

OutLook (March 2008)

Horses for Courses – Fixing the Growth Problem in New Zealand

Foreword

This series of papers has been developed to underpin the policy advocated by the New Zealand Manufacturers and Exporters Association (NZMEA).

This Association advocates a targeted tax approach to enhance and accelerate innovative behaviours in New Zealand firms. We draw on the analysis and experience of our membership, and other research to substantiate and present our perspective on how New Zealand can increase the growth rate of productive innovation and enjoy a first world future.

There have been a number of earlier Outlook papers and others will follow this one. This paper discusses some alternative ways to think about innovation as it operates in different segments of the economy. Innovation and change have inherent risks for any company, yet chance alone suggests the more innovation our companies try, the greater will be the pay-off for the wider economy.

Only those economies that succeed in the innovation race will have a place in the world of rich nations. Consequently, creating an environment that provides appropriate incentives to expand and focus naturally occurring innovative behaviours is perhaps the greatest policy challenge faced by contemporary policy makers.

Introduction

New Zealand needs a range of policy settings that supports and encourages diverse innovation in all parts of the economy that will result in a more robust and diversified economic base. The form and type of incentives and support needs subtle targeting on a sector-by-sector basis to be really effective.

For example, a Crown Research Institute (CRI), such as AgResearch, has a clear and constrained region of operation, helping maximise the performance of the agricultural potential in New Zealand. The boundaries, focus and issues have clear and comparatively well-defined form. On the other hand, Industrial Research Limited (IRL) faces a sector, which in comparison to AgResearch, is ill-defined, ephemeral – almost without boundaries. It is hard to see how one structure, the CRI, can be expected to function well when facing such different sectors.

The objective of this paper is to demonstrate that to increase the success of an isolated, small nation, New Zealand's innovation system must itself be innovative. One size does not fit all, and supporting the generation of wealth requires many different forms of intervention, including no intervention at all.

While support for R&D is helpful in some firms, for others, support for the downstream commercialisation is necessary, while in others, upgrading staff and skills is needed and good ideas need investment. For the best outcomes, the policy mix should offer a coherent support and incentive framework for productive innovation, anything less will simply deliver more of what we have seen, along with New Zealand's continued slippage in terms of wealth creation and living standards with respect to the developed world.

Economy Growth Overview

As we step into the twenty-first century, the world is changing faster than ever before. New Zealand, with a population of 4.2 million, and relatively low capital stock - has to compete with the all-time industrial giants such as the United States, UK and Germany. At the same time, we have to scramble for market share with developing countries like China and India; who are advantaged from the increasing returns to scale and low labour costs. Recently, New Zealand government officials have been making public comments, such as, New Zealand has enjoyed faster economic growth¹ than that of US and Australia. In its 2007 Economic and Financial Review², the Treasury contended that the New Zealand economy has transformed from being one of the most regulated to one of the most deregulated in the Organisation for Economic Cooperation and Development (OECD).

New Zealand has been a long-standing member of the OECD, and each year the Organisation publishes the OECD Ranking, which places its members in the order of the country's Gross Domestic Product (GDP) per capita³. In the 1950s, New Zealand had a GDP per capita near 48 percent above the OECD average, ranked fifth with United States, Switzerland, Luxembourg and Canada ahead. In the 1960s, even though New Zealand still held fifth place in the OECD Ranking, the level of GDP per capita had fallen to 31 percent above the average. In the 1970s, New Zealand's GDP per capita figure was about 111 percent of the OECD average; the ranking had slipped down from the fifth to the eleventh and this was the start of the downward trend.

In the 1980s, a breakdown point for New Zealand economy, the GDP per capita figure fell 4 percent below the OECD average, eight more countries became richer in GDP per capita terms, and New Zealand was in the nineteenth place heading into the 1990s. After some major economic reforms, New Zealand managed to stop the drastic fall in the OECD ranking, kept itself at twentieth place with GDP per capita at 86 percent of OECD average. The country comparison of long term growth trend in real GDP per capita are shown in Figure 1, which gives the visual illustration of the same story, showing New Zealand's economic growth failing to match the OECD for the last forty years.

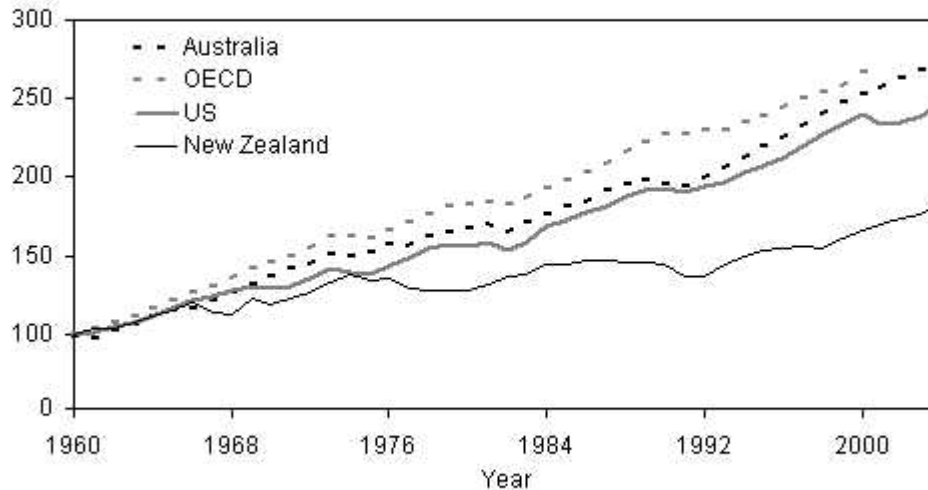
¹ Gross Domestic Product (GDP) is often used as a rough measure of standard of living, and the economic growth is measured by changing in GDP.

² <http://www.treasury.govt.nz/economy/overview/2007/nzefo-07.pdf>

³ Measured in USD and inflation adjusted using current year PPPs.

Figure 1 Real GDP per capita - Country Comparison

Index 1960 = 100



Source: OECD

In September 2005, the minority Labour-led coalition Government was elected for a third term. It was their stated intention to lift New Zealand up the OECD ladder, however, two and half years later, there is no obvious improvement in our ranking. As revealed by the OECD 2007 figure, New Zealand's GDP per capita is about 85 percent of the OECD average, and placed at the twenty-second (see Figure 2). This suggests that even though the recent growth rate in GDP per capita has been somewhat higher relative to other economies, the country will need to sustain the high levels of growth for long periods of time in order to regain a higher rank in the OECD.

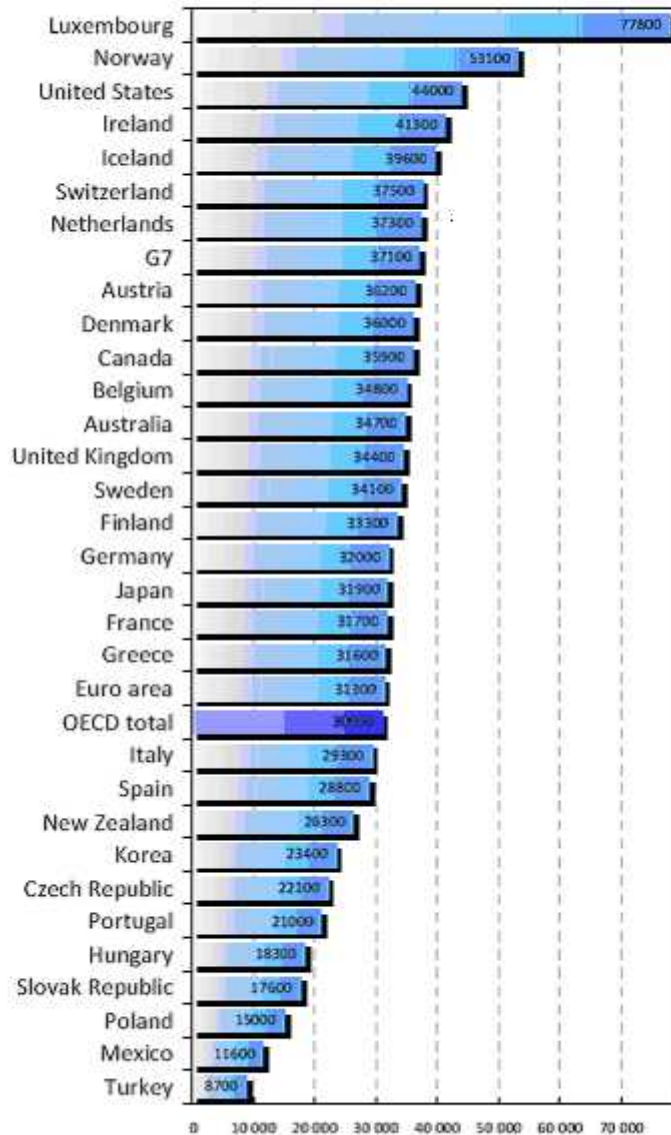
Over 2002 and 2004, the GDP growth in New Zealand was in the range of 3.5 percent to 4.5 percent, peaking at 4.6 percent annual average growth in December 2002. Since the second half of 2005, the growth has eased - the annual average growth dropped down to 1.4 percent in the year to 30 September 2006, with the recent peak of 4.4 percent in the year to December 2004. According to the Treasury forecasts, growth is to remain relatively subdued in the short term, especially after the US sub-prime mortgage financial crisis that surfaced in 2007, which could possibly lead to a US recession or even a downturn in the global economy. This performance is startling given the contention by Treasury⁴ that we have a deregulated economy. Clearly a better Government policy framework is needed to lift economic performance.

⁴ <http://www.treasury.govt.nz/economy/overview/2007/nzefo-07.pdf>

Figure 2 OECD Ranking 2007

GDP per capita

USD, using current PPPs, 2006



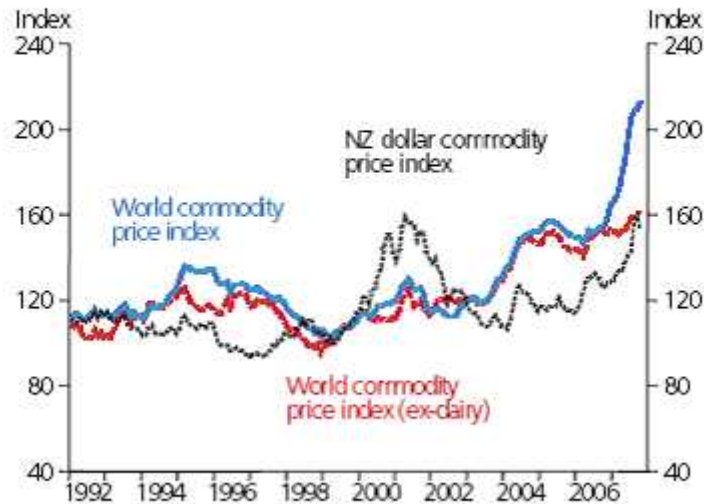
Source: OECD

In short, New Zealand's current economic condition can be summed up in the sentence⁵, "New Zealand ranks more highly in the OECD on quality of life indicators (which depended on a range of factors including income) than it does on the two narrower economic measures: what New Zealand earns – gross national income (GNI) per capita – and what New Zealand produces".

The question is: should New Zealanders be content about our economic performance, because the quality of life is compensated by the cleaner air and greener grass, and accept that New Zealand will become a poorer country as a result? If the answer is no, then how to generate and sustain a higher level of growth should become our principal policy concern. But first, before getting into the detail of how to promote growth, it is important to assess the magnitude and feasibility of that "top half" goal.

⁵ Quote from Economic Development Indicators 2007 page 18, which is produced by Ministry of Economic Development, The Treasury and Statistics New Zealand, for more detail see http://www.med.govt.nz/templates/MultipageDocumentTOC____32722.aspx

Figure 3 Nominal Commodity Prices

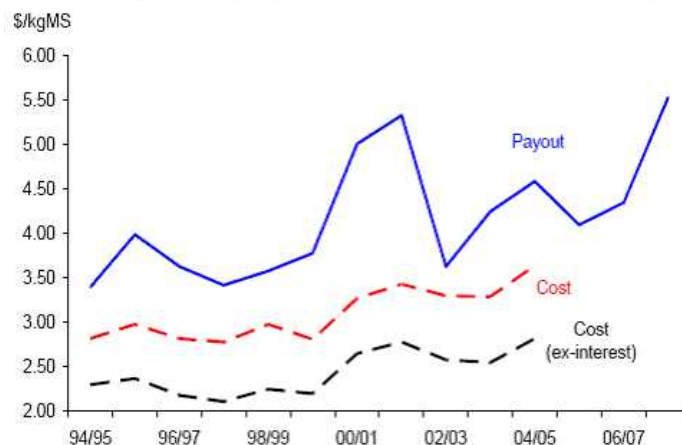


Source: ANZ National Bank Group Ltd, RBNZ estimates.

Overall Growth is the Key

In 2007, New Zealand generated GDP of US\$125,585 million⁶. The primary industries accounted for 6.8 percent of GDP, the goods producing industries contributed 21.6 percent⁷, and the service industries 67.7 percent⁸. Therefore, in dollar terms, the primary industries contributed US\$8539.78million to GDP; the industrial sector produced US\$27126.36million; and services generated US\$85021.05million. Every person in New Zealand will need to generate additional US\$4200 per year in order for New Zealand to be as well off as the average in the OECD. By a rough calculation, New Zealand would need a significant US\$17850million⁹ additional GDP, an overall increase of 14.21 percent in the economy.

Figure 4 Dairy Payout and cost (per kilogram of milk solids)



Source: Dexcel

⁶ GDP figure is purchasing power parity (PPP) adjusted and sourced from CIA World Book. <https://www.cia.gov/library/publications/the-world-factbook/geos/nz.html#Econ>

⁷ Manufacturing sector output contributed 14.9% of real GDP.

⁸ Source: The Treasury, New Zealand Economic and Financial Overview 2007, p. 15.

⁹ Multiply the additional GDP per capita (USD4200) by New Zealand's population (around 4.25 million), which gives the additional GDP figure of USD 17,850 million, where the population figure is sourced from Statistics New Zealand population clock on January 2008, and the figure is estimated to increase by one person every 10 minutes and 23 seconds.

Even though the primary industries account for a relatively small part of GDP, New Zealand is renowned for its agriculture-based economy rather than its industrial base. Since the year 2002, the world commodity prices have reached the record-high (see Figure 3), along with significant price rises in dairy products. As a result, the dairy industry has enjoyed a long period of economic boom; the high dairy prices have flowed through into higher payout for New Zealand's dairy farmers (see Figure 4). In December 2008, Fonterra forecast a remarkable payout of NZ\$6.90 for each kilogram of milk solids, which is 50 cents higher than its September forecast.

In contrast, the economic performance has not been so good for the industrial sector. For the year ended September 2006, the manufacturing sector experienced a contraction of 1.5%, and the sector is no longer the biggest employer in the Linked Employer-Employee Data (LEED) series. This raises the question as to whether high value manufacturing is the road to riches, or has manufacturing become a sunset activity and it is the dairy boom and growth in service industries that have the capability to make New Zealand rich again.

To attain the OECD average the New Zealand economy must generate approximately US\$17850million¹⁰ additional GDP. Given all other sectors continue as business as usual (for example, 0-1% growth for the industry and 3-4% for the services), and if all the other additional output must flow from the primary sector, the primary would have to nearly triple each unit of output. Is this really possible, particularly when issues around environmental sustainability, resource limitations and susceptibility to climate change are brought into the picture? As for the service, the sector has achieved strong growth in recent years, but without the strong primary and productive sector, services will lose their customer base and the capability to grow will be limited. According to The Bank of New Zealand – Business New Zealand Performance of Services Index (PSI), the rate of growth in the services sector has eased since April 2007, and continued to ease during January 2008¹¹.

In conclusion, New Zealand's future must be built on a diverse base of growth from all industrial and primary sectors, and policy must avoid the promotion in one particular sector over another, or the thinking that one sector or another simply does not matter. That said, the best outcomes on a sector basis will require different policy settings sensitive to the unique nature of each sector.

Government Policies and the Slow Growing External Sector

Starting from the most basic economic model, there are only two types of decision makers, households and firms. Both parties interact with each other in two types of markets. In the markets for factors of production, firms are buyers and households are sellers, while households are consumers and firms are suppliers in the goods and services market. Unfortunately, the real world is much more complicated. It is necessary to take into account the existence of government in any macroeconomics analysis.

¹⁰ Multiply the additional GDP per capita (USD4200) by New Zealand's population (around 4.25 million), which gives the additional GDP figure of USD 17,850 million, where the population figure is sourced from Statistics New Zealand population clock on January 2008, and the figure is estimated to increase by one person every 10 minutes and 23 seconds.

¹¹ <http://www.businessnz.org.nz/file/1367/PSI%20Write-up%20for%20January%202008.pdf>

Government plays an essential role in the modern society, especially in terms of economic growth. Non-inflationary growth has been one of the main objectives for New Zealand Government. According to the current Policy Target Agreement (PTA), the Reserve Bank of New Zealand (RBNZ) is to keep inflation between one and three percent on average over the medium term. The Official Cash Rate (OCR) was introduced in March 1999 as the primary monetary policy tool¹². Since late 1998, New Zealand has been in an expansion phase, Consumer Price Index (CPI) Inflation for the year to December 2007 is 3.2 percent, which is slightly outside the target range. The OCR is currently at 8.25 percent, which is very high by international standards. Even though there are other factors that influence the value of the New Zealand dollar (exchange rate), such as weakness within the US economy, the high interest spreads have undoubtedly contributed to the currency appreciation. In March 2007, the New Zealand dollar broke through the USD0.82 threshold, reaching its 23-year high since the dollar was first floated (see Figure 5). The high levels of exchange rate have adversely affected the external sector, hence the slowing in growth.

Figure 5 NZD/USD Exchange Rate 1990-2008



In essence, the persistent inflationary pressures are the source of the evil. As identified by the 2008 March Monetary Policy Statement¹³, headline inflation is expected to remain high. The ongoing inflationary pressures are underpinned by rising food, energy prices and the planned emissions trading scheme in 2009.

Over the medium term, a tight labour market, strength in commodity prices, and the impact of announced government spending plans and assumed personal tax cuts in Budget 2008, will add to inflationary pressure.

¹² For more information on New Zealand monetary policy, please refer to MEA Outlook "Monetary Policy and Productivity", <http://www.mea.org.nz/document.aspx?id=163>

¹³ <http://www.rbnz.govt.nz/monpol/statements/mar08.pdf>

It is recognised that international factors such as high oil prices are outside the New Zealand Government's control, however, fiscal policy should be in line with monetary policy in order to promote growth, and investments should be encouraged in productive activity instead of housing¹⁴.

'One Size Does Not Fit all' - Innovation and the Government Involvement

Innovation has become a key issue to countries and individual businesses, products and services are the vector for the intellectual property generated by innovative firms and individuals. As one of the key drivers of economic growth, promoting and encouraging technological progress and innovation has become one of the main policy objectives in government agendas around the world.

As with most developed countries, New Zealand has noted the importance of encouraging innovative activities in increasing economic growth. Research and Development (R&D) has the most obvious and direct impact on innovation¹⁵. On the surface, it looks like New Zealand is not doing enough R&D; approximately 1.17 percent of GDP is spent in the 2006 reference year, which is well below the OECD average¹⁶ of 2.25 percent. It is worth restating that there is no point doing R&D for the sake of R&D, because without commercial outcomes the effort is effectively wasted. Who should be doing more R&D and where should the effort and investment be focused?

In general, R&D expenditure is measured in the business, government and higher education sectors (i.e. CRIs and Universities). Currently, aside from the government sector, New Zealand's business sector and universities are under performing in terms of R&D compared to the OECD average (see Table 1).

At the same time, the sector distribution of New Zealand's R&D investment is rather different (see Figure 6), particularly in the business sector. Businesses contributed a considerably lower percentage of overall R&D expenditure compared to the OECD average and our investment profile resembles Eastern Europe and Latin America, rather than the pattern of East Asia and the West¹⁷. To some extent, the lack of business contribution may be compensated by the CRIs and Universities, but to what outcome?

Table 1 Research and Development Expenditure as a Proportion of GDP

	Business	Government	Universities
OECD average	1.49	0.27	0.39
New Zealand	0.49	0.30	0.38

Source: Statistics New Zealand, R&D 2006

¹⁴ For more information on productive investment, please refer to MEA Outlook "Assets Tax and Productivity", <http://www.mea.org.nz/document.aspx?id=43>

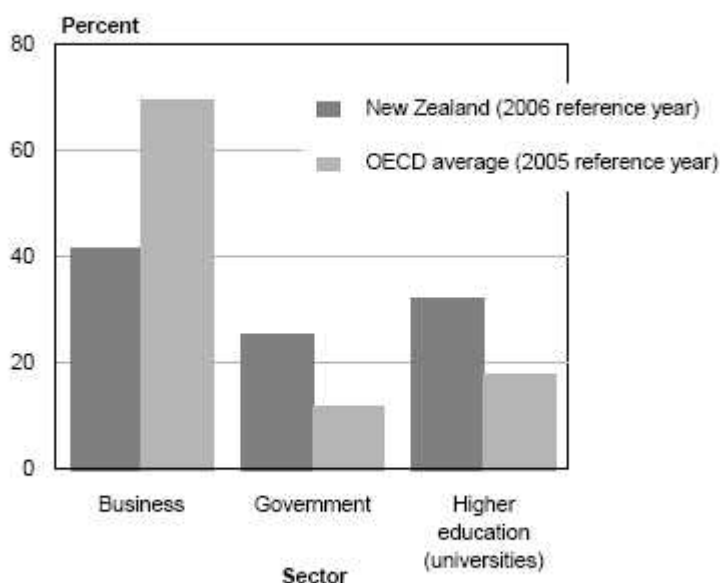
¹⁵ For more information on R&D in New Zealand, please refer to MEA Outlook "Research and Development", <http://www.mea.org.nz/document.aspx?id=44>

¹⁶ 2005 reference year.

¹⁷ The Economist, Feb 7th Issue, "Of internet cafes and power cuts".

Figure 6 Gross Expenditure on Research and Development by sector

Compared with the OECD average*



* OECD data not available for the 2006 reference year.

Source: Statistics New Zealand, R&D 2006

There seems to be a disproportionate R&D contribution by Government. The Government has recognised the imbalance, and announced the changes in the tax treatment for R&D investment in the 2007 budget in encouraging business R&D, this means a New Zealand business that undertakes R&D will be eligible for a tax credit of 15% of allowable expenditure from the 2008/09 income year. This change is widely welcomed by industry, and places New Zealand on a par with other developed countries in this regard.

Statistics New Zealand splits gross R&D expenditure into four categories of socio-economic objective (see Figure 7). Respectively, 18 and 20 percent of gross expenditure are spent in improving agriculture, forestry and fishing (primary) and industrial development (manufacturing).

Figure 7 Gross Expenditure on Research and Development

By socio-economic objective 2006 reference year

Socio-economic objective	\$(million)	Percent
Agriculture, forestry and fishing	333.2	18
Industrial development	360.3	20
Development of infrastructure	295.0	16
Other purposes	837.2	46
Care of the environment	137.5	8
Health	268.7	15
Earth and atmosphere	58.2	3
Others ⁽¹⁾	372.8	20
Total	1,825.6	100

(1) Includes energy, social development and services, defence and other research purposes category. General advancement of knowledge (knowledge general) is included in the other purposes category.

Source: Statistics New Zealand, R&D 2006

Within the business R&D, 31 percent is done for industrial development and 20 percent is for purpose of primary production (see Figure 8). Based on the assumption that businesses invest for profits, there is no reason to regulate how and where the R&D funding is spent.

Figure 8 Business Expenditure on Research and Development
By socio-economic objective 2006 reference year

Socio-economic objective	\$(million)	Percent
Agriculture, forestry and fishing	151.3	20
Industrial development	233.7	31
Development of infrastructure	188.4	25
Other purposes	189.8	25
Care of the environment	10.9	1
Health	102.6	13
Earth and atmosphere	1.9	0
Others ⁽¹⁾	74.4	10
Total	763.3	100

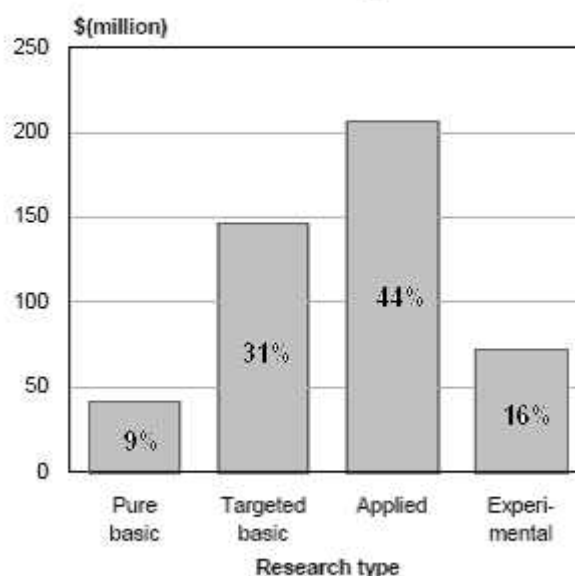
(1) Includes energy, social development and services, defence, and other research purposes. General advancement of knowledge (knowledge general) is included in the other purposes category.

Note: Due to rounding, figures may not sum to stated totals.

Source: Statistics New Zealand, R&D 2006

However, the same story does not apply to the government sector. Within the government sector, four types of R&D have been conducted (see Figure 9). 84 percent of government R&D was spent on acquiring new knowledge (basic, targeted basic and applied research) with 44 percent directed primarily towards a specific practical aim or objective, and the remaining 16 percent experimental redevelopment was directed at producing new or improved products, processes and services.

Figure 9 Government Expenditure on R&D
By research type
2006 reference year



Source: Statistics New Zealand, R&D 2006

Figure 10 Government Expenditure on Research and Development
By socio-economic objective 2006 reference year

Socio-economic objective	\$(million)	Percent
Agriculture, forestry and fishing	145.4	31
Industrial development	59.6	13
Development of infrastructure	33.6	7
Other purposes	230.7	49
Care of the environment	96.6	21
Health	41.8	9
Earth and atmosphere	35.6	8
Others ⁽¹⁾	56.7	12
Total	469.4	100

(1) Includes energy, social development and services, defence, and other research purposes. General advancement of knowledge (knowledge general) is included in the other purposes category.

Note: Due to rounding, figures may not sum to stated totals.

Source: Statistics New Zealand, R&D 2006

This R&D is typically carried out via crown entities such as Universities and CRIs. The work only acquires value when it is utilised or commercialised by third parties. Compared to others, the primary sector has relatively explicit and constrained aims and objectives, therefore it benefits directly from the government R&D, provided the technology is transferred to producers. For the manufacturing, especially the elaborately transformed manufacturers (ETMs), constraints are less obvious and competition more immediate. It is impossible for these crown entities to know their customers needs beyond the primary sector, and it is impractical to develop and maintain the range of skills and capabilities that might be needed by industrial users.

By its nature, the competitive landscape for industry is diverse and success unpredictable. It is impossible to pick winners; we should not be surprised that it is generally not working.

Government spending on R&D for the primary sector is probably money well spent, it can be targeted, and given the technology developed is transferred to our producers, the tax payer will see a return for the investment. Government spending on industry is too difficult to be effective; we need a better way to encourage growth in the industrial sector.

Conclusion

The task for New Zealand in climbing back up the OECD ladder is not a simple one. Recognising our strengths and weaknesses is the first step, but as long as Government policy pursues a 'one-size-fits-all' innovation policy, the efforts to accelerate growth across all sectors of the economy will continue to fail.

New Zealand's economic sectors have different needs and different commercialisation paths. Faster growth follows from the right sort of support delivered in an appropriate way and must not be seen as an issue of providing support for one sector only. In March 2008, the Government announced the launch of its 'New Zealand Fast Forward Programme in Pastoral and Food Industries' and the contribution of NZ\$700 million to the fund. On the same day, Feltex announced that it was cutting manufacturing jobs at two of its Lower North Island plants.

The point here is that support for innovation requires a broadly based approach that delivers a diverse commercial outcome. Even though for innovation it is a case of the more the merrier, it is important to note that different sectors require different stimuli and support. This paper used the example of a land based CRI and highlighted that they have a relatively well defined and constrained region of operation, helping maximise the performance of the agricultural potential in New Zealand.

In comparison, the industrial sector is essentially incoherent, so any policy intended to encourage industrial innovation should, of necessity, be different to that seeking to maximising the land based outcomes. The 'one-size-fits-all' approach will continue to deliver low growth outcomes. The right intervention match to sector will encourage higher growth.

The industrial sector needs behaviour targeted support to encourage the right environment for higher levels of innovation. Specifically, more investment in productive activity:

- A balanced taxation regime across income, profits and realised capital gains.
- Extended deductibility on early stage productive investments.

More R&D based commercial out-turns:

- Tax credit for R&D.
- Expense all productive equipment and patents.
- Tax credit for people and skills development targeted at new products and process.

This range of policy settings is required to support innovation. Expensing plant, equipment and patent costs, early stage investment deductibility and tax credits for skills development, would provide a commercialisation framework for the R&D Tax credit to be introduced in April 2008, forming a balanced approach to encourage a diverse range of innovation and development across our entire economy.

The New Zealand Manufacturers and Exporters Association (NZMEA) is a national organisation that was founded by the Canterbury Manufacturers' Association (CMA) and the New Zealand Engineers Federation (NZEF). The Association is New Zealand's only authoritative, independent voice for manufacturers and exporters. NZMEA members make nearly \$2.0 billion in sales and have an export value of around \$1.0 billion. Our organisation can trace its beginning to the early history of New Zealand. As a legacy of the hard work and careful financial management of the past we have a significant asset base that enables our independence and extends our activity. Subscriptions fund only a small part of our current operating costs. Membership is open to all manufacturers and exporters and others at the discretion of our Council.

Membership and other enquiries should be directed to info@mea.org.nz: