

## Alan Bollard: New Zealand's potential growth rate

Address by Dr Alan Bollard, Governor of the Reserve Bank of New Zealand, to the New Zealand Canterbury Employers' Chamber of Commerce, Christchurch, 28 January 2005.

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### 1. New Zealand's growth performance has improved

What a difference a decade makes. If we look at New Zealand's economic growth over the last decade, and compare it with the previous decade, we see that there has been a large lift in the country's growth rate. Average growth over the earlier decade, 1984-1994, was 1.5% per annum, while over the last decade it has averaged 3.4%.

Clearly, there were difficulties in the 1980s as firms struggled to come to grips with the new economic environment: exports subsidies were gone, government trading entities were corporatised and some privatised, there was a move towards user pays for government services, and various markets were deregulated. Then there were the other factors. These included the sharemarket crash of 1987, which was to have large flow on effects, especially for some local property sector firms. Another factor was the international recession of the early 1990s.

Neither has the last decade been all plain sailing. We had the Asian crisis of 1997-98, but fortunately this did not last long. The economy was also affected around this time by droughts. Then in late 2000 and early 2001 we saw the onset of a major slowdown in the US following a sharp fall in the value of high tech shares. Nevertheless, the New Zealand economy did more than simply survive these difficulties; over the decade it had a much improved growth performance.

Two broad factors appear to have been influencing growth over the last ten years:

- The economic reforms of the 1980s and early 1990s have resulted in a more competitive environment for the private sector. Also, since the early 1990s we have had a more decentralised approach to wage setting in the private sector, which has given firms more flexibility in how they operate.
- Reforms in the government sector have resulted in more stable macroeconomic policies. The Reserve Bank Act was passed in 1989; price stability was achieved by 1992, and has been maintained since then. We have also seen fiscal stability since the early 1990s, reinforced by the passing of the Fiscal Responsibility Act. We have seen a more medium term approach to planning and undertaking government expenditure, without the volatility associated with attempts to "pump prime" the economy.

Our growth performance over the last five years has been particularly strong, with growth averaging 3.8% per annum. This was higher than growth over the same period for Australia, the US, and for the OECD as a whole (see Table 1).

Table 1  
**Economic growth over the last 20 years**  
Average annual percent change

Period	New Zealand	Australia	United States	OECD
1984-1994	1.5	3.3	3.2	2.9
1994-2004	3.4	3.9	3.3	2.6
1999-2004	3.8	3.3	2.8	2.3

There are particular reasons as to why we have done so well over this period:

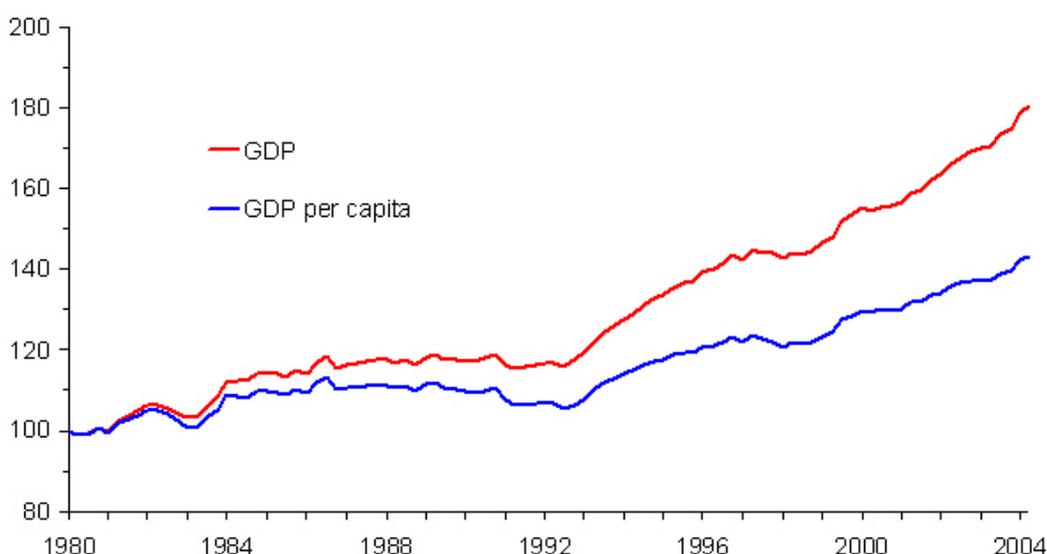
- In 2000 and 2001 we had a period where the exchange rate was low and commodity prices had blipped up. Climatic conditions were also good in this period, lifting the volume of agricultural exports. Consequently, many exporters got a major boost to their incomes. Many firms were able to pay off debt and improve their balance sheets.
- Following September 11 2001 New Zealand suddenly looked like a more attractive place to Kiwis, to would-be migrants, and overseas students, as well as tourists. The resulting large gains from net migration had a positive impact on the level of economic activity.
- World commodity prices have risen sharply over the last two years, reflecting both recovery in the US and continuing strong growth in China. There have also been particular factors affecting the prices of commodities that New Zealand trades in. These include: the outbreak of BSE in the US, which stopped the exporting of US beef to Japan; the continuing rundown of sheep numbers in the EU; and droughts in Australia, which have affected that country's rural exports.
- Growth in private consumption has been very strong, aided by higher employment levels, and also by increases in house prices, which made households feel wealthier. Consumer confidence has remained high.

Not all industries have experienced strong growth over the last five years. But the benefits from the strong growth in the macroeconomy have been clear to see. Job growth has been strong, unemployment has fallen, household incomes have risen, company profits are strong, and the government has a substantial fiscal surplus. These benefits are reflected in the rise in GDP per capita. (GDP is taken here, and throughout what follows, as being real GDP, or the *volume* of value added, rather than nominal GDP.)

Given that GDP per capita is a broad measure of general living standards, it is the rise in GDP per capita that really matters to us, rather than the rise in just GDP itself. However, as can be seen from Figure 1, variations in GDP per capita have tended to reflect changes in GDP. (The gap between GDP and GDP per capita in Figure 1 reflects population growth.) Growth in GDP per capita averaged 2.2% in the 1994-2004 period, compared to 0.7% in the previous decade.

The rise in GDP growth over the past decade has also lifted our growth in GDP per capita relative to the growth rate for the OECD as a whole (Figure 2). However, our level of GDP per capita in 2002, in terms of purchasing power parity (PPP), was still 14% below that of the OECD.

Figure 1  
**Real GDP and real GDP per capita**  
 Indexes, base 1980=100

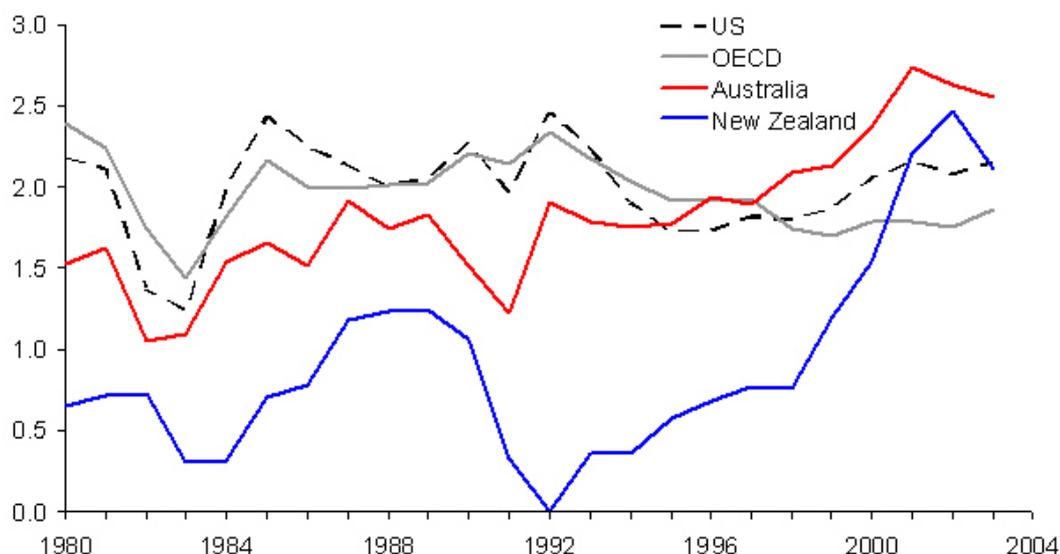


Having enjoyed a return to strong growth, and a rise in GDP per capita, we naturally want this situation to continue. Some of the factors which have lifted our growth rate recently, especially the impacts from

policy reforms, can be expected to persist, thus improving the economy's productive capacity or potential output in the long run.

However, there are signs that the level of economic activity is currently higher than the level of potential output, thus giving rise to inflation risks. The capacity utilisation measure from NZIER's quarterly survey of business opinion is at a record high level. Clearly many firms are stretched, running at full capacity, or close to it. Furthermore, firms have been reporting for some time now - for over three years - that they are having increasing difficulty in finding both skilled and unskilled staff.

Figure 2  
**Changes in real GDP per capita**  
 Average annual percent change over 10 year period



Source: OECD. GDP per capita has been calculated in US dollars using price levels and PPPs of 2000. Data is currently available only to 2003.

## 2. Monetary policy aims to keep the level of activity in line with potential

We know that when output exceeds potential over extended periods, as has been happening recently, inflation tends to rise. Hence, the overnight cash rate (OCR) was lifted from 5.00% to 6.5% over the course of last year, in order to slow the pace of growth. Our forecast is for economic activity to move closer to its potential level over the next year, reflecting not only the effects of higher interest rates on private consumption and residential investment but also an easing in commodity prices.

Determining the current level of potential output is a key issue for monetary policy.

Analysis shows us that when GDP is significantly above its potential level, inflation increases. In this situation, aggregate demand is higher than what can be comfortably produced, and the result is a rise in inflation. Similarly, when GDP is significantly below its potential level, inflation falls. The role of monetary policy therefore is to keep the economy running close to potential, otherwise inflation will either increase or decline.

Note that we are using the word "potential" in a slightly different way to its normal use. When something achieves its potential, we usually mean that it achieves a maximum value. But in the way that we are using the word here, we can have the economy operating above its potential. However, potential output is a maximum value of a sort - it is the highest level of output that will not produce upward pressures on inflation.

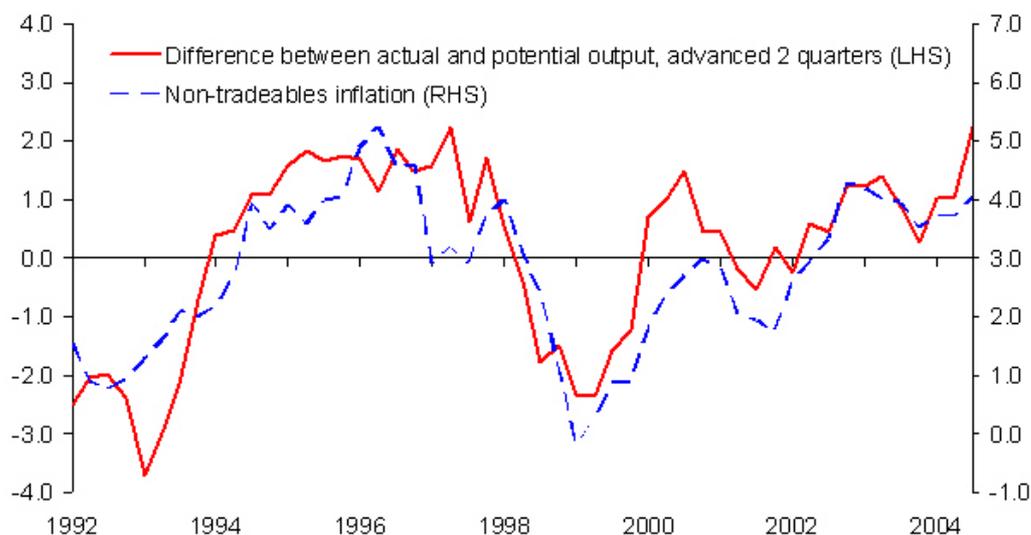
Potential output is not a variable that can be observed directly. It is often estimated as a smoothed track of GDP. The smoothing takes out the short-term fluctuations in GDP and it is assumed that the resulting smoothed series reflects changes in the productive capacity of the economy. In effect, it is

assumed that the smoothed series reflects the underlying growth in such things as capital equipment and labour.

Estimating potential GDP presents some challenges. For example, we are more confident of what potential GDP was say three years ago than of knowing what it is today. This is largely because smoothing methods don't work as well at the end of data series as they do in the middle of the series. This is frustrating, given that it is the end value - the latest value - that we are most interested in. Because of this "end point" problem, potential GDP is often estimated using methods that incorporate information from other cyclical series as well as actual GDP.

Figure 3 shows the percentage difference between actual output and potential output. Potential output is estimated using an MV (multi-variate) filter. The method has been well documented. This MV filter, which is a smoothing mechanism, uses not only GDP data but also data on capacity utilisation and the unemployment rate. The chart also shows inflation for non-traded goods or services, which can be generally viewed as domestic inflation. The chart shows a strong relationship between the two series.

Figure 3  
**Domestic inflation v difference between actual and potential output**  
Percent



The difference between actual and potential output is by no means the only factor driving inflation. For example, the world price of imports, the exchange rate, and wage settlements also have an impact on inflation, and these factors are taken into account. In general terms though, when output has moved significantly above its potential level, and looks likely to stay there, a tightening in monetary policy is likely to follow.

There appears to be widespread community acceptance of the need to keep inflation under control. But some people may still have doubts, saying that they would be happy to put up with higher inflation if we were getting higher growth. The problem is that as inflation rises, peoples' expectations regarding future inflation also rise. This affects behaviour regarding the setting of prices and wages. Inflation therefore tends to get locked in at a higher level. We had ample evidence of this in the 1970s and 1980s.

A tightening will affect economic growth in the short term, but does monetary policy also have an effect on long term growth? We have done some research on this at the Reserve Bank.

A recent Bulletin article (Smith 2004) examined both theoretical and empirical studies on this issue. The theoretical studies suggest that transitory changes in interest rates are likely to have only a transitory impact on factor accumulation (e.g. capital investment) and hence should not permanently affect the growth of output. The empirical studies suggest that high inflation, or even moderately high inflation, is harmful to growth. Studies have also looked at whether macroeconomic volatility is harmful to trend growth. The general view appears to be that the costs of macroeconomic volatility - in variables such as the exchange rate and inflation - are likely to outweigh any benefits. The article

notes that the maintenance of price stability appears to be the main contribution that monetary policy makes to growth.

These overall findings or conclusions, the article suggests, are already embodied in the Policy Targets Agreement (PTA). The PTA charges the Reserve Bank with keeping inflation between 1% and 3% over the medium term while avoiding unnecessary instability in output, interest rates and the exchange rate.

The conclusions that we draw from this study and others are that:

- A one-off easing of monetary policy will have no impact on long run real output - it will only affect the long run price level.
- Good monetary policy applied consistently over time is a necessary condition for achieving a high long term average growth rate. (Good monetary policy is defined here as achieving stable and low rates of inflation while minimising short term disturbances to output and other variables i.e. successfully implementing the PTA).
- Good monetary policy will not by itself ensure that long run growth is as high as it could possibly be. But bad monetary policy, if sustained, will prevent the economy from reaching its maximum growth rate. In this context, ongoing bad monetary policy will reduce growth below its maximum rate over a period of many years, leading to a permanent loss of output.

Clearly, bad monetary policy, or the inadequate implementation of policy within the current framework, is something we want to avoid.

### **3. Accounting for growth**

Determining what our potential level of output is, and what the growth in potential output is, are important issues in implementing good monetary policy. As we will see, potential GDP changes over time. We will look at what drives these changes.

The level of a country's potential output at any point in time is dependent on a number of factors, including:

- natural resources, including land and soils, rivers, ocean areas and climate,
- capital equipment (buildings, machinery, transport equipment),
- the amount of labour employed, and the skills and education that this labour has,
- infrastructure,
- a well functioning and effective government and judicial system.

These factors generally influence the productive capacity of the economy, that is, they affect the supply side of the economy. However, demand factors can also ultimately affect the level of potential output. For example, suppose we have a permanent upward shift in the terms of trade. That is, we have a permanent shift up in export prices relative to import prices. The end result of this would probably be a higher level of employment and an increase in the amount of capital equipment being used. In other words, there would have been a rise in the country's productive capacity or potential output.

In trying to determine what the level of potential output might be, economic analysts usually look at the relationship between output and the primary inputs of capital and labour. By capital, we mean here the capital stock, or the real value of existing capital equipment. However, in recent times there has been a growing interest in defining sustainable development in terms of the impact that development has on natural resources. However, we will focus here on the primary inputs, capital and labour.

Another factor that has a major influence on productive capacity, and which is not listed above, is productivity. Productivity is a measure of the ability of inputs, like capital and labour, to produce output. In simple terms it is output divided by inputs.

The ratio of output to labour input, usually measured in GDP per hour worked, gives us a measure of labour productivity. Another measure of productivity is multi-factor productivity (MFP). In general terms MFP is output divided by a weighted average of the capital stock and labour. Economists tend to see potential growth as depending on the capital stock, labour, and MFP. MFP is the "unexplained" part of

economic growth - it is that part of growth which is not accounted for by the primary inputs of capital and labour. One factor that influences MFP is technological change. We will come back to this later.

As mentioned earlier, GDP per capita is the important variable, the one that we want to see growing. We can decompose GDP per capita into two factors as follows:

$$\text{GDP/population} = [\text{GDP/hours worked}] [\text{hours worked/population}]$$

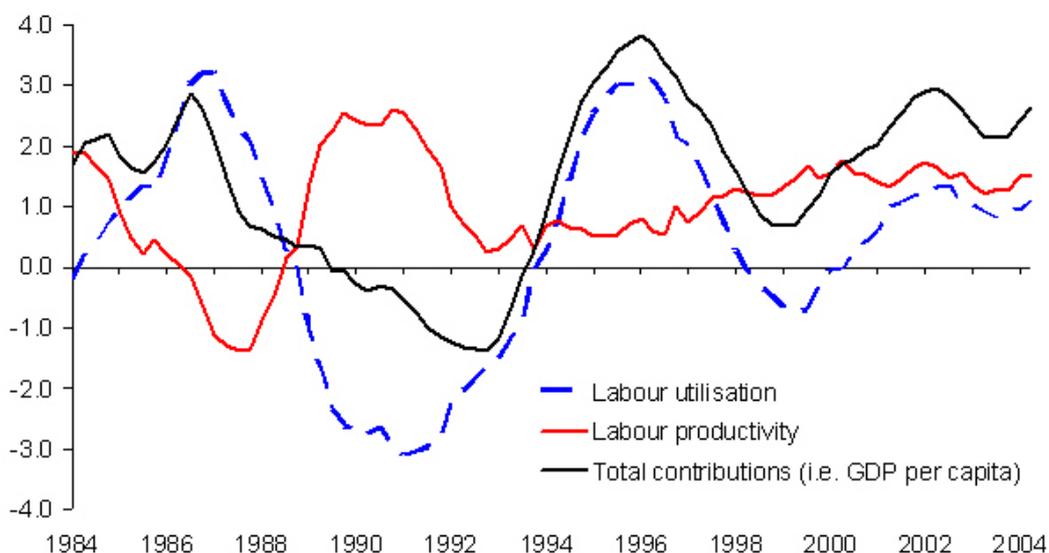
That is, GDP per capita equals labour productivity times labour utilisation. Hence we can lift GDP per capita by raising labour productivity or labour utilisation, or both. This simple decomposition is the basis of the saying “We can lift our standard of living by either working harder, or by working smarter”. That is, we can do it by working more hours, or by lifting labour productivity.

Lifting the hours we work can be achieved by higher labour force participation, which is something that has been happening over recent times. Another way of lifting hours worked is simply for those of us who are already employed to work longer hours. I suspect that a large proportion of the workforce wouldn't find this attractive, at least on a sustained basis. This underlines the importance of lifting productivity if we are to be better off.

Figure 4 shows growth in GDP per capita, and the contributions to this growth coming from changes in labour utilisation and labour productivity. The recent rise in labour utilisation reflects higher participation rates and a decline in unemployment. Given that participation rates are currently higher than they have been for nearly 20 years, and the unemployment rate is at a historically low level, it seems that rises in labour utilisation are unlikely to be as high in future. This means that gains in GDP per capita are increasingly going to have to come from productivity gains.

Labour productivity is currently increasing by around 1.5% per annum. Labour productivity growth has averaged 1.2% per annum over the last 10 years. In the previous decade, it averaged only 0.7%, despite the strong growth in labour productivity that occurred in the recession of the late 1980s and early 1990s.

Figure 4  
**Contributions to changes in GDP per capita**  
 Percent contribution to annual change



Note: The chart was derived using 3 year averages of GDP per capita, hours worked, and population in order to show the underlying trends in labour utilisation and labour productivity.

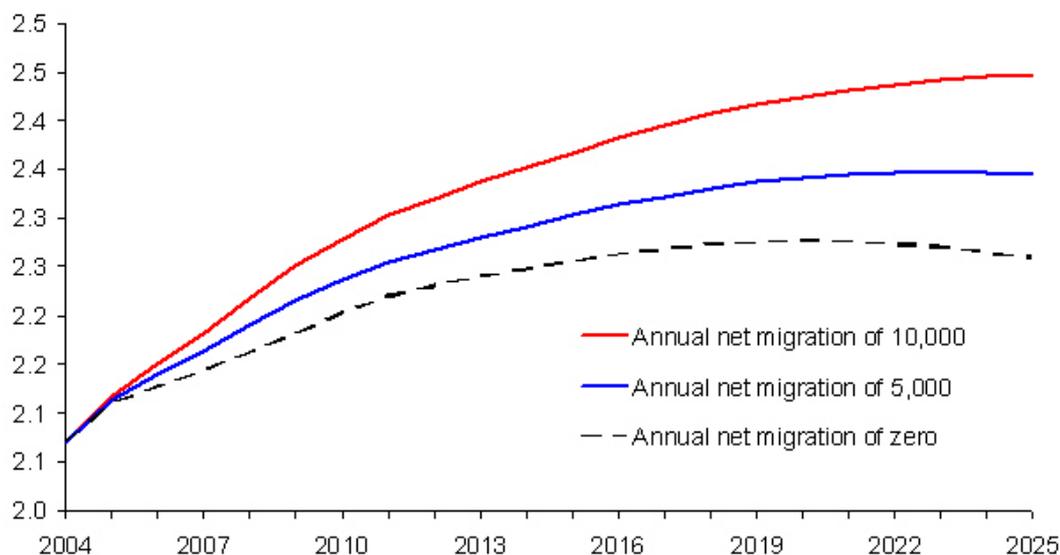
The importance of labour productivity growth to the long run economic outlook becomes very clear when we look at demographic trends. Figure 5 shows labour force projections which are based on three population projections. All three projections assume medium fertility and medium mortality but each has a different assumption regarding migration. With zero net migration the size of the labour force begins to decline from 2018. Higher levels of migration push the track up, but even with an

annual net gain of 10,000 from migration, the growth in the labour force slows, and the labour force eventually levels off. Net gains from permanent and long term migration have averaged 13,600 per annum over the last decade, compared with -4,700 per annum in the previous decade.

Figure 5

### Projected labour force

People in the in labour force, millions



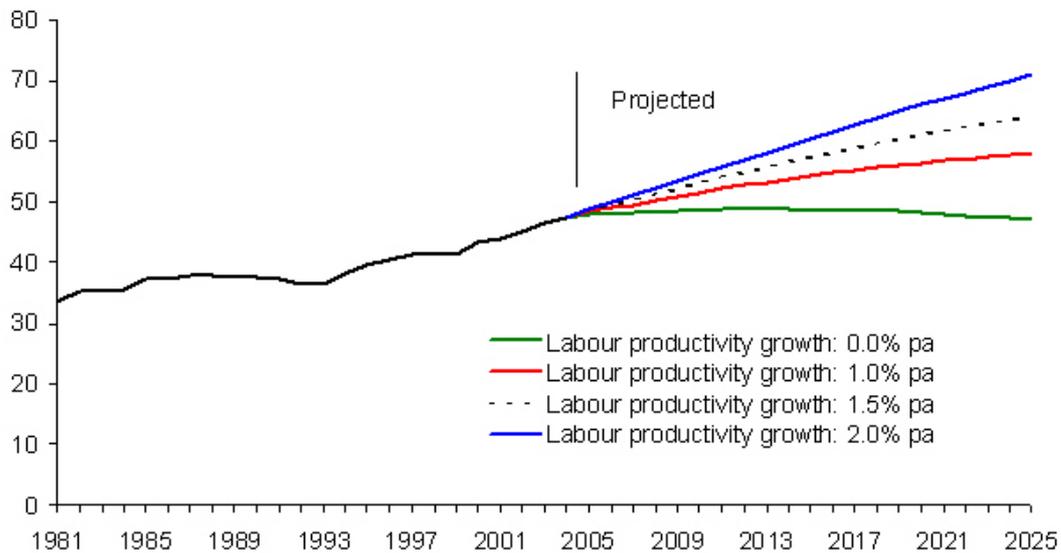
These projections reflect the ageing of the population. Birthrates underwent a long term decline from the 1890s through to the 1970s, although the post war baby boom provided a temporary interruption. Around 2010, the number of people leaving the labour force - mainly baby boomers - is projected to rise sharply. Even if these people were to put off retirement for a while, growth in labour utilisation is still likely to slow. Any substantial growth in the labour force would have to come via high levels of migration.

Taking one of our labour force projections - the one based on annual net migration of 10,000 - we can derive scenarios for future GDP per capita based on assumptions about labour productivity. Let's assume that labour productivity grows at 1.5% per annum, which as we have seen, is similar to the present growth rate. For each year of the projection we add this growth to the projected growth in the labour force to get GDP growth. (In doing this, we are assuming that number employed will grow at the same rate as the labour force. That is, we are assuming that the unemployment rate will stay constant over the projection period.) For each year of the projection, we can then calculate GDP per capita, using the projected population figure.

The result is shown in Figure 6, along with projections using alternative labour productivity assumptions. The lowest scenario assumes no growth in labour productivity, and hence annual changes in GDP simply reflect changes in the labour force. Under this scenario, GDP per capita begins to decline from 2014. In this year, the growth in the labour force, and hence the growth in GDP, falls below the growth in the population. Reassuringly, the chart shows that labour productivity growth of 1% per annum is enough to keep GDP per capita increasing. However the chart suggests that in order for GDP per capita to keep growing at a rate similar to which it has done over the last decade, labour productivity needs to grow at 2% per annum rather than 1.5 % per annum. We will come back to this issue.

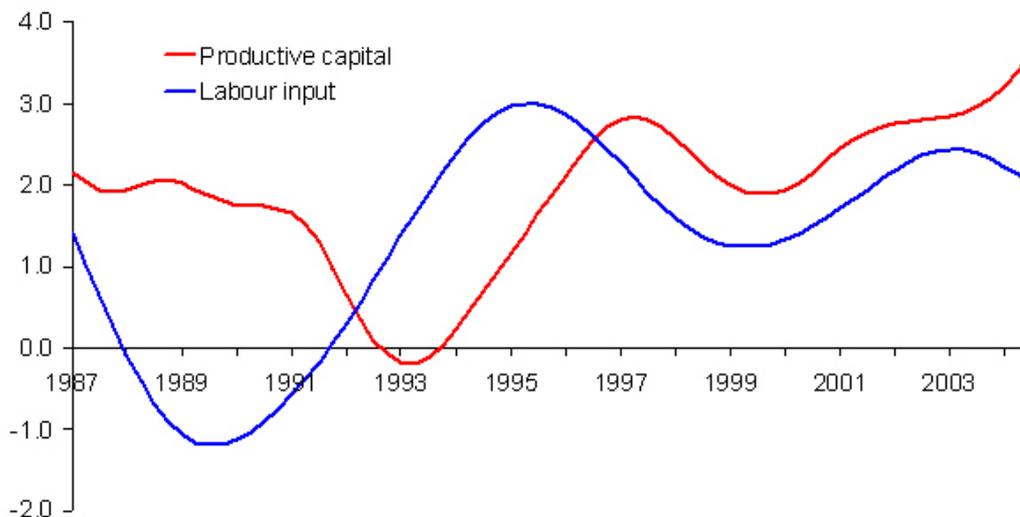
The chart certainly illustrates the importance of labour productivity growth to ongoing improvements in the standard of living. The chart also illustrates the power of compounding. A lift in labour productivity by 0.5% annum will, if sustained, produce large differences in GDP per capita over time.

Figure 6  
**GDP per capita, projected**  
 2004/05 dollars, thousands



Perhaps the most direct and obvious way to go about lifting labour productivity is to raise the skills of workers. That is, we would improve the quality of the labour which is an input to production. But workers cannot be the total focus of lifting labour productivity. With a bit of algebra it can be shown that labour productivity can be expressed in terms of MFP, or multifactor productivity, and the capital stock to hours worked ratio, which is often referred to as the capital to labour ratio. In general, a rise in the economy's capital/labour ratio can be expected to lift labour productivity since labour now has more equipment to support it.

Figure 7  
**Changes in capital and labour**  
 Annual percent change



A rise in MFP will also lift labour productivity. Unfortunately, measuring MFP is never easy. There are always issues regarding the accuracy of data on the capital stock, hours worked, and even GDP. And when we combine all these variables to calculate MFP - the "residual" factor which affects output - the measurement errors in the component series can make analysis difficult. Furthermore, we are more

interested in the underlying trends in MFP, rather than short term changes. One way of deriving a trend series for MFP is to use trend series for capital, labour, and GDP in calculating MFP. In fact, the GDP series that is used in deriving MFP in the context of the Reserve Bank FPS model is potential output. This is the smoothed series of GDP produced by using the MV filter.

The labour input series used in the calculation is a smoothed series of total employment. The capital stock series is “productive capital”; it does not include housing. This series changes gradually over time and hence needs no smoothing. Figure 7 shows changes in these two series. Since 1996 the capital stock has increased at a higher rate than the labour input. Hence since 1996 there has been a rise in the capital/labour ratio. This rise, together with a slight lift in MFP, explains the rise in labour productivity over this period.

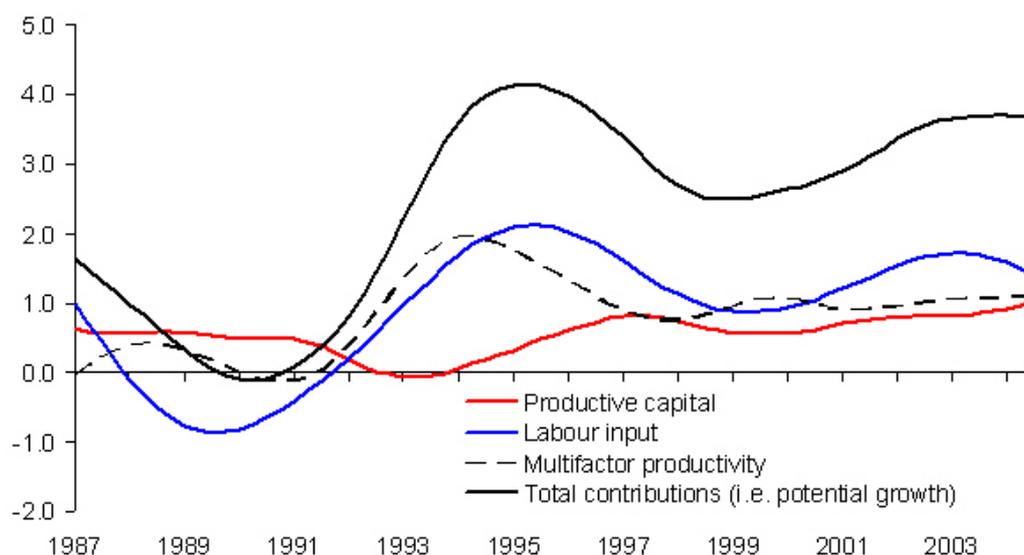
This rise in the capital stock reflects strong investment growth. Real business investment accounted for around 13% of real GDP in 1994; it now accounts for nearly 19%.

Figure 8 shows the estimated contributions to potential output coming from capital, labour and MFP. The chart also shows total contributions, which is the annual percent growth in potential output. As can be seen the growth in potential output, as estimated using the MV filter, is currently around 3.7% per annum.

To some people this might seem surprisingly high. However, our estimates show that growth in potential GDP has generally been high over the last decade, with the lowest annual growth rate being just under 2.5% in late 1998. And as we saw earlier in Table 1, growth in actual GDP was also high over the last 10 years. Estimated annual growth in potential output over the decade to March 2004 averaged 3.3%, compared with average growth of 3.4% in actual GDP.

Turning now to the contributions to potential output growth in Figure 8, perhaps the first thing we should note is that the contribution from capital is generally lower than the contribution from labour. This is despite capital increasing faster than labour since 1996. The reason for this is that in calculating these contributions to potential growth we give a lower weight to capital than labour. These weights are based on capital’s and labour’s share of income GDP. The weights we have used are 0.29 for capital and 0.71 for labour.

Figure 8  
**Contributions to growth in potential output**  
 Contribution to annual percent change



The contribution to potential growth from labour has been high in recent years, reflecting migration inflows, higher labour participation, and falling unemployment. However, the contribution from labour is now beginning to decline, as migration eases.

The contribution from capital has generally increased over the period from 1993, although it eased slightly during the Asian crisis/drought period of 1998-99.

The contribution from MFP surged in the mid 1990s, reflecting the recovery from the recession of the late 1980s and early 1990s. Since this surge ended in 1997 the contribution from MFP appears to have trended upwards, although the rise has been gradual.

Overall, the higher growth in potential output over the last five years ties in with the factors that we identified back at the start as influencing growth. The boost to export earnings that began in 2000 and which has largely been sustained through recent rises in world commodity prices has flowed through into firms' balance sheets and has boosted investment. Also, gains from migration have lifted potential growth through their impact on the supply of labour.

Looking ahead, growth in potential output is expected to ease slightly during the coming year. The contribution from labour will continue to fall, reflecting lower net migration. However, this fall will be largely offset by continuing growth in the contribution from capital, as firms seek to alleviate current capacity constraints.

#### **4. Factors that might influence future potential growth**

We can lift our potential growth rate by increasing capital, increasing labour, and by lifting MFP. We will look briefly at each of these factors.

We'll look first at capital. We have seen the capital/labour ratio rise over recent years, indicating capital deepening. Is there scope to go even further in this regard? We know from recent work done at Treasury (Black et al 2003) that the capital/labour ratio is still significantly lower than in Australia. However, we have to be careful about making international comparisons, particularly at the macro level. The difference between countries might simply reflect the different industry composition of each economy. We know for example that, compared to New Zealand, Australia has a large mining sector, which is capital intensive. In general, any comparison between countries regarding productivity measures needs to be done at the industry level, and even then, there are always difficulties in ensuring that the data is comparable across countries.

Nevertheless, we expect the capital/labour ratio to rise in the longer term, as we use more capital to do our jobs.

Turning to labour, a lot of attention is often given to lifting the quality of labour through education and training. The benefits of this would show up in higher MFP. Also, the quantity of the labour input can be raised by increasing average hours worked, lifting the participation rate, and increasing net migration. However, while higher migration would lift potential growth, the impact on GDP per capita is not so clear cut. To have a direct effect on lifting GDP per capita, migrants would need to be more productive on average than the resident population. Or they would need to have skills which, when used here, enable some proportion of the resident population to lift their average level of production. That is, these migrants would be needed to alleviate bottlenecks. Current migration policy is largely based on ensuring that these criteria are met. There may also be scale or agglomeration effects from migration; there is some evidence that larger population centres tend to have higher productivity growth and higher GDP per capita than smaller ones.

What drives MFP? Two factors are likely to be most important. Technological change is one of the most important drivers. The measure of capital stock that we use in estimating MFP does include some adjustments to take account of changes in technology that are embedded in new equipment. But these adjustments are only partial. Hence many improvements in potential output arising from technological change would be accounted for by the growth in MFP. Research into why MFP has risen strongly in the US over the last decade, during the so called "productivity miracle", often points to information and computer technology (ICT) as being a major factor. It is likely that ICT has played a role in the gradual rise in MFP that we have seen in New Zealand. And given that we tend to lag the US in implementing ICT, we may see larger MFP gains yet from ICT in the future.

The other main factor influencing MFP is the ability to reorganise and redirect resources to more productive and innovative uses. In all industries, there are probably still many efficiency gains that could be made, if only we could find them. Government activities, such as the provision of infrastructure, commercial law legislation, and town planning procedures may also have consequences for productivity. Productivity, and how to improve it, are currently topics that are being extensively researched by Treasury (see McLellan 2004).

Clearly, the issue is important. Productivity growth is a key issue in lifting potential output, and hence, in lifting our sustainable growth rate. It is an important issue at the firm level too. Most people in business would be aware of the links between productivity and price setting at the firm level. For example, a rise in a manufacturer's productivity will produce a fall in average unit costs, enabling the firm to either increase profits or to pay higher wages without having to increase prices. This highlights the fundamental importance of productivity gains; not only do they lift real GDP per capita, they also inhibit inflation.

## 5. The decade ahead

We can use our analysis to give us an indication of what growth in GDP and GDP per capita could be in the coming decade. This is not a forecast, but rather an illustration of two scenarios.

Table 2 sets out two scenarios for the 2004-2014 period. We have seen these two scenarios before, in Figure 6. The first scenario assumes that labour productivity will grow at 1.5% per annum, which is similar to the growth rate that we have had over the past 5 years. The second scenario assumes that labour productivity will grow at 2.0% per annum.

Given that both scenarios are based on the same demographic projections, the changes in population and labour utilisation are the same for each scenario. As Table 2 shows, the projected increase in labour utilisation over the next decade is much lower than the increase that we saw over the last decade. This reflects the participation rates in the official labour force projections that we have used, as well as our assumption that the unemployment rate remains constant. These projected increases in labour utilisation are indicative only. Nevertheless these low increases gel with what we know. With participation rates already very high, future rises are unlikely to be as large as they were over the last decade. Furthermore, from around 2010 many baby boomers will be retiring, putting downward pressure on the overall participation rate. Also, given that the unemployment rate is already low, we definitely won't see the same falls in unemployment that occurred over the last 10 years.

Table 2  
**Contributions to growth in GDP per capita**  
 Average annual percent changes

	1984-1994	1994-2004	2004-2014 Scenario 1	2004-2014 Scenario 2
Labour utilisation	0.0	1.0	0.3	0.3
Labour productivity	0.7	1.2	<b>1.5</b>	<b>2.0</b>
GDP per capita	0.7	2.2	1.8	2.3
Population	0.8	1.2	1.0	1.0
GDP	1.5	3.4	2.8	3.3

Our projections suggest that if we want to see GDP per capita grow at the same rate over the next decade as it did in the previous 10 years, we will need to lift our labour productivity. If labour utilisation was to grow by 0.3% per annum - which doesn't seem to be unrealistic - then we would need to lift our productivity growth from its current rate of around 1.5% per annum to nearly 2% per annum.

## 6. Conclusion

What can we take out from this mass of data and evidence?

- After a low growth decade economic growth has been high in New Zealand over ten years, and more importantly growth in GDP per capita has been encouragingly high relative to other members of the OECD.
- Partly as a result of this experience, in recent years the Reserve Bank has raised its estimates of New Zealand's potential growth rate. Despite this higher potential, we have

been growing at unsustainably high levels over the last year or two. We can't keep growing near 5%.

- A significant amount of this growth improvement has come from increased labour utilisation, which is now high by international standards and unlikely to keep increasing at the same rate.
- Labour productivity growth has shown more recent improvement, lifting in the late 1990s. This is important because strong economic growth will depend crucially on this improvement continuing. In fact we will probably need to raise labour productivity growth to around 2% per annum (comparable to Australia and the US) to continue to achieve continuing economic growth much over 3% per annum.
- Lifting labour productivity growth to 2% per annum seems potentially achievable, given the improvements in labour productivity that have already occurred. But it will require continued strong investment, clever innovation, good quality decision-making, and skilled labour. Lifting labour productivity will be mainly the role of the private sector.
- The Reserve Bank's role is to help promote stability, including price stability, monetary policy stability, and financial stability, things that become even more important during periods of strong growth.

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Smith, Christie (2004) "The long run effects of monetary policy on output growth", *Bulletin Vol 67 no 3*, September.