# Looking at the numbers

## A view of New Zealand's economic history

**Phil Briggs**

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# Preface

The New Zealand Institute of Economic Research (NZIER) was founded in 1958 as a non-profit making trust to provide economic research and consultancy services. The institute is probably best known for its long-established *Quarterly Survey of Business Opinion* and *Quarterly Predictions.* The institute also undertakes a wide range of consultancy activities for government and private organisations.

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# Introduction

Grant Hodgson of Change Training approached me a few years back with the idea of running a one day course on New Zealand's economic history. It sounded like a good idea, so we worked on an outline of what the course would cover. I have included this outline at the end of the book. The outline looked pretty good to me. It seemed to promise a lot to participants. Perhaps it promised too much, and people didn't think we would deliver. Whatever the reason, we got no takers when we first advertised the course.

Grant had been clear to me: "Don't do any work on preparing the course notes until we know the course is going ahead". I meant to follow his advice. But the more I thought of doing a course on New Zealand's economic history, the more intrigued I became. And a bit daunted too. While I knew a fair bit about New Zealand's recent economic situation, having spent a decade or more preparing forecasts of the New Zealand economy, I was a bit unsure about how things had gone, say, a century ago. Was there any data on the economy way back then?

In monitoring and forecasting the modern economy analysts tend to keep a firm eye on the main macroeconomic variables—things like real GDP, prices, the current account balance and employment. Would it be possible to look at the same aspects of the economy of the past?

Clearly there would be problems in doing this. For example, in historical terms the concept of GDP is a fairly recent one, having been developed out of the thinking of Keynes and others on economic aggregates. It wasn't until after the second world war that most developed economies, including New Zealand, began publishing national accounts on a regular basis. Fortunately, some economists and some economic historians have made attempts at estimating GDP for earlier periods. While these estimates have to be taken with a grain of salt, they provide an interesting window on the past. We are also fortunate that other economic variables, such as prices, exports and employment have also been compiled for earlier times.

I began to draw the existing historical data together, getting ready in case the course did eventually go ahead. I also showed some of the data to my colleagues at NZIER and even ran an internal seminar, showing them graphs of the data I'd collected. The material seemed to interest them.

The course still hasn't run. Grant and I eventually canned it, owing to a spectacular lack of interest in paying money to attend it. So I was left with a pile of data, and my own embryonic thoughts on New Zealand's economic history. I was also aware of an old saying, something like "if you don't document your work, it's as if you'd never done it". So I have decided to document what I've done, and here it is, warts and all.

I think I've strayed a bit from the original outline, and have put less emphasis on government policy and more on documenting 'what happened'. This hasn't been a conscious decision on my part. Perhaps it reflects a growing belief that long-term economic trends are likely to affect our future more than government policy changes.

One of the issues I have mulled on while preparing this material is: just what is 'economic history'? There are doubtless thousands of answers, all with some validity. In the end though for me it is looking at how people earned their living, and how well off they were, over the years. I tried to keep this in mind, even when looking at the past via abstract concepts such as GDP.

The book starts with an overview of New Zealand's economic history. I have chopped our history into six periods:

| | |
|---|---|
| c1000–1769 | Arrival and development of the Māori |
| 1769–1870 | Colonisation and the quarrying of resources[1] |
| 1870–1914 | Farming takes the lead |
| 1914–1934 | War, struggle, and depression |
| 1934–1966 | Partial industrialisation and the long expansion |

[1] The concept of 'quarrying' is borrowed from Easton and Thomson (1982) and Easton (1997). Sutch (1966) also referred to 'quarry' products, with these being such things as whales, seals, kauri and gold.

1966–2003 Dropping off the OECD pace

I'm aware that any division of the past into time periods is relatively arbitrary, and that any other historian, or would-be historian, is likely to come up with a different division. But I think the division I have made gives us a useful way of looking at the past. As we will see later, these time periods—especially those in the 20th century—reflect differing rates of economic growth.

Following the overview we look at economic data and aspects of our economic history in more detail. First we look at population, without which there would be no economy. Then we look at the major elements of the macroeconomy.

In a modern context, governments are generally interested in pursuing at least four macroeconomic objectives:

- strong economic growth (that is, a high rate of growth in real GDP)
- stable prices
- balance in the external account, with export earnings being high enough to cover payments for imports
- low unemployment.

Some governments, although not all, have a fifth objective: a fair distribution of income.

These objectives determine the elements of the macroeconomy that we will look at: GDP and economic growth, prices, the external sector (exports and imports), and the labour market. We then examine aspects of the government's operations, and finish by looking at what the future may bring.

Some abbreviations and conventions used along the way are:

NZOYB for the *New Zealand Official Yearbook* (produced by Statistics New Zealand)

INFOS for the Statistics New Zealand's on-line database

Years are calendar years (that is, they end on December 31) unless otherwise stated.

# Overview

### c1000–1769: Arrival and development of the Māori

Polynesian migrants arrived in Aotearoa, possibly as early as 800 AD, from the general direction of Tahiti and Rarotonga.

Early settlers, especially those in the South Island, were probably hunter-gatherers, with the moa being an important food source. The extinction of the moa would have brought changes to many settlements as they adapted to becoming more horticulturally based. Kumara and fern root were staple foods. Storehouses were developed for kumara, which, in east Polynesia, had grown all year round. Other sources of food were seals, birds, fish, shellfish and crayfish.

The greatest concentration of settlements was around the coast of the North Island, especially around the northern half of the island. A relatively large number of settlements also sprang up along the banks of the Waikato river. The sea and rivers clearly provided important transport routes. Trade between settlements appears to have been limited and involved the exchanging of gifts rather than bartering.

Tools included knives, chisels and adzes, which were made from stone and slate. Fish hooks, harpoon heads, and spear points were fashioned from bone, while fishing lines and nets were made from flax. Buildings were generally made from timber and bark with thatching made from ferns, reeds, and bracken. Woven flax was the basis for most clothing.

Resource constraints probably limited population growth from around 1500, when pa, or fortified settlements, began to appear. Life expectancy was low, with most adults dying in their twenties or thirties, and few reaching forty. Nevertheless, Māori communities developed distinctive arts, including wood carving. By the time of contact with Europeans, the culture and economy of Māori society were markedly different from those of east Polynesian societies, from which the original settlers had come.

### 1769–1870: Colonisation and the 'quarrying' of resources

Cook's arrival in 1769 was soon followed by the arrival of other European explorers. By 1792 sealers were working in Dusky Sound, and within twenty years the large seal colonies around the coast of New Zealand had virtually gone. Whalers began working in the northern waters, and bases were later established around Cook Strait and the southern coast of the South Island. Native timber was felled, initially for ship's spars, but then for construction and export. Kauri gum was also to become an export commodity.

This early period of European activity had some economic spin-offs for Māori, who developed market gardens to supply the new arrivals with vegetables and other produce. But the emphasis in this early period, at least for the Europeans, was on 'quarrying' natural resources.

From 1840 British settlers began arriving in large numbers, and the focus of their activity was farming. This was hindered at first though by limited access to land, and this erupted in the land wars of the 1860s. However, quarrying activity was to reach new heights in the 1860s following the discovery of gold.

### 1870–1914: Farming takes the lead

By 1870 the gold rush was over. Exports were dominated by wool, nearly all of which went to Britain. Julius Vogel, finance minister in William Fox's administration, borrowed heavily from overseas to finance public works, including railways and roads. This improved access to many areas, accelerating the growth of pastoral farming.

But the going was tough, and a banking crisis in Britain in the late 1870s resulted in access to credit drying up. The 1880s were difficult years. However, by the end of the decade refrigerated shipping—which had first been first trialled in 1882—was having an impact. Meat, as well as wool, became an export commodity. Dairy farming also began to grow, since butter and cheese could now be exported. The move away from large sheep runs to smaller farms was helped along by the Liberal government of the 1890s with the compulsory

acquisition of large holdings and the application of a graduated land tax.

Export prices began to rise from 1895. While they eased back in the 1900s, it seems that at this stage New Zealand's real GDP per capita was one of the highest in the world. The country's good fortune was due to a number of factors. A temperate climate provided a long grass-growing season with animals being able to live outdoors all year round. The result was that despite the costs involved in transporting goods halfway around the world to Britain, primary products from New Zealand could still be sold in Britain at competitive prices. Furthermore, Britain had a policy of free trade, which meant no entry restrictions for New Zealand's exports, and during the 19th century the British economy, and its population, had been growing rapidly. New Zealand had been able to latch onto this growth and, as the cliché goes, had become 'Britain's farm in the South Pacific'.

### 1914–1934: War, struggle, and depression

This was a miserable period for New Zealand. Around 120,000 men were mobilised for the 1914–1918 war, and 50,000 injuries were sustained. The final death toll was around 18,000, or 8 percent of men aged between 19 and 45. And in 1918 over 6,700 people died of influenza. Prices rose rapidly during the war, reducing real wages. Government indebtedness also rose sharply.

A short post-war boom ended in 1921 with a sharp fall in export prices. Land prices had also climbed sharply during the war. Farmers who had taken on large mortgages now found that with the fall in earnings they were unable to meet the mortgage payments.

Prices for primary products continued to fluctuate over the 1920s, producing high levels of uncertainty and relatively high unemployment levels.

Then came the 1929 Wall Street crash. The value of New Zealand's exports fell 40 percent in three years. Government cut its expenditure, and unemployment rose to unprecedented levels. At the 1932 imperial conference in Ottawa, Britain abandoned

free trade, although New Zealand exports to Britain were largely unaffected in the end.

### 1934–1966: Partial industrialisation and the long expansion

Export prices began to climb in 1934 as world demand recovered. The Labour government, elected in 1935, increased government spending, initiating state house building and public works programmes. So began the long economic expansion. It continued through the second world war, faltered slightly in the late 1940s, then resumed.

Real GDP per capita rose at a higher rate than previously. This was the age of the managed economy, or Keynesian economics, with government spending being an important tool of economic policy.

During the war, farmers had few worries about export prices, with most of their produce being commandeered by the British government on arrival. Post-war innovations in farming that either lifted production or increased efficiency included aerial topdressing and herringbone milking sheds.

Meanwhile, manufacturing output grew. In 1938 the Labour government had supplemented the use of tariffs with import licensing. Importers could obtain licences to bring in equipment or crude materials, but licences to bring in finished products were strictly limited. Subsequent developments in manufacturing were not simply confined to consumer industries. Developments occurred in sawmilling, pulp and paper making, steel, oil refining, and aluminium smelting. Yet, even in the mid-1960s, primary products still accounted for most of the country's exports.

### 1966–2003 : Dropping off the OECD pace

In December 1966 wool prices collapsed and the Wool Commission ended up buying over a third of the season's clip. It was the beginning of the end for wool, which faced increasing competition from synthetic fibres. And then in 1973 Britain joined the EEC (now the EU) and our meat and dairy exports to European countries became subject to quota limits. There were other external shocks to face: the oil price hikes of 1973 and 1978, the 1987 sharemarket crash,

the sharp global recession of the early 1990s, the Asian crisis of 1998, and the US-led global slowdown of 2001.

Despite these shocks, real GDP per capita continued to climb at a similar rate to before. However, slow population growth, and even population losses in some periods, played a part in keeping real GDP per capita on a growth path.

Compared to what was happening in other OECD countries though, New Zealand's growth in real GDP per capita was low. New Zealand went from being one of the richest countries in the OECD in the 1960s to being one of the poorest in the 1990s.

What happened? Over the last 30 years of the 20th century the world witnessed strong growth in exports of manufactures, and slower growth in exports of primary products. This has affected New Zealand's growth. While growth in New Zealand's manufactured exports has been similar to growth in the world's manufactured exports, the size of New Zealand's manufacturing sector is still small. This isn't surprising. Even with the effects of globalisation, which include the increased mobility of capital, large manufacturers are unlikely to establish new plants in a small economy that is located well away from most of the world's major markets.

Furthermore, New Zealand's comparative advantage is still in primary products. These are the goods we can produce better than the rest of the world. But there are two problems with being in agriculture. First, most developed countries protect their own agricultural sectors. They do this in the context of policies that aim to produce security of supply in food. Second, growth in global demand for agricultural products is likely to continue being lower than growth in demand for manufactures. This arises out of the nature of economic development: as people's incomes rise they buy more food, but there are limits to how much they need. In contrast, their demand for new manufactures and new services will be much less inhibited.

There have been no obvious solutions to New Zealand's problems, though governments since the 1960s have tried drastic approaches. These have ranged from Muldoon's 'Think Big' and

tight regulation, to Douglas's deregulation and privatisation. Unfortunately New Zealand's problem is largely related to its economic structure and this structure is likely to change only slowly. A recently touted solution has been for New Zealand to aggressively develop 'knowledge-based' industries.

### 2016 Update

The New Zealand economy has experienced stronger growth since 1992. "Part of this improving growth rate may be due to the package of economic reforms that was initiated in 1984. However, changes in the market environment caused by globalisation and the rise of the Asian economies, probably also had a significant effect on the growth rate of real GDP per capita. Significant increases in household debt funded by the savings of foreigners, ..also played a part". Lattimore & Eaqub (2011 p5). Our relative position in the OECD as measured by GDP per capita has changed little.

### Sources

*Māori development*: Buck (1950); Davidson (1987).

*Quarrying*: The concept of 'quarrying' is from Easton and Thomson (1982) and Easton (1997), chapter 3.

*Farming*: Easton and Thomson (1982); Hawke (1994), which includes a note on GDP per capita at the end of the 19th century.

*War, struggle, and depression*: McKinnon et al (1997); Department of Statistics (1990), Sinclair (1988).

*Partial industrialisation and the long expansion*: Gould (1966).

*Off the OECD pace*: Easton (1997), Briggs et al (2001)

*The New Zealand Economy: An Introduction*: Lattimore & Eaqub (2011).

### An exercise

Table 1, following, is a timeline of important events in New Zealand's economic history. Looking at each event, was it the result of domestic (internal) influences, or international (external) influences? Mark down your answers. What, if anything, do your results tell you about the New Zealand economy?

**Table 1 Timeline of major economic events**

| Year | Event |
|---|---|
| c1000 | Arrival of Māori |
| 1642 | European discovery by Abel Tasman |
| 1769 | James Cook's first visit |
| 1792 | Sealing gang at Dusky Sound |
| 1814 | Arrival of Reverend Samuel Marsden |
| 1823 | Jurisdiction of NSW courts extended to cover British subjects in New Zealand |
| 1833 | James Busby becomes British Resident |
| 1839 | Colonel William Wakefield and the *Tory* leave Britain for New Zealand |
| 1840 | Treaty of Waitangi |
| 1841 | Capital shifted from Kororareka to Auckland |
| 1844 | 'Northern war' between Māori and pākehā |
| 1852 | Constitution Act grants representation and establishes six provinces |
| 1854 | General Assembly opens in Auckland |
| 1860 | 'Taranaki war' |
| 1861 | Gold discovered at Gabriel's Gully, Otago |
| 1865 | Native Land Court established; capital shifted to Wellington |
| 1869 | Julius Vogel becomes Colonial Treasurer |
| 1876 | Abolition of the provinces and establishment of local government |
| 1876–79 | Fluctuating wool prices |
| 1877 | Education Act provides for free secular compulsory education |
| 1878 | Trade Union Act gives legal recognition to trade unions |
| 1882 | First shipment of frozen meat |
| 1891 | Liberal government formed |
| 1901 | Australian states form a federal government—New Zealand opts not to join |
| 1907 | New Zealand constituted as a Dominion |
| 1914–18 | First world war |
| 1918 | Influenza epidemic |
| 1922 | Meat Producers' Board placed in control of meat exports |
| 1929 | US sharemarket crash |
| 1932 | Ottawa agreement: Britain retreats from free trade |
| 1935 | Labour elected |
| 1936 | Reserve Bank nationalised |

**Table 1 Timeline of major economic events**

| | |
|---|---|
| 1938 | Social Security Act; import licensing introduced |
| 1939–45 | Second world war |
| 1946 | Family benefit introduced; Bank of New Zealand nationalised |
| 1947 | Statute of Westminster adopted by Parliament |
| 1948 | Economic Stabilisation Act |
| 1949 | National government elected |
| 1950 | Legislative Council abolished |
| 1951 | Waterfront dispute |
| 1965 | New Zealand Australia Free Trade Agreement (NAFTA) |
| 1967 | Robert Muldoon becomes Minister of Finance |
| 1973 | Britain joins EEC; oil prices rise sharply following the Israeli-Arab war |
| 1975 | Waitangi Tribunal established |
| 1979 | Oil prices rise sharply following the revolution in Iran |
| 1982 | Closer Economic Relations (CER) agreement with Australia |
| 1984 | Labour elected and Roger Douglas becomes Minister of Finance |
| 1985 | New Zealand dollar floated |
| 1987 | Sharemarket crash |
| 1991 | Employment Contracts Act |
| 1998 | Drought; Asian crisis |
| 2000 | Employment Relations Act; free trade agreement with Singapore |
| 2001 | US-led global slowdown; Kiwi migrants to Australia need permanent entry status to qualify for welfare benefits |
| 2002 | New Zealand GDP growth per capita overtakes OECD average |
| 2007 | The threat of inflation pushes interest rates and the New Zealand dollar to a post float high against the US dollar |
| 2008 | NZ-China free trade agreement |
| 2008-09 | Global Financial Crisis; Canterbury earthquakes |
| 2011 | Rugby World Cup |
| 2015 | TPP agreed |

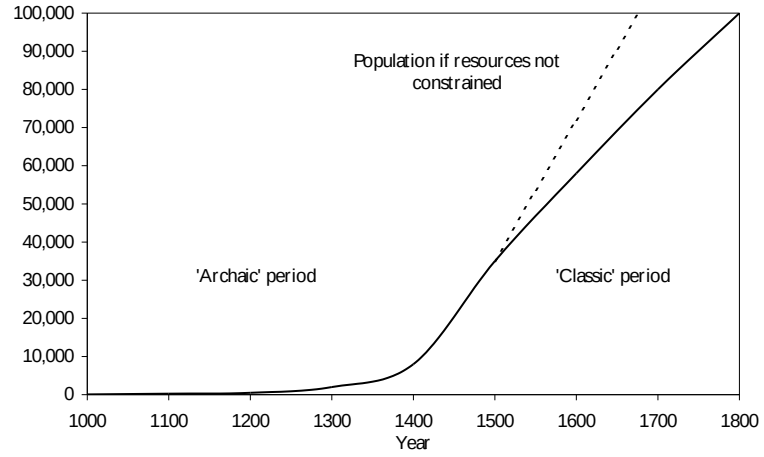
Sources: NZOYB 1990; NZOYB 1997; Olssen and Stenson (1987); Dalton and Watters (1999).

# Population

## Māori population

Ironically the first graph we look at, Figure 1, doesn't show historical data, but rather hypothetical estimates. The figure shows a possible scenario for the growth of the Māori population in pre-European times. The population increases from 10 in the year 1000 (which is such a low figure that is impossible to see on the chart), to 100,000 in 1800. How can we be sure about these figures? We can't. For a start, we don't know for sure when Māori arrived. The earliest sites that have been discovered—and most of these are in the South Island—suggest that settlement began in around 1200. However, it's possible that people were here earlier than that but that they are 'archeologically invisible', that is, we haven't found any evidence of them.

**Figure 1 Conceptual model of Māori population 1000–1800**




Source: Adapted from McKinnon et al (1997), plate 11

But let's focus for now on the other end of the chart. The figure of 100,000 is largely based on Captain Cook's estimate, which he made while on one of his voyages to New Zealand in the late 1700s. While

Cook's estimate has become well known, its origins are a little mysterious. Pool (1977) suggests that the original reference to Cook's estimate of 100,000 appears in a book by Johann Reinhold Forster, *Observations made during a voyage round the world, 1772–75*, published in London in 1778. Forster sailed with Cook on his second voyage to New Zealand. It is not clear whether the estimate was Cook's, Forster's or a joint effort. There is also no indication as to how the estimate was derived. Forster was inclined to the view that Māori population was in fact larger than 100,000.

Until fairly recently, many would have agreed that the figure was an underestimate, and that the pre-contact Māori population could have been 200,000 or higher (McKinnon et al, 1997).

But Pool (1991) expresses a different view. He notes that by 1858, when the first census of the Māori population was undertaken, the census enumerators could find only 56,000 Māori. This figure was probably an underestimate, with the true figure being close to 60,000. Even so, is it plausible that a population could decline from 100,000 or more in the early 1770s to 60,000 by 1858?

Pool makes what he thinks are realistic assumptions about Māori death rates over this period and works backwards from the 1858 figure. He does this in two stages, estimating the population in 1840, and then the population in 1769. He suggests that the population in 1840 was in the order of 70,000–90,000. Regarding the 1769 population, he concludes that it may have been about 100,000 or slightly less.

It seems therefore that Cook's estimate of 100,000 for the Māori population at the time of contact may have been a reasonable one, although it may still be a little on the high side.

Turning back to Figure 1, is it feasible that a population could grow from practically nothing to 100,000 within 800 years? Pool also looks at this issue and he notes that the final size of the population is dependent on:

- The size of the founding population
- The time at which the founding population arrives
- The growth rate of the population.

This growth rate is dependent on birth rates and mortality rates.

Pool postulates that the annual growth rate would not have exceeded 0.5 percent (or 5 per 1000). This growth rate would be consistent with a birth rate of 30 per 1000 with an accompanying death rate of 25. Or, alternatively, it would be consistent with a birth rate as high as 45 per 1000 with an accompanying death rate of 40. Using this growth rate, Pool calculates the population size in 1769 assuming various founding population sizes and settlement dates.

Pool finds that even with a founding population of 400, which is the largest that he assumes, this population would have had to arrive in New Zealand before 700 AD in order to reach 100,000 by 1769. This arrival date does not seem reasonable.

Pool suggests that population growth among the first settlers may in fact have been rapid, especially given the rich food resources available from hunting, gathering, and fishing. Rapid growth in the early period of settlement, even if it tailed off later, would make the 100,000 population size attainable in a shorter period. Another factor, one that is not discussed by Pool, is that the population may not have grown from just one founding population—the original population was being added to, especially in the early days, by the arrival of more migrants from east Polynesia. This would have increased the chance of the population reaching 100,000. Even so, again it appears that our figure of 100,000 for 1769 is a 'maximum' estimate.

Figure 1 incorporates higher growth rates in the earlier years. But then resource constraints begin to hinder population growth with total population dropping below the dotted line shown in Figure 1. The occurrence of resource constraints is supported by the appearance of pa, or fortified settlements, from about 1500. Around 6,000 pa sites have been found around New Zealand (McKinnon et al, 1997, plate 11). The emergence of fortified settlements suggests that defending areas of land became important, and that control of access to land and sea became vital for survival. The move to fortified settlements may have also reflected an increasing dependence on horticulture, following the extinction of the moa.

Let's briefly consider the pre-European economy from a present day perspective. The rise in population over the period to 1800

suggests that the pre-European economy grew in terms of total output. However, growth in output per person may have actually declined in certain periods, especially when moa hunting ended. Archaeological evidence suggests that in some locations, such as at the Waitaki river mouth, the butchering of moa was of factory-like proportions. Output per person may have also eased as resources other than the moa became less abundant.

Estimating technical change in Māori society is difficult. Clearly a major technological step was the development of storage pits for kumara. The development of the arts, such as wood carving—where there are clear differences between the 'archaic' and 'classical' periods—would suggest that significant advances were made in the development of tools. Developments in housing and in clothing also occurred. Māori did in fact successfully adapt Polynesian culture, which had been developed in tropical climates, to one that sustained them in a temperate climate. Given the way the Māori population grew in Aotearoa, the conclusion must be that this adaptation was very successful.

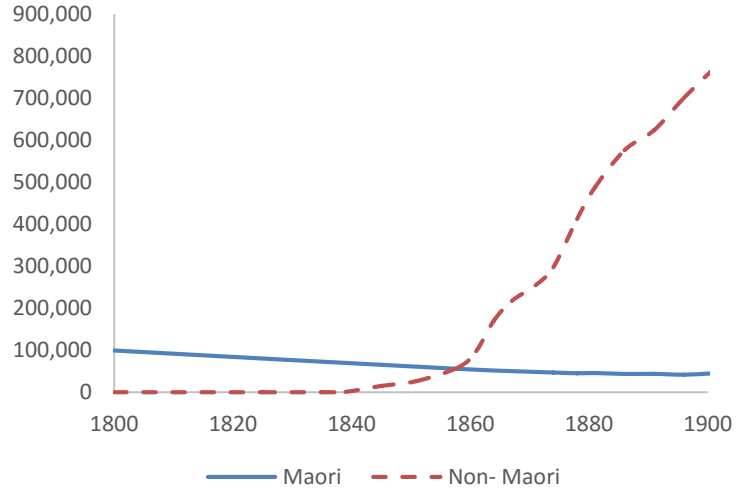
Figure 2 though highlights the difficult times that the Māori population went through in the 19th century. The population declined from just under 100,000 in 1800 to around 80,000 in 1840. As mentioned earlier, the first census of Māori in 1858 produced a figure of just 56,000, although the actual population was probably close to 60,000.

In contrast, the non-Māori population, which was estimated at 2,000 in 1840, had grown to 59,000 at the time of the 1858 census, and was estimated at 71,600 in 1859. Within 19 years of the signing of the Treaty of Waitangi, the pākehā population had grown to be larger than the Māori population. It seems unlikely that this is what Māori expected when signing the treaty. After all, they had been living with Europeans in their midst for around 50 years prior to the treaty, and had not seen explosive growth in pākehā numbers in that time. At the time of the treaty, Māori still outnumbered pākehā by a ratio of 40 to 1. It seems likely that in signing the treaty, most Māori had been seeking to formalise existing arrangements with the pākehā—doing

a deal that would bring benefits to both sides—rather than consciously opening up the way for a pākehā takeover.

**Figure 2 Population 1800–1901**

Population totals




Source: McKinnon et al (1997), Pool (1991), census data from official yearbooks

Nevertheless, the influx of pākehā was quick. By 1842, Wakefield's New Zealand company had founded settlements at Wellington, Wanganui, New Plymouth and Nelson. Dunedin was established in 1848 and Christchurch in 1850. The growth in the non-Māori population in the 1840–1860 period averaged nearly 3,900 a year, giving an average compound growth rate of 20.1 percent per annum. But as Figure 2 shows, even stronger growth was to come in the 1860s, following the discovery of gold. Growth averaged 16,900 per annum over this decade. By the end of the 19th century, the non-Māori population had climbed to 768,000, or over seven times higher than the Māori population at the time of first European contact.

Māori fared badly over most of the 19th century, with the total population dropping to 42,000 by the time of the 1896 census. But

this was the low point. By 1901, the total was 45,550 and the Māori population recovered strongly during the 20th century.

What caused the sharp decline in the Māori population, especially in the period to 1858? Pool (1991) discusses some of the factors. Mortality rates may have climbed due to inter-tribal warfare, which in some areas was being waged with guns obtained from Europeans. However, estimates of death rates from such activity may have been exaggerated by early settlers, who were keen to secure annexation. Perhaps a more important factor was the internal migration that arose as a result of these musket wars. As Pool notes, normal economic life would have been severely disrupted. Food production may have declined and mortality increased. (For more on the musket wars see Crosby 1999.)

Another factor was the introduction of diseases by the first Europeans. Colds, influenza, bronchitis, and pneumonia swept through many tribes and death rates may have been high. There were also outbreaks of measles and whooping cough. But perhaps the biggest impact came from venereal diseases, which would have had a serious impact on fertility. There is evidence that these diseases were introduced at the time of Cook's first voyage. The results of the 1858 census and earlier mission records suggest that sterility among Māori women was reasonably high, which would be consistent with venereal disease being prevalent.

The fall in the Māori population between 1858 and 1896 wasn't as severe as earlier and is perhaps a little easier to account for. The massive increase in the pākehā population meant even more exposure to European diseases. But the main factor was probably the loss of land, especially the losses that occurred as a result of the wars of the 1860s. The economic and social dislocation was massive and would have affected mortality rates.

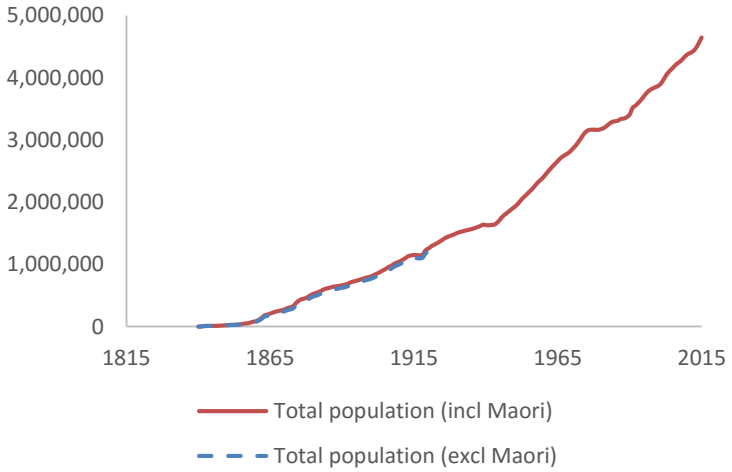
However, by the end of the 19th century it seems that Māori had gained some natural immunity to imported diseases and were adapting to a new social and economic environment.

### Growth in non-Māori and total population

Figure 3 shows annual population estimates for the non-Māori population and for total population from 1840 through to 2000. The estimates for total population begin in 1875; prior to that, the annual estimates exclude Māori.

**Figure 3 Population from 1840**

Population totals as at December 31



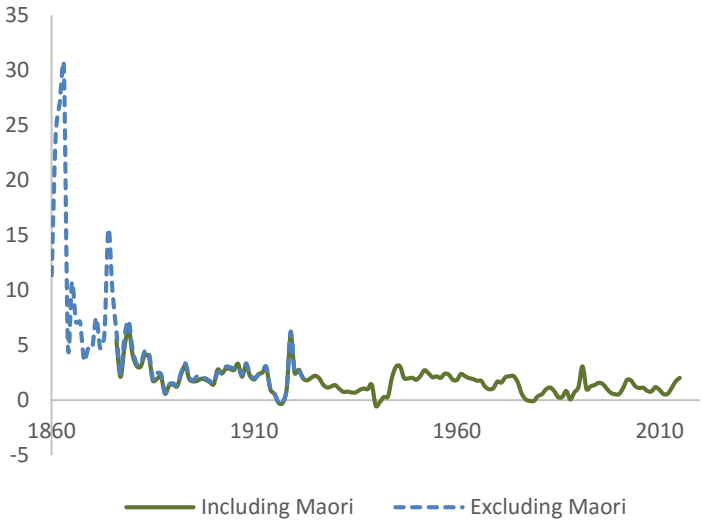

Sources: Official yearbooks, INFOS

Several features stand out. There is a noticeable dip in population in the late 1910s and again in the early 1940s. These are the effects of the world wars, with large numbers of males overseas. We should note that these population estimates, up to and including 1990, are for the actual population—the people who were within New Zealand, including visitors. This is often referred to as the 'de facto' population. From 1991, the estimates are for the 'usually resident' or 'de jure' population, which covers people who live in New Zealand. As the graph shows, an outflow of soldiers alters the de facto population. And as we know, some of these soldiers didn't come back.

Another feature of the graph is the steep increase in population over the period from the second world war to around 1975. While population growth does taper off a little in the late 1960s, as economic growth slows, population growth recovers again in the early 1970s, and gets back to the trend of the earlier post-war years. Still, we can see that population growth did in fact begin to 'wobble' from around 1966.

**Figure 4 Population growth from 1850**

Annual percent change




Sources: Official yearbooks, INFOS

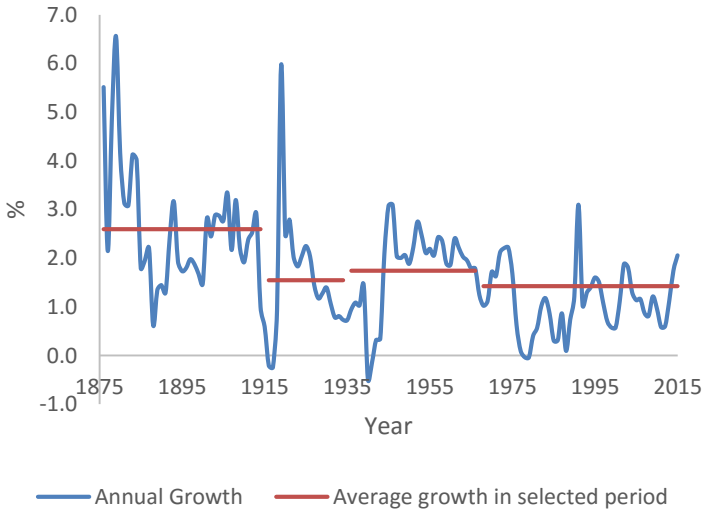
Figure 4 shows annual percent changes in growth from 1850. Note the very high percent changes in the early years. We have to remember that at this stage the population was very small and the growth is occurring off a low base. While the actual annual increases in population over this period were quite small, especially when compared to later periods, the total population is also very small, and this affects the annual percent changes. Nevertheless, an annual growth rate of 30.4 percent, which occurred in 1863 at the time of the gold rush, is pretty impressive. Note that in this chart the growth in

the 1945–1975 period doesn't look so impressive. Again though, this reflects the population base, which is now much larger.

Figure 5 is similar to Figure 4 but shows only the percent changes in total population, for which we have figures from 1875. The changed scale of the graph gives us a better picture of what went on since that time. Again, note the loss of population as the soldiers left for the two world wars, and the large gains as they came back.

**Figure 5 Total population growth from 1875**

Annual percent change




Sources: Official yearbooks, INFOS

It is worth looking closely at this chart, isolating the periods that we identified earlier: 1769–1870, 1870–1914, 1914–1934, 1934–1966, and 1966–2003. However, since our data for total population only runs from 1875, we will have to ignore the first period and begin our second period in 1875. Annual percent changes were generally high in the 1875–1914 period, before falling sharply in the 1914–1934 period. The next period, 1934–1966, shows some recovery in growth,

but growth then drops to a low level in the post-1966 period. The numbers bear this out (see Table 2).

In comparison, the annual compound growth rate for the earlier 1840–1875 period was 16.1 percent. However, this covers only the non-Māori population, rather than the total population, which was used in calculating the figures above. Still, this figure again highlights the explosive growth in non-Māori population in the years immediately after 1840.

**Table 2 Population growth by period**

| Period | Annual compound growth rate |
|---|---|
| 1875–1914 | 2.6% |
| 1914–1934 | 1.5% |
| 1934–1966 | 1.7% |
| 1966–2015 | 1.4% |

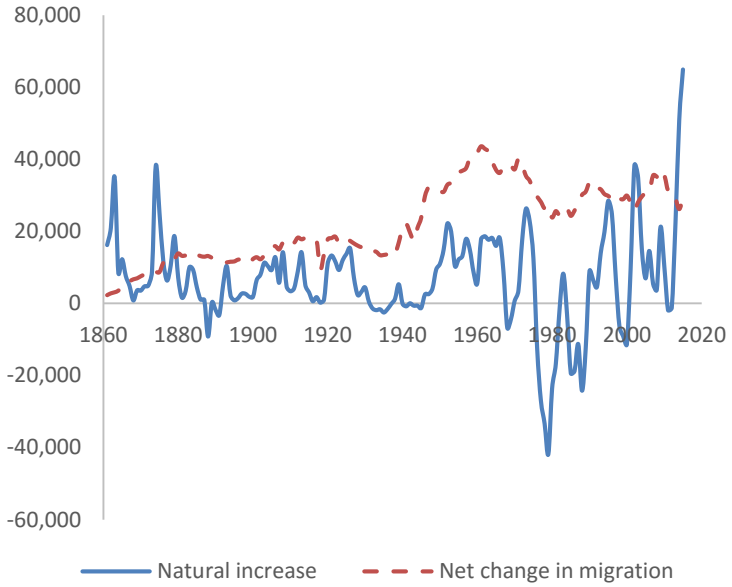
Sources: Official yearbooks, INFOS

## Natural increase and migration

The two drivers of population growth are the 'natural increase', which is births minus deaths, and migration. Figure 6 shows the natural increase and the net change from migration (arrivals minus departures

**Figure 6 Components of population growth**

Annual change in population




Sources: Official yearbooks, *Statistics of population and buildings* volumes from Statistics New Zealand, INFOS

As one would expect, in the earlier years the change due to migration was higher than the change from the natural increase. The gold rushes of the 1860s and then Vogel's policy of assisted immigration in the 1870s boosted the net inflow of migrants. But from the late 1870s, the natural increase became the dominant factor and remained so until recent times. Interestingly, it wasn't until 1995 that the gain from net migration again exceeded the natural increase.

Other features worth noting:

- The natural increase dipped sharply during the first world war. It also eased back during the depression, then recovered, before taking another dip during the second world war. The natural increase was very high in the 1944–1966 period, reflecting high birth rates (the post-war 'baby boom').

- Net migration has fluctuated markedly over the years, and changes in migration are often seen as being an indicator of economic performance. Note, for example, the net losses in the late 1880s, which is often seen as a time of depression (more on this later). Net outflows also occurred in the early 1930s, at the time of the great depression, and in the late 1970s.

Note that the net migration numbers in Figure 6, which are official figures, do not appear to include troop movements. There is, for example, no large net outflow in the 1910s or 1940s. There were also continuing population gains from the natural increase during these periods, which implies that the total population also continued to rise during these periods. This isn't consistent with the population estimates in Figure 5 which showed the total population declining in the late 1910s and the early 1940s. Therefore it appears that the migration figures didn't account for troop movements while the estimates of total population did.

Note too that births prior to 1921 do not include Māori births.

Let's look at average annual figures for the natural increase and net migration for our five periods from 1769 as defined earlier (see Table 3). Unfortunately, we can't get migration data prior to 1861 so we'll have to shorten the first period.

These figures confirm what we found earlier:

- Natural increase soon took over from net migration as the major driver of population growth. By the time we get to the last period, 1966–2001, net migration accounts for less than one tenth of the total population growth.
- Net migration fell to relatively low levels in the 1914–1934 period.
- The 1934–1966 period showed strong gains from both the natural increase (the baby boom) and net migration.
- The gains from natural increase remained high in the 1966–2001 period. This is despite a fall in the birth rate that occurred during this period, and reflects the age structure of the population, with a substantial number of women being of child-bearing age. In general, this was the result of the original baby boomers having their own babies.

- In 2002 and 2003, for the first time since the late 19th century, net migration has been greater than natural increases. A tight labour market prompted a drive to attract immigrants to areas where there were skills shortages. At the same time, the economic conditions of the time possibly provided greater incentive for people to stay in New Zealand rather than emigrate.
- In 2015 New Zealand's annual net gain of migrants reached a record high, including the first net gain in migration from Australia since 1991.

**Table 3 Sources of population growth by period**

Average annual increase

| Period | Arising from natural increase | Arising from net migration |
|---|---|---|
| 1861–1870 | 5,005 | 11,370 |
| 1870–1914 | 13,052 | 6,860 |
| 1914–1934 | 16,177 | 5,318 |
| 1934–1966 | 30,064 | 8,616 |
| 1966–2015 | 30,670 | 4,933 |

Sources: Official yearbooks, *Statistics of population and buildings* volumes from Statistics New Zealand, INFOS

## The demographic transition

Figure 7 shows birth rates and death rates since 1860. These are crude rates with, for example, the birth rate being expressed as the number of births per 1000 population.

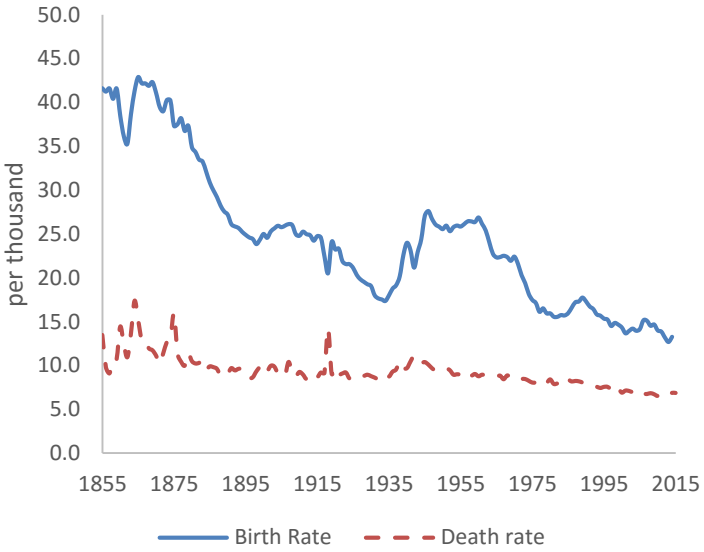
The striking feature is the long-term decline in the birth rate. The rate starts at nearly 42 births per 1000 people in 1860 and drops to under 15 births per 1000 people by 1998. The decline began around 1880. The rate lifted slightly in the early 1900s, probably reflecting buoyant economic conditions. Then from 1910 the birth rate began to decline again. The first world war produced a sudden 'down then up' movement but otherwise the overall decline continued until the mid-1930s.

Then came the baby boom. But by the mid-1960s the birth rate was declining again. The current birth rate is now below the replacement rate (that is, the birth rate at which a population replaces itself). While the crude birth rate is still higher than the crude death

rate, indicating that the population is still growing, this is due largely to the age distribution of the population.

**Figure 7 Birth and death rates**

Rate per 1000 population




Sources: Calculated from Statistcs New Zealand data for births, deaths, and total population

Figure 7 shows that the post-war baby boom was a temporary interruption to the long-run decline in birth rates. This long-term decline is often referred to as 'the demographic transition'. Such a transition tends to occur as a country develops economically. The transition begins with a lowering of the death rate as better hygiene and health care take effect. Then the birth rate also starts to decline. With fewer children dying, the need to keep having children declines. The development of social welfare probably also plays a part. With superannuation schemes in place it becomes less necessary for couples to have children that will support them in their old age. Many industrialised countries now face an inverse demographic pyramid with more people nearing retirement, or already retired than at working age. New Zealand also has the

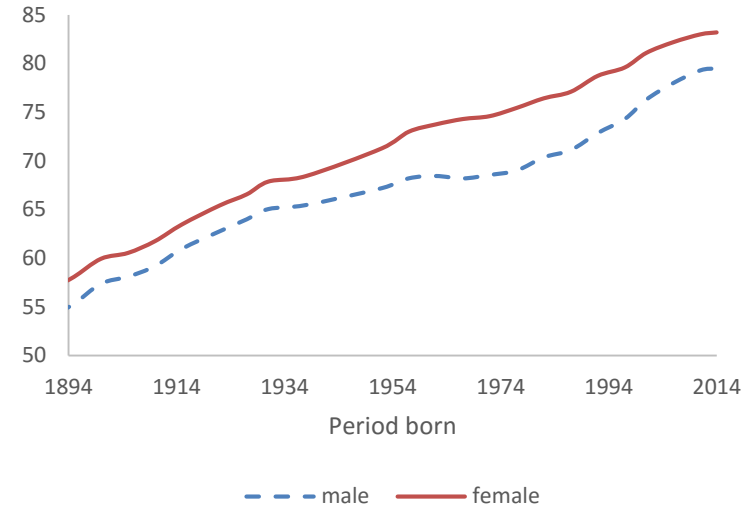
problem of a growing number of retired workers relative to people paying income tax, but currently have what has been labelled a population 'coffin' rather than an inverse pyramid. This is partially because the decline in births in New Zealand has not been as pronounced as in other countries, such as Japan, and also because net immigration has typically been positive.

Figure 7 also shows a gradual decline in the crude death rate, with some interruptions from the world wars. However, the decline seems very gradual. How could such a gradual decline in the death rate trigger the demographic transition? We need to remember that the chart shows only the crude death rate. It does not show us how those deaths are distributed by age. Therefore it doesn't illustrate the sharp decline in infant mortality, particularly for children under one year old. This is where the major change has occurred. A significant fall in infant mortality can have a major impact on the average age at death, and hence on life expectancy. Figure 8which shows life expectancy at birth, illustrates this. A male born in 1892 could be expected to live to age 54, by 2002 male life expectancy had risen to 77 years. The trend upwards in life expectancy appears to be tapering off, in line with international observations, partially driven by changes in diet and lifestyle.

The charts presented here cover the total population and hence include Māori. However, if we were to look at Māori birth and death rates separately, we would see that the Māori population underwent a relatively swift demographic transition of its own (Pool, 1991). Mortality rates declined markedly in the two decades after the second world war. The birth rate then declined very rapidly in the 1970s. The demographic transition, which was virtually complete by 1986, was accompanied by increasing urbanisation.

**Figure 8 Life expectancy at birth**

Age in years



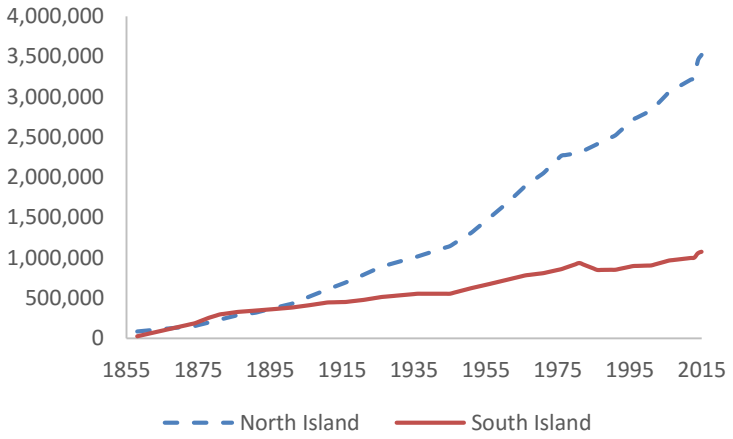

Sources:NZOYB (1998), Statistics New Zealand (2002) *Demographic trends 2001*, *INFOS*

## Distribution of population

Figure 9 illustrates what most New Zealanders know: that in the late 19th century the South Island was the 'mainland'. While the North Island had a higher population than the South Island for a brief period after 1840, the South Island soon overtook it. The gold rush was an obvious reason for the stronger growth. Also, the settlements of Dunedin and Christchurch were successful, relative to North Island settlements, with little Māori-pākehā strife. Wool and wheat soon became major agricultural outputs from the south. The North Island population eventually caught up, with the 1901 census revealing that again the north had surpassed the south. Since then, most of the population growth has been in the north.

**Figure 9 North Island and South Island populations**

Census totals



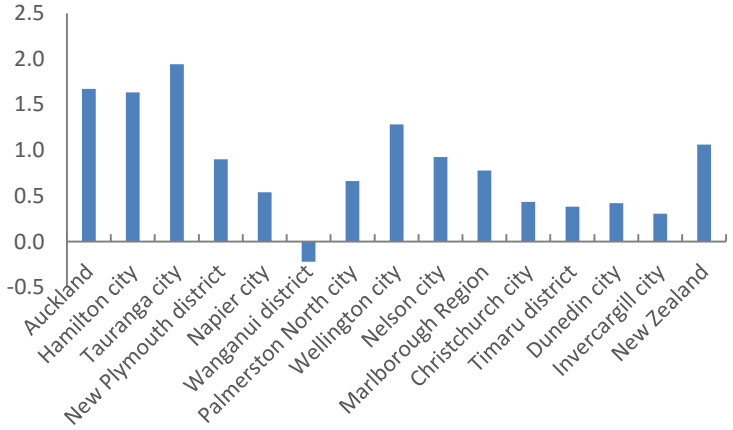

Sources: NZOYB 2000, *2001, 2013 Census final counts, NZ.Stat*

Figure 10 ..Population growth in major urban areas 1886–2001
Compound annual growth rate, percent

gives us another view of population trends. It shows average annual population growth in urban areas from 1886 to 2013. In the chart, the urban areas have been arranged in a north to south order and the stronger growth in the northern urban areas is apparent. Note though that even in the slower-growing urban regions, growth rates are very close to the growth rate of the nation as a whole. This suggests that growth in other areas—that is, in rural areas—has been affecting the national growth rate, and must have been growing at a slower rate than the urban centres.

**Figure 10 Population growth in major urban areas 1886–2001**

Compound annual growth rate, percent



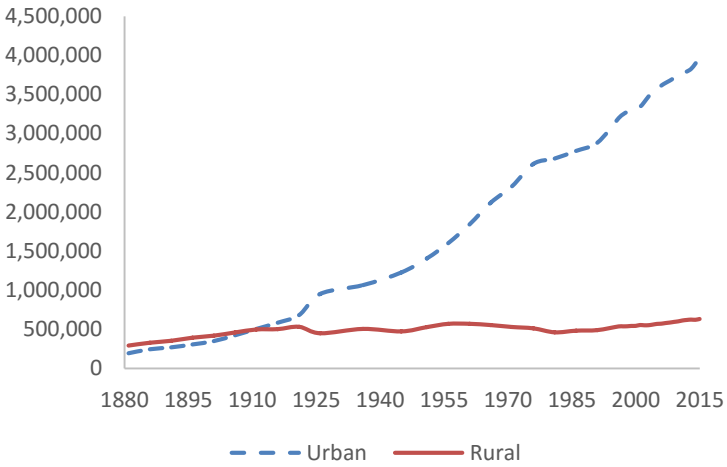

Sources: NZOYB 2000, *2001*, *2013 Census final counts*

Figure 11, following, confirms this, showing that most of the population growth has occurred in urban areas. There are some discontinuities in this graph, with some changes in definitions between the 1921 and 1926 censuses, and also between the 1976 and 1981 censuses.[2] Nevertheless, it seems that the rural population has remained relatively stable, at around half a million, since 1911.

[2] The figures up to 1921 are for the non-Māori population, while later figures are for the total population. Figures up to 1921 show boroughs and cities vs. counties (including town districts); later figures show urban areas and towns with over 1000 population vs. remaining population. From 1981 the figures are for resident population, rather than de facto population.

**Figure 11 Urban and rural populations from 1881**

Census totals




Sources: NZOYB 2000, *2001, 2013 Census final counts, INFOS*

# GDP

## The concept of GDP

Gross domestic product, or GDP, is one of the most important economic indicators. This is because the change in real GDP is economic growth. Let's look at a definition of GDP:

*GDP is the market value of all final goods and services produced within a country in a given time period.* (Mankiw, 1998, p480)

An important word here is 'final' regarding 'final goods and services'. GDP does not include *intermediate consumption*, which is the goods and services used by firms in producing their output. The reason is that GDP measures the 'value added' to goods and services in an economy. At the firm level, a firm's value added is equal to its total output minus the goods and services it buys from other firms. Similarly, at the national level, GDP is equal to total output (often called gross output) minus intermediate consumption.

Nominal GDP is measured at current prices, while real GDP is measured in constant prices. In effect real GDP is nominal GDP adjusted for inflation. Changes in real GDP show changes in the *volume* of production.

Turning back to nominal GDP, there are three ways of measuring it:

- The production measure is equal to the value of all goods and services produced (gross output) minus intermediate consumption (goods and services used by firms in production).
- The expenditure measure is equal to spending on final goods and services (consumption, investment, and exports) minus imports (which by definition are made in a different country, and are therefore excluded from GDP).
- The income measure is the total income arising from production and is made up of payments to workers, government (indirect tax), and capital (depreciation and profit).

In theory, all three measures are equal. In practice, all three will differ slightly, owing to measurement difficulties.

For nominal GDP, Statistics New Zealand produces quarterly estimates of the expenditure measure, but only annual estimates of the production and income measures. For real GDP, Statistics New Zealand produces annual and quarterly estimates of the production and expenditure measures, but no estimates of real income GDP are currently produced.

In our analysis, we will be focusing on annual values of real GDP. We should note though that a related measure to GDP is GNP or gross national product. GNP is the value of production of a nation's permanent residents. It therefore includes income earned by domestic residents, regardless of the country in which they earn it. GNP equals GDP plus net property income from abroad.

### Historical GDP estimates

How far back do official GDP figures go? We can get annual estimates, both nominals and reals, based on the System of National Accounts (SNA) back to 1971/72 (the official annual GDP data is for March years).

Before that we have the National Income and Expenditure series, for which annual figures are available back to 1938/39. As the name implies, these figures are focused on income and spending, rather than production. Nevertheless, from these income and expenditure figures Statistics New Zealand has produced annual estimates of both nominal and real GDP.

For years prior to 1938/39 we have to turn to unofficial estimates. Brent Lineham (1968) produced estimates of nominal GDP for 1917/18 through to 1938/39. He produced nominal GDP figures for 13 industries or sectors, aggregating these to get total GDP. The main method he used was to estimate wage payments and profits, building up income GDP figures. However, for some sectors—agriculture and forestry—production GDP figures were produced. In estimating wage payments, published accounts of actual wages and salaries paid were used. Where these were not available, data on wage rates and employment were used. For some groups of employees it was necessary to use census data and interpolate the data for intervening years. Where straight line interpolation seemed

inappropriate, adjustments were made, using annual employment data that was available for other groups as a basis for adjustment. Profit data was generally obtained from tax statistics or annual company reports. Lineham's estimates are for March years.

Hawke (1975) produced estimates of nominal GDP from 1918 back to 1870. He did this by using Australian data on the velocity of money. By using estimates of bank deposits (M2) and nominal GDP in Australia for the 1870–1918 period, he derived annual estimates of the velocity of money in Australia.[3] The assumption was then made that the velocity of money in New Zealand would be the same as in Australia. This assumption was reasonable, it was argued, given the level of integration between the banking systems of the two countries. Using these velocity estimates, and multiplying these by annual data on New Zealand's money, annual estimates of New Zealand GDP were derived.[4]

Hawke then produced in the same paper an alternative, and possibly better, set of estimates. He used Lineham's estimates of nominal GDP and figures on New Zealand money to estimate the velocity of money in New Zealand over the 1919–1933 period. He then derived a simple regression equation, expressing New Zealand's velocity of money in terms of Australia's velocity of money. He used this equation to produce estimates of New Zealand velocity back to 1870, and these were then in turn used to estimate nominal GDP. Hawke seemed to prefer this second set of estimates to the first.

So far so good. We now have annual estimates of nominal GDP. But how do we get real GDP? Easton (1990) produced a GDP deflator for the 1914–1977 period. His approach was to take a weighting of available price series. He determined the weights by deriving a

[3] The quantity theory of money is based on the equation MV=PY where M is the quantity of money, V is the velocity of money, P is the price of output, and Y is real output. Rearranging, we get V=PY/M. Since PY is nominal output, velocity can be estimated by dividing nominal GDP by bank deposits. For further information on the quantity equation see Mankiw (1998), 616–619.

[4] Again using the quantity theory equation, PY, or nominal GDP, is equal to MV, or money times velocity.

regression equation which relates the official GDP deflator—over the period for which it is available—to various price series. The price series he used were:

- Consumers price index
- Wholesale price index
- Export price index
- Nominal weekly wage rate
- Wholesale price index for imported commodities.

The important thing is that all of these series are available back to 1915.

Note that these series broadly correspond to the components of expenditure GDP. The consumers price index (CPI) is a proxy for private consumption prices, and the wholesale price index can be seen as proxying investment prices, while the export price index covers export prices. The nominal weekly wage rate can be seen as accounting for price changes in labour intensive production, such as in the government sector. The price of imported commodities might be expected to come into the equation with a negative sign, offsetting some of the effects of imports on the consumers price index and the full wholesale price index. Interestingly this is what Easton found, with the import price series having a negative coefficient and the other series having positive coefficients.

Using his equation, Easton derived estimates of the GDP deflator back to 1915. He then used this deflator to produce real GDP back to the same year.

Rankin (1991) produced estimates of GNP for the 1859–1939 period. Rankin chose GNP, rather than GDP, and links this up with the official GNP series, which is available back to 1939. His paper provides nominal and real figures for calendar years (rather than March years).

Rankin first estimates nominal GNP, using a refinement of Hawke's methodology. Rankin notes that between the late 1880s and early 1900s, Hawke's estimates were broadly in line with one-off estimates of national income made at the time. But Hawke's

estimates for the earlier periods appear low; in particular, Hawke's estimates appear incompatible with an estimate made for 1865 by Charles Knight, a senior public servant. It seemed that Hawke's estimates of money velocity for this period were too low.

Rankin's approach was to estimate an equation for money velocity using Australian data, then use this equation to estimate the money velocity for New Zealand. The two explanatory variables in the equation were the general price index and trading bank deposits per capita. Rankin derived several equations; he ended up splitting the data into three sub-periods and deriving an equation for each.

New Zealand data for trading bank deposits per capita and prices were plugged into the equation to obtain estimates of New Zealand money velocity. These estimates were then used in the original quantity theory equation, in conjunction with New Zealand data on bank deposits, to obtain estimates of nominal GNP. The New Zealand price series that Rankin used—which ran back to 1859—was based on work by Easton (1984) and McIlraith (1911), although full details of how the price series was derived are not given.

Rankin's estimate for nominal GDP in 1865 was much closer to Knight's estimate than Hawke's had been. Even so, Rankin scaled the final results for nominal GNP so that they were consistent with benchmarks for various years, including Knight's. Finally, the long-run price series which Rankin had derived was used to deflate the nominal GNP series and derive estimates of real GNP.

### Looking for patterns in historical GDP figures

Let's look now at the numbers. We have put together long run annual series for both nominal and real GDP using these sources:

| | |
|---|---|
| 1860–1933 | Rankin (1991) |
| 1933–1955 | Easton (1990) |
| 1955–2015 | Statistics New Zealand (NZOYB, 1990 and 1998, and INFOS SNCA.S1RB01). |

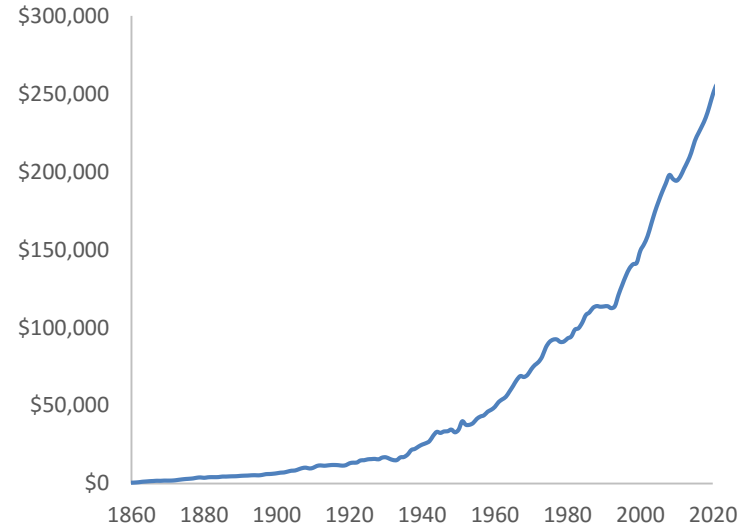
While Rankin's numbers are for GNP, we have assumed that changes in this series reflect changes in GDP. The data has been adjusted, aligning it to March years. Where data series have had to

be joined, the earlier series was factored so that its value at the splice point was equal to that of the later series.

Figure 12 shows the results for real GDP. Recessions, especially those in the late 1970s and late 1980s are clearly visible. But details of earlier years are not very clear, given that the high GDP values of later years are determining the scale of the graph, and 'squashing up' the results for earlier years. But let's leave an analysis of business cycles until later. Let's look first at long-run trends.

**Figure 12 Real GDP from 1860**

2009/10 dollars, millions



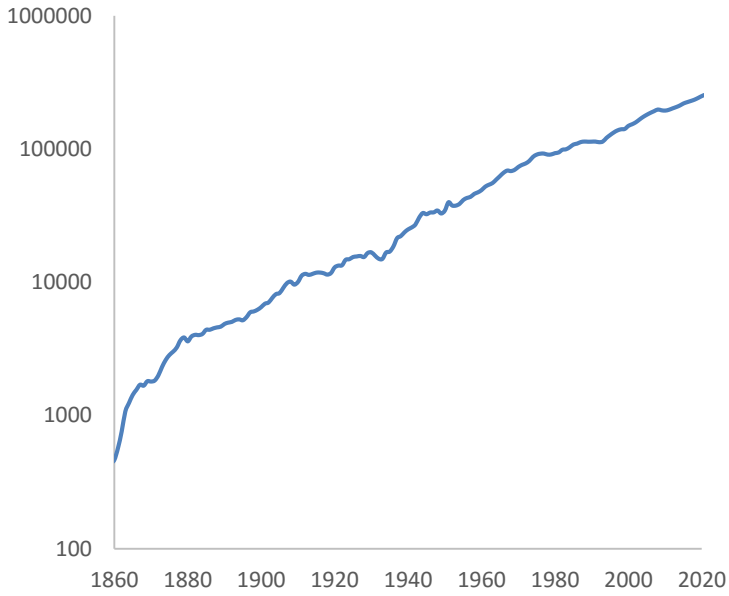

Sources: Rankin (1991), Easton (1990), Statistics New Zealand

Figure 13 shows the same data, but this time it is plotted on a logarithmic scale. This improves our ability to see movements in the earlier years, although it squashes movements in later years. More importantly though, on a logarithmic scale the slope of the chart approximates percent changes. So if the line is relatively straight in one portion, this indicates that the annual percent change during this period was relatively constant. If the slope were to suddenly increase

at the end of this period, it would indicate that the annual percent change had increased.

**Figure 13 Real GDP from 1860 on log scale**

2009/10 dollars, millions




Sources: Rankin (1991), Easton (1990), Statistics New Zealand

So, what can we pick out from Figure 13? We can see very strong growth in the 1860s, which eases back in the 1870s. We then have moderate growth from around the 1880s to the mid-1890s. Then growth picks up, and this carries through to the early 1910s. Growth is now low through to the mid-1930s. We see an acceleration of growth through to the mid-1940s, then—ignoring a few hiccups—steady growth through to the mid-1970s. Then growth flattens off again.

We can put some numbers to these periods (see Table 4).

The incredibly high growth of the 1860s is largely due to the gold rush, while the strong growth of the 1870s is the 'Vogel boom' due to high public spending, especially on infrastructure. It is interesting

to see that growth comes back to an average of 2.5 percent per annum in the 1880–1895 period. This period, or at least the 1880s, is often referred to as 'the long depression'. Our real GDP figures for this period, which are based on Rankin's, indicate that growth didn't entirely disappear at this time. However, as Table 4 shows, and as we will see later, real GDP per capita generally stayed flat in this period.

**Table 4 Growth in real GDP, population, and real GDP per capita**

Compound annual growth rate, percent

| Period | GDP | Population | GDP per capita |
|---|---|---|---|
| 1860–1870 | 14.5 | 12.0 | 0.5 |
| 1870–1880 | 7.2 | 6.6 | 0.5 |
| 1880–1895 | 2.5 | 2.3 | -0.1 |
| 1895–1912 | 4.8 | 2.4 | 2.5 |
| 1912–1935 | 1.7 | 1.5 | 0.0 |
| 1935–1945 | 6.7 | 1.0 | 5.9 |
| 1945–1975 | 3.5 | 2.0 | 1.4 |
| 1975–2005 | 2.3 | 0.9 | 1.3 |
| 2005-2015 | 2.0 | 1.1 | 1.0 |

Sources: Rankin (1991), Easton (1990), Statistics New Zealand

The figures for 1895–1912 show growth booming. A factor in this was the growth of refrigerated shipping, which lifted export volume growth. Another factor was higher export prices. The figures in Table 4 also confirm that the twenty years or so from the beginning of the first world war to the end of the depression were indeed miserable for New Zealand with annual growth averaging only 1.7 percent per annum. Growth rose very strongly after the depression, and according to the figures here, the long expansion continued through to the mid-1970s. Since 1975, real growth has averaged around 2.0 percent per annum, which largely explains a loss of public confidence about the country's future growth prospects.

By and large, our examination of the real GDP figures confirms that our original division of New Zealand's economic history into six periods was reasonable. Table 5 shows real GDP growth for the last four of these periods.

Our GDP figures have, however, shown us a number of things:

- The 'farming period' of 1870–1914 contains three sub-periods: the 'Vogel boom' of the 1870s, the so-called 'long depression', and the strong recovery based on higher returns for farm products.
- The 'long expansion' started with a period of very strong growth immediately after the depression. This strong growth lasted until the end of the second world war.
- It can be argued that the 'long expansion' continued through to the mid-1970s, rather than ending in the mid-1960s. However, as we will see later, New Zealand's long-term problems with export earnings began in the mid-1960s.

**Table 5 Growth in real GDP for four periods from 1870**

| Period | Compound annual growth rate |
|---|---|
| 1870–1914: Farming | 4.3% |
| 1914–1934: War, struggle, depression | 1.3% |
| 1934–1966: Long expansion | 4.4% |
| 1966–2003: Off the OECD pace | 2.5% |

Sources: Rankin (1999), Easton (1990), Statistics New Zealand

## Real GDP per capita

Real GDP per capita is often used as an indicator of how well off a population is, since it is a measure of the average real income of that population. We have already had a peek at real GDP per capita in Table 4. Now we'll have a closer look.

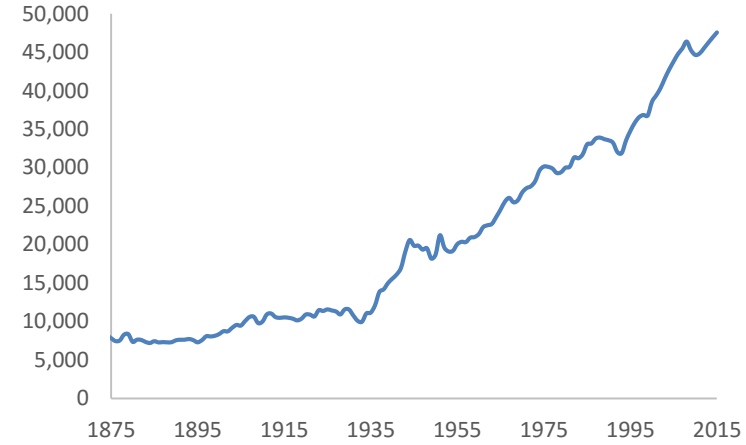
As Table 4 shows, when real GDP growth has been strong, population growth has also been strong. This largely reflects migration flows. The gold rush days clearly resulted in large population inflows. Even so, real GDP per capita grew very strongly in this period. Growth in real GDP per capita eased back in the 1870s, and growth disappeared altogether during the 'long depression'. Growth in real GDP per capita was robust over the 1895–1912 period, then went negative in the period through to 1935. Growth over the 1935–45 period was very strong, but the figure is overstated. Our population estimates in this period are for the de facto population, and in the year ended March 1945 many soldiers were still overseas. The GDP per capita figure for the March year 1945 would have been lower if the soldiers had been included in the population estimate.

Growth in real GDP per capita was reasonable over the thirty years from 1945; in total, real GDP per capita grew by around 52 percent over this period. Growth in real GDP per capita tailed off from 1975.

Figure 14 illustrates these results. The high growth rate in the 1935–45 period is particularly evident, as is the no-growth period of 1880–95. But perhaps the most striking feature of the chart is the change that occurs around the mid-1930s. Up until that point, growth in real GDP per capita is very low. From that point, growth takes off. What is driving this?

**Figure 14 Real GDP per capita**

2009/10 dollars




Sources: GDP data from Rankin (1991), Easton (1990), and Statistics New Zealand. Population estimates from Statistics New Zealand.

Table 6 sets out annual percent changes in real GDP, population, and real GDP per capita for the two periods. On the face of it, the difference in real GDP per capita growth isn't as marked as it looks in Figure 14. Growth in the 1860–1935 period averaged 1.3 percent per annum, while growth in the 1935–2015 period averaged 1.9 percent per annum. But there is a compounding effect at work here: a difference of 0.6 percent per annum in the growth rate makes a big difference over a period of 65 years or so.

Note that for real GDP, growth is actually higher in the earlier period than the later period, as is population growth. It seems that the higher growth in real GDP per capita in the second period is largely the result of population growth being lower.

But is this the full story? Both population and GDP in the earlier period are growing off a low base, and hence we would perhaps expect higher percentage growth rates in the earlier period. But let's look beyond this.

**Table 6 Growth in real GDP per capita pre 1935 and post 1935**

Annual compound growth, percent

| Period | Real GDP | Population | GDP per capita |
|---|---|---|---|
| 1860–1935 | 4.8 | 3.4 | 1.3 |
| 1935–2015 | 3.3 | 1.4 | 1.9 |

Sources: GDP data from Rankin 1991, Easton 1990, and Statistics New Zealand. Population estimates from Statistics New Zealand.

It can be argued that GDP per capita is a rough proxy for labour productivity. I stress 'rough'. Labour productivity is generally defined as output per worker rather than output per person, which is what real GDP per capita is. As we will see later, obtaining reliable data on labour supply—which would allow us to calculate labour productivity directly—is not an easy task. Anyway, taking GDP per capita as a rough measure of labour productivity, we can see that productivity turned up sharply after the depression of the 1930s. Is this simply due to the fact that population wasn't growing so strongly?

Maybe not. Perhaps it reflects a change in government thinking, and in policy. Following the depression of the 1930s, governments around the world knew that economic growth and productivity growth were major policy objectives. We saw the rise of Keynesian economics, which emphasised government spending as the mechanism for influencing growth, and the move to 'managing the economy'. While Keynesian policies have largely been replaced by monetarist policies over the last twenty years, the goal has remained the same: the economy has to be managed in such a way that will maximise productivity, or real GDP per person. The survival of elected governments has become dependent on this.

Perhaps it is too strong a claim to suggest that there has been a radical shift in thinking since the depression. It can be argued that Vogel was in fact managing the economy back in the 1870s when he began borrowing to finance a large public works programme. And in the 1890s, weren't the Liberals managing the economy, at least to some extent, by breaking up large land holdings and introducing welfare measures?

And before we get too smug about being on a stronger growth path for real GDP per capita than we were in an earlier age, look at Figure 15. It again shows our real GDP per capita, this time as an index beginning in 1960 from a base of 100. And yes, the index is generally climbing.[5] But the chart also shows an index of the OECD's real GDP per capita, and as can be seen, it has climbed more quickly than ours. We're simply getting left behind.

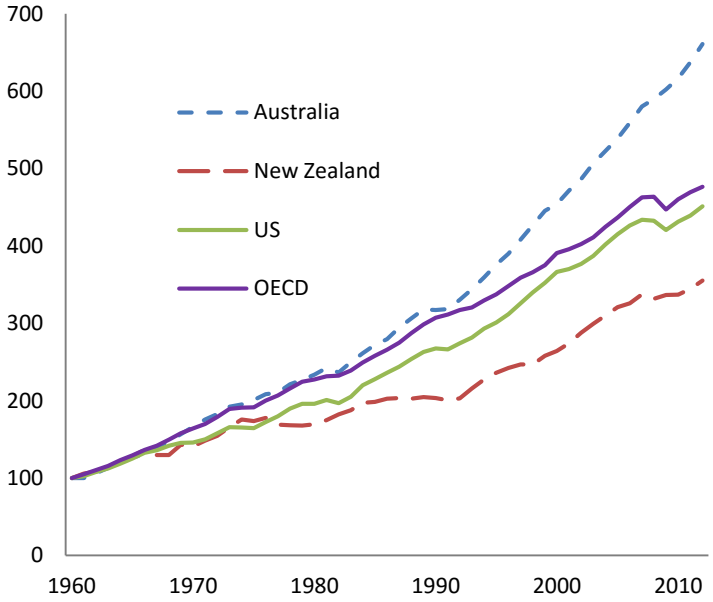
New Zealand GDP per capita growth since 2003 has been around 1 per cent per annum, enough to hold our relative position in the OECD but not to reverse the decline that occurred since the 1960s.

Briggs, Fan and Bishop (2001) show that growth in New Zealand's real GDP, and not just real GDP per capita, was lagging behind that of the OECD. They also show that this is correlated with our export performance. If the real value of our exports had shown the same growth as the OECD's real exports over the last 35 years, growth in our real GDP would also have been similar to that of the OECD.

[5] The slope of the line for New Zealand in Figure 15 appears much flatter than the line in Figure 14. This is largely due to the scales used in the charts, although the OECD's estimates of real GDP for New Zealand also show some slight differences from those produced by Statistics New Zealand.

**Figure 15 Real GDP per capita, New Zealand and OECD countries**

Index 1960=100




Source: OECD

So why has our real export growth foundered? We will come back to this issue later.

## Business cycles

So far, we have looked at our real GDP series with a view to examining long-term trends. This has probably been a wise move. Given that our real GDP figures for the years prior to 1933 have been derived indirectly from monetary data, it's probably not a good idea to place too much emphasis on a figure for a particular year. All the same, we are used to looking at annual GDP growth figures to get a feel for where we are in the business cycle. Could we perhaps use our long-run series to examine business cycles of earlier times?

Figure 16 shows annual growth in real GDP. As can be seen, the figures for some years stand out.

Growth in 1951/52 was especially high, and this reflects high wool prices as a result of the Korean war. But let's focus on five-year averages rather than individual years. These figures tally with our earlier analysis: strong growth in the 1870s, weaker growth in the 1880s, a rise around the turn of the century, a drop in growth during the first world war with low or negative growth through to the mid-1930s. Then comes the boom, followed by the long expansion, followed by lower and erratic growth.

We can get a clearer look at business cycles by comparing actual GDP with 'potential GDP'. Potential GDP is what the economy would produce if unemployment was at its natural, or 'normal' rate (Mankiw, 1998, p682). In effect, it's the 'normal' level of GDP or the GDP you have when you're not having either a recession or a boom. In other words, potential GDP is the smooth track that GDP would take if we weren't having business cycles.

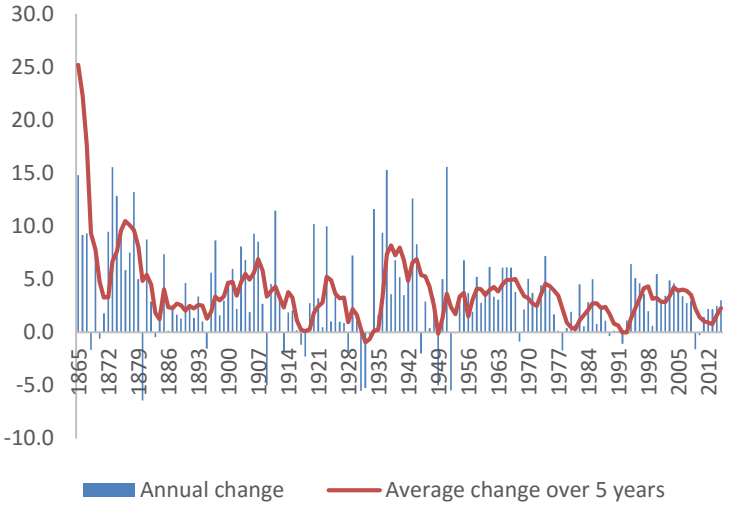
**Table 7 Growth in potential real GDP**

| Period | Annual compound growth rate |
|---|---|
| 1870–1880 | 6.8% |
| 1880–1895 | 2.6% |
| 1895–1912 | 4.2% |
| 1912–1935 | 2.3% |
| 1935–1945 | 5.5% |
| 1945–1975 | 3.4% |
| 1975–2005 | 2.4% |
| 2005-2015 | 2.1% |

Sources: Based on real GDP figures from Rankin (1991), Easton (1990), and Statistics New Zealand

**Figure 16 Growth in real GDP from 1870**

Annual percent change




Sources: Based on real GDP figures from Rankin (1991), Easton (1990), Statistics New Zealand

I have calculated potential GDP by taking a nine-year centred average. This is the average of the current year, the four preceding years, and the four subsequent years. Nine years seems a long period to take in calculating an average, but periods shorter than this didn't seem to do the job—the average was still showing some cyclical fluctuations. Real GDP, actual and potential, is shown in Figure 17. As can be seen, the potential GDP track is fairly smooth, and shows the 'underlying trend' in New Zealand's production.

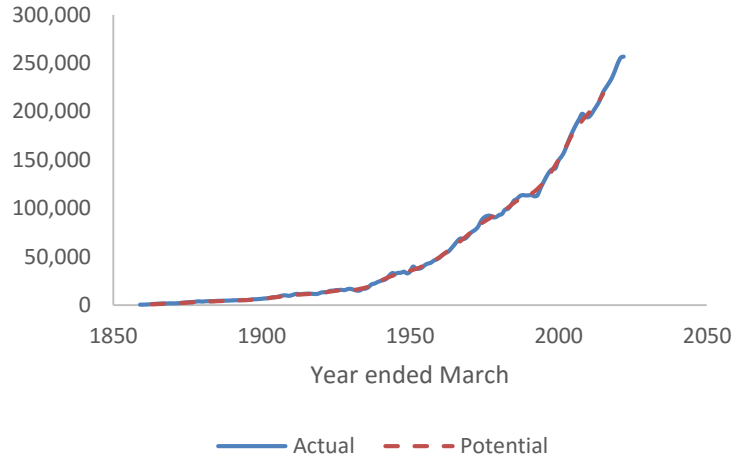
For the record, the growth in potential GDP is shown in Table 7. The growth rates for each period are very similar to those shown in Table 4 for actual GDP.

We can't calculate the change in potential GDP for the 1860–1870 period, since we don't have enough observations to take our nine-year average back to 1860. In producing a value for 2006 we used NZIER's forecasts of real GDP out to 2010 (as in *Quarterly*

*Predictions,* December 2006); with these figures we could calculate the nine-year average centred on 2006.

**Figure 17 Real GDP, actual and potential**

2009/10 dollars, millions




Sources: Based on real GDP figures from Rankin (1991), Easton (1990), and Statistics New Zealand

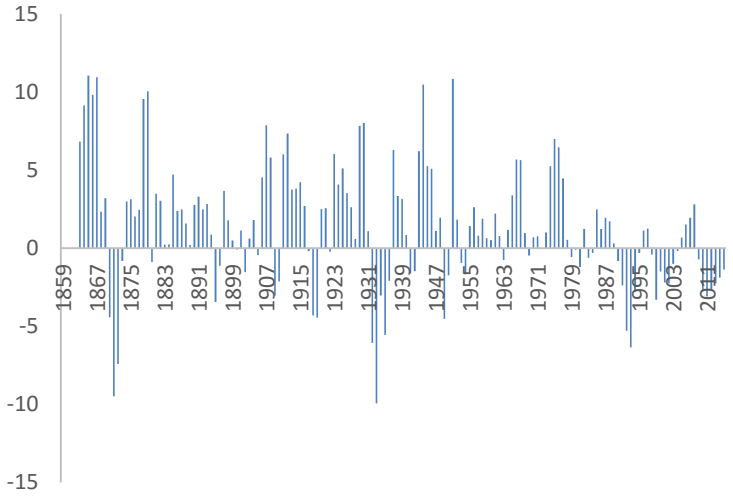
So, we have seen the trend. Now we can calculate deviations of actual GDP from potential. A negative deviation shows we're in the 'bust' part of the business cycle, a positive deviation shows we're in the 'boom' part of the business cycle. Figure 18 shows deviations from potential. These deviations have been expressed as a percent of potential GDP. For example, a value of -5 percent for a particular year indicates that real GDP in that year was 5 percent below its potential level.

The 1930s depression stands out in the chart. Another notable 'bust' was in the early 1870s, although this was partly the result of the end of the gold boom. Turning back to the great depression, which, on these figures, ran from the year ended March 1931 to the year ended March 1935, we can calculate the total deviation from potential for the full period. The figure was -7.5 percent. In other words, over this period as a whole, total production was 7.5 percent

less than potential production. Interestingly, the biggest deviation since then was in the 1989–92 downturn, when, for the period as a whole, actual GDP was 3.5 percent below potential. However, the scale of these calculated losses is sensitive to the way in which potential GDP is calculated, and we must take these figures as being indicative only.

**Figure 18 Real GDP, difference between actual and potential**

Percent difference from potential




Sources: Based on real GDP figures from Rankin (1991), Easton (1990), and Statistics New Zealand

## An exercise

What causes, or drives, economic growth? (Warning: if you get a complete and correct answer to this, expect to get a Nobel prize in economics sometime in the future. But don't let that stop you.) In particular, what drives economic growth in New Zealand?

# Prices

### James McIlraith

We begin this section with a description of the work of James W McIlraith. In 1911 the Government Printing Office published McIlraith's *The course of prices in New Zealand*, which was subtitled *An inquiry into the nature and causes of the variations in the standard of value in New Zealand*. At the time of publication McIlraith was an assistant lecturer in law at Canterbury College. He was also a graduate assistant to James Hight who was professor of history and economics at Canterbury. I haven't found out much else about McIlraith, other than that he seems to have been one of the 'Canterbury school' of economists (Endres, 1990). McIlraith is not listed in the *New Zealand Dictionary of Biography.*

But his work on prices seems to have brought him some renown, at least in New Zealand. I found a couple of newspaper clippings tucked away in an old copy of McIlraith's volume (see Figures 19 and 20). The first of these is an article that McIlraith wrote for the *Christchurch Press* on prices in 1912. The press clipping is not dated, but from shipping notices that are on the other side of the clipping it seems likely that the date of publication was January 1913.

The second clipping is a report on a lecture by McIlraith in the Whangarei Town Hall. Advertisements on the reverse side of the clipping indicate that it is from Whangarei's *Northern Advocate*. This clipping isn't dated either, but the article refers to the recent revolution in Russia and also looks forward to the period 'after the war'. The date therefore appears to be sometime in 1918.

### McIlraith's work

McIlraith's work had two main objectives:

- To measure the changes in the general level of prices, year by year, from 1861 to 1908. By 1908 it was becoming clear that the state of the world was changing, and the cost of living was rising at a pace that was causing alarm. The first step was to attempt to measure just how much prices were rising.

- To determine the causes of the changes in the local price level.

**Figure 19 Press report: McIlraith's article on prices in 1912**

PRICES IN 1912.
CONTINUED UPWARD MOVEMENT IN NEW ZEALAND

(SPECIALLY WRITTEN FOR "THE PRESS")

(BY J. D. MCILRAITH, LITT. D.)

The most marked commercial characteristic of the year 1912 has been the continued upward movement in prices. The general level of prices is now about 17 per cent. higher than the average price level of the decade l890–1899. The following figures show recent price movements:—

| | |
|---|---|
| 1890–1899 | 100 |
| 1910 | 109 |
| 1911 | 112 |
| 1912 | 117 |

The rise last year was thus nearly 4 per cent. To find a similar high price level we must go back to the year 1883.

An analysis of the different groups of commodities affords interesting results:—

Farm Products.

| | |
|---|---|
| 1890–1899 | 100 |
| 1910 | 125 |
| 1911 | 126 |
| 1912 | 133 |

A remarkable rise; but look at it thus:—

| | Cereal products. | Animal products. |
|---|---|---|
| 1890–1899 | 100 | 100 |
| 1910 | 110 | 135 |
| 1911 | 119 | 131 |
| 1912 | 115 | 147 |

Truly, this is the day not of the golden corn but of the golden butter and the golden fleece. The worship of the golden calf has been revived in a most lucrative form!

Foods have appreciated thus:-

| | |
|---|---|
| 1890–1899 | 100 |
| 1911 | 108 |
| 1912 | 113 |

Products other than farm products have varied thus:—

| | |
|---|---|
| 1890–1899 | 100 |
| 1910 | 104 |
| 1911 | 108 |
| 1912 | 111 |

Certainly an ominous rise, but only 25 per cent. of that which took place in animal products in a similar period. The whole commercial world seems to be riding on a wave of fast-rising prices. Here are some comparative figures:—

| | 1890–1899 | 1910 | 1911 | 1912 |
|---|---|---|---|---|
| New Zealand | 100 | 109 | 112 | 117 |
| U.S.A. | 100 | 132 | 129 | — |
| England | 100 | 118 | 121 | — |

This state of affairs cannot last without creating grave disturbances in the industrial and social world. While producers generally must rejoice, those in receipt of wages, salaries or fixed incomes will probably grow increasingly restive, as the continuous rise in the cost of living steadily decreases their purchasing power. Since a rise in prices of world-wide extent is not due to the exertions of any particular class, the great problem is to devise some method whereby the advantages or otherwise of such a rise will be distributed equally over all industrial classes. The world's gold production, on which the volume of credit and hence the general price level so largely depend, is of the greatest interest. It has increased thus:—

| | |
|---|---|
| 1890–1899 | 100 |
| 1905 | 128 |
| 1910 | 147 |
| 1911 | 149 |

From this it would appear that the wave of rising prices has not yet reached its crest.

Source: *The Press*, Christchurch, probably January 1913

**Figure 20 Press report: McIlraith's lecture on the rise and fall of prices**

**THE RISE AND FALL OF PRICES.**

DR. McILRAITH'S LECTURE.

The supper room of the Whangarei Town Hall was crowded last night on the occasion of the lecture by Dr. McIlraith on "Why Prices Rise and Fall."

Mr F. D. McGovern, the chairman, in introducing the speaker, said that Dr. McIlraith had been the first in the Southern Hemisphere to take up the study of this subject, and was beyond doubt the best authority on it in New Zealand.

Dr. McIlraith was received with applause, and in his opening remarks said that the question of rising prices was becoming so acute that it was well for the community to have some information as to the causes of that rise. It was not only in New Zealand that prices were rising; the same thing was going on in all parts of the civilised world. Prices had been low in the 80's and 90's; since then, the rise had been so great and so rapid that, unless some palliative were devised there was danger of unrest that would be followed by discontent and possibly by revolution as had just been exemplified in the case of Russia.

The lecturer said that he would be able to convey his views better by means of the lantern than by giving figures and he proceeded to illustrate by diagrams and "graphs" the various stages in the rise and fall of prices in New Zealand for a number of years past. He spoke of the "hard times" experienced in the early 90's, and mentioned among other things that New Zealand's produce was last year 103 percent. higher than in 1890. The Dominion had been in an exceptionally fortunate position during the past 20 years. The lecturer touched briefly upon several phases of the commercial and industrial history of the Dominion, and kept his audience thoroughly interested throughout the entire lecture.

At the conclusion of the Doctor's remarks, a number of questions were asked bearing upon the prospects as to trade and finance after the war, and Dr. McIlraith replied to each, but declined to take upon himself the role of prophet. He said, however, that after the war there would be need of statesmen of prudence and insight such as the world had never yet seen.

On the motion of Mr W. Reynolds, seconded by Mr S. J. McCormick, a very hearty vote of thanks was passed to Dr. McIlraith, and also to the gentleman who operated the lantern.

Source: *Northern Advocate*, probably 1918

In looking at McIlraith's work, it is important to bear in mind a couple of points:

- The unit of currency over the period was the pound—the British pound—reflecting New Zealand's status as a British colony.
- The British pound was tied to the gold standard. A British pound sterling was defined as 113.00 grains of pure gold.[6]

Therefore, McIlraith saw his work as determining changes in the purchasing power of gold.

McIlraith took 45 products and for each of them obtained their average annual price. To do this he took the average of prices occurring in the first week of January, April, July and October, or as near as possible to these dates. He then converted each price series to an index, and based this index on the decade 1890–99. That is, the average price for each item over this period was deemed to equal an index value of 100. Finally, for each year the average of all the indexes was taken, and this was the index for total prices.

The total price index was therefore calculated using equal weights. There was no attempt to weight the component indexes on the basis of total spending on each item, probably because there was little data on aggregate spending on these items.

But where did McIlraith get his price data for the 45 items he included in his total index? He depended on two sources:

- Old newspapers: 'Fortunately for the investigator, it was formerly the practice of the New Zealand newspapers to publish periodical lists of both wholesale and retail prices in the various centres' (McIlraith, p31).
- The *New Zealand Trade Review and Price Current*, a monthly journal which had been published in Wellington since 1873. The information in this publication came from leading wholesale firms and was for Wellington prices.

McIlraith used Wellington prices where possible but thought that for export data, it would be better to use Canterbury data, since this

[6] Source: 'Money' in *Encyclopaedia Britannica* (1996).

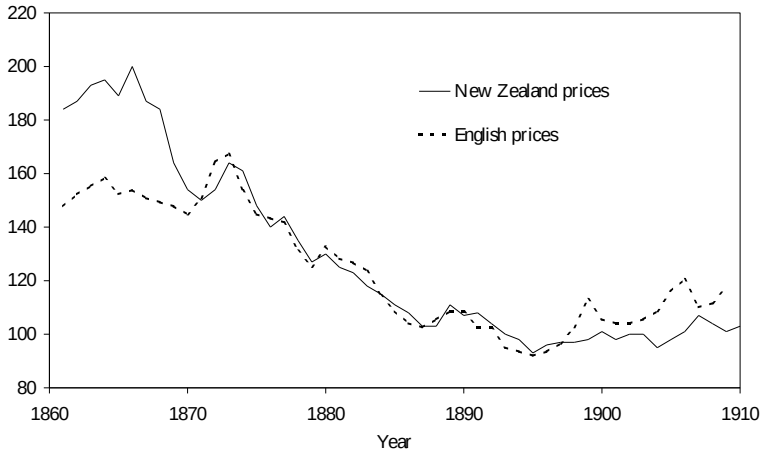
was the country's main agricultural centre. He therefore used quoted prices from *The Press* for agricultural products. In general, McIlraith took Wellington prices for imported goods, and Christchurch prices for exported goods. He also focused on wholesale prices rather than retail prices. McIlraith acknowledges the difficulty of adjusting prices to account for changes in the quality of goods; he finally decided it was best therefore 'to select, if possible, only those articles the physical and psychical efficiency of which varies but little from year to year' (p34).

McIlraith includes tables detailing actual prices, as well as calculated indexes, for each item.

Figure 21 shows McIlraith's index for New Zealand, as well as Sauerbeck's index for English prices. Augustus Sauerbeck first published his index of English wholesale prices in the *Journal of the Royal Statistical Society* in 1886. He subsequently updated his series in various journals. To make Sauerbeck's index comparable with his own, McIlraith rebased it so that the average for 1890–99 equalled 100. Note that these indexes show the price level, rather than changes in prices (inflation).

**Figure 21 New Zealand and English prices 1861–1910**

Index, 1890–99=100




Source: McIlraith (1911)

The most startling feature of the chart to modern eyes is that for the latter part of the 19th century prices declined. And by quite large amounts. From 1866, when prices were at a high owing to the effects of the gold rushes, to 1895, when prices bottomed out, the average annual change was -2.6 percent.[7]

What caused this decline in prices? Perhaps we should firstly put the New Zealand experience in an international context. As the chart shows, prices also declined in Britain over this period, although the fall wasn't quite as severe. As noted above, New Zealand's prices at the start of the period were being affected by the gold rushes. McIlraith also includes a series for US prices in his report; these too declined over the period from 1865 till the mid-1890s. This fall in international prices has largely been attributed to two factors:

- Productivity improvements: with breakthroughs in technology, such as the use of steam in factories, ships and land transport (railways), the cost of producing and delivering goods went down. This was reflected in selling prices.
- Despite gold discoveries in such places as California, Australia, and New Zealand, world gold production generally fell from 1865 through to the 1890s, when it started to rise again.

Hence, relative to overall levels of production, which were rising fast, the stock of gold was declining. And since currencies were tied to gold, the supply of money, relative to output, was declining. The effect, in modern terms, was extremely tight monetary conditions and the result was falling prices or deflation.

In effect, currencies such as the pound were increasing in value. A pound would buy more than it had previously. And since New Zealand was using sterling, the effects of this flowed into the New Zealand economy.

But what happened from 1895? As Figure 21 shows, both English prices and New Zealand prices rose from about this time, with English prices generally rising faster than ours through to 1910. What drove the English price rises? Some possibilities:

[7] The index was 200 in 1866 and 93 in 1895.

- A rise in raw material prices. According to McIlraith, the English index contains a much higher proportion of raw material items than the New Zealand index.
- The impact of the Boer war. The placing of large contracts by the British government would have inflated prices for a time. The war also affected the prices of coal and minerals.
- A large increase in the world production of gold. In effect this increased the money supply.

A possible factor not mentioned by McIlraith was the growing influence of the trade union and co-operative movements in Britain, which perhaps had the effect of placing a 'floor' under wages and prices.

McIlraith split his index into two, producing an index for farm products and non-farm products.

As Figure 22 shows there were three periods when the index for farm products prices differed significantly from the index for non-farm products. In the early 1860s, the farm index was higher than the non-farm index. This may have been due to the impact of the gold rushes on food products, much of which would have been consumed domestically at that time. The price of farm products fell sharply in the late 1860s as wool prices fell. This reflected some easing in the general level of prices in Britain. But the major impact on prices may have come from a supply side effect; at this time New Zealand wool exports to Britain were increasing rapidly, and the increased supply would have affected prices. Agricultural prices recovered quickly in the early 1870s as the British price level lifted and wool prices in particular showed strong gains.

The strong rise in farm product prices from 1895 reflects rises in prices for all of the main components—wool, meat and dairy products. As we have already seen, the general level of prices in Britain rose steadily during this period, although not as strongly as prices for New Zealand agricultural products. Rises in the prices of these products was consistent with a rise in prices for raw materials, which was also touched on above. It seems that during this period, New Zealand began to play an unambiguous role as a colony of

Britain—supplying food and fibre to a rapidly developing market that was being built on free trade. (Belich, 2001, refers to this period as one of 'recolonisation'.) What's more, given that our products were to the tastes of Britain's consumers, we received high prices for our premium products.

**Figure 22 New Zealand farm and non-farm prices 1861–1910**

Index, 1890–99=100


Source: McIlraith (1911)

From around 1880 on, a large proportion of the output covered by the farm products index would have been exported. Hence we can see the farm products price index as being a proxy for export prices. Similarly, since most non-farm products were imported, we can view the non-farm products index as a proxy for import prices. From 1895 to 1910, the growth in export prices appears to have exceeded the growth in import prices. In short, the terms of trade improved significantly. (The terms of trade is simply the export price index over the import price index. It shows how many imports we can buy with a unit of exports. A rise in the terms of trade shows that the purchasing power overseas of a unit of exports has increased.)

This appeared to be a major finding by McIlraith. It helped to explain why the colony had been doing so well, despite the overall increase in domestic prices. We will come back to this issue later, when we look at the external sector.

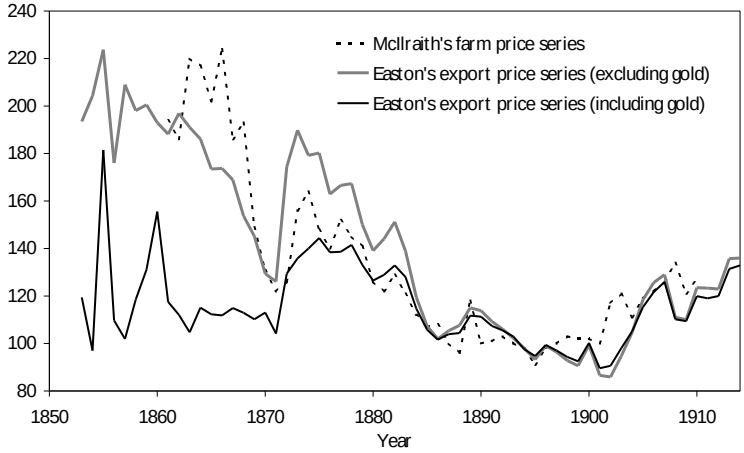
However, we should note one point about McIlraith's series before we move on: none of his series included the price of gold. From his point of view this seemed unnecessary, since the price of gold was constant. And as he notes, he was trying to estimate the purchasing power of gold; his series measured the value of items relative to gold.

But if we were constructing a price series today for the economy as a whole, or for total exports, we would include the price of gold even if it stayed constant. In deriving an index for total exports, for example, we would also weight together the price indexes for individual export items, using their shares of nominal exports as weights. We would not simply take the average of the component price indexes as McIlraith did. Given the fact that the price of one item—that is, gold—would remain constant in an index derived this way, the index would not decline as rapidly over the 1865–95 period as McIlraith's series did.

Easton (1984) did produce weighted indexes for export and import prices, and reported results back to the 1850s. He presented two export indexes: one including gold and one excluding gold. As Figure 23 shows, Easton's series excluding gold looks similar to McIlraith's farm price series. But the series including gold is much lower than McIlraith's series, especially in the period prior to 1870. What are the implications of this? None, as far as actual farm prices are concerned. McIlraith's series is still correct in showing that prices for primary produce generally fell between 1865 and 1895. But if we include gold in an index for total exports, then, as the chart shows, we find that the price level looks quite different. This does have implications for the terms of trade, which we will look at later.

**Figure 23 Export prices 1853–1914**

Index, 1890–99=100




Sources: Easton (1984), McIlraith (1911)

## The course of prices after 1910

McIlraith's report presents indexes up to 1910. But the newspaper report from *The Press,* which we saw earlier, presents index values from 1910 to 1912. This press report also shows that McIlraith had revised up substantially the value of the non-farm index for 1910. The farm index for 1910 had been revised down slightly. I have as yet not tracked down any articles showing why these revisions were made.

There are other sources of data on prices after 1910. The 1990 NZOYB includes an index for the consumers price index (CPI) going back to 1891.[8] In reality though, the CPI didn't start until 1914. For years prior to that, the series is based on an index of retail prices and

[8] The consumers price index, as computed by Statistics New Zealand, measures the price of a basket of goods that a representative household would buy.

house accommodation, averaged for the four main centres.[9] This data series has been linked to the official CPI series at 1914.

Figure 24 shows a price index which runs from 1861. The data to 1910 is from McIlraith while the data from 1910 is the linked CPI mentioned above. Is it legitimate to link the McIlraith series and the CPI? Recall that in his work McIlraith was trying to capture movements in the general price level, rather than consumer prices. Perhaps it would be more appropriate to use the GDP deflator, which also measures the general price level, as the series to join to McIlraith's.

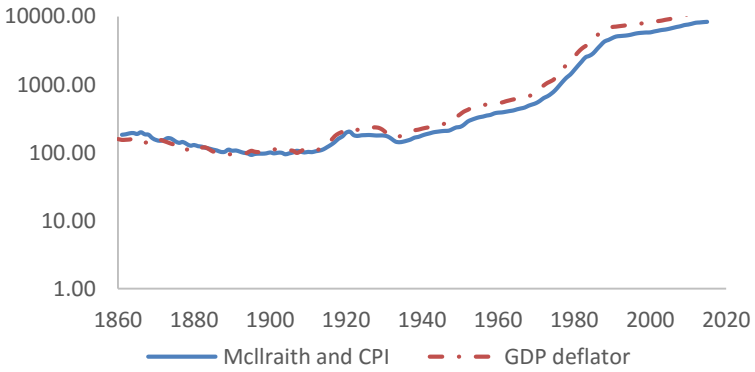
The problem is that our GDP deflator for the period up to 1955, when official data becomes available, is a derived series. For the period 1933–1955 the deflator is from Easton (1990). And as we saw earlier this deflator series is based on the CPI as well as other series. For the period 1860–1933, the deflator is from Rankin (1991). We have butted the Rankin and Easton series together, joined them onto the 'official' deflator at 1955, and converted the resulting series into an index with the same base as the McIlraith/CPI series (see Figure 24).

As the chart shows, this derived GDP deflator is similar to the McIlraith/CPI series. The major difference occurs in the late 1940s and early 1950s when the GDP deflator increases by more than the CPI. This is the result of strong export prices in this period (more on this in the following chapter on the external sector). Export prices drive up the GDP deflator during this period as they feed into the equation derived by Easton (1990). But the CPI, which is an official series, did not rise as sharply. This is feasible. It is possible that not all of the additional export earnings arising from higher export prices were spent on consumption goods. Some of the additional earnings may have been saved while some may have been spent on investment goods. Hence the impact of the higher export prices on consumer prices may have been muted a little

[9] See NZOYB (1990), p614. Index values for 1891–1914 are based on data from *Report on the cost of living in New Zealand 1891–1941*, Government Printer, 1915, Wellington.

**Figure 24 New Zealand prices from 1861**

Index, 1890–99=100, plotted on logarithmic scale




Sources: McIlraith (1911), Easton (1990), Rankin (1991) and Statistics New Zealand

But even though the GDP deflator is similar to the McIlraith/CPI series, let's focus for now on the CPI-based series. The CPI does have the virtue of being a prime source, being built up from actual data on prices collected regularly by staff from Statistics New Zealand.

Note the scale in Figure 24—it is logarithmic so that we can capture the index values of later years, which are large, on the same chart as the index values for earlier years.

A number of features stand out from the chart:

- The general decline in prices from 1866 to 1895, which we have already looked at in detail.
- A steady rise in prices from 1895 to 1914, followed by a large rise in prices during the 1914–1918 war.
- Prices initially fell after the war but were then generally unchanged over the remainder of the 1920s. They dropped sharply during the depression of the early 1930s.
- Prices showed a steady rise from the end of the depression through to the late 1960s (our 'long expansion' period).

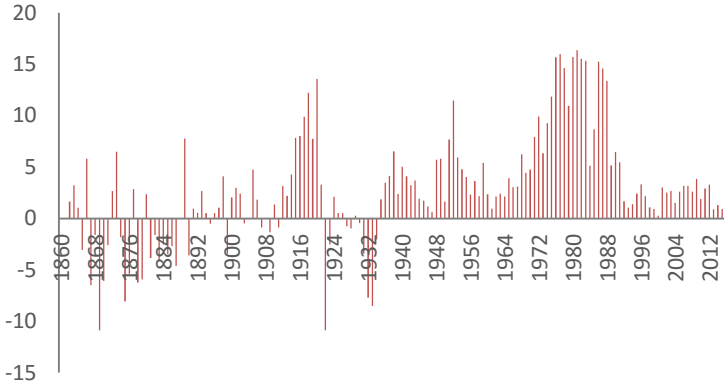
- Large and sustained rises in prices from the late 1960s to the late 1980s. (These rises were greater than those in most other OECD countries.) We then see a slower rise in prices after the Reserve Bank adopts a policy of directly targeting inflation.

These phases are shown even more clearly in Figure 25, which shows the annual inflation rate since 1861.

It is sobering to look at this chart and think that only over the past 10 years do we seem to have had the means, or the will, to control inflation. Even with historically low unemployment and strong consumption demand in 2007, the Reserve bank has kept inflation between 1 and 3 percent on average over the medium term.

**Figure 25 Annual inflation rate from 1862**

Percent change in prices




Sources: McIlraith (1911), Statistics New Zealand

# External sector

### Exports and imports, nominal

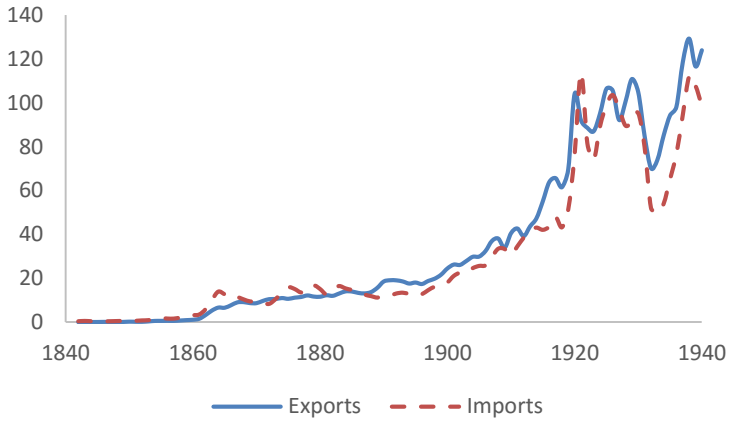
Figure 26 shows exports and imports, in nominal dollars, over the 100-year period from 1840. Even though the values in Figure 26Figure 24 haven't been adjusted for price movements, we can spot a few features:

- Exports rose suddenly in the early 1860s, reflecting the effect of gold. They then grew steadily through to the 1890s.
- Export earnings increased strongly from the mid-1890s.
- Growth in exports came to a full stop in 1920 and export earnings generally remained flat over the 1920s.
- Nominal exports declined sharply in the late 1920s and early 1930s as the depression hit.

Note that from the late 1880s onwards, exports generally exceeded imports by a comfortable margin.

**Figure 26 Exports and imports, nominal, to 1940**

Dollars, millions



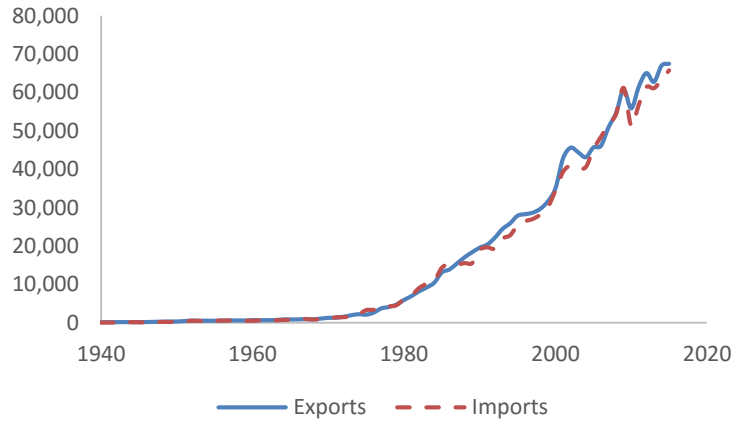

Sources: Lloyd Prichard (1970), official yearbooks

The values in Figure 26 are for merchandise trade only, that is, they cover trade in goods but not trade in services. We have no numbers on services trade for this period but it is likely that services trade would have been relatively low prior to 1940.

Figure 27 shows nominal exports and imports from 1940. There is a discontinuity in this chart, although it is not visible. Up to and including 1950 the numbers are for merchandise trade only, since no data on services is available for these years. For 1951 and later years the figures include services.

**Figure 27 Exports and imports, nominal, from 1940**

Dollars, millions




Sources: Official yearbooks, INFOS

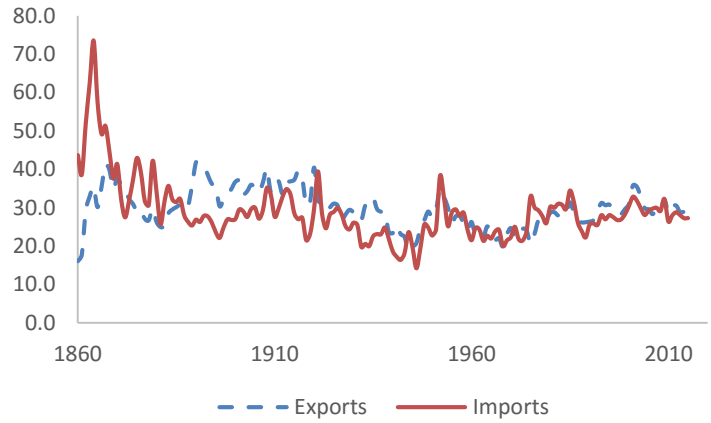
Note that Figure 27 starts where Figure 26 left off. If we had plotted exports for the pre-1940 period on Figure 27, the numbers would have hardly been visible. Clearly we need to adjust our export numbers for price changes if we are to make any sense of them. We'll spend much of this section looking at these prices changes, and the influences on them.

One way of partly masking out the effects of inflation is to look at exports and imports as a percent of nominal GDP. Figure 28 does this. The chart indicates that exports as a proportion of GDP have generally fluctuated around 30 percent. In the past we've tended to

view this, rather proudly, as showing that New Zealand is a trading nation—that we have an 'open economy'. In the context of modern developed economies though, an exports/GDP ratio of 30 percent or even 40 percent no longer looks particularly high. Still, the performance of our economy has been, and still is, largely dependent on how well we do in world markets.

**Figure 28 Exports and imports, percent of GDP**

Percent




Sources: Trade data is from the same sources as for Figure 26 and Figure 27. Nominal GDP figures are from the same sources listed for Figure 12.

## Exports by type of commodity

### *Goods exports*

Figure 29 shows exports by commodity type as a percent of total merchandise exports. It is perhaps one of the most interesting charts we will see, in that it seems to encapsulate the whole of New Zealand's economic history.

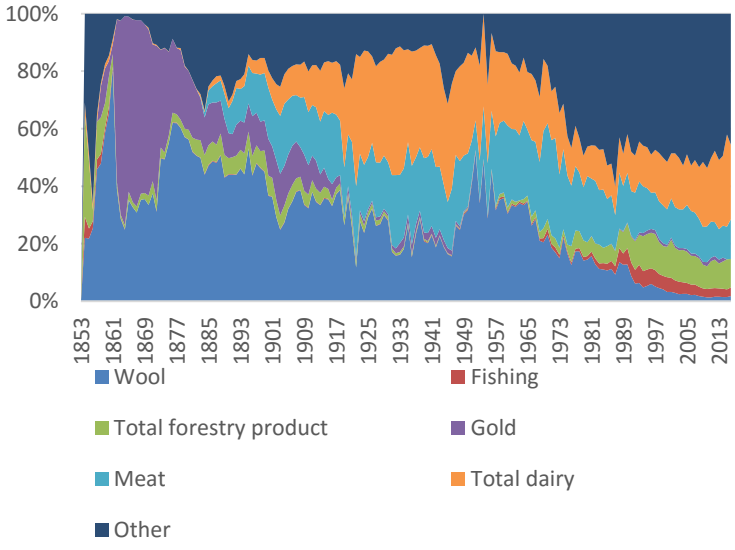
Some of the major features of the chart:

- In 1853, the first year for which we have commodity data, goods exports were dominated for forestry (which included timber and kauri gum) and wool. Fishing also made a significant contribution as did 'other', which included flax.

- By 1860 wool accounted for 75 percent of goods exports. But within a year it had been overtaken by gold. Gold peaked at 72 percent of goods exports in 1863, but by 1880 its share had dropped to less than 20 percent. Still, gold remained a significant export commodity until the onset of the first world war. (As we will see later, British and New Zealand currencies went off the gold standard in 1914, which probably accounts for the declining interest in gold from this time.)
- By the early 1870s wool was again the predominant export. However, from 1882, when refrigerated shipping started, both meat and dairy began to emerge as major export industries. And by 1902—only 20 years later—the combined value of meat and dairy exports exceeded the value of exported wool.

**Figure 29 Goods exports by type of commodity**

Percent of total




Sources: Condliffe (1915), Bloomfield (1984), INFOS. The figures are for calendar years to 1961 and June years from then on.

- Dairy went on to become the biggest export earner, peaking at 46 percent of goods exports in 1921.

- Wool regained its supremacy in the early 1950s, initially due to the influence of the Korean war. (Fighting a war in a cold climate did wonders for wool sales.) Wool continued to be the main earner through to 1967.
- Over the 'long expansion' period—from the mid-1930s to the mid-1960s—exports continued to be dominated by wool, dairy and meat.
- From 1967 a new pattern emerged. Wool was now facing strong competition from synthetic fibres like nylon and began its long decline. Wool now makes up only 3 percent of goods exports. In contrast, from the mid-1960s the 'other' category began to grow, and today it accounts for nearly half of all goods exports. This category includes such things as fruit, aluminium, steel, and manufactures. Forestry, and then fishing, began to re-emerge as important industries. This time though, fishing was not based on whaling but on fish like hoki, mackerel and squid. And forest products were derived not from kauri but from exotic pine.
- Meat has declined from around 30 percent of goods exports in the late 1960s to 14 percent today. Dairy fell from 28 percent in 1967 to 11 percent by 1987, but has since recovered to 19 percent. This recovery partly reflects higher overseas prices, which to some extent have been the result of the GATT round concluded in 1994 (Nixon and Yeabsley, 2002). Dairy volumes have also risen as farmers have noted the higher export prices and have converted to dairy. However, despite the recent emergence of 'super company' Fonterra, the dairy sector as a whole no longer dominates the export scene like it used to.
- The 'other exports' category, which includes horticultural products and manufactures, has increased markedly as a proportion of total exports over the last few decades. The major market for New Zealand manufactures has been Australia, and growth in our trans-Tasman exports has been aided by two significant trade treaties: the New Zealand Australia Free Trade Agreement (NAFTA) in 1965 and CER in 1982.

- Despite the growth in manufactured exports, primary-based products still account for around just under half of our goods exports in 2000s.

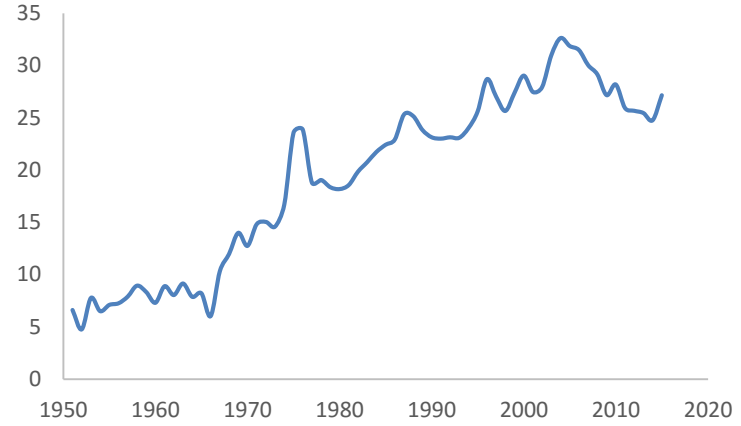
Overall, over the last 50 years there has been a remarkable shift in the composition of New Zealand's goods exports and markets. This has largely been the result of necessity—with the decline in wool as a major commodity and the entry of Britain into the EEC, New Zealand has had no option but to diversify with respect to both the composition and the destinations of its exports.

### *Services exports*

Services exports cover travel, transport, insurance, and 'other services'. This last component covers such things as education and consulting services. The largest components of services exports are transport and travel, and both include spending by overseas tourists.

**Figure 30 Services' share of total exports**

Percent of total




Sources: Official yearbooks, INFOS

Figure 30 shows services exports as a percent of total exports. Some of the chart's major features:

- Services' share of exports remained fairly low, at 7 to 8 percent of the total, until the late 1960s.
- From the late 1960s services' share begins to shoot up. Initially this was partly due to the fall in wool prices that happened at this time, which lowered goods' share of total exports. But as we can see, services' share of the total climbs sharply all the way through to the mid-1970s. This reflects strong tourism growth with air travel becoming more affordable for overseas consumers.
- Services' share of total exports was particularly high in the mid-1970s. This seems to have been the result of two things: the high visitor inflows that were associated with the Commonwealth games held in Christchurch, and an easing in the growth of goods' exports as the first oil shock began to affect international demand.
- Service's share of exports has generally climbed since the late 1970s, and reflects continuing strong growth in tourism inflows.

### Exports by trading partner

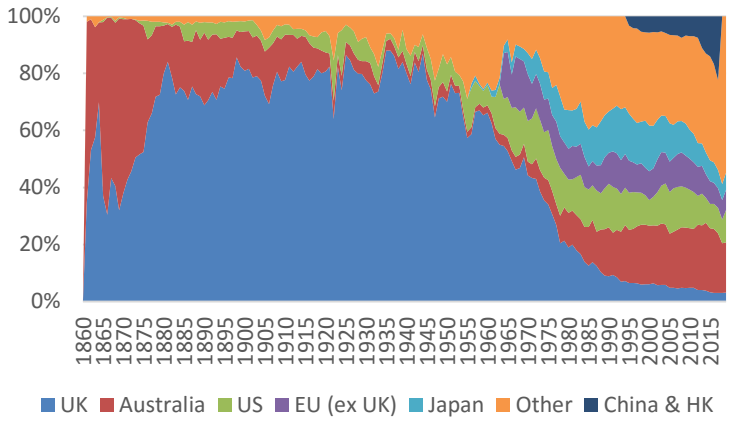
Which countries have we traded with? Which countries have been our largest markets? Figure 31 shows the proportion of our goods exports going to various markets. (We don't have data for destinations of services exports.)

Some points to note:

- Back in the 1860s, Australia was where we shipped most of our goods to. However, not all of these goods were destined for the Australian market. Some were trans-shipped through Australia to other destinations. The share of exports going across the Tasman declined as exports of wool, and then refrigerated products, to Britain picked up. Only over the last 30 years has Australia become a major destination again. As mentioned above, this reflects the influence of the NAFTA and CER agreements.
- From the late 1870s through to 1940 Britain was by far our biggest market, taking 70 percent or more of our total exports. Since the end of the second world war the share of exports to Britain has fallen, and this fall was accentuated by the entry of Britain into the EEC in 1973.
- Trade with the US increased sharply after the second world war.
- Exports to Japan increased sharply between 1960 and 1980. This partly reflects exports of aluminium from the Tiwai Point smelter.
- Exports to EU countries other than Britain have remained relatively constant as a share of total exports over the last 40 years.
- APEC nations continue to increase in importance as sources for New Zealand exports, growing from around 15 percent of trade in 1935 to about 69 percent in 2006.
- While the significance of Japan as a destination for our exports has decreased the rest of Asia, included in 'other' has steadily increased. In 2006 Australia is still our largest single export market.

**Figure 31 Goods exports by destination**

Percent of total




Sources: Bloomfield (1984), INFOS. The figures are for calendar years to 1961 and June years from then on. Data for the EU, which began as the EEC in 1958, starts in 1960.

In the space of half a century, New Zealand has seen a massive diversification in the destinations for its exports. It has gone from being Britain's colonial farm to being a country that supplies goods to a wide range of countries located around the Pacific Rim and beyond.

### Trading partner growth

It's conventional wisdom among economic forecasters that:

- Our trading partners' economic growth influences the demand for our exports.
- Our export performance largely determines our economic growth.

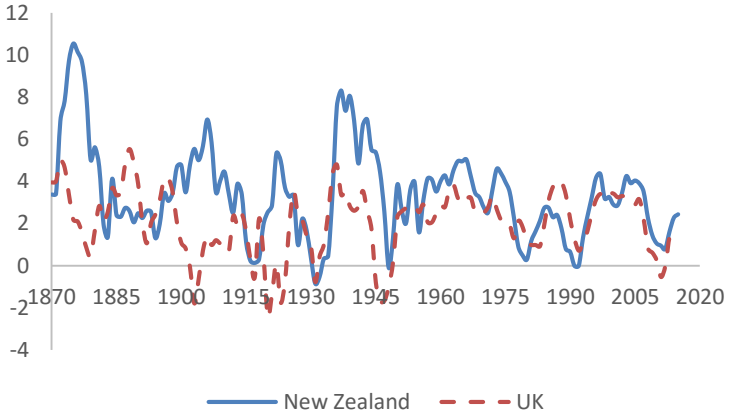
If both of these propositions hold, then our economic growth should be related to the economic growth of our trading partners. But is it?

Figure 32 shows economic growth for both New Zealand and the UK. (The series show average growth over 5 years). As can be seen, the correlation between the two series is fairly high from 1930 on. But

the two countries had significantly different experiences prior to that. New Zealand showed stronger growth in the earlier 1870s, which was probable due to Vogel's spending policies. But Britain showed stronger growth in the 1880s. New Zealand then fared remarkably well in the early 1900s, unlike Britain which had a downturn following the Boer war. Even after the British economy had recovered, economic activity grew at a fairly low rate. Britain also faced a severe downturn after the first world war.

**Figure 32 Real GDP growth, New Zealand and UK**

Average annual percent change over 5 years



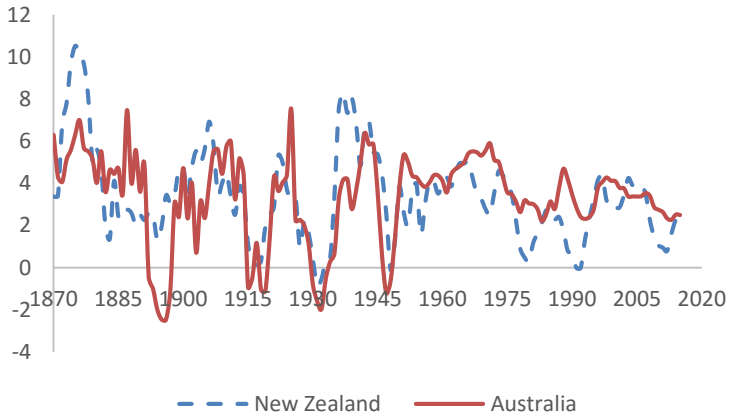

Sources: Mitchell and Deane (1962), Maddison (1995), Datastream

Figure 33 shows New Zealand growth relative to Australian growth. The two countries have had similar growth profiles, both before and after 1930. There was a major divergence in the 1890s when Australia had a severe depression. The effects of this depression on Australia appear to have been even more severe than those of the world depression of the 1930s. This depression was triggered by the financial woes of stock and station agents, which flowed on to the banking sector. A total of 13 banks, including Baring's, collapsed, and this in turn scared off overseas investors from putting their money into Australia.

Turning to more recent times, note the higher growth in Australia, relative to New Zealand, since the mid-1960s.

**Figure 33 Real GDP growth, New Zealand and Australia**

Average annual percent change over 5 years




Sources: Butlin (1962), Maddison (1995), Datastream

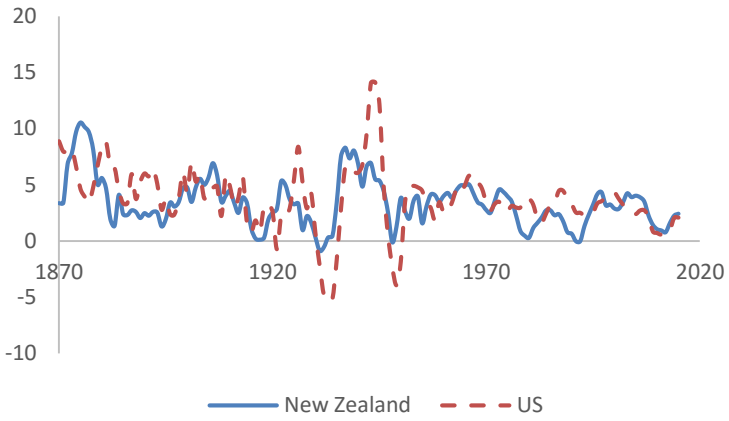
Figure 34 shows New Zealand growth against US growth.

Two features to note:

- Unlike New Zealand, the US did not experience a significant slowing in growth in the 1880s.
- The US economy was generally more volatile than the New Zealand economy between 1920 and 1950. Particularly noticeable from the US figures are the boom of the 1920s, the depth of the 1930s depression, the boom during the second world war, and the post-war bust.

**Figure 34 Real GDP growth, New Zealand and US**

Average annual percent change over 5 years




Sources: Mitchell (1993), Maddison (1995), Datastream

Overall, New Zealand's growth profile is more like that of Australia than that of Britain, our major market. This was especially the case prior to 1930. Perhaps this is not surprising. During this period both New Zealand and Australia could be classified as developing agrarian economies, unlike Britain which was becoming increasingly industrial. In short, both countries were in a similar development phase; to a large extent they were supplying one market, Britain, with similar products.

### Export prices and volumes

So far we have looked only at export values. Can we adjust these values for changes in prices and see how real exports—that is, export volumes—have grown? We can, but it's hard work:

- For the period to 1914 we have deflated nominal goods exports using Easton's export price series, the one which included gold (see Figure 23).
- Statistics New Zealand has a price series for goods exports going back to 1914. This is the series used in deriving the terms of trade

index. We have used this export price series to deflate nominal exports for the period from 1914 to 1952.

- As noted earlier, since 1951 total nominal exports include services as well as goods. (The figures from 1951 are also for March years rather than calendar years.) However, reliable figures for the goods component and for the services component appear to be available only from 1952. For the period from 1952 to 1955 we have used these components, using the CPI to deflate services, while using Statistics New Zealand's series for merchandise export prices to deflate goods. We then weight the two deflated series together to get a real series for total exports.
- For the period from 1955 to 1979 there are official estimates from Statistics New Zealand of total real exports, so we have used these.
- There is a gap in the official estimates of real exports from 1979 to 1983. For this period we used the same approach as for the 1952 to 1955 period, deflating nominal values for goods and services separately, then weighting them together. For the period from 1983 we have used official estimates of total real exports.

Got that? Yes, it's hard work.[10] We have put all of our estimates of real exports onto a March year basis and linked them together to get a series going back to 1862. Annual percent changes in this series—that is, annual percent changes in the volume of exports—are shown in Figure 35.

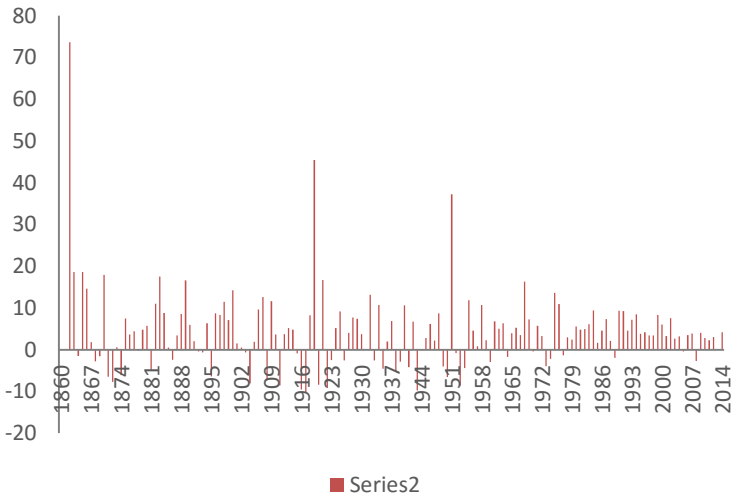
Two years stand out: the year ended March 1863 and the year ended March 1920, which both have very high growth. The growth in 1863 is due to the gold rush. The growth in 1920 is probably the result of the first world war ending. Demand in Britain was no doubt

[10] Also, this isn't the only way of doing it. There are figures for goods exports in 1900 prices in official yearbooks and these figures run from 1900 to 1938. Then there is a volume index for goods exports on INFOS which begins in 1936. But these series don't appear to account for any changes in the quality of goods being shipped, and may be no more accurate than the estimates of volumes produced via the method outlined above. So for the period to 1952 we have stuck with the general approach of using price series to deflate nominal values.

getting back to normal. But there were probably supply side influences too. As the soldiers came home the country would have been able to pump out more production and hence export more.

**Figure 35 Export volume growth**

Annual percent change



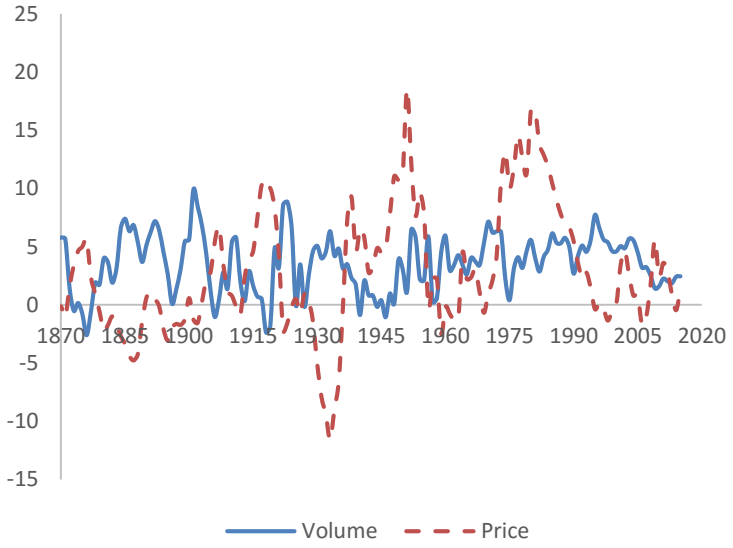

Sources: Calculated using nominal values from the same sources as for Figure 26 and Figure 27, and deflators from Easton (1984), official yearbooks, and INFOS.

However, as with the real GDP figures we looked at earlier, we probably shouldn't read too much into the annual figures; we can probably get a better view of what's happened from looking at average growth rates over 5 years. Figure 36 shows such growth rates for both volumes and prices from 1870. (We have chopped off the 1860s period so that the scale of the vertical axis is not affected by the high growth of export volumes in the early 1860s).

The chart highlights big swings in prices, which have generally been more volatile than volumes. In particular, note the decline in export prices during the depression of the 1930s—it was prices that took the big hit, rather than volumes. But let's see if we can make some sense of what went on by looking at movements in volumes and prices over our selected periods (see Table 8).

**Figure 36 Growth in export volumes and prices**

Average annual percent change over 5 years




Sources: As for Figure 35

Looking at volume growth first, we can see that it was reasonably high in the years before 1934. But in the 1934–1966 period, which is what we have called 'the long expansion', export volume growth was surprisingly low.[11] Volume growth has actually been much higher in the period since 1966, when we have been 'dropping off the OECD pace' with respect to overall economic growth. So it appears that our performance in the long expansion period may have been due more to the prices we were getting for our exports rather than the volume of exports that we were sending overseas.

Turning to prices, we see that growth averaged a low 0.4 percent per annum over the 1870–1914 period. But as Figure 36 shows, and as we have seen before in the previous section, prices generally fell

[11] If we use the export volume indexes referred to in footnote 10, rather than deflating nominal exports, the average growth rate for this period comes out slightly higher, at 1.9 percent per annum. But still the figure is surprisingly low.

prior to 1895 and rose afterwards. These movements largely reflected changes in prices in Britain. The 1914–1934 period, during which price movements averaged -0.8 percent, also included several distinct phases: prices grew strongly during the first world war, levelled out in the 1920s, and then dropped as the world depression took hold.

**Table 8 Growth in export volumes and prices**

Average annual growth rate

| | Volume | Price |
|---|---|---|
| 1870–1914 | 3.5 | 0.4 |
| 1914–1934 | 3.8 | -0.8 |
| 1934–1966 | 1.7 | 5.5 |
| 1966–2005 | 4.6 | 5.6 |
| 2005-2015 | 2.0 | 1.9 |

Sources: Statistics New Zealand, NZIER

Average growth in export prices was strong during the 1934–1966 period, especially in the late 1930s and during the second world war. Price growth peaked in the early 1950s as the Korean war sent wool prices sky high.

Price growth was also strong during the post-1966 period, with the peak occurring in 1980. But to a large extent these big rises reflect world inflation.

Could we identify the component of price growth that is coming from our trading partners' inflation? We have to remember though that our export prices, as measured in New Zealand dollars, also reflect movements in our exchange rate, as well as movements in world prices. The influence of exchange rate movements is worth noting when considering price movements from early in the 21st century when the New Zealand dollar strengthened to a post float high against the US dollar.

## Exchange rates

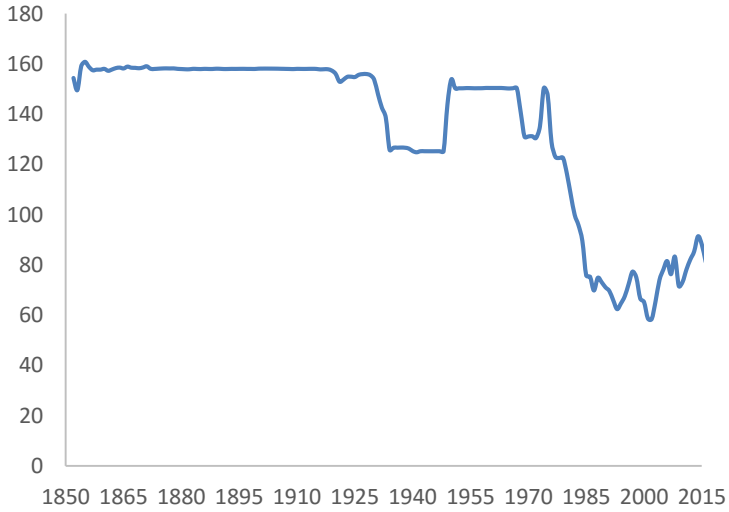
I have derived a long-run series for our exchange rate (Figure 37) and we can use it to illustrate the impact of the exchange rate on our export prices.

In deriving this exchange rate, I have used the series for the trade weighted index (TWI) from Lattimore and Dalziel (2001). This runs from 1960. For earlier years I had to derive a series, and this involved a number of steps:

- Information from Hawke (1973) was used to construct a series of the New Zealand dollar against sterling.
- I obtained annual figures for the exchange rate between Australia and sterling going back to 1851 from Wamplew (1987).
- I found figures for the exchange rate between the US dollar and sterling back to 1850 on the *Economic History Services* website.[12]

**Figure 37 Nominal exchange rate index from 1851**

Base June 1979 = 100




Sources: Pre-1960 figures were estimated using data from Hawke (1973), Wamplew (1973), and the *Economic History Services* website. The figures from 1960 are from Dalziel and Lattimore (2001) and the Reserve Bank of New Zealand.

Using this data, I calculated the Australia/New Zealand cross rate and the US/New Zealand cross rate. These cross rates, together with the UK/New Zealand cross rate, were then weighted together by the

[12] http:/eh.net/hmit/exchangerates/pound.php

shares of our exports going to each country. The resulting series was butted onto the Lattimore and Dalziel series at 1960.

But why did we need an exchange rate against sterling, you might be asking? Wasn't the New Zealand currency tied to the British pound for a long time? Perhaps we'd better have a brief look at the history of our currency.

New Zealand currency first came into being in 1851 when the Colonial Bank of Issue began issuing notes. A New Zealand pound note was equivalent to one pound sterling. Later in the 1850s trading banks also began to issue their own notes, again equivalent to sterling in value. Coins that were in use continued to be British. In fact there was a shortage of these, and local 'tokens' came into use for a time (NZOYB, 1990, 636-637).

Trading banks' notes became legal tender in 1914, a move that was brought on by the war. However, by 1929, with the depression beginning to take hold, trading banks were starting to charge a 'premium' on sterling and a 'discount' on New Zealand currency. In effect, the local currency was being devalued. By 1933 the New Zealand dollar had been devalued by 20 percent (as Figure 37 highlights).

Trading banks lost the right to issue notes in 1934, when the Reserve Bank was established. Even so, the value of the New Zealand pound was kept at its level of 80 percent of sterling. The value of the currency stayed at this rate, with a few insignificant adjustments, until 1948, when the currency was restored to parity with sterling.

The next devaluation did not occur until 1967. But as Figure 37 indicates, further devaluations were to follow, until 1985, when the currency was floated.

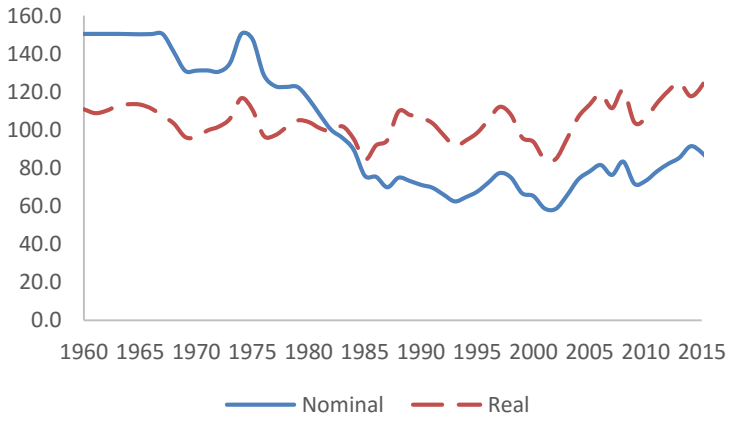
Before moving on, it's worth noting a few further points about Figure 37:

- Variations in the exchange rate in the early 1850s were due to temporary fluctuations in the value of the Australian pound. These were probably related to the gold rush in Australia.

- The slight depreciation which began in the mid 1910s was due to the depreciation of the British pound relative to the US dollar. Britain abandoned the gold standard in 1914, during the first world war. (Britain returned to the gold standard in 1925 before finally abandoning it in 1931.)
- The low values between 1929 and 1948 reflect the weakness of the New Zealand pound relative to sterling, as outlined above.
- With the return to parity with the British pound in 1948, the New Zealand currency was stable through to 1967. Note though that the value of the currency was lower than it had been prior to 1914. This reflects the lower value of the British pound relative to the US dollar.

**Figure 38 Nominal and real exchange rates since 1960**

Base 1982 =100




Sources: Dalziel and Lattimore (2001), Reserve Bank of New Zealand, IMF *International Financial Statistics*

Despite the decline in the nominal exchange rate that began in 1967, the real exchange rate has stayed relatively constant. What is the real exchange rate? The nominal exchange rate, which is what we have looked at so far, is the value of the New Zealand dollar against foreign currencies. Let's call this *e.* The real exchange rate is *e* times (*P*/*PF*) where *P* is the New Zealand price level and *PF* is the foreign

price level. In effect, the real exchange rate is the price of goods and services in New Zealand relative to other countries. In general, we wouldn't expect the real exchange rate to vary much over time. This reflects the theory of purchasing power parity (PPP), which is itself based on 'the law of one price'. The PPP theory states that, after adjustment for the exchange rate, goods and services should cost the same in one country as they do in another. Hence if prices rise more in one country than they do overseas, that country's exchange rate will tend to fall, so that relative prices are not altered.

As Figure 38 illustrates, since the late 1960s, when the nominal exchange rate began to decline, the real exchange rate did in fact remain relatively constant. This reflects the fact that over this period our inflation exceeded that of our trading partners. The fall in the nominal exchange rate was simply reflecting our relative performance regarding inflation.

### World prices

Now we can adjust our export price series by the exchange rate and get a rough look at world prices. Again it's only a rough look, since in making this adjustment we are assuming that the full effects of an exchange rate movement comes through into export prices. This may not be the case. For example, as our currency depreciates, an exporting firm may take the opportunity to lower its prices, thereby lowering the price on the world market. Still, it's worth having a look at our derived series for 'world prices'.

As Figure 39 shows, since 1960 world prices have not generally grown quite as strongly as prices in New Zealand currency. The gap between the two growth rates generally reflects the depreciation of our currency. Note that back in the 1930s, the depreciation of the New Zealand pound meant that the prices New Zealand exporters were getting didn't fall quite as far as world prices did. But the difference was minimal, and the effects of the depression on exporters' prices were severe.

Overall, it is perhaps a little disappointing—if not surprising—to see how similar the changes in both price series look, especially given the work done in extending the exchange rate index back into the

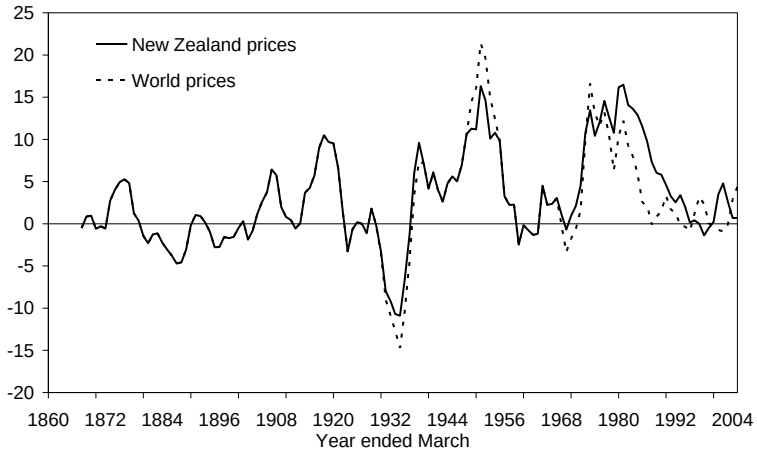
past. But we now have a clearer view of what world prices were doing. Hence, we also have a better handle on how world events have affected export prices.

Recapping, world events that have influenced our export prices include:

- A fall in British prices in the 1880s.
- Increased demand from Britain for our food and fibre products in the early 1900s.
- Strong inflation in Britain during the first world war.
- A sharp fall in world demand during the 1930s depression.
- Continuing demand for New Zealand primary products from the late 1930s through the second world war and the Korean war.
- The 'great inflation' that occurred between the mid-1960s and the early 1980s as growth in the US money supply increased at unprecedented rates.

**Figure 39 New Zealand export prices and derived world prices**

Annual average percent change over 5 years




Sources: As for Figure 35 and Figure 37

This last phenomenon brings home the fact that a rise in our export prices doesn't necessarily mean we are better off, since import prices also tend to rise with world inflation. What we need to look at

is our export prices relative to the prices of the goods we import. That is, we need to look at the terms of trade.

### Terms of trade

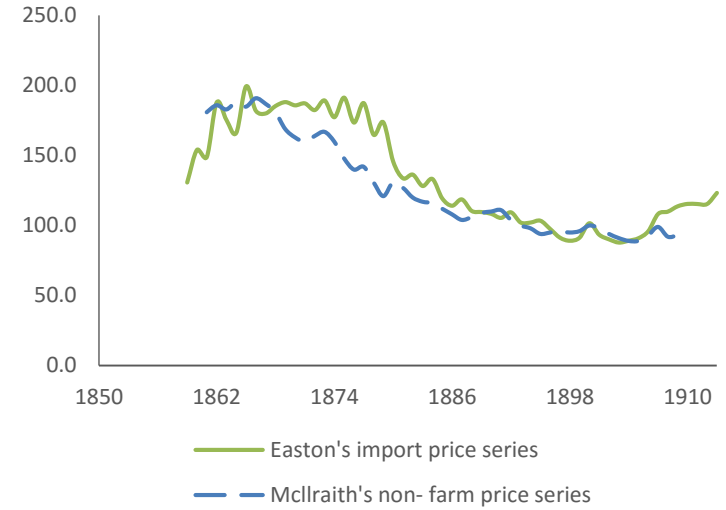
As noted in the earlier section on prices, the terms of trade is the export price index divided by the import price index. Both indexes are based on prices in New Zealand dollars. A rise in the terms of trade generally indicates we are better off—we can now buy more imports with one unit of our exports. A fall in the terms of trade shows we are worse off.

We have already looked at the export price index back in Figure 23, and have seen the difference between McIlraith's series and Easton's series. Let's look now at the other component of the terms of trade, the import price series.

Figure 40 shows both McIlraith's non-farm price series and Easton's import price series.

**Figure 40 Import prices 1859–1914**

Index, 1890–99=100



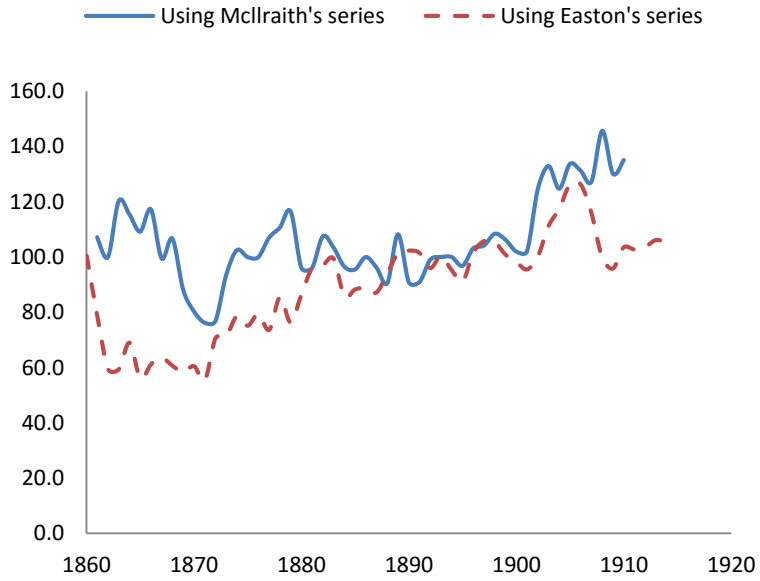

Sources: Easton (1984), McIlraith (1911)

As with his export price series, Easton weighted together the price indexes for individual items in producing the composite series. McIlraith's and Easton's series are broadly similar, but let's note two differences. First, Easton's series suggests that import prices held up reasonably well during the late 1860s and early 1870s, while McIlraith's series shows import prices falling. Second, Easton's series shows import prices rising in the early 1900s while McIlraith's series has them staying relatively constant.

So let's look now at the terms of trade. Figure 41 shows the terms of trade from 1860 through to 1914. The first series has been derived from McIlraith's series for farm and non-farm prices, while the second has been derived using Easton's series for exports (including gold) and imports.

**Figure 41 Terms of trade 1860–1914**

Index, 1890–99 = 100




Sources: McIlraith (1911), Easton (1984)

As can be seen, apart from the period in the late 1860s when wool prices fell, the McIlraith series is relatively steady until the early

1900s, when it takes off. It ends in 1910 at a high level. The Easton series shows a different picture. It is lower in the earlier part of the period, mainly because the price of exported gold is accounted for in Easton's series but not in McIlraith's series (see the export price series in Figure 23). The Easton terms of trade series also climbs sharply from 1900 but comes back as export prices ease from 1907 and import prices rise. This is in contrast with McIlraith's terms of trade series, which stays high because import prices remain low (see Figure 40).

Perhaps we shouldn't put too much weight on these results. Easton notes the limitations of his derived series. (For example, neither the export or import price series take into account changes in the quality of goods being shipped.) But it is interesting to note that by early 1913, when McIlraith wrote his article for *The Press* (see Figure 19), he had substantially revised up the value of the non-farm index for 1910. Also, the farm index for 1910 had been revised down slightly. As noted earlier, I have not yet tracked down any documentation about the reasons for these revisions.

Overall, it seems that the upward shock to the terms of trade that occurred from 1900 may not have been sustained for as long a period as McIlraith's original 1911 publication indicated.

Figure 42 shows the terms of trade from 1860 through to 2001. For the period up to 1914, the series derived from Easton's export and import price series has been used.

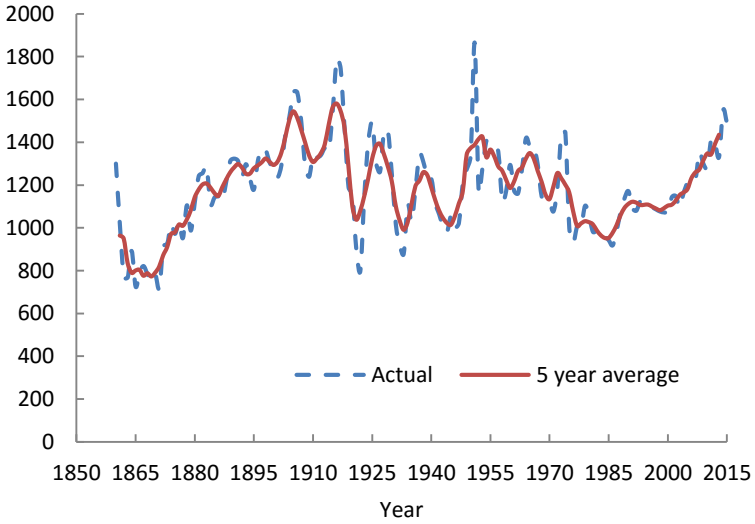
For the period after 1914, we have used, on the export side, the export price series produced by Statistics New Zealand. On the import side, the Statistics New Zealand series for import prices doesn't begin until 1926. To fill in the gap—the 1914–1926 period—we have used the wholesale price series for imports.

Note that the terms of trade we are looking at here is the merchandise terms of trade, which until recently was the only official measure we had. It is derived from price series for exports and imports of goods, and excludes services. Statistics New Zealand now produces a series that covers services, but it doesn't go back very far into the past.

So what do movements in the terms of trade show us? Connor and Easton (1980) look at these movements in detail, at least up until 1978. They note that from 1870 the terms of trade began to rise and by 1880 was almost a third higher than it had been a decade earlier. The rise over the rest of the century was more gradual. The new century brought a new pattern though: over the next 50 years the underlying trend in the terms of trade was flat. But the trend was dominated by four large cycles, with peaks in 1905, 1915, 1927 and 1938, and troughs in 1910, 1920, 1933 and 1944.

**Figure 42 Terms of trade from 1860**

Index, average of 10 years ended 1989 = 1000




Sources: Easton (1984), INFOS

The terms of trade rose to a record high in 1950, largely due to the impact of the Korean war on wool prices. But even after the war, the terms of trade generally stayed high for a time. In 1967 it began to deteriorate. The commodity boom of the early 1970s temporarily interrupted the fall but the terms of trade then declined through to 1987 before picking up.

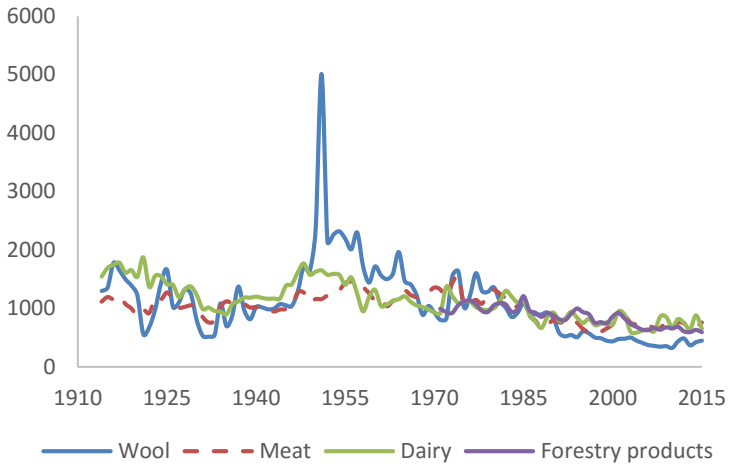
Figure 43 shows the terms of trade for three export commodities that have played a major role in New Zealand's past: wool, meat and dairy. For each commodity, the terms of trade is the export price index for the commodity divided by the price index for total exports.

A number of features stand out from the chart:

- Wool prices have shown sharp fluctuations, with the biggest being in 1950 as New Zealand benefited from the increased demand for wool during the Korean war.
- While wool prices stayed relatively high through to 1967, it has been mostly downhill since then as synthetics such as nylon have affected demand, and hence the price, for wool.
- The terms of trade for dairy began to trend downwards in the late 1960s, although like the terms of trade for the other groups, it got a sudden upward boost during the commodity boom of 1972. The dairy terms of trade eventually bottomed out in 1987. Part of the reason for the fall was the effects of high EU subsidies for its own dairy products. However the dairy terms of trade rose sharply from 1987 through to 1990 and has stayed high since. Since 1994 the GATT round has resulted in reduced dairy subsidies in developed countries, especially in Europe, and this has had a positive impact on dairy prices. (For a description of the GATT round see Nixon and Yeabsley, 2002. For an analysis of the impact of the GATT round on New Zealand's export earnings see Ministry of Foreign Affairs and Trade, 2001).

**Figure 43 Terms of trade for commodity groups**

Index, average of 10 years ended 1989 = 1000




Sources: INFOS, NZIER

- The terms of trade for meat also began to rise in 1987. It is difficult to account for this improvement, although prices for New Zealand meat have been helped recently by overseas occurrences of 'mad cow' disease and foot and mouth disease.

But let's turn back briefly to the total merchandise terms of trade, as shown in Figure 42. We saw that it was very high in the early 1950s, and stayed reasonably high through to the mid-1960s. Is this the reason for 'the long expansion' of the 1934–1966 period? Table 9 shows average values of the terms of trade for our usual periods.

**Table 9 Period averages of the terms of trade index**

Merchandise terms of trade index, average of 10 years ended 1989=1000

| Period | Average index value |
|---|---|
| 1871–1914 | 1073 |
| 1915–1934 | 1092 |
| 1935–1966 | 1217 |
| 1967–2015 | 1134 |

Sources: Easton 1984, INFOS

The averages for the periods 1871–1914, 1915–1934 and 1967–2015 are remarkably similar. (These averages though do mask some large variations in the terms of trade, such as those that occurred during the 1915–1934 period.) However the average for the long expansion period stands out, being very high. And so it seems that we have confirmed what we suspected when we first saw the low growth in export volumes for this period back in Table 8. Our overall economic performance in the long expansion period was driven more by the favourable terms of trade than by export volume growth. To some extent our performance in this period was driven more by good luck—the luck which gave us relatively high export prices—than by good management.

## Current account

The current account balance, often referred to as the balance of payments, is equal to the country's income received from overseas minus payments made to overseas entities. It shows whether, as a country, we are earning more than we spend.

The current account balance includes four components:

- *Merchandise trade.* The merchandise trade balance is often referred to simply as the trade balance. It is equal to goods exports minus goods imports.
- *Services.* We looked at services briefly above. They cover tourism, transport, insurance, telecommunications and such things as education and consultancy services. The balance on services is equal to the value of services we sell overseas less the value of services we buy from overseas.

- *Investment income.* The balance on investment income is the earnings made by New Zealand firms that operate overseas minus the earnings that overseas firms make here.
- *Transfers.* Transfers cover donations, aid, and other payments. The balance is equal to transfers that we make to the rest of the world less the transfers that we receive from overseas.

The last three components are often lumped together and called 'invisibles'.

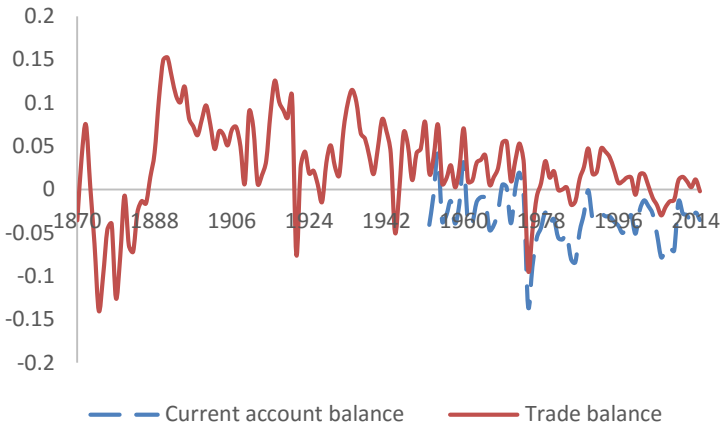
We have data for the current account, and its four components, from 1951. Prior to that we have data for the merchandise trade balance only. Figure 44 shows the trade balance from 1870 and the current account balance from 1951. Both are shown as percentages of nominal GDP.

Some points that arise from the chart:

- From the figures for the period after 1951, for which we have both the trade and current account balance, we can see that the current account balance is lower than the trade balance. That is, New Zealand runs a big deficit on the 'invisibles'. This largely reflects the investment income component of the current account; the earnings of overseas owned firms based here are much higher than the earnings of our firms based overseas.
- New Zealand generally runs a current account deficit. Given that we spend more than we earn, the corollary is that we have to borrow. And yes, statistics show that New Zealand's overseas debt—which includes private debt as well as government debt—has shown an almost continuous rise. This in itself would not be a problem, provided that the organisations that are taking on the debt can meet the interest payments and can either finally pay off the debt or refinance loans as they come due. A high current account may simply reflect expected future sales growth with organisations and individuals borrowing to cover their present investment needs.

**Figure 44 Merchandise trade balance and current account balance**

Percent of GDP




Sources: Trade balance figures are based on the same sources as Figure 26 and Figure 27. The current account figures are from Deane *et al* (1981), Dalziel and Lattimore (2001), and INFOS.

- On the other hand, a persistently high current account deficit can indicate that the exchange rate is overvalued. A high exchange rate can result in exports being overpriced and hence uncompetitive on the world market. At the same time a high exchange rate makes imports relatively cheap. Hence, with an overvalued exchange rate, the current account deficit is wide. As a rough rule of thumb a current account deficit of 4 percent of GDP is getting uncomfortable, a deficit of 8 percent of GDP is serious, and a deficit of 12 percent, if it persists, is likely to result in a currency crisis. As the chart shows, New Zealand's worst results were in the mid-1970s at the time of the first oil shock, and in the mid-1980s, when the currency rose sharply after being floated. With a floating currency, current account imbalances are generally self correcting. So it proved in the late 1980s, as the currency depreciated and current account deficit shrank.
- Looking at the years prior to 1951, three difficult periods stand out. The first was from the mid-1870s to the late 1880s. This partly reflects Vogel's infrastructure spending, which sucked in

imports. The second bad period was in the early 1920s when meat prices were low and wool prices dropped sharply. The third period was in 1943 when primary exports fell. (I haven't as yet found a reason for this. The period isn't included among the drought periods listed in NZOYB (1990). However, as Figure 31 shows, the proportion of exports going to the UK fell in this period; perhaps it was a disruption stemming from the war.)

### An exercise

In this chapter we've focused on exports and haven't said a lot about imports. Look at Figure 28 again (see page 63). Imports as a proportion of GDP is similar to the proportion for exports. Why is this? Is there any limit to the amount of goods and services that New Zealand might import?

# Labour market

It can be argued that the labour market serves two functions:

- It is a central feature of the production system, where the demand for labour from firms, and government, meets the supply of labour from households. When demand increases by less than supply, we get increasing unemployment. The difference between demand and supply affects the price of labour, that is, wage rates.
- It distributes income between households, affecting their standard of living. The distribution between households can be affected by government, largely through taxation (this taxation can be negative, thereby resulting in income support). Government may also set minimum wage rates. While government can use other measures that affect income, such as social welfare payments, the labour market still determines, to a large extent, who gets what.

In this section we will be focusing on the first function, looking at aggregate measures of employment and wages, and what they tell us about the country's production.

### Employment

Figure 45 shows employment by census year from 1896. Censuses have generally been undertaken every five years from the end of nineteenth century. However there were some exceptions:

- The census scheduled for 1931 was cancelled, largely as a money saving response by government during the depression.
- The 1941 census was not held, owing to the second world war.

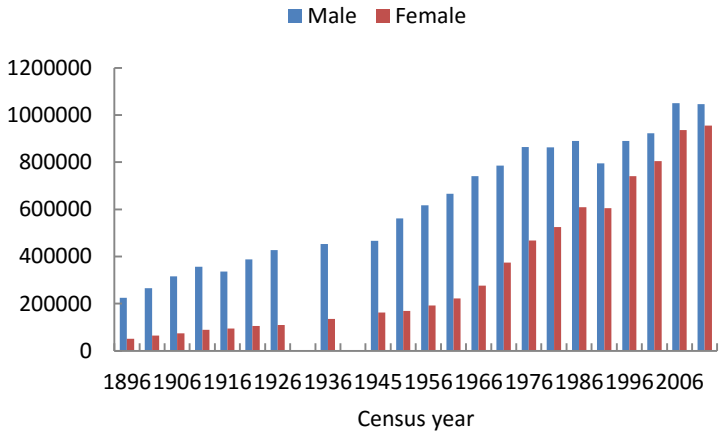
Note too that the mid-1940s census was held in late 1945, rather than in 1946. This was to ensure that the electoral boundaries could be redrawn in time for the election to be held in 1946 (see NZOYB, 2000, p97).

The cancelling of the 1931 census is perhaps the most significant loss, since it leaves us with no reliable estimates of unemployment during the depression (more on this later).

Note that 1896 is the earliest census for which we have data on both employment and unemployment. Prior to 1896, we have labour force figures but these include both the employed and the unemployed and we cannot distinguish between them.

**Figure 45 Employment**

Full-time employment to 1966, total employment from 1971




Sources: NZOYB(2000), *2001 Census national summary*

Perhaps the most outstanding feature of Figure 45 is the growth in female employment, especially since the mid-1950s. Back in 1896 females accounted for only 18.3 percent of full-time employment. By 2001 women accounted for 46.6 percent of total employment.

Looking at male employment we can see the impact of major events:

- Male employment fell in 1916, with a substantial number of men being away at the battlefields of Europe.
- Employment showed little change between 1926 and 1936, highlighting the effects of the depression. Our GDP estimates, which we looked at earlier, suggest that economic activity bottomed out in the year ending March 1933, then grew strongly as the economy recovered. It is also likely that employment grew

strongly from 1933. Even so, by 1936 it was still not much higher than it had been 10 years earlier.

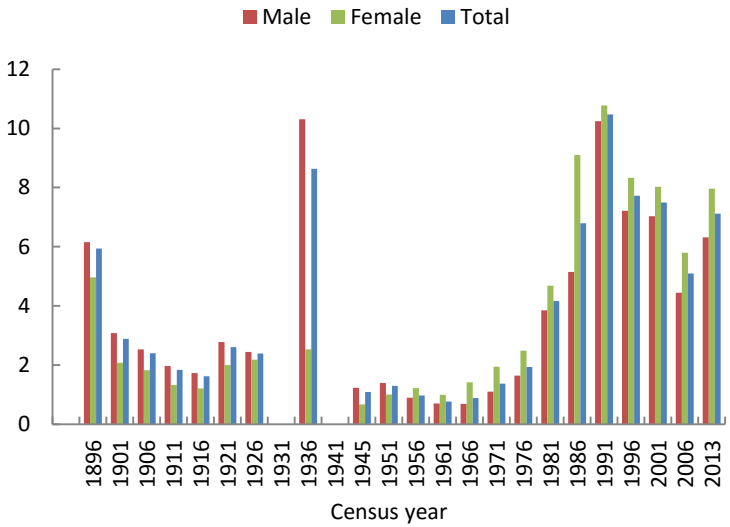
- Male employment climbed strongly through to 1976, then fell back as the effects of the oil shocks took hold.
- There was some increase in employment from 1981 to 1986 but there was a significant decline between 1986 and 1991 as New Zealand felt the impacts of the 1987 share market crash and global recession.

## Unemployment

Figure 46 shows unemployment rates for census years.

**Figure 46 Unemployment rate**

Unemployment as percent of labour force




Sources: NZOYB (2000), *2001 Census national summary*

Five features stand out:

- The decline in the unemployment rate from 1896 through to the beginning of the first world war, as New Zealand prospered from its primary exports to Britain.
- The huge lift in male unemployment in 1936, with the effects of the depression still being evident. We have to be careful here though. Unlike other censuses, the 1936 census included those who were on relief work or subsidised employment in the unemployed category.
- The very low levels of unemployment from 1945 through to 1966.
- The grinding rise in unemployment rates from 1966 through to 1991. Note too that in every census over this period, the female unemployment rate is higher than the male rate.
- A dramatic drop in unemployment heading into the 21st century to levels not seen for over 20 years.

A question that intrigues both historians and economists is: what would the unemployment rate have been in 1931 if the census had not been cancelled? Or what would the rate have been in 1933, in the depths of the depression, had it been measured?

Some administrative data is available from this period, including data on those registered with the government as being unemployed. Macrae and Sinclair (1975) used this data to estimate the unemployment rate. They also had to make assumptions about labour force participation rates in order to estimate the total labour force. Their conclusion was that in mid-1933, just over 81,000 people, or 12.0 percent of the labour force was unemployed. Macrae and Sinclair stressed that their estimate of the unemployment rate could be seen as being a minimum. They note, for example, that many people who were unemployed at that time probably didn't register, partly because of the stigma attached to doing so.

Rankin (1995) critiques Macrae and Sinclair's work and derives his own estimates of unemployment during the early 1930s. He notes a number of errors in Macrae and Sinclair's work and provides a 'corrected' estimate for their unemployment rate for mid-1933 of 13.5 percent. Rankin's own estimates of the unemployment give a much

higher rate—26 percent or more—but his definition of unemployment is broader than that used by Macrae and Sinclair. His definition includes people who are not seeking work but who would take a job if offered one. This definition is similar to that of the 'jobless', as used in the Household Labour Force Survey.

Overall it seems that the unemployment rate in New Zealand during the depression, whilst high, was not as high as in other countries. For example, the rate reached 22.5 percent in the UK in 1932 (Mitchell and Dean, 1962, p67). The US rate went even higher, reaching 24.9 percent in 1933 (Mitchell, 1983, p163).

As we saw earlier, in recent times the highest census rate for unemployment occurred in 1991 when it reached 11.6 percent. This rate was getting close to the rates we last saw back in the 1930s. However, there were some differences:

- The rise in female participation rates since the second world war is reflected in the rise in female unemployment over this period. Back in the 1930s, the female unemployment rate was low, at least relative to that for males. In those days, most women were not in the labour force.
- The incidence of unemployment by age was different. In the 1930s, the overwhelming majority of the unemployed were adult males. (No wonder there were riots!) In the 1980s, as unemployment rose, it was initially the young who were the hardest hit. As firms ceased taking on new staff, school leavers were the ones who couldn't find jobs. (The situation changed in the late 1980s and early 1990s as layoffs resulted in greater numbers of older people becoming unemployed.)
- It seems likely that the stigma of being unemployed in the 1990s was not as great as back in the 1930s. This is consistent with the rise of the concept of citizens' 'economic rights' (more on this in the chapter on government).
- The level of income support for the unemployed was higher in 1991 than in 1936. The level was too generous according to some, who argued that the level of the unemployment benefit was a disincentive to work, and was actually a contributing factor in

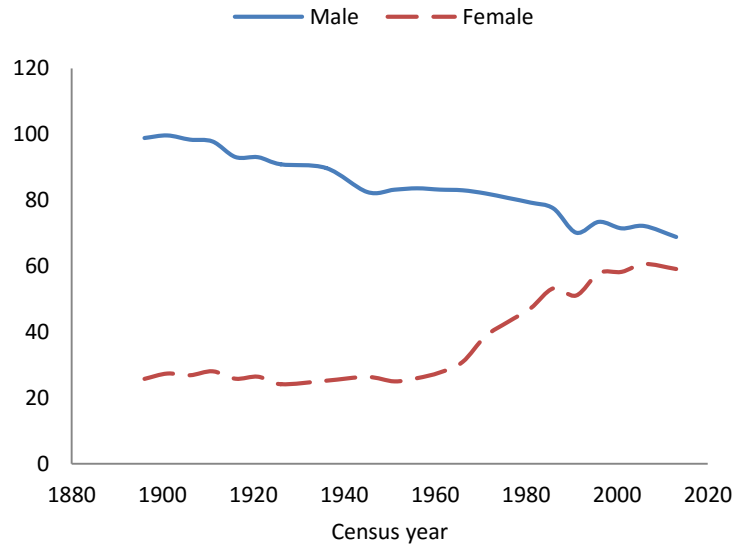
causing high unemployment. The level of the unemployment benefit was cut in mid-1991, several months after the 1991 census.

### Participation rates

Participation rates show the proportion of the population that is in the labour force, that is, the proportion that is either in employment or is 'unemployed and seeking work'. Figure 47 shows participation rates since 1896 for both males and females. Each rate is calculated as a proportion of the population aged 15 and over, or what we would now call the 'working age population'.

**Figure 47 Participation rates**

Labour force as percent of population aged 15 and over




Sources: NZOYB (2000), *2001 Census national summary*

As the chart shows, the male participation rate has declined while the female rate has risen. The general decline in the male rate is usually attributed to younger people staying in education longer and older people retiring earlier. But the decline in 1991 looks particularly large. No doubt the difficult employment situation at the

time had its effect on participation. Many males would have become 'discouraged workers', neither being in employment nor seeking work. The female participation rate was similarly affected in this period.

Note the high male participation rates in the late 1890s and early 1900s, where they are close to 100 percent. Is this realistic? Would nearly all males aged 15 or over have been working at this time? Surely a significant proportion of this group would have been retired, even though pension rates would have been relatively low?

The problem appears to be with our definition of working age population, which is those aged 15 and above. Back in 1896, the school leaving age was 13. It was raised to 14 in 1901 and to 15 in 1944 (NZOYB, 1990, p262). (The leaving age was raised to 16 in 1993.) So for the earlier years of the period, our definition of working age population excludes a proportion of those who would be working. (See NZOYB, 2000, 318–319 for adjusted participation rates for the 1896–1916 period. These were calculated by removing those under the age of 15 who were working from the labour force.)

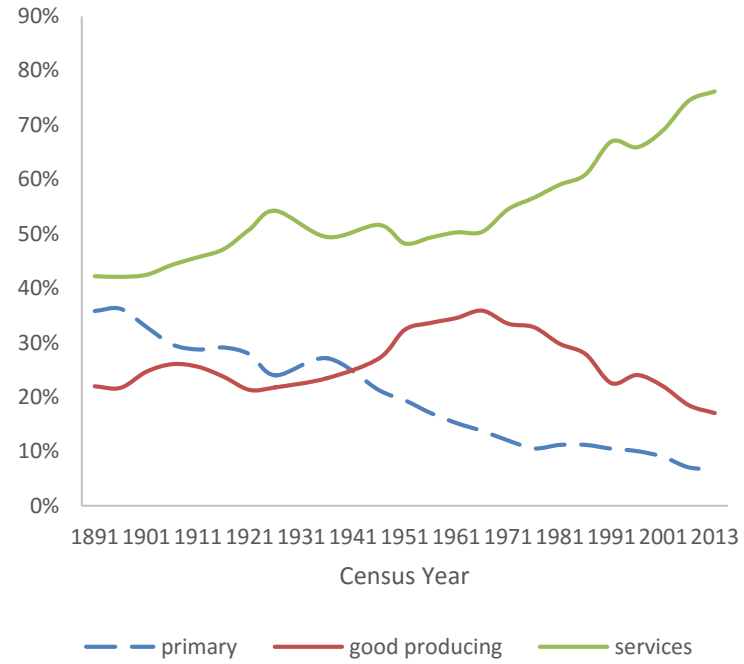
### Industry structure

We can use census employment data to look at how New Zealand's industrial structure has changed. Figure 48 shows the percentage of total employment in each of three sectors:

- Primary (agriculture, mining, forestry, fishing)
- Goods producing sector (manufacturing and construction)
- Services.

**Figure 48 Employment by industry sector**

Percent of total employment




Sources: Census data from Bloomfield (1984), official yearbooks, and *2001 Census national summary*

The main features:

- The primary sector in 1891 accounted for over a third of total employment; it now accounts for 9 percent of all employment. However, the proportion of the labour force employed in primary production in New Zealand is still far higher than in most developed countries.
- The goods producing sector's share of employment increased slowly in the period up to the end of the second world war. It then rose sharply, peaking in 1966. The decline since then has been relatively fast. The sector's share of total employment is now lower than it was back in 1896.

- The service sector's employment share has increased steadily, except during the mid-1930s when it declined before bouncing back. Services now account for over two thirds of all employment.

These changes in employment largely reflect a path of economic development which has been common to many countries. Cameron (1989), 14–16, details this process. In summary:

- Initially societies focus on agriculture, with mere survival requiring them to concentrate on the production of foodstuffs.
- Agricultural productivity begins to rise. Consequently fewer workers are needed for producing subsistence goods, leaving other workers available to undertake other activities. Industrialisation begins, with a greater proportion of the population being involved in manufacturing and construction. Underlying the ongoing shift from agriculture to industry are two factors. On the supply side, increasing productivity in the agricultural sector makes it possible to produce the same output with less labour. On the demand side, we have Engel's law: as a consumer's income increases, the proportion of income spent on food declines. In short, there is a limit to the amount of additional food we want. Increasingly, the demand is for manufactures and houses.
- A second structural change now occurs, with the demand for services replacing the demand for goods. The same story applies: as productivity rises real incomes also rise. But there is a limit to how much consumers will spend on additional goods or houses. A larger proportion of their additional spending is on services and leisure activities.

In essence, this development path reflects the old saying about what the necessities of life are: 'food, shelter, clothing'. First we see the focus on food production, then on housing and textiles. But perhaps we should expand the old saying with the necessities of life now being 'food, shelter, clothing and services'.

Figure 48 indicates how New Zealand has followed this path. We should remember though that the development of the agricultural sector occurred relatively rapidly in New Zealand, especially

compared to Europe. This rapidity was largely due to the holus-bolus importation during the 1800s of Victorian England's agricultural technology. We had a flying start.

The expansion of service sector employment and the relative decline of the other two sectors can be expected to continue. However we should be careful not to think that all jobs in the service sector are 'white collar' jobs. The service sector includes truck drivers, repair workers, hairdressers and many other non-desk type jobs. Similarly, not all jobs in the primary and goods producing sectors will be blue collar jobs. An increasing proportion of jobs in these sectors will involve information processing, process control, and other analytical and managing tasks.

### Household Labour Force Survey

The Household Labour Force Survey (HLFS) is undertaken by Statistics New Zealand. It was begun in the March quarter of 1986, although results are also available from the pilot survey undertaken in December quarter 1985. The HLFS concepts of the labour force and unemployed are broadly in line with International Labour Organisation (ILO) definitions and the HLFS unemployment rate can be readily compared with overseas rates. The HLFS unemployment rate soon became accepted as the 'official' measure of unemployment. Prior to the introduction of the HLFS, the unemployment rate had been calculated using the registered unemployment figures, that is, the number of people who were registered with the Department of Labour.

The concept of unemployment as used in the HLFS can be summed up as 'unemployed and actively seeking work' with some accent being on the word 'actively'. The HLFS unemployment figures generally include those people who, in the immediate period before they were surveyed, made contact with an employer or an employment agency. Not included in the figures are those who simply looked at job ads in the newspaper, or those who haven't been looking for a job but would take a job if one was offered to them. The HLFS definition of 'unemployed' is close to that used in most censuses (the 1936 census being a notable exception) but with a little

more emphasis on including only those who are 'active' in looking for a job.

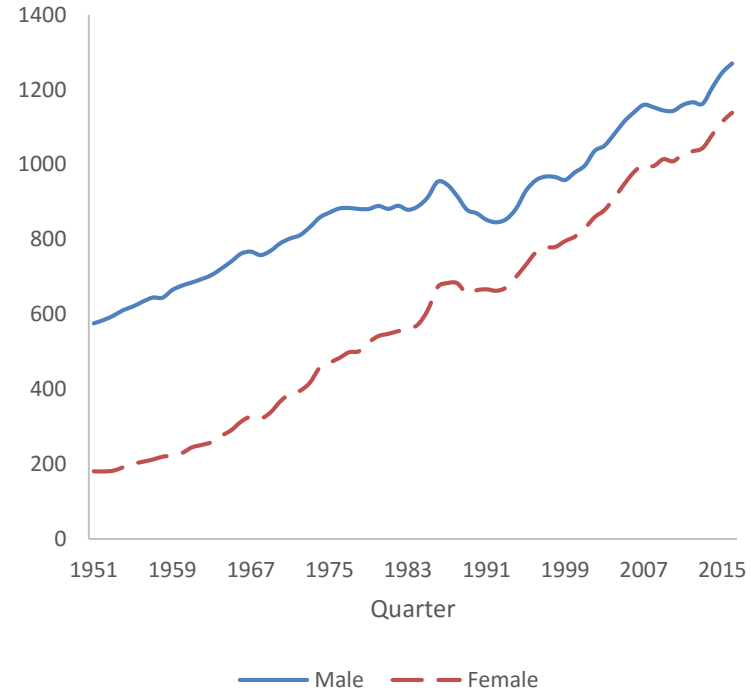
With the HLFS becoming the new benchmark for both employment and unemployment numbers, economists have looked back at the past wondering what the HLFS figures would have been if the survey had been implemented earlier. There have been a few attempts at backdating the HLFS, making estimates of employment and unemployment on an HLFS basis for earlier periods.

Chapple (1994) produced estimates for both male and female persons employed (full-time and part-time) and the unemployed back to the 1950s. He based his employment estimates on earlier surveys undertaken by the Department of Labour—the half yearly employment survey and the quarterly employment survey. Unemployment estimates were derived using registered unemployment data.

Figure 49 shows persons employed, both estimated and actual for males and females. These are quarterly figures, and perhaps the first thing to note is the seasonal variation. All of the other data we have looked at has been annual data so we have not seen the seasonal fluctuations that occur quarter to quarter. If we look at the HLFS over a year we find that employment reaches a low point in the September quarter, the winter quarter. It then rises sharply in the December quarter as seasonal harvesting begins, students become available for part-time work, and Christmas boosts activity in the retail sector. Employment falls in the March quarter, then again in the June quarter, and gets back to a seasonal low in the September quarter. Note that we are talking here about *regular* seasonal patterns. These patterns can be sometimes be difficult to see without undertaking statistical analysis since quarterly changes in employment are also affected by the underlying growth in employment.

**Figure 49 HLFS persons employed**

Thousands




Sources: Chapple (1994), INFOS

This underlying growth in employment is positively correlated with the level of economic activity. As a rule of thumb, employment growth follows growth in real GDP with a lag of one to two quarters, that is, three to six months.

The growth of male and female employment in Figure 49 is similar to that in Figure 45, which showed census employment. This is not surprising, since the questions asked in the HLFS are very similar to the labour market questions asked in the census. In fact, the census data on employment is used as a 'benchmark' for the HLFS; HLFS results are adjusted, where necessary, to ensure that

they are generally consistent with census data. While we only get census data at five-yearly intervals, it provides a good cross check on HLFS data, which is based on a sample of households rather than a full census.

The HLFS is mightily useful in that it 'fills in the holes' between censuses. Figure 49 shows that between the 1986 and 1991 censuses male employment held up for a while but then fell sharply after the 1987 sharemarket crash. In fact it wasn't until 1993 that male employment turned up. Female employment showed a similar pattern although the decline after the sharemarket crash was less severe.

Figure 50 shows the unemployment rate, on an HLFS basis, since 1956. The climb in the rate from the mid-1970s through to the early 1990s is remarkable. The oil shocks of 1973 and 1979 clearly had a strong impact on the rate. It continued to rise again in the aftermath of the wage and price freeze in the early 1980s, then began to fall as the economy boomed. But worse was to come, with the combined effects of deregulation, restructuring, the sharemarket crash, and world recession pushing the unemployment rate to a high of 11.0 percent in early 1992.

Unemployment fell sharply from 1993 as the economy grew strongly. It stayed at around 6 percent for a while, prompting some economists to state that this was now the economy's 'natural rate' of unemployment, and we would never get below it. This view tended to be reinforced when unemployment began to rise again as the Asian crisis hit. Getting below 6 percent was unattainable, some said. But as Figure 50 shows, the unemployment rate did go below 6 percent in 2001, and dipped below 4 percent for much of the period 2004 to 2007. And while inflation did increase slightly in this period, there seemed little danger of inflation staying above the 3 percent upper limit of the Reserve Bank's target range for long.

But the big question is: why was the unemployment rate so benign until the 1970s, when it then began to explode?

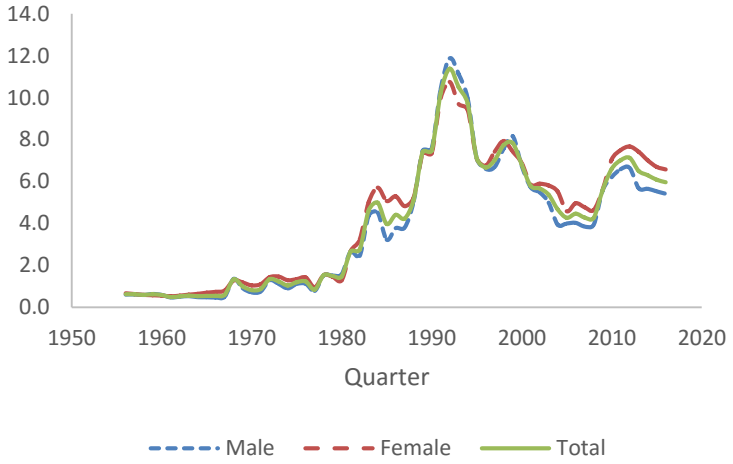
Chapple (1996) examines this issue in detail. He looks at a number of hypotheses as to why unemployment rose, including the following:

- That the labour force grew more strongly in the 1970s as 'baby boomers' began to enter the job market, resulting in labour supply outstripping demand.
- That the unemployment benefit system was increasingly generous, resulting in workers becoming more choosy about taking jobs.
- That there was an increasing mismatch between workers' skills and the skills that employers required.

In the end, Chapple thinks that these explanations are inadequate. He suggests that a critical factor behind the sharp rise in unemployment was "the contraction in aggregate demand engineered to reduce New Zealand's inflation rate from about 18 percent in the mid-1980s to almost zero by 1992" (p112).

**Figure 50 HLFS unemployment rate**

Unemployed as percent of labour force




Sources: Chapple (1994), INFOS

My view is that the rise in unemployment was partly due to historical events, including external shocks. Looking at Figure 50, it seems hard to conclude otherwise. To recap, these events included:

- The oil shocks of the 1970s, and the government's subsequent reaction to them. In retrospect, 'Think Big' was never the right option.
- The sharemarket crash of 1987. This highlighted the fragile state of the financial and property development sectors. It also highlighted the inadequacy of the centralised wage fixing system. Immediately after the sharemarket crash, wage agreements continued to be settled with wage rises similar to those settled on before the crash.
- The effects of deregulation and privatisation, with the drive for economic efficiency in both the private and public sectors resulting in markedly lower labour requirements.
- The world recession of the early 1990s.

Underlying all this though was the structural problem with the New Zealand economy: the rate of world growth in agricultural exports was not matching world growth in manufactured exports (Briggs *et al,* 2001). As a result, our trend rate of economic growth simply didn't match that of the rest of the OECD and unemployment moved up a level; the days of 2 percent unemployment rates—the years of the 'long expansion'—were gone.

### Wages

Figure 51 shows an index of nominal wages. This has been assembled by stitching together data from a number of sources:

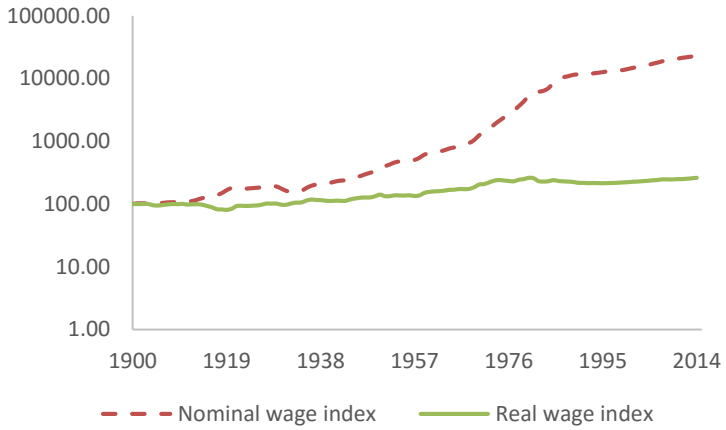
- An index of minimum wage rates for 1901–1919 as derived by Clinkard (1919).
- Nominal weekly wage rate indexes for adult males prepared by Statistics New Zealand. These began in 1914.
- The Department of Labour's half yearly employment survey which ran from 1957 and the Department of Labour's quarterly employment survey, which began in 1980. The series used were ordinary time hourly rates for all people (that is, males and females) in all industries.

- Statistics New Zealand's quarterly employment survey which began in 1989. Again the series used was ordinary time hourly rates for all people in all industries.

The resulting index has been based on 1901 = 100. A real wage index was derived by dividing the nominal wage index by the CPI and again setting the 1901 value equal to 100.

**Figure 51 Wage rate indexes, nominal and real**

Indexes, 1901=100, logarithmic scale




Sources: Official yearbooks, INFOS

Figure 51 uses a log scale so that we can see the changes in both indexes on the same chart.

Let's look at some of the features of these series:

- The nominal index climbs strongly from around 1910 to 1920. However, real wages decline over this period. Despite strong wage growth during the war, prices grew even faster.
- Both nominal and real wages showed steady growth throughout most of the 1920s.
- Nominal wages fell sharply during the depression, but real wages showed little change. Falls in wages were, in the main, offset by falls in consumer prices. Provided a person had a job during the

depression—and as we have seen, many didn't—life may have been okay.

- Both nominal wages and real wages showed fairly constant growth over the 'long expansion' period, from the mid-1930s to the late 1960s.
- Nominal wages rose sharply during the 1970s. Despite high inflation, real wages also showed some growth in this period.
- The wage/price freeze of the early 1980s slowed nominal wage growth and resulted in declines in real wages.
- Nominal wage growth was high through the rest of the 1980s but eased back in the 1990s as inflation came down to low levels. Real wage growth since the mid-1980s has been steady but unspectacular.

Our nominal wage index in 2005 is 170 times higher than it was in 1901. In contrast the real wage index in 2005 is only 2.5 times higher than in 1901. Growth in real wage rates averaged only 0.95 percent per annum over this period.

How did this compare with labour productivity growth? A general rule of thumb that is often used when producing long-term projections is that real wage growth will be in line with productivity growth. Can we test this?

We can use our real GDP estimates and our census employment figures to calculate real GDP per employee, at least for census years. Figure 52 shows such estimates. As with the wage series, the productivity series has been rebased as an index with the 1901 value equal to 100.

As Figure 52 shows, productivity growth over the last century has been higher than real wage growth. Annual productivity growth over this period averaged 1.3 percent per annum. This figure should be regarded as a rough estimate only. We should remember that our real GDP figures for the period to 1955 are unofficial estimates. Also, our employment figures up to 1966 are not for total employment but for full-time employees only. Ideally we would want to use hours worked as the denominator in our productivity measure.

According to our figures, the gap between productivity and real wages opens up in the first decades of the century, then widens further between 1931 and 1945. The gap then closes up a bit in the period through to 1981 before opening up further.

**Figure 52 Labour productivity and real wages from 1901**

Indexes, 1901=100


Sources: Labour productivity is calculated from real GDP estimates (see Figure 12 for sources) and census data for employment (see Figure 45 for sources). Real wage sources are as for Figure 51.

Table 10 shows average annual change in real wages and productivity for our usual time periods (or as close as we can get to them using census data). The productivity figures are generally in line with our views of how the economy fared in each of these periods, that is, there are no surprises.

**Table 10 Growth in productivity and real wages**

Average annual growth rate, percent change

| Period | Labour productivity | Average real wage rate |
|---|---|---|
| 1901–1916 | 1.9 | -0.5 |
| 1916–1936 | 0.7 | 1.0 |
| 1936–1966 | 2.4 | 1.4 |
| 1966–2006 | 0.9 | 0.9 |
| 2006-2013 | 1.3 | 0.9 |

Sources: See Figure 52

So where is the problem—why is real wage growth so much less than productivity growth, especially in the first half of the century? Note that this low wage growth suggests that wage payments as a proportion of nominal GDP declined significantly over the period. While we would expect some short term fluctuations in labour's share of total GDP, a sustained fall, as suggested by our figures, looks implausible.

The most convincing explanation I can come up with for the gap between productivity growth and real wage growth is that our series for nominal wages, upon which our real wage estimates are based, is underestimating actual wage growth. If we go back to page 106 we will see that our wage series for the earliest period, 1901–1919, was for minimum wage rates. It seems likely that the growth in actual wage rates over this period was higher than the growth in minimum wage rates. But I haven't as yet got to the bottom of why the gap between productivity and average wages opened up so much between 1936 and 1945.

### An exercise

Will the unemployment rate ever get down to the levels it was at in the 1960s, or even to the levels of the 1970s? If not, why not? What would be needed to lower the unemployment rate significantly from its present level?

# Government

### The scope of government activity

Let's start this section by listing some of the roles government can play in the economy:

*Making and enforcing laws and regulations*

- Setting taxation levels
- Regulating the conduct of business (for example, via the Commerce Act)
- Setting labour market law and regulations
- Border control (migration, duties, tariffs)
- Monetary policy.

*Spending*

- Consumption and investment spending on:
  - Administration (including defence)
  - Health
  - Education
  - Housing
  - Infrastructure (transport, communications, utilities)
- Support of industry (grants, loans, etc)
- Ownership of businesses (state-owned enterprises and crown entities)
- Transfer payments to households (subsidies and welfare benefits).

We won't look at all of these activities in detail. From what we have seen so far, it has become clear that the performance of the external sector—our trade with the rest of the world—looms large as an issue in New Zealand's economic history. We will therefore have a brief look at trade policy. Other issues that we will look at are:

- Transfer payments to households and their impact on government spending and taxation.

- The emergence of monetary policy as a way of influencing the short-run performance of the economy.

### Trade policy

Some of the ways that a government has of implementing trade policy are:

- *Customs duties and tariffs:* these are taxes levied on imports when they arrive in the country. 'The tariff' was originally the name of the list that set out the rate of duty that was to apply to each type of import.
- *Quotas:* a quota sets the maximum amount of an item that may be brought in from a particular country.
- *Export and import licensing:* a system whereby exporters need a licence from the government in order to export particular items, and importers need a licence to bring in certain items. In essence, the government decides, for particular products, who has the right to trade.
- *Trade treaties or agreements:* a treaty is an agreement between governments. It sets the conditions under which trade will occur between the countries that are treaty partners, that is, it sets the levels of tariffs, etc. A treaty can be bilateral, applying to only two countries, or multilateral, applying to three or more countries.
- *Export subsidies:* these can be direct payments, or tax exemptions, for exporters. Subsidies may not always be linked directly to exports but instead to specific types of production, such as agricultural activity. Production subsidies tend to be a form of import protection.
- *Controls on foreign exchange transactions:* governments can influence trading activity by setting the conditions under which traders have access to foreign exchange. In a modern context, the most likely form of government action is in changing the level of the exchange rate. There are now no direct controls on the exchange rate in New Zealand, although the Reserve Bank, which is semi-independent of government, can influence the exchange rate with its monetary policy settings.

Perhaps the simplest way of looking at trade issues in a New Zealand context is to look at a timeline of policy changes. We will see from this that the initial thrust of government policy in New Zealand was protectionist. This generally lasted through until the election of the National government in 1950. For the next 30 years or so, we see a struggle between those wanting trade liberalisation and those wanting to re-impose some level of protection. It's fair to say that the pressures for trade liberalisation began to win out, and by the mid-1980s the move to liberalising trade, both within New Zealand and overseas, was at full momentum.

**Table 11 Timeline of trade policy**

| | |
|---|---|
| 1840 | Initially the customs tariff of New South Wales applied to New Zealand imports. The country ceased to be part of NSW in May 1841, and specific customs duties were introduced shortly afterwards. These were the main source of revenue for government. The underlying rate of duty was set at 10% (NZOYB, 1990, p590). |
| 1888 | By the late 1880s, which, as we have seen, was a period of slow growth, pressure grew on the government to use tariffs to protect New Zealand industry. Proponents of tariffs saw their advantages as being higher employment, higher wages, and the development of local industry, as well as providing another source of revenue for a hard-pressed government (Stensen and Olssen, 1997, p247). A major tariff measure was introduced in 1888 that was designed to protect several industries: boot manufacturers, garment makers, machine makers, woollen millers and the metal working industry. The import duty was 20 percent (Sutch, 1969, p105). |
| 1922 | The meat export trade was placed under the control of a board. This was followed, in 1923, by the Dairy Produce Export Control Act, which set up the Dairy Board. |
| 1932 | In reaction to the depression, an Imperial Conference was held in Ottawa to discuss trade issues. The aim was to promote trade between British Empire countries. Under the Ottawa Agreement, New Zealand agreed to maintain a preferential tariff for British imports (that is, a tariff that was lower than for goods from other countries). In return, practically all of New Zealand's exports to Britain would have duty-free entry (NZOYB, 1970, p569). However, the Ottawa Agreement generally reflected Britain's retreat from free trade. Up until this point, New Zealand and other nations had faced few problems in getting their products into Britain. |
| 1934 | The Reserve Bank was established via an act of Parliament, but as a privately owned institution (NZOYB, 1970, p833).The Bank fixed the rate at which it would sell 100 pounds sterling at 125 pounds New Zealand. In 1936, after Labour was elected, the Bank became a state-owned institution. |

1938 A consequence of the Reserve Bank setting the exchange rate was that it needed overseas reserves in order to buy foreign currencies. By 1938, with the New Zealand economy booming, the demand for foreign currency had reduced the Bank's levels of overseas reserves to low levels. In short, the country appeared to be facing a current account crisis. Labour's response was to introduce import and export licences. Regulations prohibited the import of goods except under a licence or exemption. Export licences were issued on the condition that the overseas exchange earned must be sold to a New Zealand bank for New Zealand currency. The use of import licensing, rather than tariffs, was a way of getting around the conditions of the Ottawa agreement, which required that preferential treatment be maintained for British goods.

1944 Walter Nash, finance minister, attended the conference at Bretton Woods, New Hampshire, which looked at economic development in the coming post-war period. As a result, the International Monetary Fund was formed and an international system of fixed exchange rates was set up. Exchange rates were based upon a par value system; member countries were required to constrain fluctuations in their exchange rates within a margin of plus or minus 1% of a par value expressed in terms of US dollars. These US dollars would in turn remain directly convertible into gold at a fixed rate, thereby maintaining some link to gold (Pearce, 1986, 212–213). In 1948 the New Zealand pound was revalued, with a par value equal to that of sterling.

1949 National elected; began to loosen import controls.

1951 Prolonged waterfront dispute resulted in emergency regulations being introduced.

1958 In response to a current account problem Labour restored import controls to most private imports. These controls were relaxed a bit in 1960, and relaxed further by National in 1961.

1965 The New Zealand Australia Free Trade Agreement (NAFTA) gave better access to the Australian market for New Zealand goods, and vice versa.

1971 Negotiation by Britain with members of the EEC (now the EU) secured New Zealand's butter and cheese exports to Britain.

1973 Britain joined the EEC.

1973 Oil price hike by OPEC hit the terms of trade. A second oil shock occurred in 1978 following the revolution in Iran. By 1980 government had embarked on 'Think Big' projects, largely in the petrochemicals sector, in order to reduce the country's dependence on foreign oil. Government also introduced export subsidies or what was termed a 'one-sided' devaluation.

1982 Closer Economic Relationship (CER) agreement, which further freed up trade between New Zealand and Australia, was signed.

| | |
|---|---|
| 1984 | Labour elected. The NZ dollar was devalued by 20%. Export subsidies abolished. Government subsequently took the borrowing associated with the 'Think Big' projects onto its books, and began to sell the projects to the private sector. |
| 1985 | The NZ dollar was floated. Labour replaced import licensing with tariffs and committed itself to a phased lowering of tariffs. |
| 1986 | A goods and services tax (GST) was introduced. Exports were largely exempt. |
| 1989 | The Reserve Bank Act: the bank was charged with maintaining price stability. |
| 1994 | The Uruguay round of GATT, begun in 1986, was concluded. It brought agriculture and services under the ambit of the multilateral trading system. It also introduced further reductions of tariffs on goods. |
| | APEC committed itself to achieving free trade and investment by 2010 for developed economies and by 2020 for developing economies. |
| 2001 | A free trade agreement with Singapore was negotiated. |
| | Australia put limits on New Zealanders' eligibility for welfare benefits, affecting the free movement of labour across the Tasman. |
| | The New Zealand Dairy Board, the last of the major producer boards, was abolished and replaced by Fonterra, a co-operative company. Fonterra would lose its monopoly on dairy exports within a year. |
| 2002 | Australia and the US began negotiating an Australia-US free trade agreement. |
| 2005 | Closer economic partnership agreement between New Zealand and Thailand was entered into force |
| 2006 | Trans-Pacific Strategic Economic Partnership Agreement between New Zealand, Chile, Singapore and Brunei Darussalam entered into force |
| 2008 | A free trade agreement with China was agreed. |
| 2015 | Trans-Pacific Partnership, a free trade agreement between 12 Pacific-rim countries was signed. |

Sources: As stated above in the table. The history sections of official yearbooks have also been useful.

## The rise (and slight fall) of government spending

Figure 53 shows government expenditure as a percent of GDP. There are some discontinuities in the series. Figures produced on a GAAP (Generally Accepted Accounting Practice) basis are available only from 1994. Earlier figures are from Budget tables.

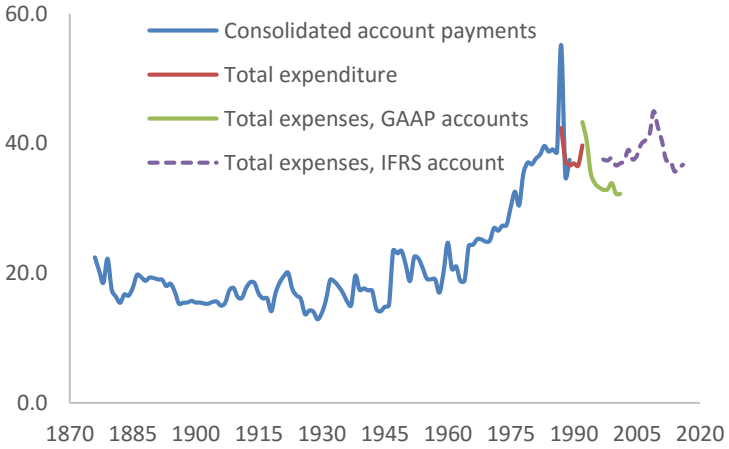
The feature that immediately jumps out from Figure 53 is the sharp jump in payments in 1987. This was caused by government

taking on the debt from the 'Think Big' projects. But let's put that aside and focus on the long-term trends, which are reasonably clear:

- Government spending as a proportion of GDP stayed relatively constant over the forty years prior to the first world war.
- The ratio then began a 50 year rise and by 1966 was about double what it had been back in 1914.
- From 1966 to around 1980 the rise was steep, and the ratio exceeded 40 percent of GDP.
- Ignoring the 1987 spike, we can see that there was a gradual decline in expenditure as proportion of GDP from the 1980s, bringing it comfortably back below 40 percent of GDP.
- From 2003 there was a sharp increase in government spending bringing it back above 40 percent of GDP.

What caused the general rise in government expenditure, and the associated rise in taxation that was needed to fund this spending? The simple answer would be: governments. Both left and right governments presided over periods to 1980 when government expenditure was on the rise.

**Figure 53 Government expenditure**
Percent of GDP

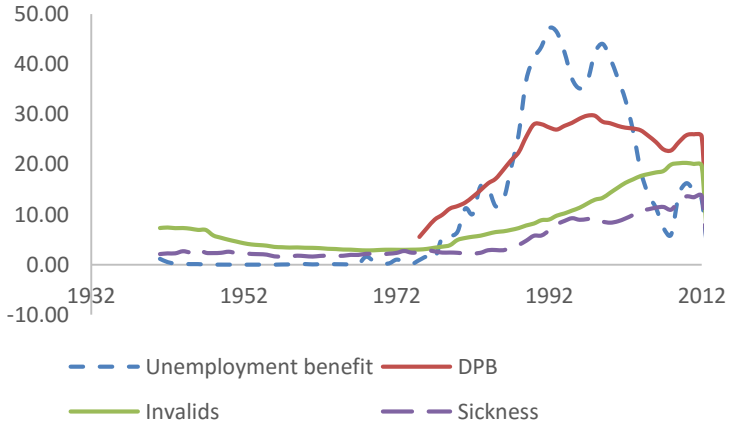



Sources: Government expenditure figures are from Bloomfield (1984) and Budget statements. For GDP sources see Figure 12. The chart shows March years to 1989, then June years.

A common view is that the rise in welfare spending has been behind the rise in government expenditure. Figure 54 and Figure 55 support this, with a large rise from 1975 to 1992 in the number of people receiving welfare benefits. There seems to have been a sea change in this area over the last 35 years. It might be best summed up by calling it the rise of the concept of 'economic rights'. The stigma that often went with accepting state aid seems to be dissipating. Instead, many citizens now view state aid as something that is theirs as of right. Alongside this has been the rise of beneficiaries' organisations, whose aims are to ensure that beneficiaries get what they are entitled to.

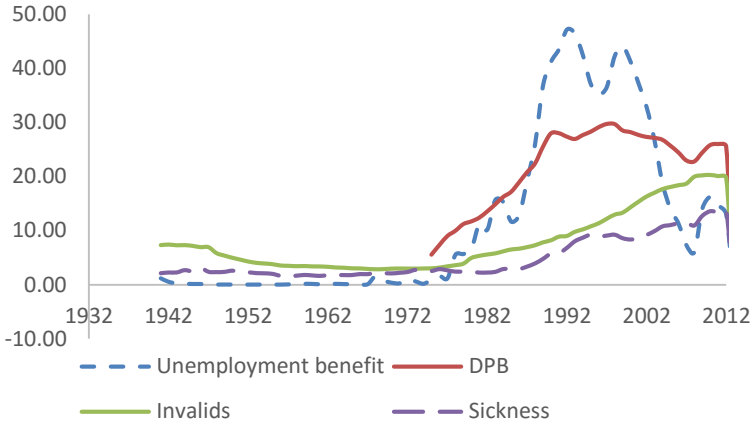
This phenomenon is in no way unique to New Zealand. Most other OECD countries have experienced similar rises in welfare spending since the 1970s (Thomson, 2000). And similarly, most countries have made determined efforts over the last decade or so to rein in government spending.

**Figure 54 Persons on income tested benefits**
Total




Sources: Official yearbooks, Ministry of Social Policy, Work and Income New Zealand. The chart shows totals as at March to 1989, then totals as at June.

**Figure 55 Persons on other benefits**
Total

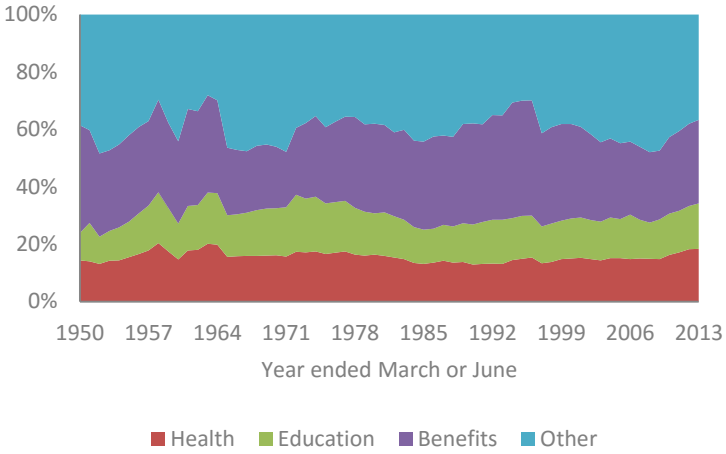



Sources: Official yearbooks, Ministry of Social Policy, Work and Income New Zealand. The major income tested benefits cover unemployment, domestic purposes, invalids, and sickness. The chart shows totals as at March to 1989, then totals as at June.

But spending on benefits hasn't been the only reason for the rise in government expenditure. Figure 56 shows that not only have benefits accounted for a larger proportion of government spending, but so have education and health spending.

**Figure 56 Government expenditure by broad category**

Percent of total expenditure




Sources: Dalziel and Lattimore (2001), Thorns and Sedgwick (1997). The chart shows March years to 1989, then June years.

## Monetary policy

### *What is monetary policy?*

> *Monetary policy is the setting of the money supply by policy makers in the central bank. Money supply is the quantity of money available in the economy.* (Mankiw, 1998, p598)
>
> *What causes inflation? In most cases of large or persistent inflation, the culprit turns out be the same—growth in the quantity of money.* (Mankiw, 1998, p12)

The main aim of monetary policy is to keep inflation under control, thereby protecting the value of the currency.

The central bank in New Zealand is the Reserve Bank. It can be thought of as the bank for banks. All registered banks have an account at the Reserve Bank. The Reserve Bank sets the terms under which these banks can obtain credit, thereby affecting the total amount of money that is available via the banking system.

*Four monetary policy regimes since 1850*

Quigley (1992) provides a useful summary of the history of monetary policy. He notes that since 1850 New Zealand has operated under four monetary policy regimes:

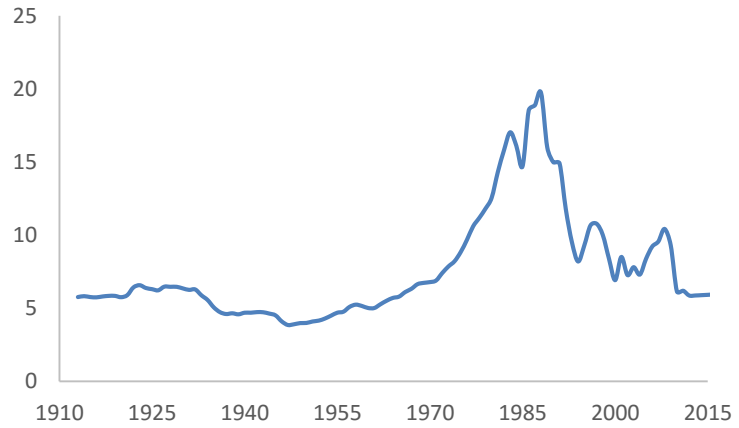
- The first, in place until 1914, linked New Zealand to the international gold standard. Trading banks issued paper money. This was convertible on demand into a legally defined amount of gold, but the banks faced few other legislative restrictions. This system, according to Quigley, was characterised by marked fluctuations in prices and growth. Also, direct government intervention was needed in order to stabilise the banking system in the early 1890s.
- In 1914 the gold standard was suspended, and with the decision not to return to a gold base along with Britain in the 1920s, a second monetary policy regime emerged. Overall, the aim seemed to be to maintain a 'sterling exchange system' with banks generally providing for convertibility of New Zealand pounds into sterling on demand. But as we saw earlier, in the external section, the New Zealand pound began to slip against sterling in the early 1930s, as the depression began to bite. Largely as a result of these 'unwanted' currency fluctuations, the Reserve Bank was established and by 1934 had begun operating.
- From the 1930s New Zealand adopted a third monetary policy regime. This was characterised by: the Reserve Bank buying and selling government securities, a fixed exchange rate, mandated low interest rates, management of the current account, and setting the levels of government securities that financial institutions had to hold. These policies appeared to be successful prior to the 1960s. But by then, mandated low interest coupled with expansionary fiscal policies were proving to be incompatible with maintaining stable prices. Also, it was argued that direct controls on financial institutions were inhibiting the development of New Zealand's financial markets.
- By the early 1980s the consensus of opinion was that the aims of monetary policy should be price stability and the efficient operation of the financial system. Also, these aims should be

achieved in a way that minimised distortion to the financial system and made maximum use of market forces in determining macroeconomic equilibrium. These views underpinned the emergence of the fourth monetary policy regime from mid-1984, when Labour was elected. This regime, which is still in operation, focuses on price stability, with policy operating within the context of deregulated financial markets.

The main feature of the fourth regime has been the use of interest rates to regulate the rate of economic growth and associated changes in prices. Figure 57 shows a long-run interest series—it is for average mortgage rates. We should bear in mind though that over the time period shown we had different monetary policy regimes in place, as outlined above. Only under the fourth regime has the interest rate been the prime means of implementing monetary policy. Note the low interest rates from the mid-1930s to the 1960s.

**Figure 57 Average interest rates on house mortgages**

Percent, average for year




Sources: Preston (1978), Reserve Bank of New Zealand

### *Monetary policy since the mid-1980s*

Over the last 15 years or so, monetary policy has taken over from fiscal spending as the lever with which government seeks to fine-tune the economy. What's more, governments can do this at arm's

length, by making it the responsibility of the head of the central bank to implement monetary policy. To a large extent this removes monetary policy from the political arena.

This in turn leaves governments to focus on the medium-term implementation of fiscal policy, setting their priorities for, say, three to five years. There is no longer the necessity for government to try tuning the economy via its own spending, increasing its expenditure in economic downturns and cutting back during upturns. In reality the cutting back hardly ever occurred, because it was politically unpopular. This was a contributing factor to the long-term rise in government spending that occurred prior to the mid-1980s, and which we saw earlier in Figure 53.

Another advantage of fine-tuning the economy through monetary policy rather than fiscal policy is that there is less incentive for governments to boost spending before elections in order to gain favour with the electorate. The reason for this is that an over-zealous approach to increasing expenditure could result in a tightening of monetary policy by the central bank as it seeks to combat the inflationary effects of the extra spending.

The Reserve Bank Act, which gave the Bank responsibility for implementing monetary policy, was passed in 1989. Since then we have seen the Bank make slight changes to the way it implements policy. Overall though, the Bank has one aim: to contain inflation. It targets inflation directly, trying to keep inflation between 1 percent and 3 percent. It has one instrument with which to do this: the interest rate that it charges trading banks on the money that they borrow overnight from the Reserve Bank. However, in a relatively open economy like New Zealand, the exchange rate also plays a part in monetary policy settings. For example, a depreciation of the exchange rate pushes up the price of imports, which in turn affects inflation. Furthermore, movements in interest rates can produce movements in the exchange rate. The historically strong New Zealand dollar in 2006 – 2007 is primarily a result of an OCR, set 2 to 3 percent higher than most other OECD countries. So the setting of the official cash rate (OCR) by the Reserve Bank is a delicate game.

So far, so good. Over the 1990s inflation has been kept at low levels (see Figure 25 on page 60). There is however nothing new regarding the theory behind the present approach to monetary policy; the link between money supply growth and inflation has been known about for decades if not centuries. What is new is that modern societies now have the political will to control inflation. The 'great inflation' of the 1960s through to the 1980s showed the dangers of letting go of the money supply.

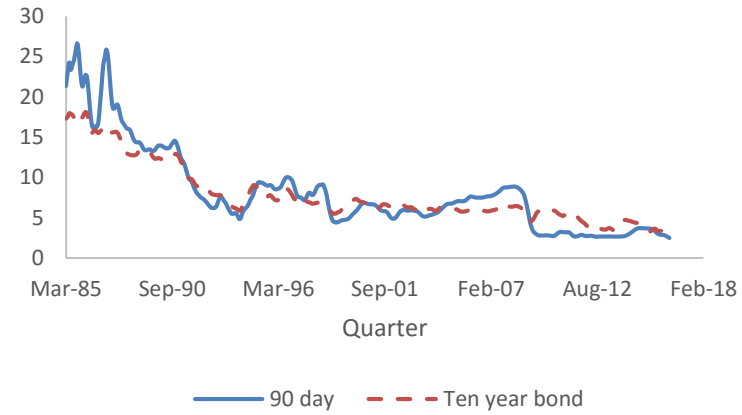
In a modern context, the tightness of money supply can be judged by the gap between the interest rate on 10-year government bonds and the interest rate on 90-day commercial bills. This difference is often called the yield gap. A positive yield gap indicates neutral or loose monetary policy. A negative gap—with interest rates on 90-day bills being higher than interest rates on 10-year bonds—implies tight monetary policy.

The rate on 10-year bonds to some extent reflects the market's expectations of long run inflation. The 90-day rate largely reflects the Reserve Bank's OCR, which has a major impact on the rates for 90-day commercial bills. The Reserve Bank has its own expectations of short-run inflation. If its forecasts show that inflation is rising, the Bank is likely to push up the OCR. If the Bank is confident that inflation is under control, it may cut the OCR.

Figure 58 shows short-term and long-term interest rates since 1989. Note the tight monetary policy in the 1980s and the mid-1990s, and through 2015.

**Figure 58 Interest rates, long term and short term**

Percent, average per quarter




Source: Reserve Bank of New Zealand

## An exercise (in cynicism?)

Do governments really influence economic growth? Or is economic growth more the result of things like social trends, technological changes, random events, and global trading conditions?

# Looking ahead from 2003

Can we sum up and look forward? Can we use our view of the past to see how New Zealand might develop over the next twenty years or so? We can, although we can probably see the problems we will face a bit more clearly than we can see the solutions.

There are two major issues:

- The ageing of the population.
- The need to plug into world growth, making sure that we grab a good share of world exports in as many sectors as we can manage.

Let's focus on each of these problems in turn.

### The ageing of the population

Back in the section on population we saw the gradual fall in birth rates which began in the 1880s (see Figure 7). We also saw that this fall was interrupted by the post-war baby boom, but only temporarily. Birth rates in New Zealand are now below the level at which a population replaces itself. The New Zealand population is ageing, with the proportion of the population in older age groups getting larger.

Figure 59 shows the projected population out to 2100. These projections were prepared by Statistics New Zealand and assume medium birth rates and medium death rates. Note that for all three of the migration assumptions used, the total population eventually begins to decline. With net migration of 5,000 per annum, which is close to what New Zealand's long-term average has been, the decline starts around 2040.

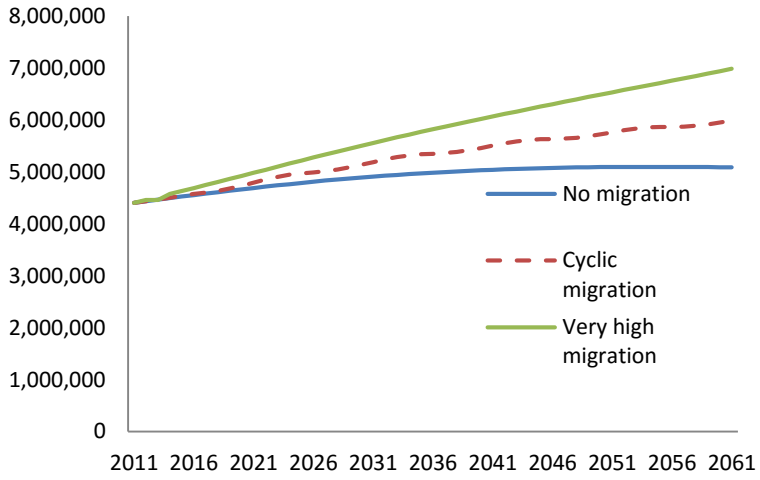
Figure 60 illustrates projected age group changes. The proportion of people over age 65 climbs sharply through to around 2040, reflecting the impact of the baby boomers. But note that the proportion of elderly doesn't then fall; it rises at a lower rate and eventually reaches a new equilibrium level around 2070.

Overall, the proportion of older people will stay high. As the chart shows, we could bring the proportion down a bit by bringing in more migrants. But the difference is small. Even if we were to

increase net annual migration to say 30,000 per annum—and this would be a much higher level than New Zealand has ever experienced on a sustained basis—the proportion of older people would still rise sharply. The die is cast. The age structure of our population is such that even with a high level of net inward migration, the proportion of oldies will rise over the next half century.

**Figure 59 Projected population**

Millions




Source: Statistics New Zealand

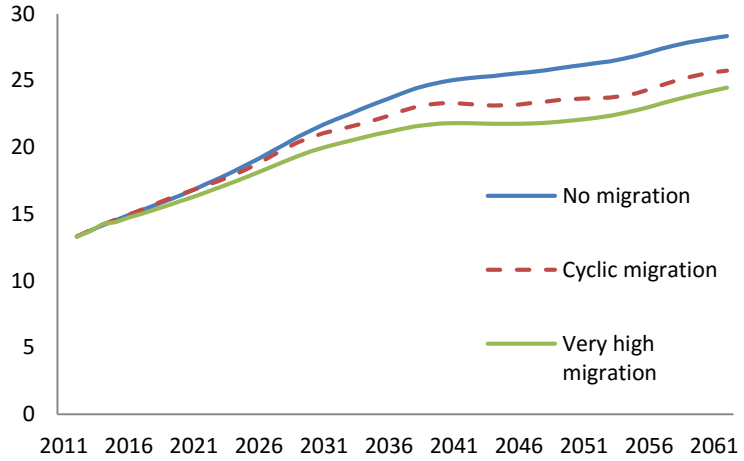
It is important to get this in perspective: we are moving through a 'demographic transition'—one that was temporarily interrupted by the post-war baby boom—and moving towards a new population structure where the proportion of oldies will stay at around 27 percent.

Yes, there will be costs involved with this, especially in government spending on health and superannuation. But rather than adopting policies to deal with this in any panic-stricken way, we need to adopt policies that are sustainable. As Figure 60

highlights, it isn't simply a matter of dealing with the baby boomers. We are moving into a new phase regarding our population.

**Figure 60 Persons aged 65 and over as a proportion of the total population**

Percent



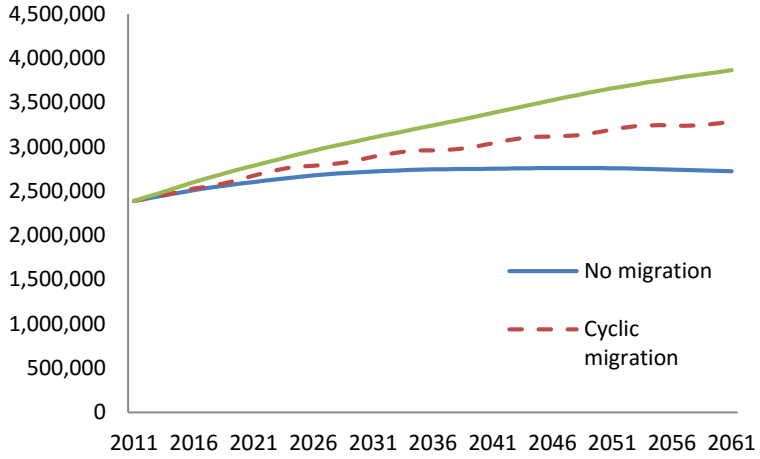

Source: Statistics New Zealand

We are not alone in this. Other developed economies face similar situations. It can be expected too that developing economies will eventually follow similar paths. As household incomes rise, there will be less need for large families, that is, less need to produce additional workers who will supplement the household income and directly provide care for the elderly and infirm.

Let's not downplay the impact of ageing on New Zealand though. Not only will total costs regarding health care and superannuation rise, but the size of the population in the 15–64 age group will begin to decline, and soon. Not only will this group begin to shrink as a proportion of total population, the number of people in this age group will begin to decline from around 2020. This means our labour force will begin to decline, although at a gradual rate (Figure 61).

**Figure 61 Projected labour force**

Millions




Source: Statistics New Zealand

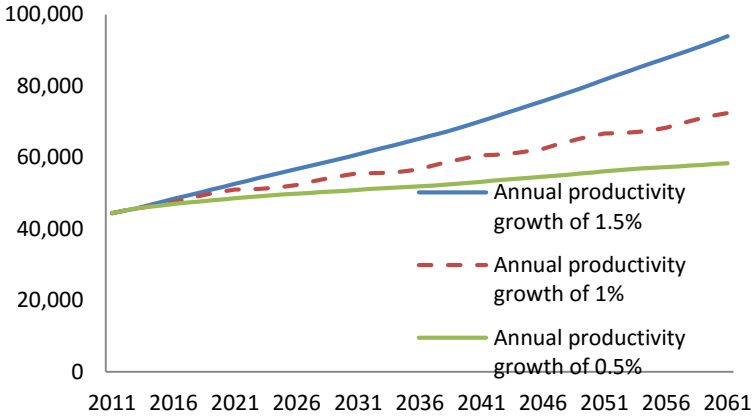
How will we maintain economic growth in this period? We will have to do it via labour productivity, that is, by increasing real output per person. Historical data show that our productivity growth over the last thirty years or so has been 0.7 percent per annum (see Table 10 in the earlier section on the labour market). As Figure 62 shows, on the basis of labour force projections and assumed productivity growth of 1 percent per annum, our real GDP per capita would continue to rise. This is despite the projected fall in the labour force. As can be seen though, if we could lift labour productivity by a further 0.5 percent per annum this would have a big impact on real GDP/capita over the long term.[13] As Baumol and

[13] There is some evidence that labour productivity has risen in recent years, perhaps indicating that at long last we are getting a dividend from the economic reforms of the 1980s and early 1990s. However, the issue is whether this rise in productivity will be sustained.

Blinder (1985) note in their introductory text on economics, in the long run it is productivity growth that matters, because this is what makes us better off. In general terms, productivity growth indicates that 'we are doing more with less'— we are getting more output from fewer, or the same amount, of inputs.

**Figure 62 Projected GDP per capita**

1995/96 Dollars



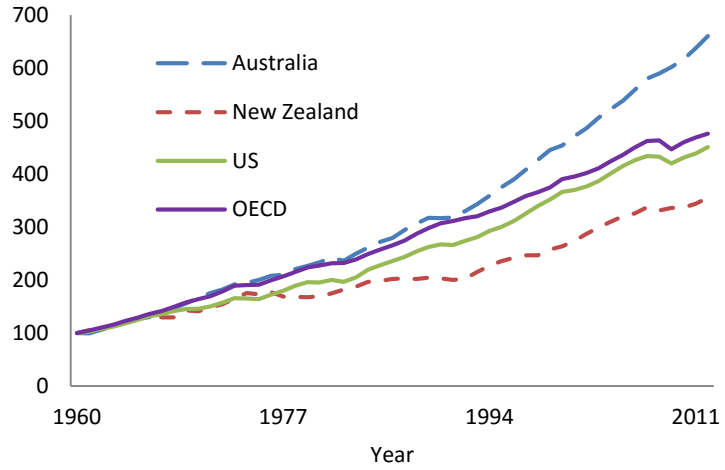

Source: Based on Statistics New Zealand's labour force projections with medium assumptions regarding fertility, mortality, and labour participation.

## New Zealand and the world

New Zealand's relatively low productivity growth over the last 40 years or so is reflected in the overall performance of the economy. Our economic growth has not matched that of the OECD over this period (see Figure 63).

**Figure 63 Real GDP, OECD countries**

Index 1960=100



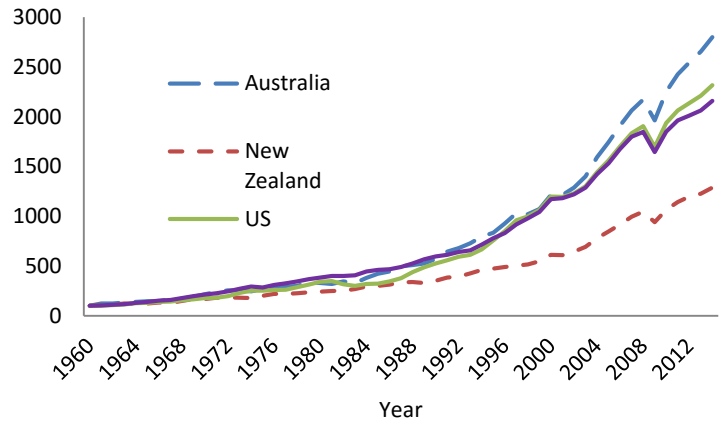

Source: OECD

So what's caused this? Look at Figure 64 which shows changes in export volumes. As can be seen, the growth in New Zealand's exports has also been off the pace compared to the OECD. Could this relatively poor export performance account for our lower economic growth?

Work at NZIER has suggested this is the case (Briggs *et al*, 2001). This work looks at the 1960-1997 period. If we assume that New Zealand's real exports over this period had grown at the same rate as the OECD's exports, then it can be shown that New Zealand's growth in real GDP over the period would have been very similar to that of the OECD.

**Figure 64 Export volumes, OECD countries**

Index 1960=100




Source: OECD

So what has caused our relatively low export growth over the last 40 years? It is largely accounted for by the mix of commodities that we export. Back in 1960 New Zealand's exports were still largely in primary sector goods, with only a small proportion being manufactures. Yet over recent decades the growth in world imports of manufactures has been considerably higher than the growth in world imports of primary goods. In short, our exports have generally been in sectors experiencing lower growth in world demand. In the services area, we haven't done too badly; we have managed to maintain a reasonable market share of world travel and hence lock into the global growth in tourism.

So what's the answer? Do we switch into manufactures? While our manufactured exports grew strongly in the early and mid-1990s, we now seem to be facing stronger competition in this area. Since the Asian crisis, Asian manufacturers, aided initially by lower currencies, have made significant inroads into our markets, including Australia. Many Asian countries, and especially China, are in the process of rapid industrialisation, moving quickly into

manufacturing. Also, they have large markets in which to develop their products, and can achieve economies of scale that are beyond the reach of most New Zealand manufacturers.

Given our size and location, it will be difficult to compete in many areas of manufacturing. There will however be niches in which we can work, perhaps in areas where the products are not particularly bulky and can therefore be transported to world markets without too much additional cost.

Could we focus on exporting services? As noted above we have done reasonably well in tourism. We have also had some success in providing education services, including English language courses. In tourism though we are in the long-haul market. All visits, except those from Australia or the south Pacific, involve a long-haul trip. We have to accept that we are never likely to match the tourism volumes of less isolated countries. In European countries, for example, a large proportion of the visitors that they get are simply coming over the border for a short visit. Some visits are for only a weekend. Still, isolation can have its attractions. For some people, just visiting one of the most isolated countries on earth seems to be an attraction in itself. We are also seen as a relatively safe country, which is positive with respect to both tourism and education.

There are no easy answers. Producing primary products is what we have tended to do best; it has long been our area of comparative advantage. There is still some truth to the adage that we have to add more value to our primary products, processing them here rather than overseas. One positive feature regarding primary products is the growth of emerging economies such as China. As these countries industrialise, the demand for quality primary products, especially food, should continue to grow strongly.

At the same time we have to expand our exports of manufactures and services, hooking on as best we can to increasing world demand in these areas. In short, we have to lift our exports/GDP ratio without doing anything silly. 'Silly' would cover the re-introduction of blanket export subsidies, or policies to directly control imports like import licensing. 'Think Big', which was intended to result in massive import substitution, would also qualify as a silly idea.

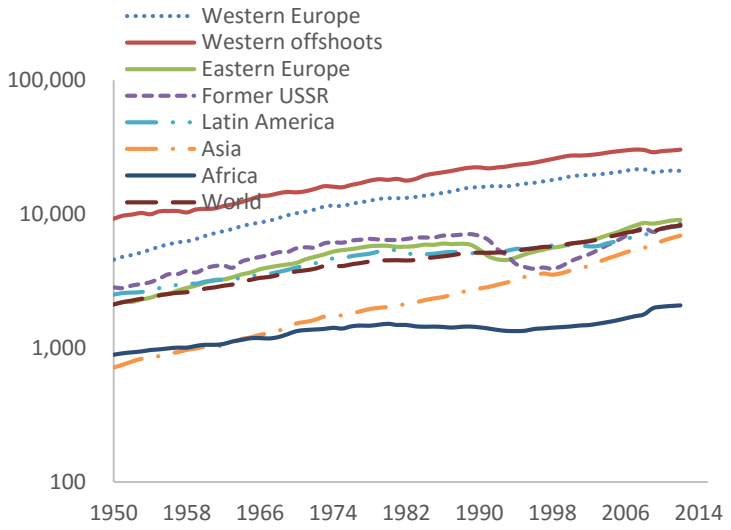
As we saw back in Figure 28 in the external section, our exports/GDP ratio has generally been around 30 percent. Recently it climbed higher, to nearly 37 percent, but this was the result of three positive factors occurring at the same time: high export volumes (partly due to good growing conditions), high commodity prices overseas, and a low New Zealand dollar. With some of these factors starting to change, our exports/GDP ratio has also begun to fall.

What we need is a sustainable lift in the exports/GDP ratio. No longer is 30 percent a high ratio by world standards. We have to continue to look outwards, with government policy continuing to focus on developing trade. Our standard of living will depend on it.

Figure 65 shows real GDP per capita by country groupings. The figures are from Maddison (2001). New Zealand is in the 'western offshoots' group. But we aren't driving this group at all; it's the US that does that. (In fact, we are the worst performer in this group, which also includes Australia and Canada as well as the US).

**Figure 65 Real GDP per capita by world region**

1990 US dollars, logarithmic scale




Source: Maddison (2001), Ther Conference Board

Note which groups have managed to close the gap on the US-dominated western offshoots. Asia in particular has lifted its real GDP per capita. Western Europe also gained ground, at least until the early 1980s. How did these groups achieve this? To a large extent, by trade. In Europe in particular we have seen the gradual dismantling of trade barriers between neighbouring countries with the establishment and evolution of the EU. (It might be argued that EU nations would have done even better had they not maintained trade barriers with non-EU countries.)

Countries in the high performing regions—Europe and Asia—have seen large rises in their exports/GDP ratios over recent decades.

Economists and others still argue, believe it or not, as to whether trade causes growth. However, it seems to me that any economic transaction, freely entered into, provides benefits to both sides—the buyer and the seller. Hence the ability to trade across country borders will also result in gains to buyers and sellers, and hence to the countries involved. Furthermore, trade allows specialisation to occur, which can lift productivity, and thereby lift real incomes.

The importance of trade has been a theme of this paper. Trade has to be a theme, it seems to me, in any paper on New Zealand's economic history. The first exercise we looked at, way back on page 9 of the Overview chapter, was meant to show how important the external world was to New Zealand, even though that world is so far away. There is an old cliché that New Zealand's foreign policy is simply 'trade'. And it's not such a bad approach to have, given the gains we get—both economic and social—from trade. We could do worse than aiming to be the Phoenicians of the Pacific.

### A final exercise

It is 2027. How has the New Zealand economy changed over the last two decades? Are New Zealanders better off or worse off than they were, compared to the rest of the world?

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# Appendix: original outline of course

### Shocks and horrors

A short economic history of New Zealand: why what happened before you were born does matter now...

A one day course presented by Phil Briggs and Mary Clarke.

This course will provide an overview of New Zealand's economic history. It will illustrate the steady, and often grinding, changes to society that have been driven by economic factors. It will look at 'shocks' to the New Zealand economy, some of which became horrors for government and the country's population. Changes in political views, economic thought, and government policies will be outlined. An underlying theme of the course will be on assessing how far government policies can alter outcomes, given underlying economic and social forces.

*For:*

- People with a general interest in where the New Zealand economy has been, and in the light of this, where it is going.
- Market players who are interested in where their own enterprises slot into the big historical picture.
- Policy analysts seeking an understanding of long-term economic changes and assessing what appropriate policy responses might be.

*Competency objectives:*

Upon completion of this course, participants should:

- Have an appreciation of the broad sweep of New Zealand's economic history over the last 200 years.
- Know about the long-term population changes that have shaped our society.
- Have an understanding of the factors that have influenced economic growth in New Zealand.

- Appreciate the impact of changes in political and economic thought on government action.
- Be better placed to critically assess whether proposed policies are in line with the nation's historical experience, or whether they differ from past practices.

*Topics*

**Economic trends:**

- Population changes—including changes in mortality, fertility, and migration—and their impact on the economy.
- Economic performance over the last 150–200 years: production, prices, trade and employment.

**Economic policy:**

- Changes to the structure and role of government since 1840.
- Politics and policies: land battles, public funded development, responses to recessions and depression, development of the welfare state, import licensing, the response to the UK's entry into Europe, Muldoon, Rogernomics, the 1990s.

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