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# Articles

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## The process of economic growth in New Zealand

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What factors facilitate economic growth? This question has interested economists, policymakers and the general public for generations. And not surprisingly, given that economic growth is one of the most important drivers behind improvements in living standards. In this article, we outline a framework for thinking about economic growth and discuss New Zealand's recent growth experience within that context. We also discuss the role of price stability, which is seen largely as an important, although not sufficient, condition for enabling sustained economic growth.

### 1 Introduction

Over recent generations the world's population has, on average, become healthier and wealthier as economic growth has exceeded population growth. However, as pointed out recently in *The Economist* magazine,<sup>1</sup> it is really only over the last 200 or so years that economic growth has become a regular phenomenon. Prior to that, each generation was barely better off than the last. Despite its relatively recent occurrence, economic growth is now largely taken for granted. The desire for higher living standards remains a driving motivation behind a steady increase in trade and innovation.

Economic growth generates wealth and affords people choices. These choices may range across health, education, capital investment, or simply a holiday or shopping spree. At the economy-wide level, the difference between, for example, a one percent and three percent average annual growth rate creates an enormous difference in the volume of goods and services available to the population.<sup>2</sup> Conversely, without economic growth and with ongoing population growth, the range of available choices will decline and with it a country's standard of living. In a world in which capital and labour are increasingly mobile, a nation's economic resources may, in these circumstances, eventually

opt to reside elsewhere, further reducing the capacity for growth.

From the perspective of monetary policy, a comprehensive understanding of the growth process is an important prerequisite for determining appropriate policy settings. As it strives to maintain low and stable inflation, monetary policy aims to ensure that the level of aggregate demand does not deviate substantially from the economy's supply capacity for sustained periods of time. The more the central bank knows about the growth process and the factors that influence an economy's productive capacity or level of potential output, the higher is the probability of maintaining price stability without inducing unnecessary volatility in output, interest rates or the exchange rate.

In this article we discuss various factors that facilitate economic growth and outline their respective contributions to New Zealand's growth experience over recent decades. We also discuss the role of price stability, which is seen largely as an important, although not sufficient, condition for enabling sustained economic growth.

It is worth noting from the outset that economic growth is not the only goal that policy makers seek to address. Social and environmental goals are also important determinants of welfare. These goals can be supportive of sustainable economic growth. For example, policies that improve social cohesion, or allow a nation's resources to be used sustainably, may also eventually improve an economy's prospects for growth.

Also, some important short-term trade-offs may arise. For example, as individuals we must choose between consuming

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<sup>1</sup> *The Economist*, January 1<sup>st</sup> 1000 - December 31<sup>st</sup> 1999.

<sup>2</sup> For example, the New Zealand economy is currently producing goods and services totalling about \$100 billion each year. If it grows at three percent per annum (as it averaged from the early-1990s), then in ten years time it would be \$24 billion larger than it would if it grew at only 1 percent per annum (as it averaged between 1975 and 1990).

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today or saving and investing for the future. We must also choose how much of our time we devote to work or leisure. These decisions significantly influence the level of capital and labour available for generating output. Similarly, social policy choices need to be made between, for example, promoting income equality and strengthening the individual incentives to invest in education and skills. It is important for policymakers and the general public to be informed about the available choices and of the relationships between social and economic growth objectives.

With these points made, we proceed as follows. In section 2 we briefly detail New Zealand's recent economic growth experience. In section 3 we outline a range of factors that economic theory and experience suggest are important for enhancing a country's prospects for sustainable economic growth. Section 4 uses this framework as the basis for discussing various factors that have influenced economic growth in New Zealand. Finally, section 5 concludes and takes a tentative look to the future.

## 2 New Zealand's recent growth performance<sup>3</sup>

Since the 1950s, economic life in New Zealand has changed considerably. New Zealand entered the 1950s as a relatively insular economy, highly dependent on the production of primary commodities. In addition, the government controlled a large proportion of economic activity through state ownership and regulation. By the end of the 1990s, New Zealand had been transformed into one of the more open economies in the OECD, with a much more broad-based economy. In real terms, average per capita incomes have doubled over this period. In what follows, we document this period in slightly more detail.

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<sup>3</sup> It should be noted that, when economists and commentators talk about economic growth, they tend to focus on developments in an aggregate measure of value-added, usually Gross Domestic Product (GDP). Although this is often the best measure available, GDP has some major shortcomings as a measure of 'welfare.' GDP captures only market-based activity and fails to account for factors such as environmental impact or natural resource use. Also, GDP does not adequately reflect improvements in the quality and choice of products and services that are available to consumers. This latter factor may have significantly added to welfare in New Zealand over recent times.

### *The 'golden years'*

During the 1950s and 1960s, a great deal of economic activity was concerned with producing and processing primary products. Because of its endowment of natural resources and past investments, New Zealand had (and still has) a strong comparative advantage in primary production. In addition, as a result of colonial history, New Zealand enjoyed open access to British markets. Having a guaranteed buyer for all the primary products produced facilitated specialisation and allowed New Zealand to exploit economies of scale. In 1953, primary industries accounted directly for 26 percent of economic activity (Easton (1997)).

New Zealand's heavy reliance on primary products and close trading relationship with Britain were reflected in the composition and destination of exports. The top two charts in figure 1 (overleaf) show that, in 1950, the vast bulk of New Zealand's exports were agriculturally based and were sent to the United Kingdom. In 1965, of a group of 20 OECD countries, New Zealand's exports were the second-least diversified in terms of composition and the third-least diversified in terms of destination (Easton (1997)).

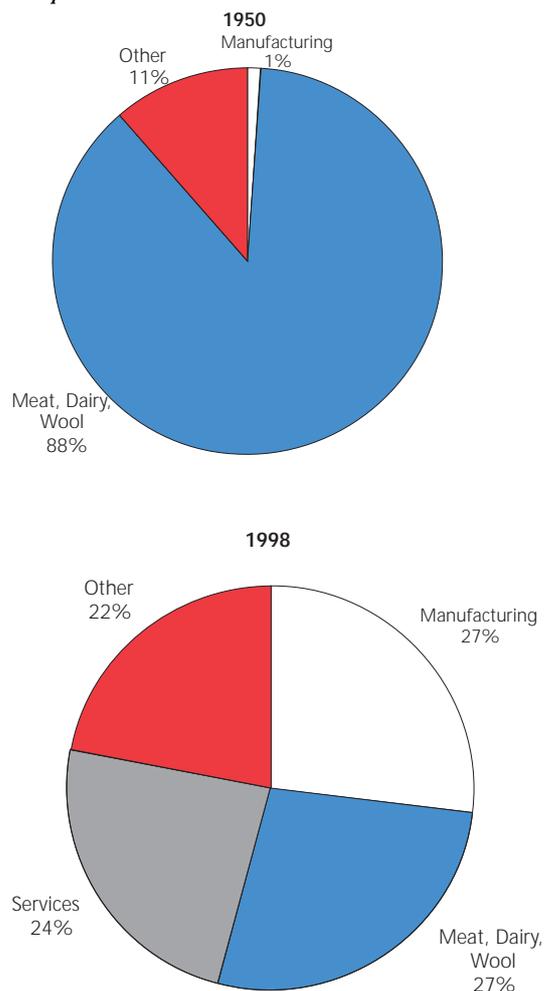
Because of a high dependence on primary products and a very narrow export base, exporters were typically 'price takers' and sensitive to developments in international commodity markets. As shown in figure 2a (overleaf), the terms of trade were relatively favourable over the 1950s and most of the 1960s. With favourable prices for commodity exports, New Zealand's income grew at a robust rate, broadly comparable to that of the OECD over this period (figure 2b). However, with New Zealand's population growing relatively quickly, growth in GDP per capita was slower than the OECD average. In 1950, New Zealand's GDP per capita was 125 percent of the OECD average. By 1966, it had slipped slightly to 120 percent.

### *The turbulent years of the late 1960s and 1970s*

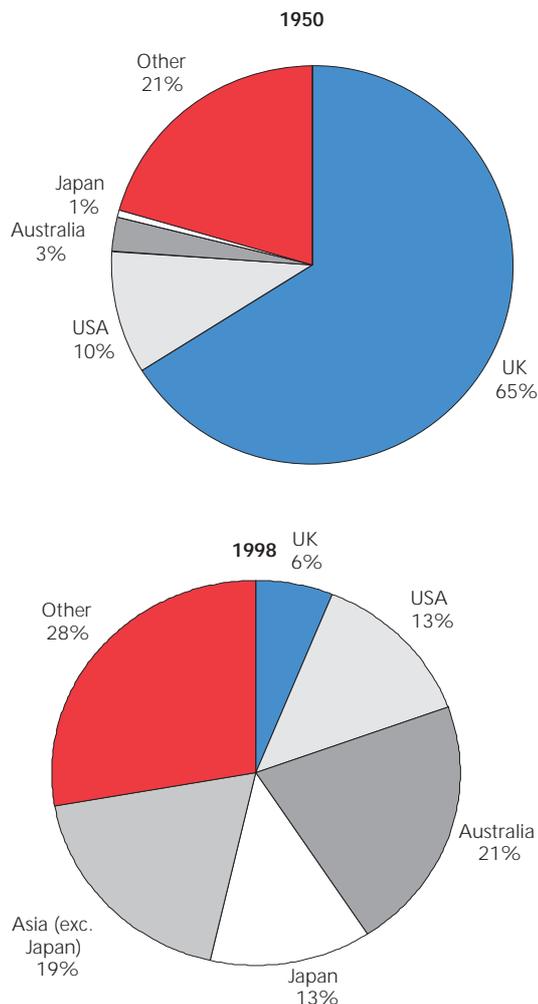
The world price of wool fell 20 percent in 1966 and another 20 percent in 1967. Given that wool accounted for about one-third of New Zealand's export receipts at the time, this price fall had a pronounced impact on the economy, pushing it into recession. In retrospect, this price fall signalled the

**Figure 1: New Zealand Exports**

*Composition*



*Destination*



**Source:** 1952 Yearbook and Statistics New Zealand

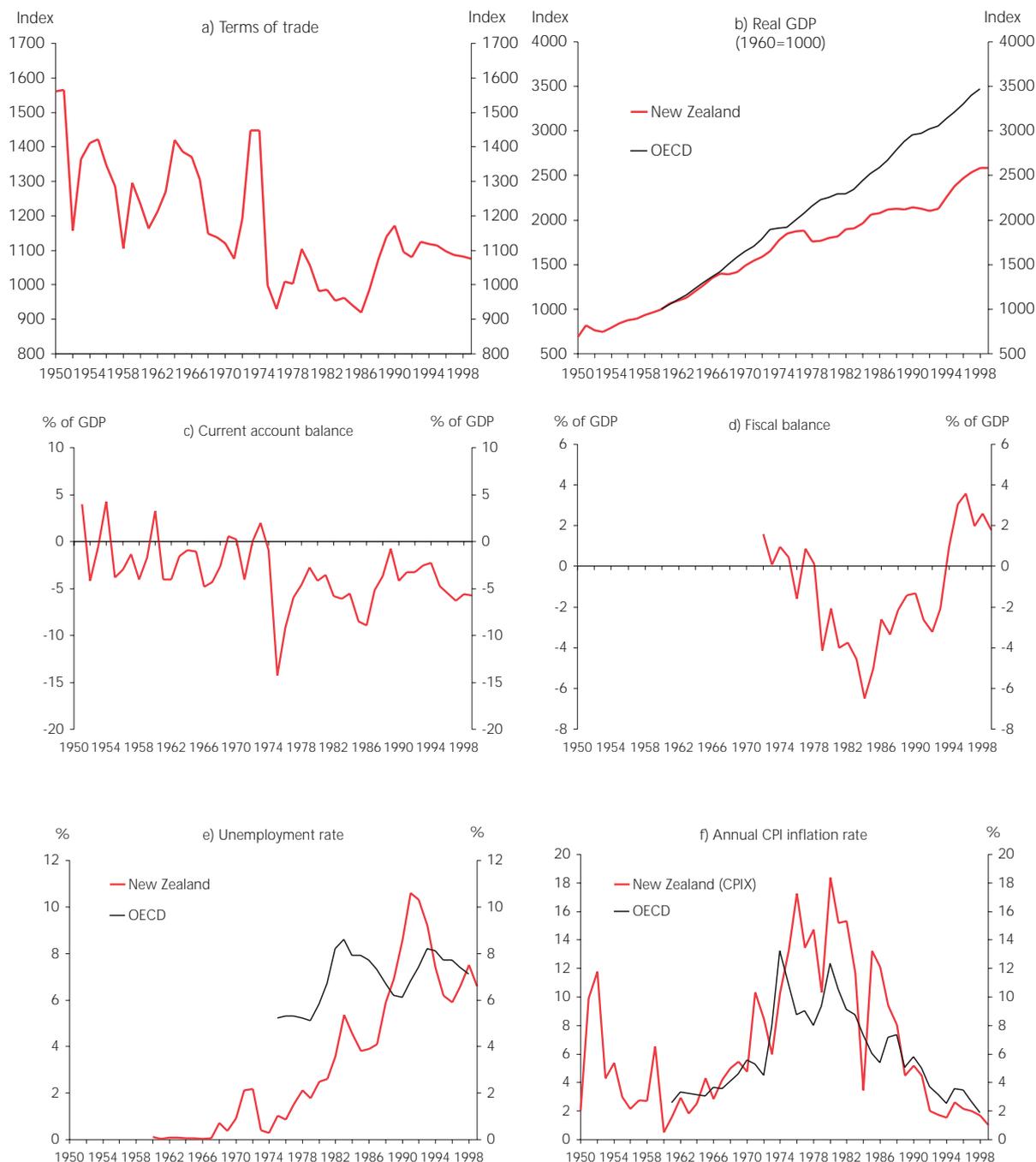
beginning of a tumultuous period in New Zealand's economic history.

During the 1970s, the terms of trade fluctuated considerably. From 1971 to 1974, increased global demand for commodities helped push the terms of trade up by almost 50 percent. One year later, oil supply restrictions imposed by the OPEC cartel led to a three-fold increase in the price of imported oil, and more than reversed all of the previous gains in New Zealand's terms of trade. In addition, as a consequence of the first oil shock, the world economy went into recession, and demand for New Zealand's exports contracted. The combined effect of a heavy dependence on imported fuels and contracting exports was a rapid increase in the current account deficit, which reached 14 percent of GDP (figure 2c).

To add to these difficulties, access to a key export market was increasingly restricted upon Britain's entry to the EEC in 1972. In addition, many commodity producers in other countries (Europe in particular) increased their effective rates of protection for agricultural products, and thereby impeded the ability of New Zealand primary producers to reap the benefits of their comparative advantage.

In response to these changing circumstances, the government of the day ran expansionary fiscal and monetary policies in an attempt to stimulate demand and protect domestic living standards. This policy response might have been successful in moderating the effects of a **temporary** shock. However, because of the **permanent** 'supply-side' nature of the changes that New Zealand faced, demand management tools proved to be an unsustainable method of supporting

**Figure 2: Summary macroeconomic statistics**



Source: Statistics New Zealand, Datastream and The Treasury

economic growth.<sup>4</sup> The deterioration in New Zealand's average income relative to the OECD increased. By 1979, GDP per capita in New Zealand had fallen to around 90 percent of the OECD average (from 120 percent in 1966).

Unsustainable monetary and fiscal policies over the 1970s contributed to a general worsening in New Zealand's macroeconomic situation. As shown in figure 2d, the fiscal balance moved from a surplus of 1.6 percent of GDP in 1972 to a deficit of 6.5 percent of GDP in 1984, and at least in part as a consequence, current account deficits became persistent (figure 2c). Over the course of the 1970s, the rate of unemployment also began to rise (from a very low

<sup>4</sup> Distinguishing between permanent and temporary shocks and managing the associated uncertainty continues to be a difficult and ongoing challenge for policy makers. This issue is discussed at length in a forthcoming Reserve Bank Research Paper (Claus, Conway and Scott (2000)).

base) and inflation increased substantially (figures 2e and 2f). These latter two phenomena were experienced internationally also, although inflation proved more persistent in New Zealand.

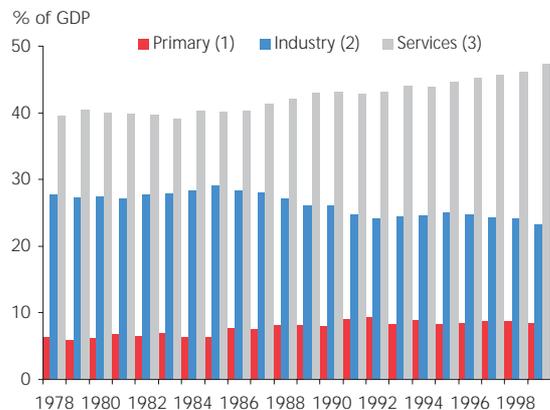
### *The 'reform period' from the mid-1980s onwards*

In 1984, dissatisfaction with the systematic under-performance of the New Zealand economy prompted the government of the time to embark on a period of comprehensive economic reform.<sup>5</sup> Entrenching macroeconomic stability, through prudent fiscal policy and monetary policy focused on reducing inflation, was a key reform platform. In addition, the government began dismantling the complicated system of protectionist barriers that had sheltered a large proportion of New Zealand producers. In short, the reforms were aimed at providing both macroeconomic stability and microeconomic efficiency. The economic reforms eventually transformed the New

Zealand economy from one of the most interventionist in the OECD to one of the most open and market-based.

After more than fifteen years since the beginning of economic reform, the structure of the New Zealand economy has changed substantially. As seen in figure 3, the service sector as a share of GDP has increased considerably. Conversely, the proportion of GDP generated by the industrial sector has declined over this period. Finally, in spite of the rapid phasing out of agricultural subsidies, the primary sector's share of output has grown slightly. As shown in table 1, this growth in primary production has been accompanied by substantial product diversification.

**Figure 3: Share of GDP by sector, New Zealand**



Source: Statistics New Zealand

- 1) The primary sector is made up of agriculture, fishing and hunting, forestry and logging and mining and quarrying.
- 2) Industry is made up of food processing, textiles and clothing, wood and wood products, pulp and paper, chemicals, plastics and rubber, minerals, metal products, machinery and equipment, other manufactures, electricity, gas and water and construction.
- 3) Services is made up of trade and restaurants, transport, communications, finance, insurance and business services and community services.

<sup>5</sup> This period in New Zealand's economic history has been extensively documented. See: Silverstone, Bollard, and Lattimore (1996), Evans, Grimes, Wilkson and Teece (1996) and Dalziel and Lattimore (1999).

**Table 1: Primary production, percent change in real output**

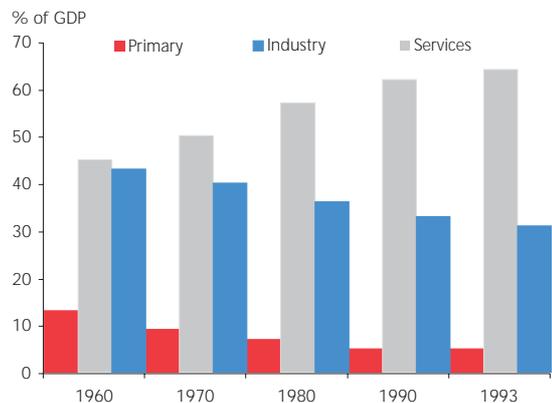
	1986-1994
Wool	-24
Sheep and lambs	-29
Cattle	24
Dairy products	23
Forestry	36
Horticultural products <sup>1</sup>	94
Other products <sup>2</sup>	112

Source: Statistics New Zealand

- 1) Fruit, nuts, oilseeds, vegetables and other horticultural products
- 2) Deer, goats etc

The increasing size of the service sector and the relative decline of the industrial sector are also identifiable long-term trends in other OECD economies. As figure 4 makes clear, this pattern of structural change has been occurring in OECD

**Figure 4: Share of GDP by sector, OECD average<sup>1</sup>**



Source: OECD national accounts

- 1) Unweighted average of country sector shares.

economies since at least the beginning of the 1960s. A distinctive feature of the New Zealand experience is the relatively late emergence of this pattern of structural change, possibly reflecting a legacy of past protectionism. The recent small increase in the size of the primary sector in New Zealand is also relatively unusual by OECD standards, reflecting an ongoing comparative advantage, strong productivity growth and international trade reform.

Over the latter part of the 1980s and into the early 1990s, the rigours of disinflation and fiscal adjustment, as well as significant structural change and a collapse in the New Zealand sharemarket, culminated in a poor rate of economic growth. Throughout this period, New Zealand's level of GDP per capita continued to deteriorate relative to the OECD average.

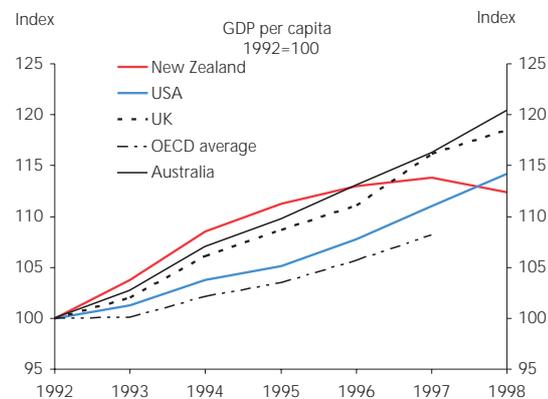
#### *The 1990s and reform results to date<sup>6</sup>*

Since the early 1990s, New Zealand has experienced an increase in its rate of economic growth. Unlike previous expansions, growth over the 1990s occurred in the absence of increased fiscal spending or a significant improvement in the terms of trade (see figure 2 above). Instead, private sector investment, consumption, and net exports have driven the improved growth performance. Figure 5a shows the extent of the increase in economic growth since the early 1990s. This has been sufficient to halt the relative decline in New Zealand's GDP per capita in comparison to the OECD region. In addition, employment growth in New Zealand has outpaced that of Australia, the United States, the United Kingdom and the OECD average over this period (figure 5b).

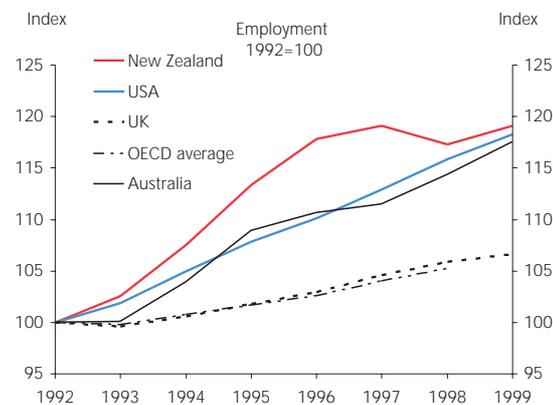
In the late 1990s, however, the New Zealand economy once again experienced turbulent times. Two consecutive droughts, the negative impact on foreign trade from the Asian financial crisis and the influence of past firm monetary policy (in response to strong inflation pressures in the mid-1990s), culminated in a short domestic recession in early 1998. Perhaps one of the most impressive aspects of New Zealand's recent economic performance is the way in which the economy weathered those adverse shocks. Unlike the

**Figure 5: GDP per capita and employment indices**

**Figure 5a**



**Figure 5b**



**Source:** Statistics New Zealand and Datastream

**Note:** The indexes in these graphs illustrate the relative growth rates in GDP per capita and employment across countries. They do not indicate relative levels.

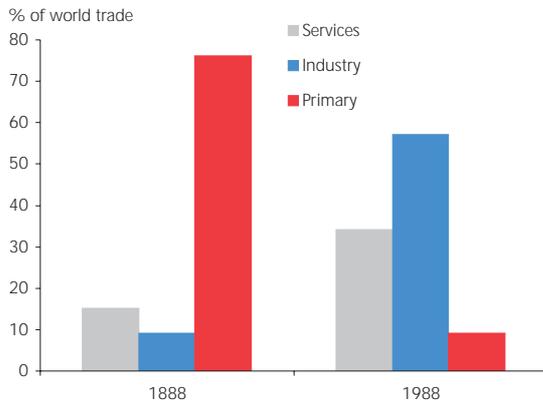
adjustments of the early 1970s, the domestic economy remained in good health. In addition, with macroeconomic stability now well entrenched, substantial fiscal deficits and inflation were avoided.

In part, the increased robustness of the New Zealand economy reflects a greater diversity in economic activity and in the composition and destination of exports (figure 1 above). Exports of higher value-added manufactured goods and services have grown considerably in recent times. As is apparent from figure 6, (overleaf) this is consistent with ongoing and long-run changes in the pattern of world trade.

Since the middle of 1998, the economy has again been expanding, with GDP currently growing at an annualised rate of around 4 percent. Although some of the

<sup>6</sup> In discussing the impact of the reforms on economic performance, we have chosen to use data from the early 1990s on the basis that the most major reforms had been implemented by this time. However, even after this date, reform was ongoing in, for example, in the utilities sectors and with tariff policy.

**Figure 6: The changing composition of world trade**



Source: Crocombe, Enright, Porter (1991)

improvements in New Zealand's absolute and relative economic performance since the early 1990s have been the result of a business cycle upswing, trend economic growth has clearly improved since the early 1990s, in comparison to the 1970s and 1980s.<sup>7</sup>

Vulnerabilities do remain however. In comparison to other OECD countries, production in New Zealand is still relatively concentrated in primary-product processing, and remains exposed to swings in international commodity prices. Because of a lack of domestic savings, the economy is also highly dependent on foreign capital. This is reflected in New Zealand's current account deficit, and increases in the share of income generated in New Zealand that accrues to the providers of foreign capital (the investment income component of the current account deficit).

### 3 A framework for economic growth

Over the last fifty years or so, there has been a vast amount of theoretical and empirical research into economic growth. Just as the discussion in section 2 was brief, the discussion in this section can hardly do justice to the growth literature. The more modest goal is to outline factors that are seen as important in the process of sustainable economic growth, thereby providing a framework for discussing New Zealand's recent growth experience.

<sup>7</sup> Trend output is measured using a simple and widely-used technique (the Hodrick-Prescott filter). The OECD (1999) also concludes that trend output has grown more strongly in the 1990s.

A great deal of contemporary economic growth research is founded on the neoclassical growth model first developed by Trevor Swan and Robert Solow in the 1950s.<sup>8</sup> This model stresses the importance of factor accumulation. In other words, increases in output occur as the result of increasing the quantity of labour and capital that is used in the production process. However, because of 'diminishing returns',<sup>9</sup> simply adding more capital and labour to the production process does not lead to **sustainable** economic growth.

In the so-called 'endogenous growth' models, sustainable economic growth occurs as the result of improvements in the level of productivity, that is, by making more efficient use of the available stock of capital and labour. The basic idea of endogenous growth models is that sustainable economic growth occurs as the result of prudent investment decisions that improve the quality of the economy's factors of production, whether they be physical capital or labour. For example, investment in education that increases the number of highly-skilled workers in the labour force may facilitate the adoption of new technologies that increase productivity. This literature also recognises the possibility of 'learning by doing' as more of the labour force is employed. Also, 'spillovers' from research and development by a particular firm may contribute to the economy-wide stock of knowledge, thereby increasing macroeconomic productivity.

By way of an example, consider the economic debate surrounding the impressive growth performance of the Asian 'Tiger' economies over recent decades. One school of thought, consistent with a neoclassical view of the growth process, suggested that the rise in activity was driven by the increased use of resources and/or a one-off technology 'catch-up'.<sup>10</sup> This implied that the Asian 'Tiger' economies would eventually slow, as resources became scarcer or the new technologies were fully integrated into production processes. In short, 'the law of diminishing returns' would again apply.

<sup>8</sup> See Moore and Simon (1999).

<sup>9</sup> 'Diminishing returns' applies to the situation where incremental increases of inputs create ever-decreasing increments to output. This generally occurs when one input in the production process is fixed, eg land.

<sup>10</sup> See Krugman (1995).

Another school of thought, consistent with the endogenous growth literature, argued that growth was due to advances in technology and the ability 'to do things better', implying that high growth rates were sustainable in the long run.

If productivity improvements are the driving force behind sustainable economic growth, the obvious question to ask is, why do improvements in productivity occur?

Endogenous growth models posit that increases in the stock of knowledge, which improve the quality of labour and capital, are clearly important. However, as the recent essay in *The Economist (op cit)* notes, knowledge alone will not necessarily generate sustained economic growth. For example, some of the key technologies that led to the rapid advancement of Britain in the 1800s existed in China hundreds of years earlier, yet provided China with little discernible growth dividend. It would appear that a number of other important mechanisms must be in place to facilitate the conversion of knowledge into productive technology that has the potential to enhance economic growth.

Economists have investigated a large range of prospective mechanisms that might fit this bill.<sup>11</sup> Some of the salient insights from this literature are depicted in figure 7. As this diagram makes clear, the productivity with which labour and capital are combined to create output is potentially influenced by a number of factors. At a fundamental level, a sound legal and institutional framework that enforces a well-defined system of property rights is considered to be an essential part of a well-functioning market economy. Such an arrangement allows firms and individuals to control the assets that they own and thereby retain the benefits of their productive endeavours. Russia is an example of an economy in which a system of sound property rights is lacking – one of a number of factors contributing to serious economic consequences.

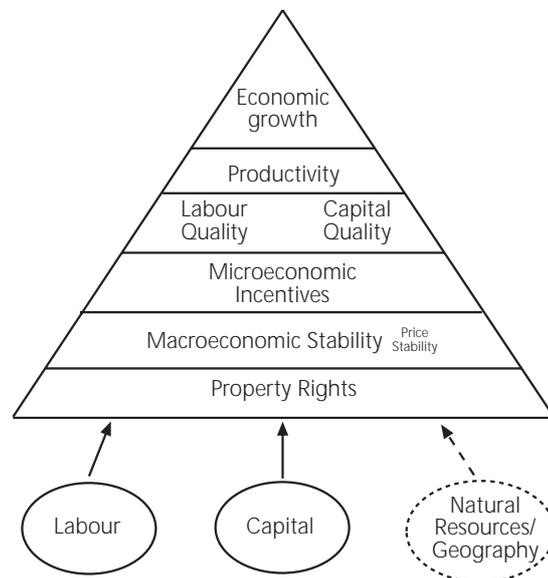
The second tier of figure 7 indicates that macroeconomic stability is also widely accepted to be an important prerequisite for sustainable growth. A stable economic environment instils greater certainty about the future. As a consequence, investment in physical and human capital can

be undertaken with greater confidence. Components of macroeconomic stability include stable and sustainable fiscal policy, a viable balance of payments situation and low and stable inflation – on which more is said below.

Other studies emphasise the role of microeconomic incentives. This encompasses all of the institutions and government policies that determine the economic environment within which individuals accumulate skills, and firms accumulate capital and produce output. A social infrastructure that is favourable to economic growth is one that supports capital accumulation, skill acquisition, innovation, and technology transfer.

Openness to international trade is considered to be an important component of growth-enhancing microeconomic incentives. Trade openness facilitates the international transfer of more modern (and efficient) technologies, and compels firms, who once may have relaxed behind high protective barriers, to use resources more efficiently so that they can compete. For these reasons, trade liberalisation engenders improvements in productivity as domestic firms 'catch up' to world-best practice in their industry. The process of technological catch-up has been found to be an important source of productivity improvement in formerly closed economies that have opened themselves to international market forces.

**Figure 7: Influences on the process of economic growth**



<sup>11</sup> See, for example, the cross-country empirical study of Barro (1997).

Finally, figure 7 shows that predetermined geographical factors can have an important influence on productivity and economic growth. This factor has obvious relevance to New Zealand given the size of the country and distance from international trading partners. It was recently noted that a circle with a radius of 2,200 kilometres centred on Wellington encompasses only 3.8 million people and a lot of seagulls.<sup>12</sup> A circle of the same size centred on Helsinki would capture a population of over 300 million people from 39 countries. Although technological advances are contributing to the ‘annihilation of distance,’ these factors, and the degree to which New Zealand is integrated into the global economy more generally, will continue to exert an important influence on New Zealand’s economic growth for a long time into the future.

In summary, economic growth occurs as a result of increases in the quantity of labour and capital that is used in the production process and from increases in productivity. Productivity improvements are ultimately more important in generating sustainable economic growth and can arise as a result of improvements in the quality of the productive inputs. There are a number of important factors that can potentially influence productivity and sustainable economic growth. In section 4 we will discuss New Zealand’s recent growth performance from this perspective. In the meantime, however, we elaborate on the role of monetary policy in the growth process.

### 3.1 The role of monetary policy in the growth process

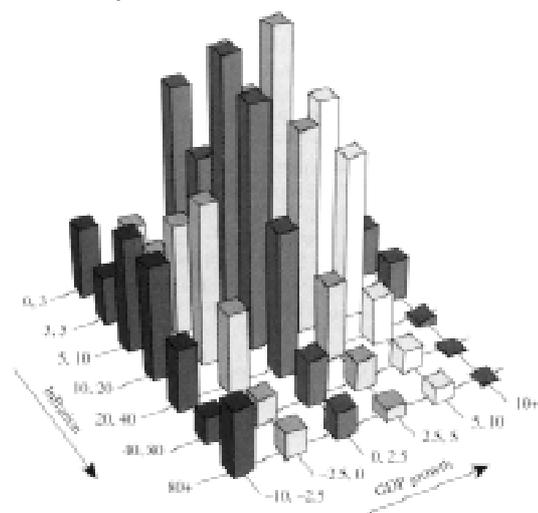
Economic theory and experience have shown that economies tend to work more effectively and equitably in an environment of domestic price stability. In order for the price mechanism – which is at the heart of a market economy – to work, it is important that price signals be clear. In a climate of high and variable inflation, it is difficult to distinguish relative price changes from generalised inflation. As a result, it becomes more difficult for households and firms to accurately gauge the state of the market and allocate resources to their most productive use.

It is also important that the accounting frameworks and conventions that are used to measure economic results and assess taxes give measures that accurately reflect real economic performance. In the absence of adopting an inflation-indexed system of accounting and taxation (which raises its own complexities), this requires that the monetary unit of measurement be stable. These things are a prerequisite for people to be able to contract, transact, work and invest with confidence.

In this sense, the role of monetary policy is ‘growth enabling’ in that price stability is conducive to resources moving to where they can be used to best advantage. Monetary policy cannot directly engineer sustainable economic growth. Printing excessive amounts of money (ie creating inappropriately loose monetary conditions) will, sooner or later, lead to inflation, as increasing aggregate demand in the economy runs into supply constraints.

A number of empirical studies have investigated the relationship between inflation and long-run economic growth. In one of the most recent and comprehensive studies in this area, Ghosh and Phillips (1998) consider the relationship between real per capita GDP growth and consumer price inflation in 145 countries over the years 1960

**Figure 8: Relationship between growth in GDP per capita and inflation (in percent a year)**



Source: Ghosh and Phillips (1998)

Note: The number of observations is on the vertical scale. Each observation corresponds to an individual country for a given year.

<sup>12</sup> The Treasury (1999).

to 1996. The negative relationship between inflation and growth in this sample is illustrated in figure 8. Observations of high GDP per capita growth tend to be associated with low rates of inflation. Conversely, observations of high inflation tend to be associated with low or negative growth in GDP per capita. The negative relationship between inflation and economic growth is found to be statistically and economically significant.

## 4 What factors have influenced New Zealand's relative growth performance?

In this section, we consider New Zealand's growth performance from the perspective of the economic framework outlined in section 3.

### 4.1 New Zealand's labour force

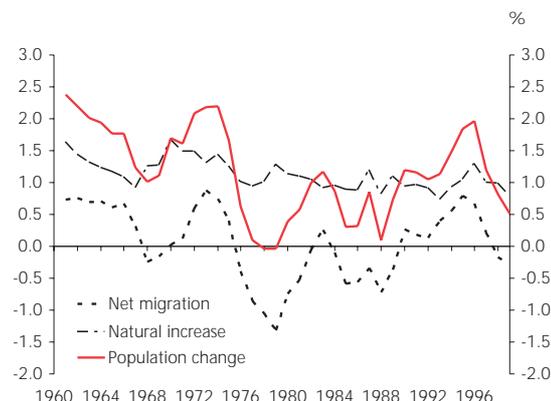
#### *The number of workers*

The quantity of available labour in an economy depends on the size of the population, its age distribution, and the labour force participation rate. Since 1960, the population of New Zealand has grown at a relatively rapid average annual rate of 1.2 percent, in comparison to the OECD average of 1 percent per year over this period. As can be seen from figure 9, net migration flows have had a large impact on the rate of population growth, contributing to relatively slow growth over the late 1970s and 1980s, and more rapid growth over most of the mid-1990s. In contrast, the natural increase in the population (births minus deaths) has remained relatively stable around a slightly declining trend.

The proportion of New Zealand's working age population that participates in the labour force has increased to around 66 percent, from 62 percent in 1970. Significant increases in female labour force participation and the number of part-time jobs have contributed to this rise.

High labour force growth will obviously increase output, provided that the new labour force entrants find work. However, whether labour force growth increases output per

**Figure 9: Contributions to population growth, annual percentage change**



Source: Statistics New Zealand

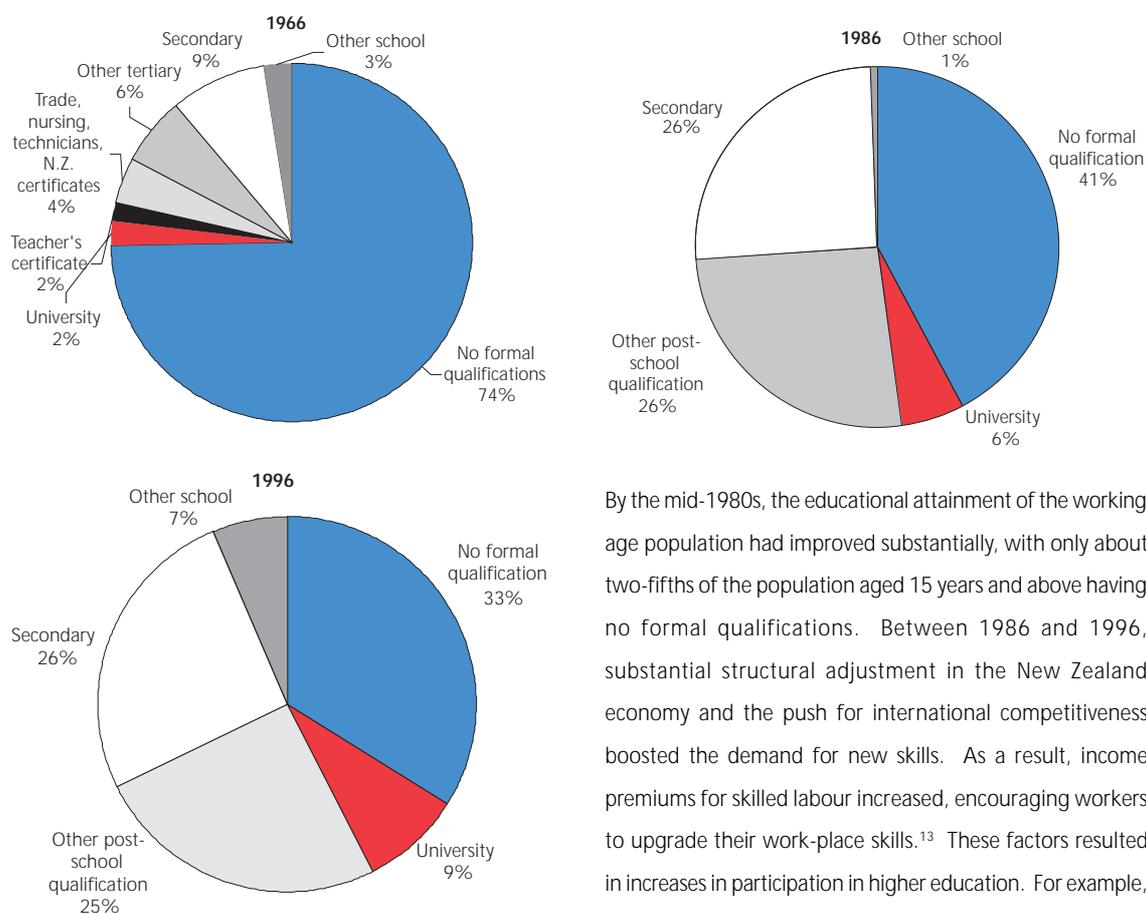
capita is a more open question. On the one hand, additional labour added to a finite base of other productive resources might suffer diminishing returns, thereby reducing the average level of output per capita. On the other hand, a larger labour force might lead to increases in output per capita through economies of scale, or by 'learning by doing' while in employment. On balance, the overriding determinant of the impact on output per capita is probably the work-place skills of the additional labour.

#### *New Zealand's skill base*

Economists use the notion of human capital to encapsulate labour force quality. The OECD (1998) defines human capital as "the knowledge, skills, competencies and other attributes embodied in individuals that are relevant to economic activity." As such, human capital is an intangible asset that encompasses a broad range of attributes, such as formal training, and enterprise-based training or work-place experience, which have the capacity to enhance productivity, innovation and employability.

Because it is unobservable and diverse, quantifying the stock of human capital is notoriously difficult. No single type of attribute can adequately represent the range of worker characteristics that impact on economic activity. A common proxy for the stock of human capital is the level of educational attainment of labour force participants. According to this proxy measure, the stock of human capital in New Zealand has been increasing in recent times.

**Figure 10: Qualifications, population aged 15 years and over**



Source: New Zealand census

By the mid-1980s, the educational attainment of the working age population had improved substantially, with only about two-fifths of the population aged 15 years and above having no formal qualifications. Between 1986 and 1996, substantial structural adjustment in the New Zealand economy and the push for international competitiveness boosted the demand for new skills. As a result, income premiums for skilled labour increased, encouraging workers to upgrade their work-place skills.<sup>13</sup> These factors resulted in increases in participation in higher education. For example, the proportion of the population aged 15 years and over holding a university degree increased from 5.5 percent in 1986 to 8.5 percent in 1996. Conversely, the proportion of people with neither a school nor a post-school qualification fell significantly.

As shown in figure 10, in 1966 almost three-quarters of New Zealand's population aged 15 years and over had no recognised educational qualifications. At this time, the wage bargaining system was structured so that wage differentials between various occupations were relatively low and rigid. As a consequence, price signals describing the return to investment in human capital were diluted. In addition, at least throughout the 1950s and 1960s, New Zealand's favourable terms of trade and large-scale commodity production ensured that low-skilled workers were relatively well rewarded. Unemployment was also very low until the 1970s. Given these factors, there were limited incentives for people to upgrade their human capital, (see Williams, Andrews, Nana and Rose (1999)).

<sup>13</sup> Maani (1999) uses Census data to calculate the private return to people who completed various levels of educational attainment. The results suggest that, in 1996, the private return for investing in education was positive and significant. The analysis also indicates that returns to all qualification levels have increased between 1981 and 1996. For example, in 1981 an employed male with a Bachelor's degree was likely to earn an after-tax income that was 40 percent higher than an employed male with no school qualification. In 1996, this premium had risen to 64 percent. In the late 1990s, skill premiums have dropped somewhat.

**Table 2: Net enrolment in public and private tertiary education by age group, 1985-95**

	Age 18-21		Age 22-25		Age 26-29	
	1985	1995	1985	1995	1985	1995
Australia		29.8		14.1		8.9
Belgium	24.5	40.7	7.2	16.5	1.5	3.6
Denmark	7.4	8.9	16.3	22.6	8.2	11.2
Germany	8.8	10.6	15.5	17.0	8.9	11.4
<b>New Zealand</b>	<b>14.9</b>	<b>28.6</b>	<b>9.6</b>	<b>13.3</b>		<b>7.2</b>
Norway	8.8	17.5	13.2	23.6	5.7	10.0
Sweden	7.9	13.0	11.3	16.6	6.5	7.5
UK		25.8		9.3		4.8
US	33.0	34.7	14.5	20.7	8.2	10.5
Average	15.0	23.3	12.5	17.1	6.5	8.3

Source: Wagner (1998)

Accurate cross-country comparisons of educational attainment are difficult. However, OECD data presented in Wagner (1998) and reproduced in table 2 suggest that participation rates in tertiary education in New Zealand have improved over recent times and are reasonably close to the average of the countries in the study. However, our tertiary participation rate still lags behind some high-growth countries.

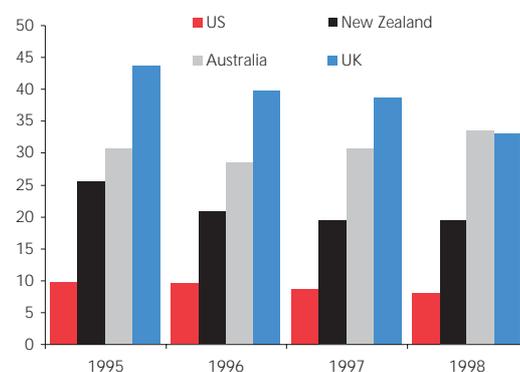
Notwithstanding recent improvements in educational attainment, several commentators have questioned the types of human-capital skills in which New Zealanders have invested.<sup>14</sup> Because learning new skills is a potentially time-consuming process, matching the skill composition of the labour force with the skill requirements of available jobs is a difficult challenge for individuals, educational institutions and firms. In the event of a mismatch, unemployment and unfilled job vacancies are likely to occur simultaneously.

In comparison to other countries, New Zealand does not appear to have an excessively large pool of labour with redundant work-place skills. Over the late 1980s and early 1990s, structural change in the economy resulted in a large number of workers with redundant work-place skills and increasing unemployment (figure 2e above). However, in more recent times, unemployment has fallen back to below

the OECD-average. In addition, as can be seen from figure 11, long-term unemployment is lower in New Zealand than in both Australia and the United Kingdom.

These aggregate figures mask important issues. A disproportionate number of Maori and Pacific Islanders leave school without qualifications, work in low-skill jobs or are unemployed. Indeed, over recent decades Maori and Pacific Islanders have been disproportionately affected by economic restructuring, with mostly lower-skilled jobs disappearing and more high-skilled jobs being created. Over the next two decades, this group will form a larger proportion of the working age population. Raising the educational performance of Maori and Pacific Islanders may provide a significant opportunity to improve New Zealand's growth prospects and the welfare of large communities.

**Figure 11: The long-term unemployment rate<sup>1</sup>**



Source: OECD Employment outlook

- 1) Unemployed greater than one year as a proportion of total unemployed

<sup>14</sup> Crocombe, Enright and Porter (1991) argued that New Zealanders have not invested in the types of human-resource skills that are needed to be internationally competitive. Several studies, including Campbell-Hunt and Corbett (1996) and Infometrics (1999), have argued that a lack of management skills has impeded the growth of New Zealand firms.

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On the demand side of the labour market, it is virtually impossible to quantify the degree of skill shortages, given a lack of detailed data on unfilled job vacancies. However, there is little doubt that structural change in the economy has altered the range of skills demanded by firms.

Over the 1990s, tertiary institutions appear to have increasingly focused on workplace demand when designing courses. In addition, with New Zealand students now directly facing a larger proportion of the cost of education, labour market signals appear to play a greater role in course design and participation, as well as course fee structures. Linkages between different educational institutions are also improving. Secondary schools now offer tertiary-level modules which polytechnics and universities may accept and credit towards their qualifications. A number of polytechnics also provide tertiary courses in conjunction with universities.

Attracting suitably skilled migrants is another, more immediate, method of upgrading the skill composition of the labour force. This objective conditioned, at least implicitly, aspects of the Immigration Act (1987), which removed the traditional preference for migrants from the United Kingdom, Western Europe and North America, and introduced an occupational priority list. The Immigration Amendment Act (1991) went further and replaced the occupational list with a points system, with the aim of attracting well-qualified immigrants.

This approach appears to have been relatively successful. Over recent years, working age immigrants have had a higher level of educational attainment than the resident population. For example, in 1996, one-third of working age immigrants had a university qualification, compared to only one-tenth of the domestic population. In spite of this, some well-qualified immigrants experience poor labour market outcomes for many years after their arrival (Winkelmann and Winkelmann (1998)). Of course, if immigration is to increase the stock of human capital, occupational licensing must be such that immigrants are able to put their skills into practice in New Zealand.

The flip-side of international labour mobility is that well qualified and highly skilled New Zealanders may opt to live and work in other countries. 'Overseas experience' has become a well-established part of New Zealand life, with

long-term departures fluctuating between 35,000 and 80,000 people per annum over the last 25 years. However, with around 20,000 New Zealanders returning home each year – hopefully wiser, more skilled and wealthier – the net impact on the stock of human capital is less clear-cut.

Available evidence tentatively suggests that net migration flows over the 1990s may have had, on balance, a positive impact on New Zealand's stock of human capital. On the basis of a number of assumptions, Williams, Andrews, Nana and Rose (1999) claim that, over the period 1992 to 1998, net migration increased the stock of human capital. This analysis highlights that one needs to account for net flows when assessing the impact of migration on the total labour force.

## 4.2 Capital

### *Investment levels*

Between 1965 and 1999, the ratio of total investment-to-GDP in New Zealand averaged 20 percent. By all accounts, this ratio was broadly comparable to investment rates in other developed countries. In fact, OECD data suggest that New Zealand's investment-to-GDP ratio in 1996 (20.9 percent) was the seventh highest in the OECD. Given that the quantity of investment in New Zealand over recent decades was comparable to that elsewhere, this suggests that the past mediocre growth performance of the New Zealand economy must reflect more the quality of investment, rather than the quantity.

### *Investment quality*

The quality of past investment in New Zealand has long been questioned. A number of factors have contributed to a poor allocation of resources over recent decades. One of the early influences on investment direction in New Zealand was the large endowment of pastoral resources, coupled with preferential access to the British market for primary products. This combination of factors resulted in large investment in primary industries, increasingly at the expense of investment in other sectors of the economy.

Prior to the mid-1980s, New Zealand's investment allocation largely occurred behind a veil of industry protection, producer subsidies and financial-market controls. Such policies

**Table 3: Household assets<sup>1</sup>**  
(Percent of disposable income)

	Real assets	Financial assets	Net assets	Ratio of real assets to net assets (%)
<b>New Zealand<sup>2</sup></b>	367	145	423	87
United States <sup>3</sup>	213	403	515	41
Japan	450	337	674	67
France	253	240	423	60
Italy	375	239	646	58
UK	280	393	563	50
Canada	284	311	490	58

Source: National Bank of New Zealand (1998)

- 1) New Zealand figures for 1997; US, France, UK, Canada are 1995; Italy is 1992.
- 2) New Zealand real assets cover housing only.
- 3) Since 1995, financial assets relative to disposable income has more than doubled for US households due to the strong rise in the US stockmarket. Financial assets in 1997 were more than 800% of disposable income.

distorted price signals and encouraged investment into relatively protected sectors of the economy – which were sometimes the least productive. Direct investment by government was also prevalent during the 1970s and early 1980s. In hindsight, a number of government-funded investment projects have yielded little net economic benefit.

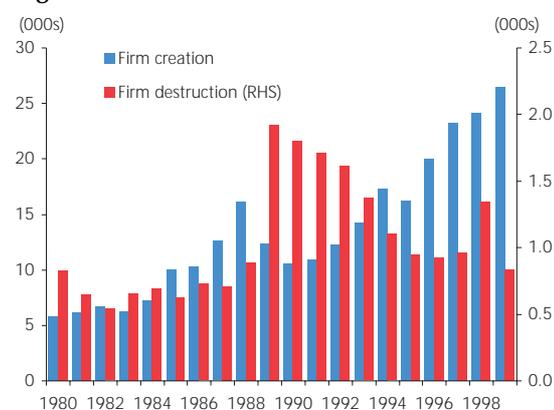
The apparent enthusiasm of New Zealanders for investment in residential property has been another determinant of the quality of investment. At the end of the 1960s, with controls on nominal interest rates and rising real estate prices, real mortgage interest rates were negative. This provided a considerable incentive for individuals to borrow in order to purchase property. More generally, the interaction of high inflation with the tax system reduced the real return on capital, particularly plant and equipment, and created an additional incentive for investment in property. As a result of these and other factors, the proportion of household wealth held in real estate in New Zealand has been among the highest in the world (table 3).

With the commencement of economic reform in the 1980s, competitive market forces came to play a much larger role as determinants of investment. Initially, a large portion of the capital stock that was employed in previously protected and uncompetitive sectors of the economy became redundant. Since this time, with price signals playing a more prominent role in the allocation of resources, the quality of investment appears to have improved. Lawrence and Diewert

(1999) calculate that New Zealand's after-tax real return on market capital increased to an average of 5.3 percent over the 1990s, from 2.9 percent over the 1970s and 1980s. OECD data also suggests that the average nominal return on business sector capital in New Zealand improved from 15<sup>th</sup> out of 19 countries in 1986, to 2<sup>nd</sup> in 1997.

Turning to microeconomic indicators of investment quality, figure 12 shows a substantial increase in the creation and destruction of firms over the last 15 or so years. Some studies have found that productivity differentials between firms entering and exiting a market is an important source of productivity growth at the industry level.<sup>15</sup> As firms that are

**Figure 12: Firm creation and destruction<sup>1</sup>**



Source: Companies Office

- 1) Firm creation is 'new companies' registered. Firm destruction is 'company liquidations (court ordered)' plus 'liquidations'.

<sup>15</sup> See Lavinsohn and Petrin (1999).

particularly well suited to an industry enter and expand, and older more sedentary and unproductive firms exit, the average productivity of the industry increases. If this is the case for New Zealand, then the recent increase in the rate of entry of new firms and exit of old firms is a positive indicator for the quality of capital.

### 4.3 Productivity<sup>16</sup>

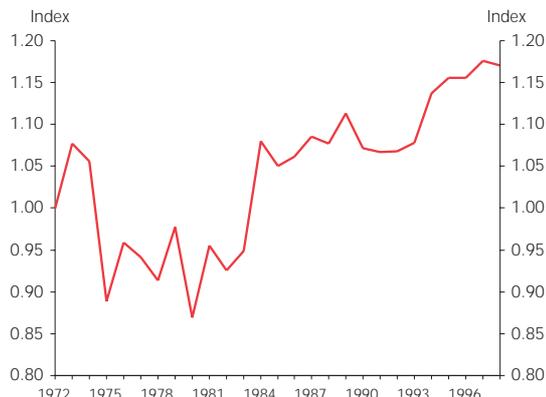
Lawrence and Diewert (1999) recently conducted a comprehensive study of macroeconomic productivity in New Zealand. Their preferred measure of productivity is reproduced in figure 13. According to this measure, productivity grew by 17 percent between 1972 and 1998, at a trend annual growth rate of 0.8 percent. During the 1970s and early-1980s, productivity growth was generally poor and volatile. Given the relatively strong rates of labour force growth and investment in New Zealand over this period, it appears that the low rate of productivity growth was the main factor behind New Zealand's poor output growth performance.

In 1984 the Lawrence and Diewert productivity measure increased strongly, possibly reflecting the expansionary effects of stimulatory fiscal policy. Between 1984 and 1993 the level of productivity changed very little. From the mid-1990s, Lawrence and Diewert find that productivity increased relatively strongly. Conway and Hunt (1998) also identify an improvement in trend productivity from the beginning of the 1990s, as do productivity estimates published in the OECD *Economic Outlook*.

The OECD data also suggest that New Zealand's recent productivity performance has been similar to that of a range of other OECD countries. In addition, Lawrence and Diewert find that productivity growth in New Zealand has been broadly comparable to that in Australia throughout the 1990s when measured on a comparable basis (see figure 14).

It should be noted that productivity studies of this sort are constrained by significant measurement problems. The statistical measurement of the service sector often involves

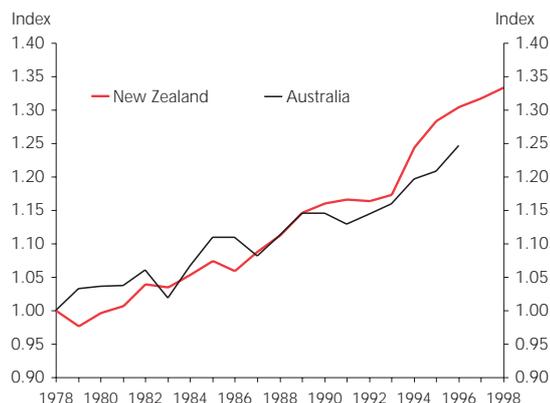
**Figure 13: Lawrence-Diewert productivity index**



Source: Lawrence and Diewert (1999)

using 'inputs' as a proxy for 'outputs,' thereby ruling out productivity improvements by definition. This problem is becoming increasingly serious as the size of service industries increases in both relative and absolute terms. These problems may bias downward measures of New Zealand's recent productivity performance, by overlooking the substantial

**Figure 14: Productivity index, Australia and New Zealand<sup>1</sup>**



Source: Lawrence and Diewert (1999)

1) These productivity estimates exclude 'difficult to measure' sectors of the economy such as finance and personal services.

performance improvements in banking and other service sectors that have resulted from recent technological developments. The utilities and public service sectors in New Zealand have also been transformed considerably following

<sup>16</sup> In this section 'productivity' is measured as 'total factor productivity.' This measure accounts for a broader range of inputs into the production process than simple calculations of labour productivity and is considered to be more accurate.

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recent economic reforms, with substantial productivity improvements that may not be captured by estimates of GDP.

## 5 Conclusion

Considerable economic and social change has occurred in New Zealand and internationally over recent decades. The New Zealand economy is now considerably more diverse, in terms of production, export markets, and consumer tastes, than it was thirty or forty years ago. The New Zealand population is also more highly educated and there are encouraging signs that productivity has improved. Macroeconomic stability is now widely considered to be a permanent goal of economic policy. This includes price stability and long-term fiscal prudence.

Microeconomic efficiency has also improved, with the productivity of traditional primary sectors increasing and the service sectors of the economy expanding rapidly. The latter trend is shared internationally, and in part reflects the rise of the so-called 'knowledge economy.' Equally, the global market place is now considerably more open, competitive, and 'smaller' in terms of the improved ability to communicate and shift factors of production.

Despite these positive and significant changes, there still appears to be some disappointment about the 'growth dividend' from recent economic reform in New Zealand. In part, this may reflect the fact that recent increases in productivity, while being sufficient to maintain New Zealand's relative standard of living, have not been sufficient to close the per capita income gap with several comparable economies. It may also reflect the fact that the process of structural change is arduous, with dynamic new businesses replacing old, and some sectors of the economy contracting while others expand.

Because the process of change is dynamic, improvements in productivity are likely to occur over an extended period of time, rather than appearing as a sudden jump. Compared to many OECD economies, New Zealand's economic reform is relatively recent. New Zealand has been exposed to the rigours of the international market place for only a relatively short period of time. Fundamental economic change typically emerges slowly. Re-engineering the stock of physical capital

and identifying and creating the skill base for a competitive economy are not trivial exercises.

Looking to the future, it is difficult to predict where growth will occur and what the major industries will be. It is, however, certain that capital and labour are now considerably more mobile than in the past. In order for New Zealand to advance at the same pace as – if not faster than – its trading partners, economic policy must be focused on encouraging a highly skilled labour force and a productive capital stock that draw on both domestic and foreign sources. This implies that economic policy must compete to attract these resources.

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