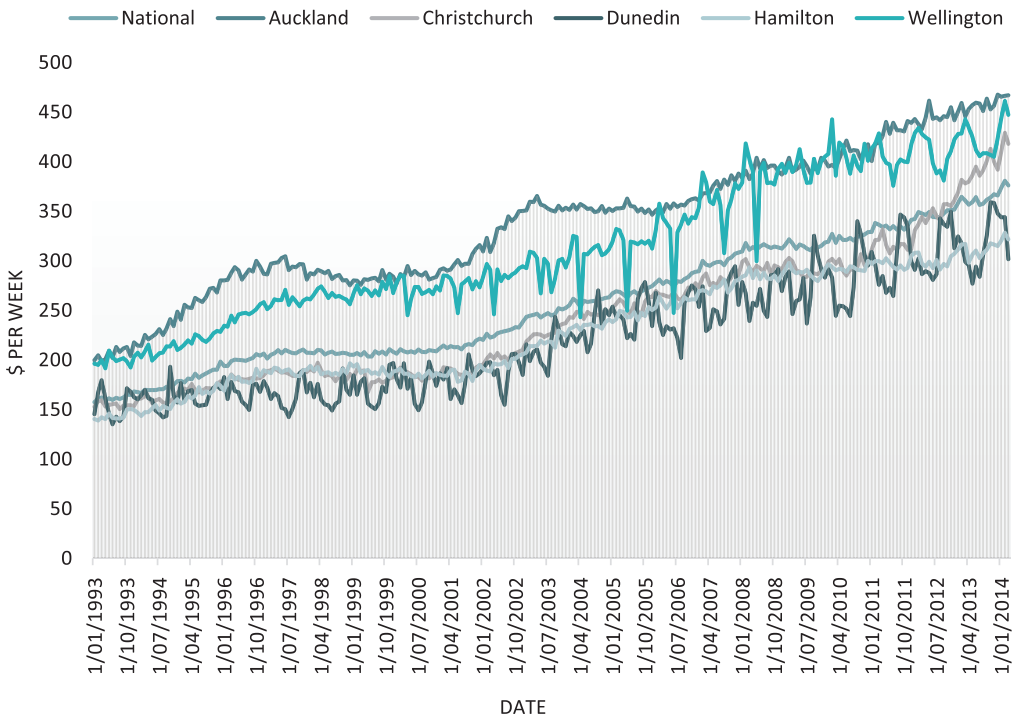
9.04 MEAN RENTS

Rising house prices, particularly between 2000 and 2007, meant an increasing number of New Zealanders have had to turn to the rental market for their property needs. This can be seen in home ownership rates, which stood at 63% in 2006, down 10 percentage points from the peak in 1986, when government housing subsidies started to be withdrawn.

This, combined with a shortage of new housing, has seen weekly rents rise across the country, increasing nominally by 240% over a 21-year period.

Auckland's rapid growth and slow building activity has meant that the country's biggest city has experienced the highest rate of mean rent increases. However, Christchurch has rapidly caught up since the 2011 earthquake destroyed large quantities of housing stock, putting rental prices nearly on par with Wellington.

FIGURE 9.04 MEAN RENTS
1993–2013



Source: Ministry of Housing

9.05 BUILDING CONSENTS

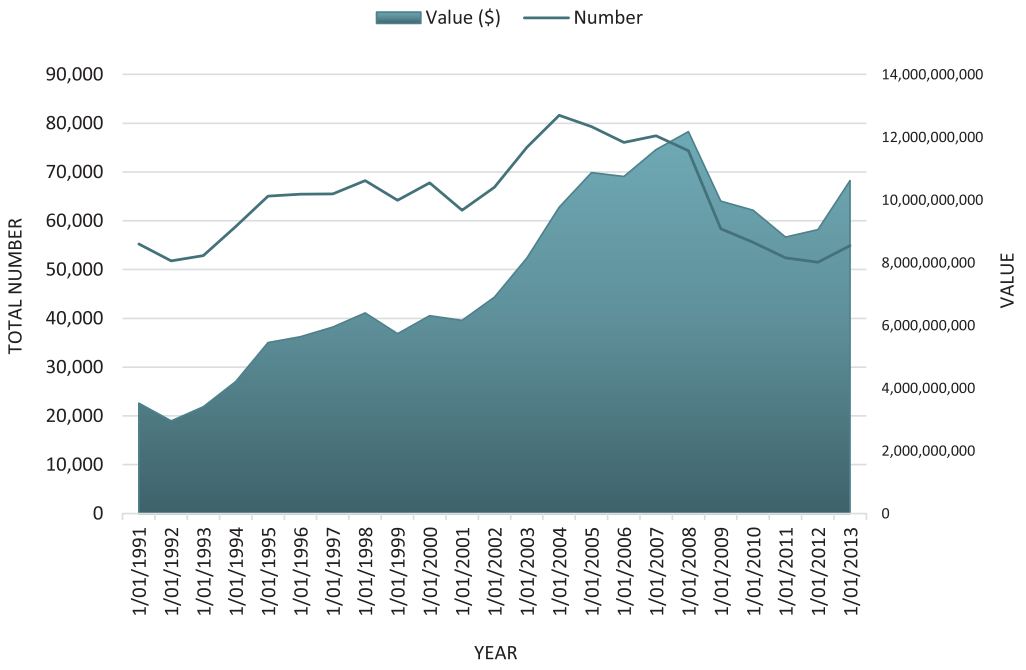
Building consent data must be treated with caution as it reflects an intention to build, not actual construction activity. Even so, consents are an early indicator of activity in the housing sector and widely regarded as a measure of confidence in the economy.

The number and value of consents largely tracked the underlying performance of the New Zealand economy over the 22 years for which data is available. Notably, the upward trend in consenting activity stalled by 2004, and declined sharply from 2008 as a result of the global recession and the Christchurch earthquakes.

This trend reversed recently amid the recovery in the domestic economy, demand for housing in Auckland, and the Christchurch rebuild.

FIGURE 9.05A TOTAL BUILDING CONSENTS

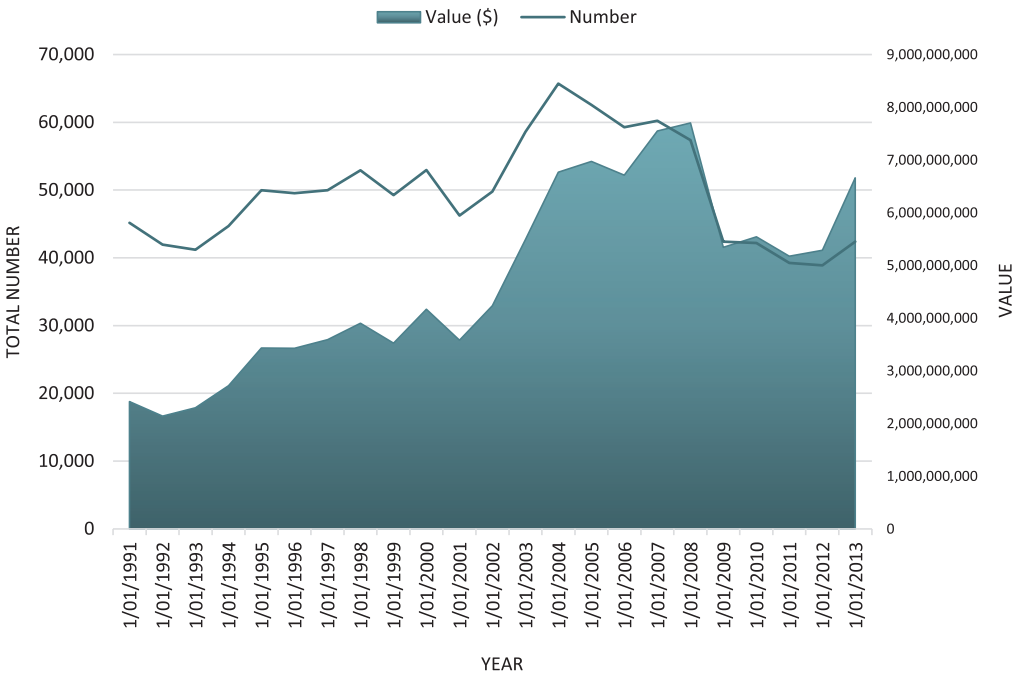
1991–2013



Source: Statistics New Zealand

FIGURE 9.05B TOTAL RESIDENTIAL CONSENTS

1991–2013



Source: Statistics New Zealand

9.06 HOME LOANS

Floating interest rates on New Zealand home loans are sitting at around 6%, roughly double that of the Official Cash Rate (OCR), the chief factor that determines the price of loaned money.

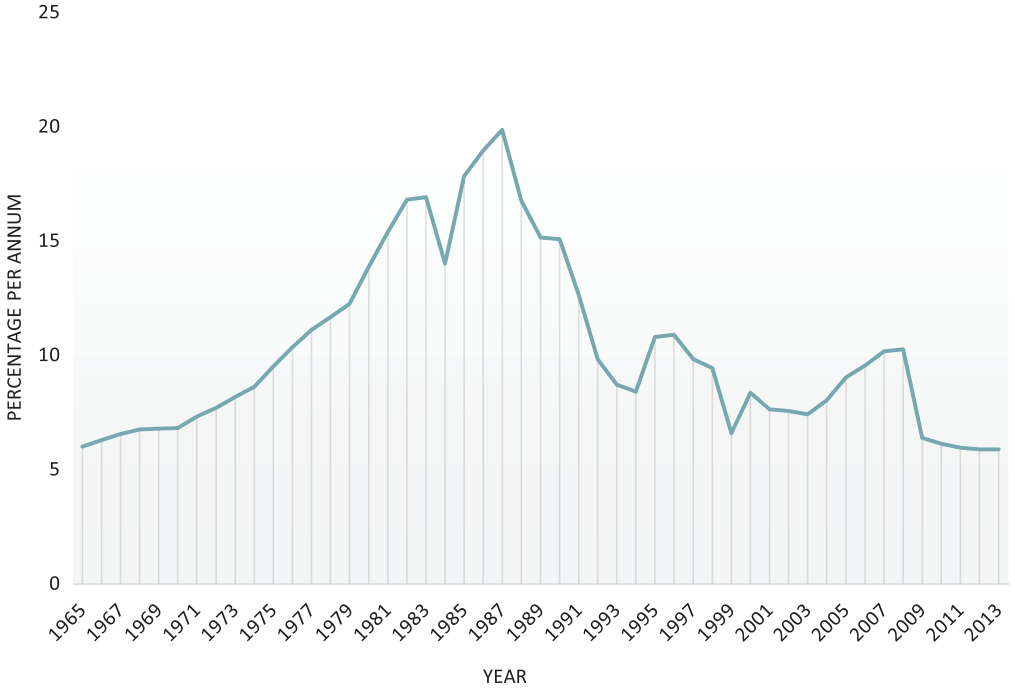
Current lending rates were last seen in 1965, but to just look at these two data points is highly misleading. Interest payments on home loans rose as high at 20% in the late 1980s, reflecting high inflation levels at the time.

Subsequent (and successful) moves to tame inflation, chiefly with the introduction of the *Reserve Bank Act 1989*, have seen interest rates fall to less extreme levels as part of the bank's mandate to deliver price stability.

Since then, but particularly with the introduction of the OCR in 1999, interest rates have been the primary tool to deliver on this mandate in line with shifts in the business cycle.

FIGURE 9.06 HOME LOAN INTEREST RATES

Floating first mortgage new customer housing rate
1965–2013



Source: Reserve Bank of New Zealand

BIBLIOGRAPHY

POPULATION

1. Statistics New Zealand, *New Zealand Official Yearbook 2012: Population tables.* http://www.stats.govt.nz/browse_for_stats/snapshots-of-nz/yearbook/yearbook-tables.aspx (accessed 14 January 2014).
2. Statistics New Zealand (2013), *New Zealand Official Yearbook 2012: Population tables.* http://www.stats.govt.nz/browse_for_stats/snapshots-of-nz/yearbook/yearbook-tables.aspx (accessed 14 January 2014).
3. Statistics New Zealand (2013), *Demographic Trends: 2012.* http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/demographic-trends-2012.aspx (accessed 14 January 2014).
4. Statistics New Zealand (2013), *Demographic Trends: 2012.* http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/demographic-trends-2012.aspx (accessed 14 January 2014).
5. Statistics New Zealand. *Long term data series: Population.* http://search.stats.govt.nz/browse_for_stats/economic_indicators/NationalAccounts/long-term-data-series/population.aspx (accessed 14 January 2014).
6. Statistics New Zealand (2000), *New Zealand Official Yearbook 2000.* http://www3.stats.govt.nz/New_Zealand_Official_Yearbooks/2000/NZOYB_2000.html#idsect2_1_42987 (accessed 13 January 2014).
7. Statistics New Zealand. *Birthplace (Broad Geographic Areas) by Sex, for the Census Usually Resident Population Count, 1996, 2001 and 2006.* http://nzdotstat.stats.govt.nz/WBOS/Index.aspx?DataSetCode=TABLECODE250 (accessed 6 May 2014).
8. Statistics New Zealand (2014). *2013 Census QuickStats about culture and identity.* http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-culture-identity.aspx (accessed 6 May 2014).
9. Statistics New Zealand (2013). *Demographic Trends: 2012.* http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/demographic-trends-2012.aspx (accessed 14 January 2014).
10. Statistics New Zealand (2013). *Demographic Trends: 2012.* http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/demographic-trends-2012.aspx (accessed 14 January 2014).
11. Statistics New Zealand. *New Zealand Official Yearbook (1936-2006).* http://www.stats.govt.nz/browse_for_stats/snapshots-of-nz/digital-yearbook-collection.aspx (accessed 14 January 2014).
12. Statistics New Zealand (1990) *New Zealand Official Yearbook 1990.* http://www.stats.govt.nz/browse_for_stats/snapshots-of-nz/digital-yearbook-collection.aspx (accessed 6 May 2014).
13. Statistics New Zealand (2010). *Estimates and projections: National family and household projections.* http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/NationalFamilyAndHouseholdProjections_HOTP2006-2031update.aspx (accessed 6 May 2014).
14. Statistics New Zealand. *2006 Census: QuickStats about housing.* http://www.stats.govt.nz/Census/2006CensusHomePage/QuickStats/quickstats-about-a-subject/housing/number-of-usual-residents.aspx (accessed 6 May 2014).
15. Statistics New Zealand, *Moving age-sex pyramids*. http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/moving-age-sex-pyramids.aspx (accessed 5 May 2014).

CHILDREN AND FAMILIES

1. Statistics New Zealand. *Infoshare: Marriage rates – DMRA (Annual-Dec)*. http://www.stats.govt.nz/infoshare/ (accessed 8 May 2014).
2. Statistics New Zealand (2014). *Civil Unions and Marriages (provisional)*. http://www.stats.govt.nz/browse_for_stats/people_and_communities/marriages-civil-unions-and-divorces/civil-unions-marriages-provisional.aspx#same-sex (accessed 8 May 2014).
3. Statistics New Zealand. *Infoshare: Labour Force Status by Sex by Marital Status (Annual-Dec)*. http://www.stats.govt.nz/infoshare/ (accessed 8 May 2014).
4. Statistics New Zealand (2013). *Demographic Trends*: 2012. http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/demographic-trends-2012.aspx (21 January 2014).
5. Statistics New Zealand (2013). *Demographic Trends: 2012*. http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/demographic-trends-2012.aspx (21 January 2014).
6. Statistics New Zealand (2013). *Demographic Trends: 2012*. http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/demographic-trends-2012.aspx (21 January 2014).
7. Statistics New Zealand. *Infoshare: Divorces involving children aged under 17 years*. http://www.stats.govt.nz/infoshare/ (9 May 2014).
8. Statistics New Zealand. *Infoshare: Crude birth rate (Maori and total population) (Annual-Dec)*. http://www.stats.govt.nz/infoshare/ (21 January 2014).
9. Statistics New Zealand. *Infoshare: Total fertility rate (Maori and total population) (Annual-Dec)* http://www.stats.govt.nz/infoshare/ (21 January 2014).
10. Statistics New Zealand. *Infoshare: Live births by age of mother (Annual-Dec)* http://www.stats.govt.nz/infoshare/ (21 January 2014).
11. Ministry of Social Development (2010) *The Social Report*. http://socialreport.msd.govt.nz/documents/people-social-report-2010.pdf (accessed 9 May 2014).
12. Statistics New Zealand. *Infoshare: Live births by age of mother (Annual-Dec)* http://www.stats.govt.nz/infoshare/ (21 January 2014).
13. Statistics New Zealand (2014). *2013 Census: Quickstats about national highlights*. http://www.stats.govt.nz/Census/2013-census/profile-and-summary-reports/quickstats-about-national-highlights.aspx (accessed 9 May 2014).
14. Statistics New Zealand (1998) *New Zealand Now: Families and Households*. http://www2.stats.govt.nz/domino/external/pasfull/pasfull.nsf/0/4c2567ef00247c6acc256b6d000396b1/$FILE/Fam&HH.pdf (accessed 9 May 2014).
15. Statistics New Zealand (2006). *2006 Census: Classification Counts*. http://www.stats.govt.nz/Census/2006CensusHomePage/classification-counts-tables/about-hholds-families-dwellings/household-composition.aspx (accessed 9 May 2014).
16. Statistics New Zealand (2001). *2001 Census: National Summary (2001) – reference report*. http://www.stats.govt.nz/Census/2001-census-data/2001-census-national-summary.aspx (accessed 14 May 2014).
17. Statistics New Zealand. *Infoshare: General abortion rate (Annual-Dec)*. http://www.stats.govt.nz/infoshare/ (9 May 2014).
18. Child, Youth and Family. *Adoptions Data*. http://www.cyf.govt.nz/about-us/who-we-are-what-we-do/adoptions-data-back-up.html (21 January 2014).
19. Inland Revenue Department. *Working for Families 2003-2012*. http://www.ird.govt.nz/aboutir/external-stats/social-policy/wfftc/social-policy-wfftc.html (accessed 9 May 2014).

HEALTH AND MORTALITY

1. Statistics New Zealand. *Number of public hospitals and number of beds in public hospitals*. http://m.stats.govt.nz/~/media/Statistics/browse-categories/economic-indicators/national-accounts/Long-term%20data%20series/C%20Social%20Indicators/table-c5-5.xls (accessed 27 January 2014).
2. Organisation for Economic Co-operation and Development (2013). *OECD Health Statistics 2013- Frequently Requested Data*, http://www.oecd.org/els/health-systems/oecdhealthdata2013-frequentlyrequesteddata.htm (accessed 9 April 2014).
3. Statistics New Zealand. *Estimated total population by sex, 31 December (1926-2013) and 30 June (1937–2013)*. http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/historical-population-tables.aspx (accessed 9 May 2014).
4. Roger Styles, Health Funds NZ, email message to author, 12 May 2014.
5. Organisation for Economic Co-operation and Development. *OECD Health Statistics 2013 – Frequently Requested Data*. http://www.oecd.org/els/health-systems/oecdhealthdata2013-frequentlyrequesteddata.htm (accessed 9 April 2014).
6. Nursing Council of New Zealand. *Annual Reports (2000-2012)*. Email communications with Michael Gribble, 28 April 2014.
7. Statistics New Zealand. *Estimated total population by sex, 31 December (1926–2013) and 30 June (1937–2013) – tables*. http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/historical-population-tables.aspx (accessed 9 May 2014).
8. Ministry of Health. *National and DHB immunisation data*. http://www.health.govt.nz/our-work/preventative-health-wellness/immunisation/immunisation-coverage/national-and-dhb-immunisation-data (accessed May 9 2014).
9. Institute of Environmental Science and Research. *New Zealand Public Health Observatory.* http://www.nzpho.org.nz/NotifiableDisease.aspx (accessed on January 27 2014).
10. Organisation for Economic Co-operation and Development. *OECD Health Statistics 2013 – Frequently Requested Data*. http://www.oecd.org/els/health-systems/oecdhealthdata2013-frequentlyrequesteddata.htm (accessed 9 April 2014).
11. End Smoking NZ. *Tobacco consumption in tones [sic] and per adult New Zealand 1920–2010.* http://www.endsmoking.org.nz/SalesConsumption.htm (accessed 9 May 2014).
12. Statistics New Zealand. *Infoshare: Litres of Alcohol Per Head of Population (Annual-Dec) Total NZ Population 15 Years and Over*. http://www.stats.govt.nz/infoshare/ViewTable.aspx?pxID=3fd02fe8-6c82-40cf-8f43-20cdbab30c53 (accessed 9 May 2014).
13. Organisation for Economic Co-operation and Development. *OECD Health Statistics 2013 – Frequently Requested Data*. http://www.oecd.org/els/health-systems/oecdhealthdata2013-frequentlyrequesteddata.htm (accessed 9 April 2014).
14. Ministry of Health. *Mental Health and Addiction Fact Sheet 2009/10 Accompanying Tables.* http://www.health.govt.nz/publication/mental-health-and-addiction-factsheet-2009-10 (accessed 28 April 2014).
15. Ministry of Health. *New Zealand mortality statistics: 1950 to 2010.* http://www.health.govt.nz/publication/mortality-and-demographic-data-2010 (accessed 9 May 2014).
16. Ministry of Health. *Suicide Facts: Deaths and intentional self-harm hospitalisations 2011.* http://www.health.govt.nz/publication/suicide-facts-deaths-and-intentional-self-harm-hospitalisations-2011 (accessed 22 January 2014).
17. Ministry of Transport. *Young Drivers: Crash Factsheet November 2013*. http://www.transport.govt.nz/assets/Uploads/Research/Documents/youngdriver-crashfacts-2013.pdf (accessed 13 May 2014).
18. Statistics New Zealand. *Deaths by age and sex (Annual-Dec)*. http://www.stats.govt.nz/infoshare (accessed 21 January 2014).
19. Statistics New Zealand. *Age-specific death rates by sex, December years (total population) (Annual-Dec)*. http://www.stats.govt.nz/infoshare/Default.aspx (accessed 9 May 2014).
20. Ministry of Transport. *Motor Vehicle Crashes in New Zealand 2012.* http://www.transport.govt.nz/research/roadcrashstatistics/motorvehiclecrashesinnewzealand/motor-vehicle-crashes-in-new-zealand-2012/ (accessed 22 January 2014).
21. Chris Lewis, Ministry of Health, e-mail message to author, 23 April 2014.
22. Statistics New Zealand. *Neonatal and post-neonatal death rates (Annual-Dec)*. http://www.stats.govt.nz/infoshare (accessed 21 January 2014).

EDUCATION

1. Ministry of Education. *Education Counts: Time Series 1996–2013: Student Roll by School Authority, as at 1 July 1996–2013.* http://www.educationcounts.govt.nz/statistics/schooling/july_school_roll_returns/6028 (accessed 28 January 2014).
2. Ministry of Education. *Education Counts: FTTE-by-Designation, Gender-and-Decile-2004–2012*. http://www.educationcounts.govt.nz/statistics/schooling/teaching_staff (accessed 12 May 2014).
3. Ministry of Education. *Education Counts: Time Series Data for Trend Analysis 1996–2013: Student Roll by School Decile, as at 1 July 1996–2013.* http://www.educationcounts.govt.nz/statistics/schooling/july_school_roll_returns/6028 (accessed 12 May 2014).
4. Fiona Sturrock and Steven May. *PISA 2000: The New Zealand Context*, Ministry of Education, http://www.educationcounts.govt.nz/publications/series/2543/PISA_2000/5275 (accessed 12 May 2014).
5. Ministry of Education. *Learning for Tomorrow's World: Programme for International Student Assessment (PISA) 2003 – New Zealand Summary Report.* http://www.educationcounts.govt.nz/__data/assets/pdf_file/0003/6987/PISA-2 (accessed 12 May 2014).
6. Maree Telford, Robyn Caygill. *PISA 2006: How ready are our 15-year-olds for tomorrow's world?,* Ministry of Education, http://www.educationcounts.govt.nz/publications/series/2543/PISA_2006/16616 (accessed 12 May 2014).
7. Maree Telford, Steve May. *PISA 2009: Our 21st century learners at age 15,* Ministry of Education, http://www.educationcounts.govt.nz/__data/assets/pdf_file/0009/86814/PISA-2009-Our-21st-century-learners-at-age-15.pdf (accessed 12 May 2014).
8. Steve May, Saila Crowles, Michelle Lamy, *PISA 2012: New Zealand Summary Report*, Ministry of Education, http://www.educationcounts.govt.nz/__data/assets/pdf_file/0008/144872/1015_PISA-Summary_2012.pdf (accessed 12 May 2014).
9. Statistics New Zealand. *edu-yrbook-2012, Education 1875–2012*. 2014, http://www.stats.govt.nz/browse_for_stats/snapshots-of-nz/yearbook/yearbook-tables.aspx (accessed 12 May 2014).
10. Organisation for Economic Co-operation and Development. *Education at a Glance 2013 OECD Indicators*, http://www.oecd.org/edu/eag2013%20(eng)--FINAL%2020%20June%202013.pdf (accessed 12 May 2014).
11. Ministry of Education. *Education Counts: FTTE-by-Designation,Gender-and-Decile-2004-2012.* http://www.educationcounts.govt.nz/statistics/schooling/teaching_staff (accessed 12 May 2014).
12. Statistics New Zealand. *Adult educational attainment table*. http://www.stats.govt.nz/browse_for_stats/snapshots-of-nz/nz-progress-indicators/home/social/adult-educational-attainment. (accessed 12 May 2014).
13. Ministry of Education. *Education counts: International students by country of citizenship 2005–2012, Provider based enrolments*, http://www.educationcounts.govt.nz/statistics/tertiary_education/participation (accessed 12 May 2014).
14. Statistics New Zealand. *edu-yrbook-2012, Education 1875–2012*, http://www.stats.govt.nz/browse_for_stats/snapshots-of-nz/yearbook/yearbook-tables.aspx (accessed 12 May 2014).

CRIME AND JUSTICE

1. Statistics New Zealand. *NZ.Stat: Annual Recorded Offences for the latest Calendar Years (ANZSOC).* http://nzdotstat.stats.govt.nz/WBOS/Index.aspx. (accessed April 2014).
2. Statistics New Zealand. *NZ.Stat: Annual Recorded Offences for the latest calendar years (ANZSOC).* http://nzdotstat.stats.govt.nz/wbos/Index.aspx. (accessed April 2014).
3. Statistics New Zealand. *NZ.Stat: Annual Recorded Offences for the Latest Calendar Years (ANZSOC).* http://nzdotstat.stats.govt.nz/wbos/Index.aspx. (accessed February 2014).
4. Statistics New Zealand. *NZ.Stat: Annual Recorded Offences for the Latest Calendar Years (ANZSOC).* http://nzdotstat.stats.govt.nz/wbos/Index.aspx. (accessed February 2014).
5. Statistics New Zealand. *NZ.Stat: Annual Recorded Offences for the Latest Calendar Years (ANZSOC).* http://nzdotstat.stats.govt.nz/wbos/Index.aspx. (accessed February 2014).
6. Statistics New Zealand. *NZ.Stat: Annual Recorded Offences for the Latest Calendar Years (ANZSOC).* http://nzdotstat.stats.govt.nz/wbos/Index.aspx. (accessed February 2014).
7. Statistics New Zealand. *Yearbook collection: 1893–2012 (Monthly balances for all prison sentence types)*. http://www.stats.govt.nz/browse_for_stats/snapshots-of-nz/digital-yearbook-collection.aspx (accessed February 2014).
8. Statistics New Zealand. *NZ.Stat: Annual Apprehensions for the latest Calendar Years (ANZSOC).* http://nzdotstat.stats.govt.nz/wbos/Index.aspx. (accessed February 2014).
9. Chris Hone, e-mail message to NZ Police, February 2014.
10. Statistics New Zealand. *NZ.Stat: Annual Apprehensions for the latest Calendar Years (ANZSOC)*. http://nzdotstat.stats.govt.nz/wbos/Index.aspx (accessed February 2014).
11. Statistics New Zealand. *Infoshare: National Annual Apprehensions for the Latest Fiscal Years (ANZSOC).* http://nzdotstat.stats.govt.nz/wbos/Index.aspx (accessed February 2014).

COMMUNICATION AND TECHNOLOGY

1. United Nations Educational, Scientific and Cultural Organization. *UNESCO Data Centre.* http://www.uis.unesco.org/Datacentre/Pages/instructions.aspx?SPSLanguage=EN (accessed 5 February 2014).
2. United Nations Educational, Scientific and Cultural Organization. *UNESCO Data Centre: Expenditure on R&D (New Zealand).* http://www.uis.unesco.org/Datacentre/Pages/instructions.aspx?SPSLanguage=EN (accessed 5 February 2014).
3. New Zealand Audit Bureau of Circulations Inc. (ABC), e-mail message to Vanessa Gurry, Administrator at ABC, April 14, 2014.
4. Statistics New Zealand. *The Digital Divide.* http://www.stats.govt.nz/browse_for_stats/industry_sectors/information_technology_and_communications/digital-divide/chapter-1-household-access.aspx (accessed 17 April 2014).
5. Statistics New Zealand. *Household Use of Information and Communication Technology: 2009 – Additional tables*. http://www.stats.govt.nz/browse_for_stats/industry_sectors/information_technology_and_communications/hhold-use-of-ict/household-ict-2009-tables.aspx (accessed 5 Feb 2014).
6. Statistics New Zealand. *Household Use of Information and Communication Technology: 2012.* http://www.stats.govt.nz/browse_for_stats/industry_sectors/information_technology_and_communications/HouseholdUseofICT_HOTP2012.aspx (accessed 5 Feb 2014).
7. Statistics New Zealand. *Household Use of Information and Communication technology: 2006, 2009, 2012.* http://www.stats.govt.nz/browse_for_stats/industry_sectors/information_technology_and_communications/hhold-use-of-ict.aspx (accessed 8 May 2014).

LABOUR MARKET

1. Statistics New Zealand. *Infoshare: Labour Force Status by Sex by Age Group (Annual-Dec)*. http://www.stats.govt.nz/infoshare/ (accessed 9 May 2014).
2. Statistics New Zealand. *Infoshare: Average Weekly Paid Hours (Employees) by Industry (ANZSIC06) and Sex (Qrtly-Mar/Jun/Sep/Dec)* http://www.stats.govt.nz/infoshare/ (accessed 9 May 2014).
3. Department of Labour (2009) *The Effect of The Employment Relations Act 2000 on Collective Bargaining.* http://www.dol.govt.nz/publications/research/collective-bargaining/collective-bargaining-2009.pdf (accessed 12 May 2014).
4. New Zealand Companies Office (2013). *Union Membership Return Report 2013.* http://www.societies.govt.nz/cms/registered-unions/annual-return-membership-reports/union-membership-return-report-2013 (accessed 12 May 2014).
5. Statistics New Zealand. *Infoshare: Average Weekly Earnings (Employees) by Industry (ANZSIC06) and Sex (Qrtly-Mar/Jun/Sep/Dec)* http://www.stats.govt.nz/infoshare/ (accessed 9 May 2014).
6. Statistics New Zealand. *Infoshare: Labour Force Status by Sex by Age Group (Annual-Dec)* http://www.stats.govt.nz/infoshare/ (accessed 9 May 2014).
7. Bryan Perry, Ministry of Social Development (2013) *Household incomes in New Zealand: Trends in indicators of inequality and hardship 1982 to 2012.* http://www.msd.govt.nz/about-msd-and-our-work/publications-resources/monitoring/household-incomes/index.html (accessed 13 May 2014).
8. Statistics New Zealand. *Infoshare: Labour Force Status by Sex by Age Group (Annual-Dec)* http://www.stats.govt.nz/infoshare/ (accessed 9 May 2014).
9. Ministry of Social Development. *Historical summary – numbers receiving financial assistance, 1940–2012*. http://statistical-report-2012.msd.govt.nz/Overall+trends+in+the+use+of+financial+assistance/Numbers+receiving+assistance (accessed 13 May 2014).

DOMESTIC ECONOMY

1. Capital Economics Ltd. (2014) data. Wellington: New Zealand.
2. Statistics New Zealand. *Infoshare: OTP – Terms of Trade – All Countries (Annual-Jun)*. http://www.stats.govt.nz/infoshare/ (accessed 9 May 2014).
3. Statistics New Zealand. *Exports for Overseas Merchandise Trade (fob NZ$): Country of Destination by Commodity (HS2) and Period Information on table*. http://nzdotstat.stats.govt.nz/wbos/Index.aspx (accessed 10 February 2014).
4. Organisation for Economic Co-operation and Development (2013). *Exchange Rates*, http://www.oecd.org/statistics/ (accessed 9 April 2014).
5. Statistics New Zealand. *Persons Employed by Sex by Industry, ANZSIC06 (Annual-Dec)*. http://www.stats.govt.nz/infoshare/ (accessed 9 May 2014).
6. Statistics New Zealand, *New Zealand Official Yearbook 1970*. http://www3.stats.govt.nz/New_Zealand_Official_Yearbooks/1970/NZOYB_1970.html (accessed 7 February 2014).
7. Capital Economics Ltd. (2014) data. Wellington: New Zealand.
8. Paul Goldsmith (2008). *We Won You Lost. Eat that!* Auckland: David Ling Publishing.
9. Reserve Bank of New Zealand. *Household Debt.* http://www.rbnz.govt.nz/statistics/key_graphs/household_debt (accessed 9 May 2014).

HOUSING

1. Richard Deakin (Property IQ), e-mail message to author, 13 May 2014.
2. Massey University Real Estate Analysis Unit, *Housing and Construction Quarterly, 1999–2014*. http://www.massey.ac.nz/massey/learning/colleges/college-business/school-of-economics-and-finance/research/mureau.cfm (accessed 28 April 2014).
3. Reserve Bank of New Zealand. *Housing Loan Approvals*. http://www.rbnz.govt.nz/statistics/tables/c16/ (accessed 28 April 2014).
4. Department of Building and Housing. *Mean Rents*. http://www.dbh.govt.nz/nz-housing-and-construction-quarterly-open-data (accessed 28 April 2014).
5. Statistics New Zealand. *Building Consents – Number and Value by Building Type*. http://www.stats.govt.nz/infoshare/ (accessed 28 April 2014).
6. Reserve Bank of New Zealand. Mortgage Rates http://www.rbnz.govt.nz/statistics/key_graphs/mortgage_rates/ (accessed 28 April 2014).

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