



Economic Strategy Issues for the New Zealand Region in the Global Economy

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Executive Summary

This report is offered by the AERU at Lincoln University as an issues paper to identify key economic strategy issues for New Zealand, analysed in the context of New Zealand's position in the global economy.

A fundamental 'New Zealand conundrum' is that international trends will not allow New Zealand's economic targets to be met simply by increasing current *quantities* of primary sector exports and tourism numbers. New Zealand needs to diversify its economy through new knowledge-based enterprises and the use of knowledge intensive services to achieve higher returns for New Zealand traditional export sectors.

The report offers this vision for New Zealand's economic strategy:

New Zealand residents through their enterprise and work are all able to enjoy levels of economic well-being that are no lower than enjoyed in other highly developed economies of the world, in the present and in the future.

The vision is supported by high level goals under seven headings:

- *world-class enterprise;*
- *innovation systems;*
- *skills and life-long learning;*
- *public and private investment;*
- *environmental kāwanatanga;*
- *equity and inclusiveness; and*
- *Auckland city.*

The report argues that economic strategy needs to pay particular attention to the country's core export sectors on the basis that they are internationally competitive and generate incomes that fuel domestic demand.

In order to achieve the above vision, a national economic strategy must guide appropriate investment in physical, financial, human, natural, social and cultural capital that will improve the capability of enterprises to take advantage of New Zealand's international market opportunities.

New Zealand has a high level of physical capital, but low population density means the cost of infrastructure is high and New Zealand does not produce many types of physical capital outside of building and construction. The report recommends policies to address concerns about the way in which public investment is managed at national and regional levels. Examples of this would be reviewing the operation of the Resource Management Act 1991 and creating a robust decision-making process for investments in large-scale infrastructure projects such as water storage.

New Zealand's financial system has been resilient in the current crisis, and the country scores very highly for integrity and low corruption. Nevertheless businesses and observers often identify difficult access to financial capital as a constraint on enterprise expansion. Therefore the report recommends scoping policies for helping small to medium-sized enterprises access working capital such as the United Kingdom Enterprise Finance Guarantee programme.

New Zealand has a comprehensive education system, but with a large tail of underachievement and long-standing concerns about weak connections between employers and educators (secondary and tertiary). Appropriately directed investment in human capital can promote inclusiveness of the whole population and address shortages of skills demanded by employers. Life-long learning through adult education is important to encourage participation as skill needs change over time. The report recommends strengthening education directed towards the export-led sectors, including international marketing and other business services.

New Zealand has abundant natural resources and a global reputation for clean and green practices, which are attractive to overseas consumers and tourists. The image is under threat in some segments of the market, including for example recent debates about ‘food miles’. The report recommends addressing this by creating a New Zealand eco-label that would tie individual business performance to the overall New Zealand brand that would aim to lead internationally acceptable standards.

New Zealand has strong international and domestic networks that aid economic well-being. There is evidence that greater networking of businesses with each other and their communities enhances business development. The report confirms that Māori experience large gaps in basic social security that threatens the sustainability of New Zealand’s economic development. The report supports policies to strengthen international and domestic business networks. It also supports policies to settle historical grievances about Māori property rights and to better position Māori to build and leverage off their collective resources, knowledge, skills and leadership capability.

New Zealand has inherited important values from previous generations that are foundational for economic well-being. The fact that English is the country’s dominant language is an international advantage. It has also been stated that New Zealand culture does not acknowledge business success or support community leadership as well as in some countries. The report supports recent proposals that policy should not aim to deny cultural values held by New Zealanders, but to offer strategies for addressing unintended negative consequences for businesses.

Because this report is offered as an issues paper, it has necessarily been selective in the issues it has highlighted, but these selections have not been arbitrarily made. Instead, the material presented in this report has drawn on the three authors’ considerable experience in researching strategic economic development issues, summarised in an appendix to this report. That experience led to three major points that frame the report’s contents:

1. A national economic strategy must begin with a credible analysis of the country’s positioning in the global economy.
2. The economy’s capability to respond to international market opportunities is determined by six major types of capital: physical, financial, human, natural, social and cultural.
3. A national economic strategy needs to pay particular attention to the country’s core export sectors on the basis that they are internationally competitive and generate incomes that fuel domestic demand.

Chapter 1

Introduction

For many years now, national economic strategies in New Zealand have tended to adopt a common form. An economic goal is proposed (for example: to achieve income parity with Australia by 2025), prevailing economic policies in New Zealand are criticised (for example: public spending is too high), and a list of alternative policies is presented (for example: the government should reduce public spending and lower tax rates). The report to the New Zealand Government released by The 2025 Taskforce on 30 November 2009 is the latest to follow this tradition. The weakness of this approach is that it looks at the New Zealand economy in isolation from its international and social contexts.

Against that background, it is important to recognise that advances in the theory of economic geography offer an alternative approach to analysing national economic development policies. Insightful applications of this theory by Geoff Lewis (2002) and Philip McCann (2009), for example, have recently addressed key issues in New Zealand economic policy. A foundational insight of the economic geography literature is that global economic integration means it is no longer sensible for any country to prepare an economic strategy without analysis of the country's particular positioning in the wider global economy.

Consider, for example, the World Bank's 2009 world development report entitled *Reshaping Economic Geography*. The title reflects the importance placed on geography and economic development, resulting in a greater focus on spatial variability of conditions and outcomes than has been usual in previous economic analysis. The report therefore uses three geographic dimensions (density, distance and division) to guide policy advice for economic development based on its identification of three key instruments for economic integration: institutions, infrastructure and incentives.

Figure 1.1 on the following page depicts the 16 regions that provide the framework for the World Bank's (2009) region-based analysis. New Zealand is combined into the region of Australia and New Zealand. This contains an important message (the value of greater integration of New Zealand into the larger Australian economy), but also means that there is no clear treatment of the specific issues of economic geography for New Zealand's economic development.

Over the last decade the AERU research centre at Lincoln University has been involved in numerous projects analysing strategic issues for industry or regional economic development. That work was assisted by the AERU's ongoing research programmes on international market trends affecting New Zealand producers and theoretical frameworks for analysing international trade and measuring the economic well-being of communities. Drawing on the lessons learned from our work over the last ten years, this report is offered as an issues paper that aims to identify key economic strategy issues for New Zealand, *analysed as a region in the global economy*.

Figure 1.1: Regions of the world



Source: World Bank (2009, p. 36).

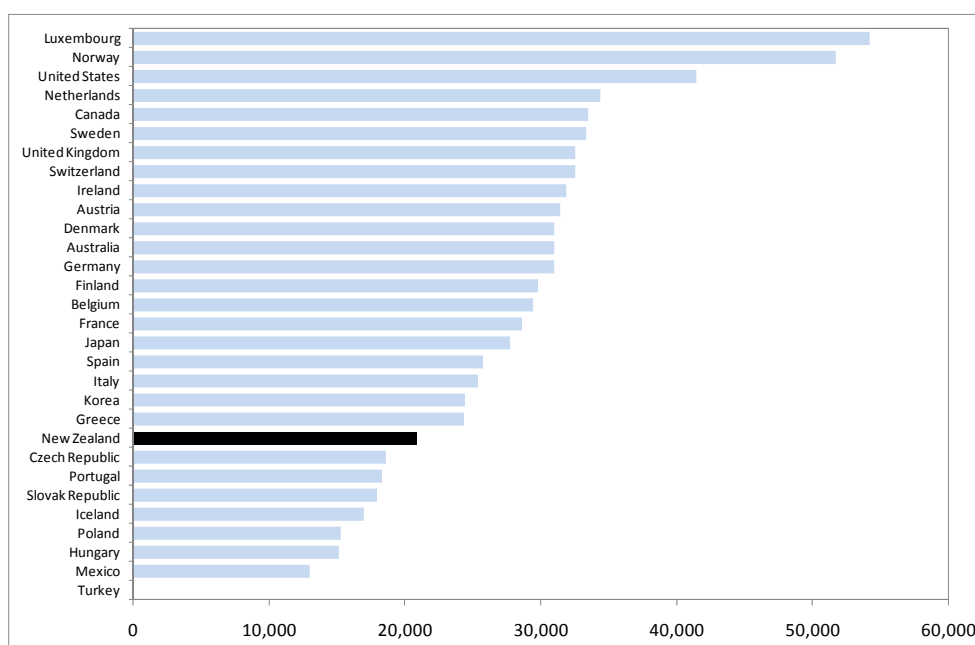
Thus the report begins in chapter 2 with an analysis of New Zealand's profile in the global economy. It continues in chapter 3 with a vision statement for the country's national economic strategy, accompanied by a set of seven high-level goals. Chapter 4 presents an analysis of the strengths and constraints of the New Zealand economy, analysed under six headings corresponding to six different types of capital. Chapter 5 brings together the work in the previous three chapters to present a set of key economic strategy issues. The report finishes with a brief conclusion.

Chapter 2 Economic Profile

The *World Development Report 2009* classifies 210 countries by per capita gross national income into four categories. New Zealand is included in the 66 countries classified as high income, meaning that its per capita gross national income in the 2009 fiscal year was above US\$11,456. In fact New Zealand was well above that minimum figure; an accompanying table reported that its value in 2007 was US\$28,780 (World Bank, 2009, p. 353).

The OECD also publishes comparative data on its 30 members, all but three of whom are included in the high income countries recorded by the World Bank (the exceptions are Mexico, Poland and Turkey). New Zealand is 22nd on that list using 2008 data, as shown in Figure 2.1 below.

Figure 2.1: Per capita net national income, 2008

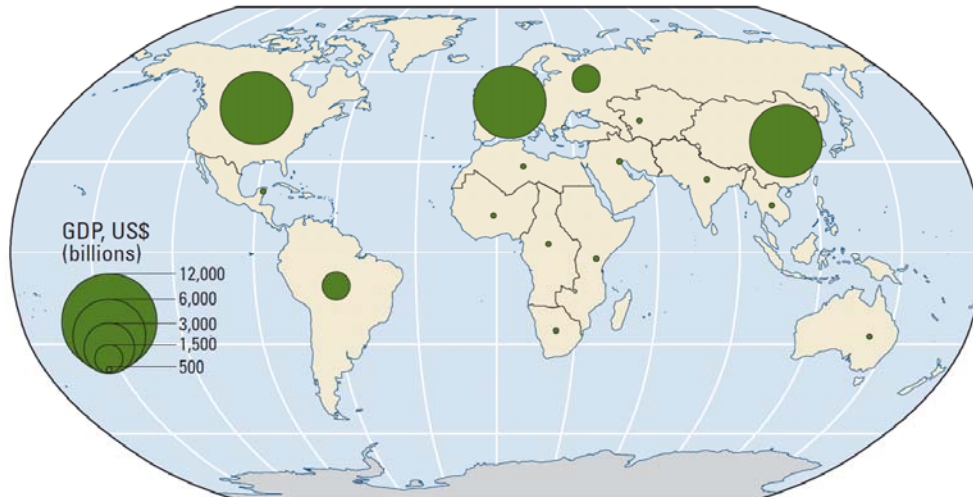


Source: OECD *Stat Extracts*, accessed 24 November 2009.

Note: Data are net national income at current market prices, per head of population, measured in US dollars at current purchasing power parities, 2008. Data for Turkey are not available.

New Zealand is thus a high income country, with an average standard of living well above most countries in the world, but in the bottom third of the OECD table. Its location in world geography also presents challenges, as illustrated in Figures 2.2 and 2.3 from the *World Development Report 2009*.

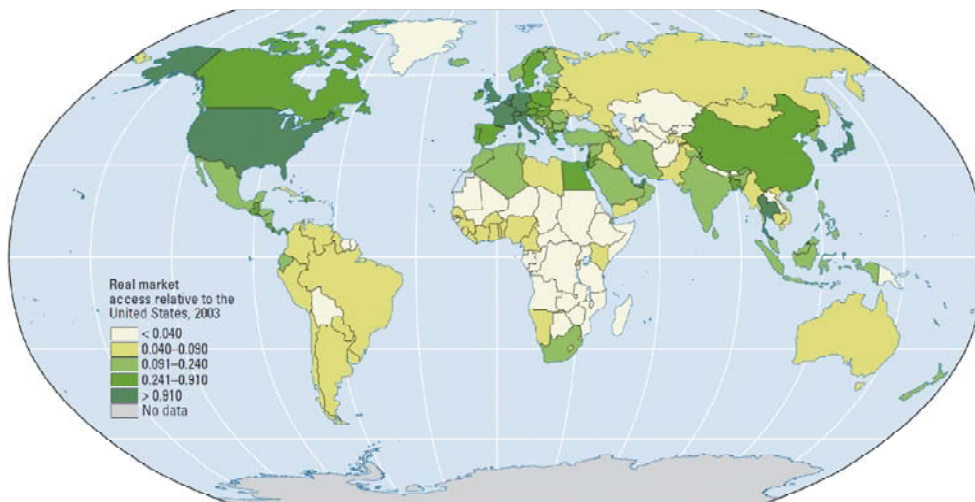
Figure 2.2: Distribution of global GDP, 2006



Source: World Bank (2009, p. 97).

Note: GDP is Gross Domestic Product.

Figure 2.3: Market access, relative to the United States, 2003



Source: World Bank (2009, p. 271, taken from Mayer, 2008).

Note: To compute potential market access: Each country is assigned a score for the size of its own market (real GDP) and the size of international markets with which it can trade. This is computed by weighting the GDP of other countries by the inverse of a measure that combines physical distance, transport costs, and barriers to trade to show how difficult it is to access these markets. The measure, which is expressed relative to the market access of the United States, essentially combines all three spatial dimensions of density, distance, and division into a composite of potential market access.

Figure 2.2 shows that the world's economic mass is concentrated in three regions: North America, Western Europe and Northeast Asia. New Zealand is a considerable geographical distance away from these three centres. It is itself a high income country, and is very close to Australia and relatively close to South America, which is a significant producer in Figure 2.2. A consequence is shown in Figure 2.3. Using a method developed at the World Bank, New Zealand scores in the middle of the range for market access, being neither particularly advantaged nor disadvantaged in world trade.

2.1 International issues

It is important to recognise that the global economy itself has issues that the international community has identified as needing to be addressed to foster human well-being and ensure sustainable development. The United Nations, for example, was founded in 1945 so that member States can work together on those unique global problems that require cooperative efforts. It maintains a website on these global problems that currently lists 21 issues on the United Nations agenda (www.un.org/en/globalissues/, accessed 25 November 2009):

- Africa
- Ageing
- Agriculture
- AIDS
- Atomic Energy
- Children
- Climate Change
- Decolonization
- Demining
- Development Cooperation
- Disarmament
- Environment
- Food
- Governance
- Human Rights
- Humanitarian and Disaster Relief Assistance
- International Law
- Peace and Security
- Persons with Disabilities
- Refugees
- Women

These bullet points are echoed within New Zealand to one degree or another, but some are particularly relevant for its economic policy. In this report, we concentrate on one – climate change – to illustrate, drawing on an AERU research report published earlier this year (Kaye-Blake *et al*, 2009). The Intergovernmental Panel on Climate Change (IPCC) was established by the United Nations Environment Programme and the World Meteorological Organization in 1989 to review and assess scientific-technical and socio-economic research relevant for understanding climate change (see its website at www.ipcc.ch). It has produced four assessment reports, in 1990, 1995, 2001 and 2007. After the publication of the last of these reports, the IPCC was honoured with the Nobel Peace Prize in that same year.

In the preparation of its fourth assessment report, the IPCC reviewed models of climate change, and used them to construct 40 possible future scenarios as countries respond to climate change (Nakicenovic and Swart, 2000). The scenarios are based on drivers such as population growth, economic growth, energy use, land-use changes, technology change and any changes towards one source of energy rather than the others. This exercise produces a range of projections for greenhouse gas emissions (including CO₂, CH₄, N₂O and F-gases), with the report's team concentrating on the central 80 per cent of projected values.

The outputs from the IPCC scenarios are widely used as inputs into other models analysing influences on air temperatures, sea-levels, precipitation and so on. A frequently referenced example is the HadCM3 model, which is an atmosphere-ocean global climate model developed by the Met Office Hadley Centre for Climate Predictions and Research in the United Kingdom (see, for example, Fischer *et al*, 2005). The outputs from these models can then feed into dynamic models that project the impact on crop, animal and forestry production or on broad ecosystems. Three examples are the DSSAT model (the Decision Support System for Agrotechnology Transfer; see www.icasa.net/dssat/), the EPIC model (Erosion Productivity Impact Calculator, http://daac.gsfc.nasa.gov/agriculture/ais_sup/crop_mod.shtml) and TEM (the Terrestrial Ecosystem Model, which is part of NASA's Earth observing system; www.archive.arm.gov/Carbon/dataneeds/TEM.html).

In New Zealand, the EcoClimate Consortium has used IPCC assessment reports and an earlier version of the Hadley Centre model (HadCM2) to produce sensitivity analyses of how agricultural production in New Zealand regions could be affected by changing patterns of temperature and rainfall (EcoClimate, 2008). The report generally concludes that there may be little impact at the national level, but there will be variation at the regional level and drought years may be worse than in the past.

Finally, projections from these agriculture, forestry and ecology models can be fed into economic models to analyse potential impacts on items such as world prices and returns to producers. An example is the Basic Linked System (BLS) produced by the International Institute for Applied Systems Analysis in Austria, which includes 34 national or regional geographical components in an applied general equilibrium model (Parry *et al*, 2004; Fischer *et al*, 2005). Another example is the Lincoln Trade and Environment Model (LTEM) maintained and developed at the AERU research centre of Lincoln University over the last decade. This is a unique model of agricultural trade flows between 18 countries that incorporates production and associated environmental consequences (see, for example, Saunders *et al*, 2000; Cagatay and Saunders, 2003; Saunders and Cagatay, 2004; Saunders *et al*, 2006; Wreford *et al*, 2009).

As well as the supply-side effects just discussed, consideration must also be given to demand effects as a result of consumer responses to climate change. There is evidence that some consumers are willing to pay a premium for products they know have been produced using technologies that are more environmentally friendly, or sustainable, than conventional technologies (Kotchen, 2005; Bruce and Laroiya, 2007). In the United States, for example, a survey of catalogue data revealed that garments made with organic cotton received a 33.8 per cent premium over ordinary apparel (Nimon and Beghin, 1999, p. 802). A study of coffee by Heidkamp *et al* (2008) reported that some consumers are willing to pay an extra \$1.50 per pound for fair trade coffee, and an additional \$1.50 if the coffee is organic.

It is clear that any willingness to pay for 'green production' is not uniformly distributed across national populations. Researchers have assessed the impact of personal attitudes and social norms on purchase intentions, including the level of confidence consumers have in provided information about a service or product (Spash, 2000; Dupont, 2004; Owen and Videras, 2006; Vermeir and Verbeke, 2008).

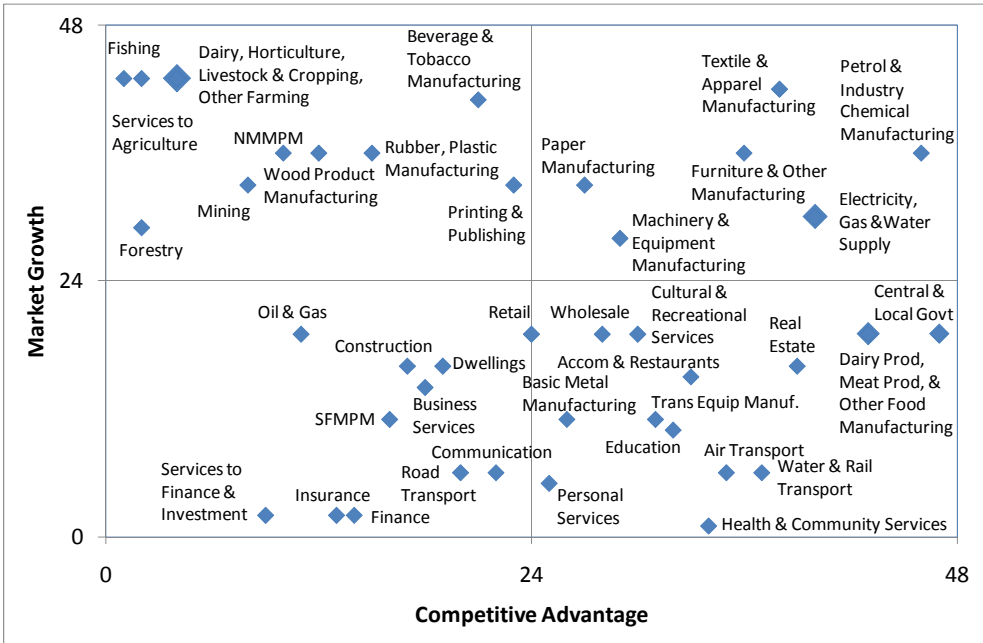
Another demand-side trend is the increasing role of supermarket chains in defining standards for products. Waitrose, for example, has indicated that its products will be produced more

sustainably by 2010, meaning that production processes minimise pesticide use, protect wildlife and conserve water and soil. Another supermarket chain, Tesco, sets environmental standards for its food products through its Natural Choice programme. Tesco has also stated it is carbon footprinting 70,000 of its products, an example that is being followed by other chains in the United Kingdom and elsewhere. The high-end retailer, Marks & Spencer, has introduced a label to indicate if a product has been air transported.

2.2 International opportunities for sectors

In 2009 the AERU was commissioned by the Canterbury Development Corporation to construct an economic model that can be used to evaluate prospects for different sectors of the Christchurch city economy or the Canterbury regional economy. A module of the Canterbury Development Model (CDM) analyses 48 sectors under four criteria, including two criteria related to each sector’s international opportunities: (1) its international competitive advantage; and (2) its potential growth in global consumer demand. Competitive advantage is measured by comparing the average value-added per person engaged in the sector against the same metric for the equivalent sectors in Australia, Germany, Japan, the United Kingdom and the United States. Potential growth is measured by the historical trend of personal consumption expenditure in the United Kingdom and the United States. The model allows sectors to be ranked from 1 (the strongest sector) to 48 (the weakest sector) on each criterion. This is shown in Figure 2.4 below, which has been divided into four quadrants. Sectors in the bottom left quadrant are in the top half of both criteria; those in the top right quadrant are in the bottom half of both criteria.

Figure 2.4: Sector rankings by market growth and competitive advantage



Source: AERU calculations.

Note: NMMPM is Non-Metallic Mineral Product Manufacturing. SFMPM is Sheet & Fabricated Metal Product Manufacturing.

Consider the sectors in the top left quadrant. The competitive advantage analysis shows that New Zealand's strongest competitive advantage is in the natural resource sectors with the top eight rankings going to fishing, forestry and logging, services to agriculture, hunting and trapping, dairy cattle farming, horticulture and fruit growing, livestock and cropping farming, other farming, and mining and quarrying. Non-metallic mineral product manufacturing and wood product manufacturing are also in the top twelve sectors analysed by competitive advantage. All of these sectors are also ranked very low on trend consumer expenditure, however, all ranking 29th or higher out of 48.

In contrast, the sectors in the bottom right quadrant have strong potential for international consumer growth (based on historical trends), but New Zealand has a low competitive advantage. This quadrant includes dairy product manufacturing, meat and meat product manufacturing, and other food manufacturing. The top ranking sector by potential market growth is health and community services, suggesting strong possibilities for firms developing high technology medical products. Another sector in the top 10 by potential market growth is education, which is consistent with the growth of the international education market in New Zealand schools and tertiary institutions.

The sectors in the bottom left quadrant have strong competitive advantage and strong market potential. The quadrant includes three sectors related to finance and insurance, plus the business services sector. These sectors are often not considered in economic development strategies, but the analysis in Figure 5 suggests they could be important for New Zealand's economic growth. The business services sector, for example, includes professional, scientific and technical services. These in turn can be categorised into market research, management and related consultancy and computer system design and related services. Many of these are export focussed service industries with New Zealand potentially having a competitive advantage. Trade in services has increased from \$2.9 billion in 1992 to \$12.4 billion in 2005, with much of this growth being in transport, insurance and government services not elsewhere classified. Another sector in this bottom left quadrant is communication services; the ICT sector was one of three sectors receiving particular attention in the economic strategy of the previous government.

The analysis provided by the model represented in Figure 2.4 is only a preliminary step for considering the strengths and weaknesses of particular sectors. Other considerations include the flow-on effects of different sectors across the New Zealand economy. The Canterbury Development Model is able to provide details of these linkages, which suggest that the sectors producing the highest value added when direct indirect and induced impacts across New Zealand are incorporated, are education, hospitals and health services, and scientific research and computing. Services to agriculture also rate highly as do business services, finance and insurance. The agricultural sectors of horticulture, meat manufacturing, livestock cropping are also fairly highly ranked. These results are similar when employment output ratios are assessed.

Another consideration is to distinguish sectors that focus on exporting to international markets from those that focus on domestic markets. There are two reasons for this distinction. The first is that economic theories of growth emphasise economies of scale in producing competitive advantage. Sectors that rely on the New Zealand market will be limited in their size, and so may struggle to achieve the scale required to maintain competitiveness. The second reason is that sectors catering for the New Zealand market will tend to *follow* rather

than *initiate* the country's economic growth. This is because they tend to rely on domestic consumption expenditure, which in turn is strongly influenced by domestic incomes. Thus there has been a long-standing view in New Zealand that national economic strategies should pay particular attention to export sectors. This particular attention does not mean that there should be a greater proportion of exports in the national economy; only that growth in this sector will generate higher incomes that will generate higher spending on other sectors in the economy, raising economic activity in general.

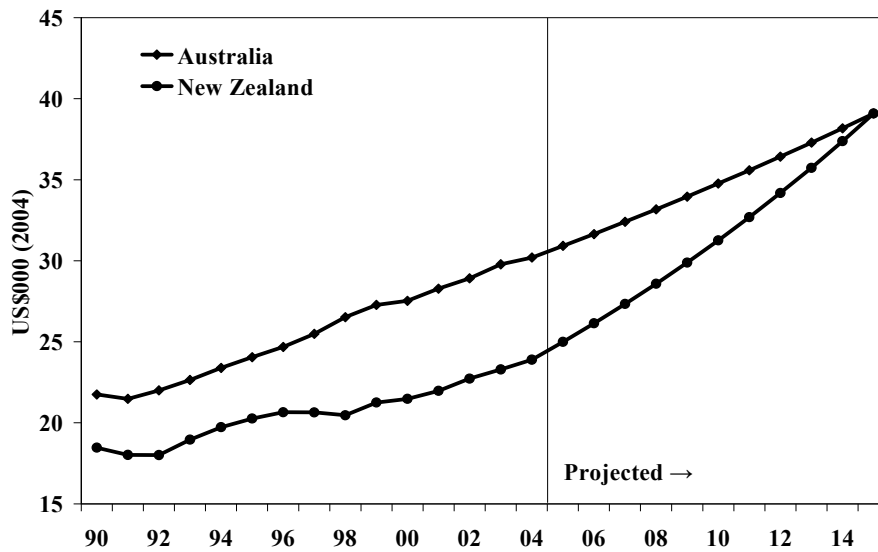
2.3 Structure of the New Zealand economy

Before the change of government at the 2008 general election, it was common for policymakers to state that the country's primary economic objective was to return New Zealand to the top half of the OECD in terms of real gross domestic product (GDP) per capita, and then maintain that standing. In 2007, the authors undertook an analysis of what would have been required to achieve that target, using 2004 data (Dalziel *et al.*, 2007; 2004 was chosen because it was the latest year for which nominal GDP analysed by sector was available). In 2004, New Zealand was ranked 21st out of 30 members and the middle country in the list was Australia (OECD, 2005, pp. 12-13). The per capita GDP of the two countries in 2004 was US\$23,900 (New Zealand) and US\$30,200 (Australia). Thus, to be in the top half of the OECD in 2004, New Zealand's per capita GDP would have needed to have been 26 per cent higher than it was.

Dalziel *et al.* (2007) cited the example of Ireland as what can be achieved by a country; Ireland moved from 19th to 7th in the OECD rankings of per capita GDP between 1989 and 2000. Taking that example as a guide, suppose that New Zealand aimed to catch up with Australia within 11 years. Figure 2.5 shows the historical per capita GDP paths of Australia and New Zealand between 1990 and 2004. The average Australian growth rate before 2005 was 2.4 per cent per annum; suppose that Australia's per capita GDP continues to grow at that rate over the next 11 years. Then Figure 2.5 shows that to catch up with Australia, New Zealand's average per capita GDP growth rate between 2004 and 2015 would have to be 4.6 per cent per annum. This is two and a half times New Zealand's actual growth rate between 1990 and 2004.

The time paths in Figure 2.5 were used in Dalziel *et al.* (2007) to calculate the level of New Zealand production that would have needed to occur in 2015 in order for Australia and New Zealand to have the same level of per capita gross domestic product that year, assuming that Australia continued to grow at 2.4 per cent per annum starting from 2004. First, New Zealand's per capita production would have had to rise by 4.6 per cent per annum, or 63.5 per cent in total, from \$31,874 in 2004 to \$52,121 in 2015. Second, using the national population projections (medium fertility and mortality, 10,000 annual net migration) of Statistics New Zealand, the population could increase from 4.061 million to 4.419 million. Hence to achieve per capita output of \$52,121, total production in New Zealand will have had to increase from \$129.5 billion in 2004 to \$230.3 billion in 2015.

Figure 2.5: Australia and New Zealand per capita GDP, historical and projected to reach parity with Australia within eleven years



Source: Dalziel *et al.* (2007, p. 18).

This has implications for production by sector, as presented in Table 2.1. The first column of data shows the distribution of New Zealand GDP in 2004, focusing on New Zealand’s major export sectors. These are the primary sector (divided into two categories: agriculture; and forestry, fishing and mining), manufacturing (divided into three categories: food, beverage and tobacco; wood and paper products; and other manufacturing) and tourism.

The production data for the export sectors in Table 2.1 come from the Statistics New Zealand INFOS Series S1NB01AAT4. The tourism sector is not a standard classification in the measurement of GDP output, but Statistics New Zealand (2007) publishes tourism satellite accounts that have been used for that row in the table. The non-export sector, ‘other production’, is then calculated as the difference between total production and the sum of the export sectors.

In the second data column of Table 2.1 the industry structure of the national economy in 2015 is assumed to remain unchanged, so that all production sectors expand at the same rate of 5.4 per cent per annum between 2004 and that year. The bottom half of the table repeats the above analysis that for per capita production to rise from \$31,874 in 2004 to \$52,121 in 2015, total production in New Zealand will have to increase from \$129.5 billion in 2004 to \$230.3 billion in 2015.

An alternative scenario is one that is often proposed by commentators in New Zealand; namely, that the growth should be export-led. The final column in Table 2.1 repeats the analysis under this scenario by assuming that the *extra* production growth required to return New Zealand to the top half of the OECD comes from the export sectors, while the rest of the economy continues to grow at the Australian projected growth rate. Thus, New Zealand’s ‘other production’ grows at the same rate as projected Australian GDP growth over the period (40.8 per cent in total, allowing for population growth), while the export sectors in New Zealand grow much faster (170.0 per cent in total, or 9.4 per cent per annum) in order to achieve parity between the two economies in 2015.

Table 2.1: Sector implications of balanced and export led growth

	2004	2015	
	NZ\$000	Balanced	Export-Led
Agriculture	7,539	13,142	19,067
Forestry, Fishing, Mining	2,591	4,609	6,553
Food, Beverage, Tobacco Manufac.	6,544	11,642	16,550
Wood and Paper Product Manufac.	2,093	3,723	5,293
Other Manufacturing	11,819	21,026	29,891
Tourism (Direct Value Added)	6,700	11,919	18,066
Other Production	92,169	163,971	129,765
Total Production (All Industries)	129,455	230,304	230,304
Total Employees (000)	1,966	2,743	2,743
Population (000)	4,061	4,419	4,419
Production Per Employee	65,870	83,984	83,984
Production Per Capita	31,874	52,121	52,121

Source: Dalziel *et al.* (2007, p. 19 and p. 22).

The increases in output in the export sectors under either scenario would require a marked improvement on labour productivity growth that has been achieved in recent years. Achieving higher output to this level is even more challenging when the international context of section 1.1 and the sector analysis of section 1.2 are recalled. This gives rise to ‘The New Zealand conundrum’, discussed in the following section.

2.4 The New Zealand conundrum

The previous sections outline what might be termed the New Zealand conundrum. In order to achieve a level of per capita GDP in the middle of the OECD rankings (or to achieve parity with Australia), New Zealand’s economy would need to grow at a much faster rate for the next decade than it has done so in the last decade. In a balanced growth scenario, the export sectors would have to grow at 5.4 per cent per annum; in the export-led scenario, they would have to grow at 9.4 per cent per annum. Yet the analysis of global climate change models is that such high levels of physical output growth in the agricultural sector are unattainable. Further, the historical trend is for low rates of growth in consumer demand for products in the primary sector. There are also serious questions being asked about future trends for international tourism, if a combination of climate change responses and falling oil production significantly raises the price of long-haul flights.

One response to the New Zealand conundrum has been to argue that the future of New Zealand’s economic development will therefore lie in the country’s high-technology sector. This argument has been recently promoted by Paul Callaghan’s (2009) book *Wool to Weta*:

Transforming New Zealand's Culture and Economy. It builds on a decade of government policy designed under the headings of 'the knowledge economy', 'the growth and innovation framework', and 'the economic transformation agenda'. Under the growth and innovation framework, for example, the government focused on three sectors: biotechnology, information communications and technology (ICT), and the creative industries.

This approach has been criticised for ignoring strengths in New Zealand's traditional export sectors. A Tertiary Education Commission research paper, for example, warned against 'a danger that public sector administrators view the [existing core industries] as the dull/old economy and the [new knowledge-driven enterprises] as sexy/new economy' (Webb and Grant, p. 13). Defined the existing core industries as forestry, fishing, wool, dairy, beef, tourism, horticulture and vegetables, the paper noted that these existing core industries have two notable strengths (*idem*, p. 7):

- Because of the large size of these sectors, small gains in overall productivity translate to major economic impacts. This is particularly so where these gains can be captured by the producers, processors and/or service providers, rather than being translated into savings for the final consumer or increased margins for an overseas company in the value chain.
- The industries in this part of the framework also represent the largest pool [with the exception of foreign direct investment] of leveragable assets – including financial capital, brand value and human capital – available to the country to support its economic transformation agenda.

Similarly, a Ministry of Agriculture and Forestry report published in 2003 expressed concerns that the agribusiness sector had come to be perceived as a declining 'old economy' sector, in contrast to more 'glamorous' sectors such as tourism, film making, information technology (IT) and yacht racing (MAF, 2003, p. 4). The report argued that this perception is misplaced (*idem*, p. 5).

In fact, since 1986/87 (after fiscal support for agriculture had been removed) the contribution of agribusiness (including components of transport and wholesale trade sectors) to GDP rose from 14.2 percent to an estimated 16.5 percent. Agribusiness and forestry are currently estimated to contribute around 20 percent of GDP. There is every possibility of this rising further over time. Perhaps significantly, this very substantial enhancement in the contribution of the agribusiness and forestry sectors to GDP seems to correlate with an increase in the trend rate of New Zealand's per capita income growth.

Further, reinforcing the point made by Webb and Grant (2003), the report noted the significant gains achieved in agricultural productivity over the previous 15 years (p. 5), and commented that the innovation system is a key driver of the long-run performance of the agribusiness and forestry sectors (p. 6). These observations have been confirmed in research within the Treasury. Harrington (2005, p. i) records that the growth of New Zealand's primary sector has been strong relative to the whole economy over the last 25 years, driven largely by the performance of agriculture. Hall and Scobie (2006, p. i) record that the agricultural sector has been an important contributor to New Zealand's overall growth of productivity, with an average rate of multifactor productivity growth in agriculture equal to 1.8 per cent from 1926/27 to 2000/01.

Despite the international competitive advantage enjoyed by New Zealand's primary sector (confirmed in the analysis in section 2.2 above), the fact remains that there is limit for potential growth into the future as the share of expenditure on food declines (particularly the proportion of expenditure on commodity based farm gate products) as world incomes rise. This has been seen historically as New Zealand has experienced falling relative incomes over the last few decades compared to other OECD countries. This can be expected to continue if the country's export strategy were to be based on increasing the quantities produced of agricultural commodities. While expenditure in developing and emerging countries is rising in absolute terms for agricultural products (especially meat and dairy) they are falling in relative terms.

Bringing these ideas together suggests another approach to the New Zealand conundrum. Yes, it is important to diversify the economy with the development of new knowledge-based enterprises. There are clearly sectors where New Zealand has a competitive advantage and where there is strong potential for growth. Examples from the analysis in section 2.2 include education and a range of some manufacturing sectors. Even in sectors where the analysis suggests a low competitive advantage and a low potential for market growth (such as textiles and food manufacturing), there are enterprises within New Zealand that have expertise in producing niche high value exports, including examples from the high tech sectors, medical technologies business services and specialist manufacturing.

This will only be part of the solution, however; it is also important that the traditional core sectors are also transformed to take advantage of new technologies and changing trends in international markets in order to add value to our land-based products through various means. This might include the development of novel products and expansion into functional foods which have higher growth in expenditure (see Figure 2.4 in section 2.2). It may also involve more focussed marketing that is fully integrated into New Zealand's production systems, and drawing upon other potential competitive advantages such as the country's ability to meet segments of consumer demand for 'green production'.

This latter approach requires the use of what the OECD has termed 'knowledge intensive service activities' (KISA; see especially OECD, 2006; a New Zealand application to the software industry has been reported by Williams, 2006). The concept is well summarised by Martinez-Fernandez (2006, p. 109):

Knowledge Intensive Service Activities (KISA) are defined as the activities originated by the production and integration of knowledge-intensive services crucial for the innovation process of the firm. They may be undertaken by firms in manufacturing or service sectors, and in combination with manufactured outputs or as stand-alone services (OECD, 2003, p. 2). Typical examples of KISA include R&D services, management consulting, IT services, human resource management services, legal services (such as those on IP-related issues), accounting, financing, and marketing services. Activities oriented toward the use and integration of knowledge are instrumental for building and maintaining a firm's innovation capability. In practice, KISA in a firm are achieved by the use of in-house, or the combination of in-house and external, expertise. The capacity of the firm to perform these KISA more effectively may indeed be what differentiates a firm from its competitors.

This approach involves less emphasis on increasing physical output growth and more emphasis on using sophisticated knowledge management systems to achieve higher returns for the output.

Chapter 3

Vision and Goals

New Zealand residents through their enterprise and work are all able to enjoy levels of economic well-being that are no lower than enjoyed in other highly developed economies of the world, in the present and in the future.

The above vision statement is the author's interpretation of recent policies articulated by central government in a wide range of documents and settings. A particularly influential source is the Speech from the Throne at the State Opening of Parliament on 9 December 2008, which described the driving goal of the National-led government in the following terms (www.beehive.govt.nz/speech/speech+throne+0):

The driving goal of the new Government will be to grow the New Zealand economy in order to deliver greater prosperity, security and opportunities to all New Zealanders. It will be going for growth because it believes in the power of economic growth to deliver higher incomes, better living conditions and, ultimately, a stronger society for New Zealanders.

My Government knows that only a strong economy will guarantee financial security for families, well paid jobs in New Zealand for our young people, and larger superannuation payments for our older people. In pursuing this goal of economic growth my Government will be guided by the principle of individual freedom and a belief in the capacity and right of individuals to shape and improve their own lives.

These two paragraphs contains the key ideas of greater prosperity, security and opportunities being available to *all* New Zealanders and that individual citizens have the capacity and right to shape and improve their own lives. Thus the vision states that *New Zealand residents through their enterprise and work are all able to enjoy...*

The previous government often articulated a vision for the New Zealand economy 'to return to the top half of the OECD', measured by its per capita gross domestic product (GDP). There have been longstanding concerns about the use of GDP to measure economic performance. In February 2008, the President of the French Republic, Nicholas Sarkozy, asked Joseph Stiglitz, Amartya Sen and Jean Paul Fitoussi to create the "The Commission on the Measurement of Economic Performance and Social Progress" (CMEPSP). The Commission concluded that 'it has long been clear that GDP is an inadequate metric to gauge well-being over time particularly in its economic, environmental, and social dimensions, some aspects of which are often referred to as sustainability' (Stiglitz *et al*, 2009, p. 8).

For this reason, the vision statement has adopted 'economic well-being' as its core concept, which also reflects the statutory objective of regional government in New Zealand 'to promote the social, economic, environmental, and cultural well-being of communities, in the present and for the future' (Local Government Act, 2002, Section 10). It has retained the previously expressed intention for the high-level economic goal to be based on a comparison with developed economies. Hence, it aims for *levels of economic well-being that are no lower than enjoyed in other highly developed economies of the world ...*

Finally, the vision statement refers to the issue highlighted in the final word from the Stiglitz *et al.* quote cited above (sustainability) which is also an essential element in the statutory objectives of local government in New Zealand ('in the present and for the future'). This formulation goes back to the Brundtland Report's famous call for development that 'meets the needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987, par. 27). Thus the vision statement ends with: *...in the present and in the future.*

It is standard to flesh out a vision statement with a series of goals that provide more detailed steps towards the vision. The authors propose the following seven goals for in New Zealand's medium term economic policy, for reasons that will be explained in the rest of this chapter.

1. **World-class enterprise** – New Zealand firms will be recognised internationally for their world-class ability to identify and realise new market opportunities, create investment opportunities and drive innovation.
2. **Innovation systems** – New Zealand will be recognised internationally for its regional and national innovation systems for creating and commercialising new ideas in its sectors of international strength.
3. **Skills and life-long learning** – New Zealand citizens will be recognised internationally for their skills and commitment to life-long learning.
4. **Public and private investment** – New Zealand will be recognised internationally as a country of world-class public infrastructure and private investment in capital incorporating advanced technologies.
5. **Environmental kāwanatanga** – New Zealand will be recognised internationally as a country that safeguards its own natural resources in a sustainable manner and contributes to the solution of global environmental challenges.
6. **Equity and inclusiveness** – New Zealand will be recognised internationally as a nation where all sub-populations in the country, including the indigenous tāngata whenua, can participate equitably in economic well-being.
7. **Auckland city** – Auckland city will be recognised internationally as a desirable urban centre on the Pacific Rim for businesses and their staff requiring economies of scale and lifestyles available only in well-organised large cities.

Two good sources for economic goals are the major economic policy document of the previous government (New Zealand Government, 2006) and a foundational research paper produced by its main economic advisors in the public sector (Kidd, 2008). The former identified five key areas or integrated themes that were to be the focus of the government's strategic direction (par. 26):

- globally competitive firms;
- world class infrastructure;
- innovative and productive workplaces – underpinned by high standards in education, skills and research;
- environmental sustainability; and
- Auckland – an internationally competitive city.

The Treasury report launched a series of papers on productivity growth (all of which would have some relevance for this project) and set out the framework adopted by Treasury for understanding factors influencing the growth of productivity (and hence economic growth). The framework identifies five key drivers (Kidd, 2008, p. 8):

- **Enterprise** – Entrepreneurs identify and realise new market opportunities, create investment opportunities and drive innovation.
- **Innovation** – Innovators generate, adopt and adapt new ideas and create investment and entrepreneurial opportunities.
- **Skills** – Skills enhance labour’s contribution to growth, improve the economy’s ability to innovate and adopt new ideas and increase investment opportunities.
- **Investment** – Investment improves and enlarges the capital stock, is an input in the entrepreneurial process and increases the returns to skill acquisition.
- **Natural Resources** – Sustainable resource management increases the opportunities and mitigates the risks associated with the increasing cost and declining availability of natural resources and with consumers’ growing demand for environmentally sustainable products.

The Treasury’s framework has been accepted by other lead organisations; Business New Zealand, for example, has used it to create a 50 point productivity action plan in their publication *Setting New Zealand Apart – Getting More Productive and Competitive – A Plan for Action*. There is considerable overlap between the two lists, especially if a link is drawn between globally competitive firms in the first list and enterprise in the second. Otherwise the major difference is that the first list includes a particular focus on Auckland as an internationally competitive city. This is reflected in goals 1 to 5 and goal 7 offered above.

Goal 6, ‘equity and inclusiveness’, might be considered implicit in the above lists. The vision statement at the beginning of this chapter refers to *all* New Zealanders enjoying economic well-being, for example, and policy initiatives recognise the importance of raising the skills of the *whole* New Zealand workforce. Nevertheless, recent work within the AERU has produced an indicator for measuring equity in the context of a country’s sustainable development which provides further quantitative evidence of a serious departure from the vision of inclusiveness (Dalziel *et al*, 2009a; Dalziel and Saunders, 2009). The indicator takes as its starting point the statement in the *Universal Declaration of Human Rights* (United Nations, 1948, Article 22) that:

Everyone, as a member of society, has the right to social security and is entitled to realization, through national effort and international co-operation and in accordance with the organization and resources of each State, of the economic, social and cultural rights indispensable for his dignity and the free development of his personality.

The measure recognises five core components of social security – employment, income, housing, health and education – and defines a minimum standard of attainment for each component (see the notes to Table 3.1 below). It then uses official data to record what percentage of the population attains that standard.

Table 3.1: The Equity Index, European/Pākehā and Māori, 2006

	European/Pākehā	Māori
Employment Equity	92.2	86.4
Income Equity	88.0	78.0
Housing Equity	96.0	77.0
Health Equity	73.1	65.9
Education Equity	79.9	56.1
Equity Index	85.8	72.7

Source: Dalziel *et al.* (2009c, p. 14).

Notes: Employment equity is the number of employed in the Household Labour Force Survey, divided by the number of employed plus the number of jobless, expressed as a percentage, assuming no ethnicity difference in the percentage who are jobless but not officially unemployed. Income equity is the percentage of the population living in households whose equivalised disposable income after housing costs in the Household Economic Survey is below 60 per cent of the median (2004 data). Housing equity is the percentage of the *Census* population living in crowded housing. Health equity is the Independent Life Expectancy calculated from the average of male and female rates reported for Non-Māori and Māori by the Ministry of Health and Statistics New Zealand. Education equity is the percentage of students recorded by the Ministry of Education as leaving secondary schools having attained an NCEA Level 1 qualification or higher. The Equity Index is the average value of the five components.

Table 3.1 shows a large gap between the value of the equity indices for European/Pākehā and Māori. The European/Pākehā value is 85.8 while the Māori value is 72.7. Further, there is a sizable gap in every component of the equity index. Dalziel *et al.* (2009a, p. 14) commented on these gaps as follows:

The differences between Māori and European/Pākehā in Table [3.1] can only be described as distressing. The basis for the construction of the equity index is the fundamental human right to social security. Nevertheless, the value of every component of the equity index is considerably lower for the Māori population than for the European/Pākehā population. These data do not provide explanations for the causes of these differences, but the equity index indicates that the level of social security being experienced by the indigenous population of New Zealand is materially below that being experienced by the European/Pākehā population. Because a basic human right is not equally available to all its citizens, as measured by this indicator, this suggests that New Zealand's current development path is not sustainable.

Chapter 4

A Capital-Based Analysis

Chapter 2 explored demand side economic opportunities available to New Zealand as a result of its positioning in the global economy. That analysis needs to be matched by considering the capability of the economy to respond to those opportunities. The best approach is to analyse trends in the country's capital stocks, on the basis that it is growth in capital (broadly understood) that underpins rising economic well-being. Solow's 1974 presidential address to the American Economics Association, for example, defined economic sustainability as 'non-declining per-capita human well-being (utility) over time'. Hartwick similarly interpreted sustainability as non-declining consumption over time (Hartwick, 1977), so that this is now often referred to as the Hartwick–Solow condition for sustainability. It requires 'a non-declining capital stock over time' (Solow, 1986; Repetto, 1986). More recently, the joint OECD, United Nations Economic Commission for Europe and Eurostat Working Group on Statistics for Sustainable Development (WGSSD, 2008) has recommended a capital-based focus, which has been taken up by Statistics New Zealand (2008, 2009) in designing a national sustainable development framework for New Zealand. This capital-based approach is the one adopted in this chapter, drawing in large part on Dalziel *et al.* (2009b).

Within a sustainable development framework, it is possible to distinguish six major types of capital: physical capital; financial capital; human capital; natural capital; social capital and cultural capital. It should be noted that this classification is not universally accepted. Some authors group physical and financial capital together; some authors group social and cultural capital together; and some authors question whether these last two concepts are relevant for economic policy, if only because social and cultural capital are both notoriously hard to measure. Nevertheless, there is a well-established literature arguing that all six types of capital make distinctive contributions to economic well-being, and so this chapter begins with their respective definitions.

Physical capital is the nation's stock of buildings, machinery, transport networks, vehicles, public infrastructure and the like, which is accumulated over time as a result of public and private investment net of depreciation. Investment in physical capital typically raises the productivity of a country's workforce, and is generally credited with the beginning of rising living standards in the industrial revolution in the second half of the 18th century. In recent years, attention has been paid not just to the quantity of physical capital produced by investment, but also to the technological advances embodied in new capital.

Financial capital recognises that an item of physical capital can be operated and managed by one group of people, and yet be owned by another group of people (who might live in another country). This is made possible by financial capital, which is created when savers make loans to borrowers. The debt thus created is an asset to the lender (positive financial capital) and a liability to the borrower (negative financial capital). By definition, the amount lent must match the amount borrowed, and so the net value of the world's financial capital is zero. Nevertheless, there can be significant differences among different countries, and among different groups within a country. New Zealand, for example, funds a significant amount of its domestic investment in physical capital by borrowing overseas. Thus New Zealand's net financial capital is negative.

Human capital is a concept introduced by Shultz (1961) and Becker (1962, 1964) to recognise that acquiring skills through education has similarities to a decision to invest in physical capital. Education involves some sacrifice (especially the wages foregone as a result of staying in education rather than immediately entering the workforce), but produces an asset that provides benefits to the individual over a long period of time (particularly the economic benefit of higher income than would have been earned without the education). Shultz and Becker called this asset human capital. A feature of human capital is that it generates economic benefits for other people and not just for the individual who chooses to invest in higher education. In the language of economists, education is said to produce 'positive externalities' for other individuals working or living in the same firm, industry, city, region or economy, so that people who live in communities with higher levels of education are more productive and earn higher incomes than would be possible in a less educated community.

Natural Capital is a concept that comes from a similar recognition that the environment provides inputs into production that are similar to physical capital. Cochrane (2006, p. 319) lists four general classes of inputs provided by the environment: (1) raw materials that become timber, fuel or food; (2) a sink for waste products from the process of production and also the products themselves; (3) life support functions or environmental services, such as flood or erosion control and climate stability; and (4) amenity services such as attractive landscapes. Like physical capital, the value of natural capital can be run down through over-use or maintained through investment. This interpretation has generated controversy, since some economists beginning with Solow (1974) suggest that it is appropriate for a community to reduce its stock of natural capital as long as it is building up physical and human capital to compensate. This is known as the weak sustainability principle. Others have argued that there are limits to which other forms of capital can substitute for the environmental services provided by nature, and so communities should seek to conserve or enhance its stock of natural capital. This is the strong sustainability principle (see especially Daly, 1996, pp.76-80).

Social capital is a concept originally introduced by sociologists such as Coleman (1986, 1990), Putnam, Leonardi and Nanetti (1993) and Fukuyama (1995). It is generally understood to be comprised of two elements. The first is the diverse networks and organisations that make up civil society. These range in scale from high level public institutions of good government to neighbourhood groups centred on local schools, sporting clubs, music societies, volunteer organisations and the like. They also contribute to the maintenance of the second element of social capital: the community's shared norms and values. Some of these norms may be codified and enforced by an institution (the ethical requirements of people engaged in medicine, for example), or may be informal social expectations about good behaviour, particularly between people who do not know each other (a first meeting between business people will begin with a handshake and exchange of business cards, for example). Social capital contributes to sustainable development by facilitating connections between people, by making it easier for people to access required information, and by encouraging trust and understanding among individuals, all of which reduces the difficulty and costs of doing business. A feature of social capital is that, unlike physical capital, its value tends to increase the more it is used. Like physical capital, however, social capital can depreciate through neglect.

Cultural capital entered the lexicon of researchers after Bourdieu wrote about the concept in a German publication in 1983, translated and republished in English three years later. In his presidential address to the Tenth International Conference on Cultural Economics, Throsby

(1999) explicitly argued that economists need to define cultural capital to sit alongside other forms of capital. He repeated from an earlier article his suggestion that culture has two constructions (Throsby, 1995, p. 202; see also Throsby, 2001):

The first is a specific interpretation of culture as a set of activities, including all those activities undertaken within ... the so-called “cultural industries” The second interpretation of culture is what might be termed an anthropological or sociological view, where culture is seen as a set of attitudes, practices and beliefs that are fundamental to the functioning of different societies. Culture in this sense is expressed in a particular society’s values and customs, which evolve over time as they are transmitted from one generation to another.

Based on ideas such as these, Dalziel *et al.* (2009b, p. 19) define cultural capital as a community’s embodied cultural skills and values, in all their community-defined forms, inherited from the community’s previous generation, undergoing adaptation and extension by current members of the community, and desired by the community to be passed on to its next generation. The literature recognises that culture has a potential to generate economic wealth directly, exemplified in New Zealand contributions by Anne de Bruin (1997, 1998, 1999) and Penny Eames (2006). The literature also recognises a potentially ‘dark side’. Dasgupta (2005, Section X), uses this term in his discussion of issues connected to exclusivity, inequalities and exploitation. He notes, for example, that ‘among contemporary societies, there are many where women remain socially inferior beings, prevented from inheriting assets, obtaining education and entering choice occupations, all of which excludes them from credit, saving and insurance markets’ (Dasgupta, 2005, p. 18).

The remainder of this chapter discusses general strengths and constraints of the economy under headings devoted to each of the six types of capital.

4.1 Physical capital

New Zealand is a high income country, which is reflected in a high level of physical capital. It is well served by modern international airports and container seaports. The country is connected with high standard transport and telecommunication networks, particularly between the major urban centres. New Zealand has sufficient energy for current needs, although there have been issues around costs, reliability (especially during dry winters) and planning for the future. Private firms are able to import physical capital incorporating the latest technology.

Alongside these strengths, there are constraints. New Zealand’s low population density makes the cost per person of building and maintaining its infrastructure relatively expensive. The small size of the New Zealand economy and the country’s distance from major markets mean that it cannot achieve the economies of scale necessary for the production of many forms of physical capital. To give an obvious example, it will never be economic for New Zealand to manufacture its own passenger aircraft; nor is it likely that automobile manufacture will be an economic activity in this country. Capital production in New Zealand is therefore concentrated on building and construction (including residential housing) with physical capital for industry users being for the most part imported. This has implications for New Zealand’s financial capital, which will be discussed in the following sub-section.

Further, since Dalziel (2000) pointed out the comparison with Australia, there have been concerns that the level of investment in New Zealand is lower than in some other developed countries. The suggestion is that both public investment in capital infrastructure and private investment in physical capital are not as high as in countries with higher economic growth. This produces consequences such as serious traffic congestion in Auckland city and some firms with outdated plant and machinery struggling to remain internationally competitive.

4.2 Financial capital

Against the backdrop of the fragility of the international financial system revealed by the recent global financial crisis, the financial system in New Zealand has demonstrated remarkable resilience. Although some finance companies experienced severe losses, banks supervised by the Reserve Bank of New Zealand exhibited no distress and retained the confidence of their depositors throughout the crisis. New Zealand's supervisory regime, which focuses on directors' responsibility and institutional transparency rather than regulatory interventions, has shown itself to provide a sound framework for maintaining a robust financial system.

As noted earlier in this chapter, New Zealand is a net importer of financial capital. This can be interpreted as a symptom of underlying weakness (since it implies ongoing deficits in the country's balance of payments with the rest of the world), but it is an inevitable consequence of the point in section 3.1 that physical capital for industry users is for the most part imported. It is entirely sound to borrow overseas financial capital to import overseas manufactured physical capital (Makin *et al*, 2009). A strength of the New Zealand economy is that the country regularly scores very highly in international studies of integrity and low corruption, so that New Zealand institutions have no particular difficulty in accessing overseas funds.

A more serious concern is that New Zealand residents have revealed a very strong preference for holding their accumulated savings in domestic real estate rather than in equity markets. This can lead to rising property prices (assisted by the absence of a capital gains tax in New Zealand) and make it difficult for New Zealand firms to obtain equity capital when they are ready to expand into international markets. Studies of the high technology sector in New Zealand by the AERU (Saunders and Dalziel, 2003 and 2006) have revealed that firms reaching this stage in their growth typically require financial capital as much for marketing as for production or service development. In many cases, accessing the necessary funds has meant selling equity in the enterprise to overseas interests.

4.3 Human capital

New Zealand has a comprehensive education system, from early childhood education through to public and private life-long learning opportunities in the tertiary sector. In 2003, for example, tertiary education institutions included 8 universities, 20 institutes of technology and polytechnics (ITPs), 4 colleges of education, 3 wānanga, 43 industry training organisations (ITOs), and some 800 private training establishments including English language schools (Ministry of Education, 2003, p. 3). In the compulsory education sector, *The New Zealand Curriculum* was launched in November 2007 after extensive consultation, articulating a vision of young people developing the competencies they need for study, work, and lifelong learning

(Ministry of Education, 2007). The New Zealand labour force is generally considered to be flexible and reliable, with a distinct international cost advantage in highly skilled occupations such as research and development.

There are concerns, however, about New Zealand's education system. In the compulsory education sector, there is a large tail of underachievement. Table 3.1 on page 18, for example, reports that 20.1 per cent of European/ Pākehā and 43.9 per cent of Māori students left secondary school in 2006 without an NCEA Level 1 qualification or higher. This has led to widespread complaints from employers about low literacy, numeracy and basic computing skills in some segments of the labour force, resulting in a *New Zealand Skills Strategy* that attempts to address this issue (see New Zealand Government, 2008).

At the other end of the spectrum, there have been long-standing concerns about relatively weak connections between the country's public tertiary education providers (the universities and the ITPs) and employers (see, for example, Dalziel, 2007). There are two aspects to this concern. The first is that education providers are not providing graduates with particular skills required by New Zealand employers. This concern was addressed in part by the Tertiary Education Commission's regional facilitation programme, which was coordinated by ITPs in each region of the country but generally did not obtain much involvement from universities.

The second concern is a view that innovative researchers in universities and entrepreneurs in local enterprises are poorly connected to each other, resulting in weak innovation systems in New Zealand. There are three consequences: local enterprises wanting to purchase specialist expertise in research or marketing development are unable to do so; academics miss out on opportunities to do relevant research; and potentially valuable intellectual property produced within universities is not commercialised.

More generally, New Zealand often laments its low proportion of spending on research and development, particularly the low level of expenditure in the private sector. This suggests that the benefits of research and development have not been clearly articulated to private firms, or that the benefits are unable to be captured by individual firms (rather than by the industry sector as a whole). The Foundation for Research Science and Technology, as well as the Royal Society of New Zealand, are continually involved in exercises aimed at addressing these issues.

4.4 Natural capital

New Zealand has abundant natural resources for productive and recreation uses as well as a low population density compared to many other countries. This has resulted in strong export sectors such as primary sector production (agriculture, horticulture, forestry and fishing) and nature-based tourism. A favourable climate allows for ongoing pasture production especially suited to sheep and dairy livestock. The landscape includes areas of high natural beauty and relatively low intensive production, which is attractive to some overseas consumers, tourists and potential long-term migrants. New Zealand's isolation means the country is relatively disease free, which creates opportunities for the production of specialist breeding stock and crop seeds for other parts of the world. In addition, the country's position in the southern hemisphere season means that New Zealand can supply off-season produce to the very high-income markets of Europe, Asia and North America.

New Zealand's natural resources are a strength for attracting international visitors. The country has diverse attractions that are easy to access; however, isolation from the major northern hemisphere regions is a disadvantage. New Zealand also has some vulnerability around its clean and green, 100% pure, image that is used to profile tourism and other export products. This claim is open to challenge in some quarters, accompanied by demands for independent verification, which has the potential to negatively affect consumer behaviour.

The history of New Zealand's preferential access to the United Kingdom market, and its general reliance on agricultural exports, has led to another potential weakness, which is a focus on productivity growth through increases in physical output rather than through increases in the value obtained from each sale. In the agricultural sector, a focus on increased yield from inputs can actually lead to a fall in returns in those sectors where we can affect world prices (especially, sheepmeat and dairy), which reinforces the need to refocus on increasing value added.

4.5 Social capital

There are two aspects to social capital that need to be considered: the social capital within New Zealand, and the social capital New Zealand has built up with overseas residents. This includes 'New Zealand's Global Talent Community' known as Kea (see www.keanewzealand.com/). Its website comments that 16 per cent of New Zealand's population live overseas, the highest proportion of any OECD country. At official levels, New Zealand has exceptional connections and influence in international bodies, particularly connected to world trade. New Zealanders have recently played key leadership roles in the United Nations, the World Trade Organisation and the Commonwealth Secretariat. Within New Zealand there are strong national, regional and industry institutions networking businesses, and business leaders are typically strongly connected to their local communities.

Social capital can be enhanced in a number of ways. First, economic growth has to be balanced and ensure participation from the whole of society to maintain social cohesion. That is both those who are not involved in the initiating export sectors but also those who may feel for whatever reason disenfranchised at present. Also of importance in achieving growth is the investment in social capital. Research shows that the most successful sustainable businesses are those who have connections with their local communities (Knuckey *et al*, 2002). Another important factor in the development of businesses reported in many surveys of businesses is good networking with other firms, both in the same sector but also those who may have experienced similar issues through accessing export markets or growing.

Social capital can also decay through neglect. The analysis in Table 3.1, for example, confirms large gaps in the social security experienced by Māori compared to other citizens. Rising income inequality can also diminish social capital. Income inequality can be compared with other OECD countries using the Gini coefficient (which ranges from zero representing perfect equality to 100 representing complete inequality). The Ministry of Social Development (2009, p. 61) reports that 'the most recent OECD comparison (from 2004) gives New Zealand a score of 34, indicating higher inequality than the OECD median of 31 and a ranking of 23rd equal out of 30 countries. New Zealand's Gini score was below that of the United States (38), very close to those of the United Kingdom (34) and Ireland (33), a little above Canada and Japan (32), and a little further above that of Australia (30).'

4.6 Cultural capital

The current generation of New Zealanders has inherited important values such as respect for property rights and willingness to work hard that are foundational for economic well-being. The fact that English is the country's dominant language is an international advantage, reinforced by New Zealand's position in a different time zone from major markets in the northern hemisphere. These attributes mean that New Zealanders can communicate easily with many parts of the world and firms in New Zealand can be undertaking business while other key economies are quiet. This has been cited as a strength by New Zealand based firms in areas such as high technology researchers and software developers.

New Zealand Trade and Enterprise has recently published a report by Tony Smale (2009) on 'how Kiwi culture can translate into creating successful and internationally competitive business models'. Smale identifies and measures key dimensions of Kiwi culture, and argues that on the whole they are very good in helping New Zealanders initiate an innovative idea, but are not so helpful in implementing the idea to the country's commercial advantage. Smale (2009, p. 3) writes: "In New Zealand's case, dimensions like individualism, short-term orientation and the pursuit of discovery and adventure, should, according to the literature, make us better at the initiation stage than at the implementation stage."

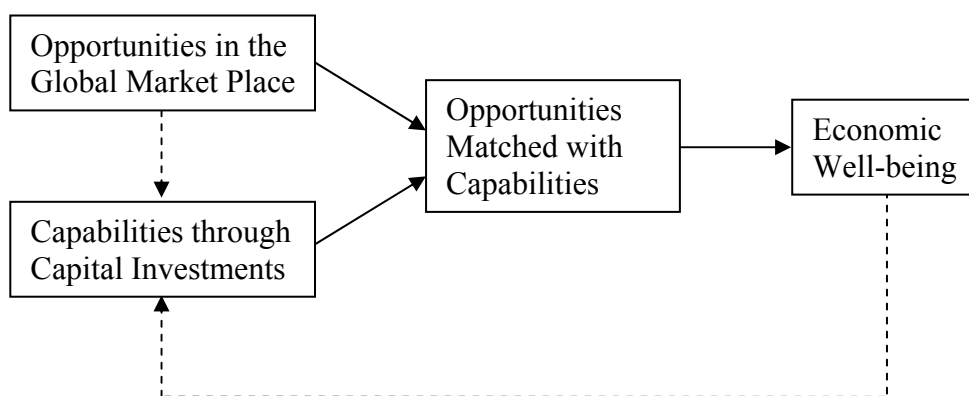
A classic criticism of New Zealand business founders is that they are often focussed on lifestyle and therefore do not want to grow after the business has reached a certain size, especially if it would require losing control (or risking the loss of control) to external shareholders (Skilling and Boven, 2006; Booker and Hurman, 2008; Smale, 2009). This criticism is harder to justify when the goal is 'economic well-being' rather than economic growth for its own sake. Business people, on the other hand, often comment that business success is not celebrated within New Zealand in the same way that artistic, sporting or community success is recognised by the media and the general public.

Chapter 5

Economic Strategy Issues

The previous chapters of this report have covered the overall vision and high level goals for economic policy (chapter 3), the supply-side capabilities of the New Zealand economy based on its stocks of six types of capital (chapter 4) and the demand-side opportunities based on New Zealand's positioning in the global economy (chapter 2). To determine key economic strategy issues, these three segments need to be integrated. Indeed, the primary purpose of an economic strategy (at the regional or national level) is to identify opportunities for coordinated actions that will enhance the capabilities of businesses to capture benefits from their enterprise efforts.

Figure 5.1: Matching opportunities and capabilities



The process of integration is depicted in Figure 5.1. From its current level of economic well-being, New Zealand can invest in the six types of capital to increase its supply-side capabilities. To make best use of the investment, these decisions need to be informed by opportunities in the global market place, since it is the effective matching of capabilities with opportunities that will be most effective in developing economic well-being.

For the most part, investment decisions are made by private individuals who have obvious incentives to explore and incorporate global market opportunities in their decision-making. Economists have recognised, however, that information gathering has 'public good' characteristics that mean individuals tend to invest less in this activity than is desirable. Indeed, one of the main functions of an economic strategy is to collect and provide information such as that presented in the chapters of this report.

This approach to economic strategy is not an invitation for government 'to pick winners'. An economic development strategy provides a framework that will be recognised by private and public stakeholders as *credible*, and which will therefore be *freely chosen* by stakeholders to use in their decisions. A strategy also aims to identify where *coordinated action* by stakeholders may result in better outcomes. A region's capabilities in an industry cluster may be enhanced, for example, if investment decisions of employers, tertiary education providers and school leavers are chosen to be coordinated as a result of using the same information recognised as credible about the global market opportunities available to the industry.

New Zealand's economic strategy needs to pay particular attention to the country's core export sectors on the basis that they are internationally competitive and generate incomes that fuel domestic demand. These begin with the land-based sectors across all types of agriculture, but also forestry and fishing. Tourism is another important sector which draws heavily upon the country's natural resources. The finance and insurance sectors, the communications sector and business services have strong market demand and competitive advantage. Another key export sector is education. Other identified sectors include some manufacturing sectors, particularly sheet metal and transport manufacturing. Important subsectors include parts of the high tech sectors, such as medical technologies, and functional or high value niche market foods.

To foster New Zealand's economic well-being, the strengths of these sectors need to be reinforced and weaknesses need to be addressed within the context of wider policy objectives of the government such as strengthening an inclusive society and enhancing the country's natural environment. These wider objectives are not necessarily in conflict with economic well-being, of course, since an inclusive society generally requires participation in the productive sector of that economy and a quality natural environment has potential to maintain and enhance the value of New Zealand's exports and export earnings.

A key area stressed in many surveys and reports is the need for production processes in New Zealand that reflect international consumer demand, with market knowledge about consumer behaviour informing all parts of enterprises, from product development through to accessing overseas markets. This suggests that New Zealand should be producing graduates with specialised marketing skills, especially skills in international marketing. Appreciation of this needs to permeate all research and development, suggesting that the education of engineers and scientists should include aspects of international marketing in their programmes.

Lack of appropriate skills in New Zealand is also an important issue highlighted by employers, which needs to be addressed by the New Zealand education system. This is important so that key sectors can attract well-equipped staff but also to promote an inclusive society. This later would also be facilitated by stressing not just traditional approaches to education but also adult training and education to encourage upskilling and changes of careers to meet changing market expectations.

Clearly if the benefits of higher value exports are to be sustained and also benefit the wider New Zealand society, care has to be taken over the institutional structures that exist and how they operate. To ensure that benefits from overseas flow down the supply chain to producers (a necessary condition for sustainability), industry structures have to avoid bottlenecks or monopolistic behaviour in the chain. Also any positive or negative flow-on effects that impact on other sectors (including the wider population or the country's environment) need to be monitored, for example to understand the implications for public infrastructure investment.

The small size of the domestic market means that New Zealand firms generally have to enter international markets at an earlier stage of their growth than is the case in most other countries. This creates additional issues for managers, including the need to understand and operate in different cultural and business environments. Thus firms when they are still in early stage of development not only have to learn generic business skills such as international marketing and management of foreign exchange risk, but also have to acquire expertise in other interaction skills.

A long history of preferential access to the United Kingdom market may have inhibited New Zealand firms from building up a large body of expertise in international marketing, both in business and in its tertiary education institutions. Research by the AERU across different sectors and in different contexts has confirmed again and again that business leaders recognise that New Zealand firms need to strengthen their capabilities in international marketing and to sharpen their focus on markets when developing, producing and exporting products. Companies that have a sharp market focus do substantially better in generating returns to their shareholders than those who develop products and invest in research without at the same time assessing market requirements and demand for product features. This raises important questions about industry structure in the primary sector, reflecting long-standing policy debates in New Zealand about the different options.

Related to the above is the observation that many New Zealand companies undertake cost not value pricing; that is they price their product based on their cost of production without reference to the value of the product in the market place. This can lead to under pricing in high income markets.

In summary, therefore, it can be argued that New Zealand's historical strengths have also led to weaknesses. An abundance of natural resources (including a third of the country's land area being managed in the conservation estate) may have led to complacency especially relative to developments overseas in environmental quality. Preferential access, remoteness from high-income markets and consumers in the northern hemisphere may have led to complacency about marketing and meeting overseas market requirements, in particular as those markets are open to competition and consumer trends change. A relatively small population tends to mean lower internal competition and lower scale of operations. As a result, New Zealand businesses have less resources to grow and they have to export sooner in their development than would be the case in many other countries. Small domestic markets also limit access to locally sourced financial capital and encourages a workforce that is more diverse and less specialised than in larger economies (which has both advantages and disadvantages).

Thus, if New Zealand is to match its capabilities with market opportunities, some strategic investment in the six types of capital would assist.

Physical capital

There is relatively little concern about the investment in physical capital decisions of private firms, but there are serious concerns about the way in which public investment is being managed at national and regional levels. This includes issues of traffic congestion in Auckland, fragility in the supply of electricity, and the high price of telecommunications in New Zealand. It is often argued that the Resource Management Act 1991 imposes too many costs on large scale and some smaller scale investment projects, and that some Regional Councils such as Environment Canterbury pay too little regard for taking economic well-being into account when making planning and consent decisions. There appears to be no national strategy to guide decisions about large-scale investments to promote economic well-being in ways that may have impacts on (for example) environmental well-being. This has been an ongoing issue in the development of projects to create water storage for irrigation on the Canterbury Plains.

Financial capital

Access to financial capital has been identified in a number of studies as a constraint on enterprise expansion in New Zealand. This intensified during the credit crunch of 2008/09, but has been an underlying issue for many years. Government programmes in the past have tended to provide finance for research and development of new products, but it has not generally been easy to obtain funding for international marketing. There are overseas models of how to address this constraint. An example is the United Kingdom Enterprise Finance Guarantee which provides lenders of working capital to small to medium-sized enterprises with a government guarantee for 75 per cent of lenders' exposure on individual loans, for which the borrower pays a 2 per cent premium on the outstanding balance (www.businesslink.gov.uk/bdotg/action/detail?type=RESOURCES&itemId=1081839421). Approved lenders administer the loans, and have the final say on whether a loan is approved after their commercial assessment.

Human capital

A feature of New Zealand's education system is that its secondary schools and its universities were for decades almost entirely unconnected to local business and enterprises. Institutes of Technology and Polytechnics were more engaged with local employers, but even these were diverted during the 1990s to providing more generic courses (including degree courses) at the expense of maintain strong investment in industry-relevant training. As a consequence, it can be argued, it was particularly difficult for young people to make good education choices during their transition years from school to work. The consequences were disguised during the period of high unemployment, but skill shortages became more and more pressing until the most recent recession has again relieved the pressure.

The phenomenon of isolated educators is beginning to break down. Industry Training Organisations are providing secondary schools with the option of relevant unit standards and programmes like Gateway are strengthening linkages between schools and local employers. The Regional Facilitation programme operated by the Tertiary Education Commission refocused Institutes of Technology and Polytechnics on local skill needs. Universities are being steered by government policy towards greater engagement with key stakeholders (including business), and there has been considerable public investment in the business schools at the University of Auckland and the Auckland University of Technology. These developments in policy need to continue and arguably accelerate.

An important element of human capital investment is life-long learning for adult residents. Recent policy initiatives have sent mixed signals on this element. The *New Zealand Skills Strategy* (New Zealand Government, 2008) emphasised the importance of further skills development in the current workforce, but the 2009 *Budget* announced that all existing public funding arrangements for school-based Adult and Community Education provision would end, with only approximately 20 per cent reinvested in 2010.

Environmental capital

Environmental capital is vital for New Zealand itself but also for New Zealand's standing in the world. New Zealand leverages its 'clean and green' reputation to position itself and its products in high income global markets. This report has argued that this reputation is

vulnerable to overseas questioning of its truth, especially in the context of increasing demands from some overseas markets for sustainability credentials. A solution to this would be to create a New Zealand eco-label setting environmental standards for New Zealand businesses earning the label. Such a label could be modelled on the European Eco-Label, and include criteria such as percentage reductions in energy, nitrogen use and other key environmental indicators. This would enable New Zealand producers to document their good practice, and would show that New Zealand as a nation is serious about its clean and green image while also allowing sectors to develop different or more stringent targets.

Social capital

Research with enterprises has reinforced the importance of international, national and regional networks for business. Government support for the overseas Kea New Zealand network (see section 4.5 above) and for a variety of regional and industry networks within the country have been important mechanisms for strengthening this form of social capital. The regional partnerships programme has been particularly useful in creating new and better linkages among public and private organisations within the regions of New Zealand.

Nevertheless this report has argued that New Zealand's current economic development path is not sustainable because of the large gap experienced by Māori in every dimension of social security presented in Table 3.1 on page 18. This is a failing of the country's social capital; Māori communities are not currently able to create for themselves the same level of social security that other communities in the population take for granted.

There have been policy responses to this feature of the New Zealand economy, of which the most important has been creating mechanisms for resolving historical grievances about the failure of the Crown to respect property rights of Māori iwi. Without respect for property rights, economic development is scarcely possible so that the value of resolving these historical grievances is very high. Another important policy response has been the Māori Potential Approach developed by Te Puni Kōkiri, which aims to better position Māori to build and leverage off their collective resources, knowledge, skills and leadership capability (see its website at www.tpk.govt.nz/en/about/mpa/).

Cultural capital

This report has noted that commentators have seen both positive and negative consequences as a result of strong cultural traits inherited from previous generations of New Zealanders. Cultural values can be leveraged to raise the profile of the country and its products (including tourism), but it has also been stated that New Zealand culture does not acknowledge business success or support community leadership as well as in some countries. None of these cultural traits (positive or negative) should be regarded as set in concrete. The earlier cited report by Tony Smale, for example, argues that practices can be realigned without stopping New Zealanders from being Kiwi (Smale, 2009, p. 12):

The research behind this report established that a number of management practices, processes and systems represent barriers to the implementation stage of innovation in New Zealand, the result of which is the under creation and/or capture of value from our innovation efforts. Many of these practices may be attributed to Kiwi culture or to the values that guide our lives. With some effort we can realign our management practices to make the most of being Kiwi.

Smale offers five strategies that address this issue, designed to help New Zealand firms optimise the benefits of inventiveness: capturing and exploiting 'soft' capital; building real relationships with customers; capturing more of the value chain; growing the firm's talent; and executing the game plan – speed to market. The authors agree with the approach adopted by Smale; policy should not aim to deny cultural values held by New Zealanders, but to offer strategies for addressing unintended negative consequences for businesses.

Chapter 6 Conclusion

As explained in the introduction, this report is offered as an issues paper that aims to identify key economic strategy issues for New Zealand, *analysed as a region in the global economy*. It does not claim to be a full strategy (which would require more resources than available for this project), but it does claim to be an advance on *insular approaches* that aim to develop policy recommendations without analysing New Zealand's positioning in international markets.

Consequently, the report began in Chapter 2 with an analysis of New Zealand's profile in the global economy. It recognised global problems listed by the United Nations, using the climate change debate to illustrate how international issues affect New Zealand's economic position. It then used the Canterbury Development Model to analyse the rankings of New Zealand's industry sectors by market growth and competitive advantage, and compared this to a modelling exercise to show what sectors in New Zealand would look like (in terms of size) if balanced growth or export-led growth was sufficient for New Zealand to close the gap with Australia (in terms of per capita GDP) over eleven years. The chapter finished with a discussion of what it called 'the New Zealand conundrum': the fact that international trends appear incompatible with economic growth achieved by increasing the quantity of primary sector exports and tourism numbers. It argued that resolving this conundrum will require diversification of the economy through the development of new knowledge-based enterprises and the use of knowledge intensive service activities in the traditional export sectors to put more emphasis on using sophisticated knowledge management systems to achieve higher returns for New Zealand products.

Readers will recognise that the approach taken in Chapter 2 provides a radically different framework for strategy development than the approach taken in the first report of The 2025 Taskforce released on 30 November 2009. That report is *not* a national economic strategy as we would understand that term, but is an exercise to assess government decision-making within the discipline of public economics.¹

Chapter 2 provided the foundation for the rest of the issues presented in the rest of the report. Chapter 3 presented a vision statement for the country's national economic strategy, accompanied by a set of seven high-level goals. The vision is that *New Zealand residents through their enterprise and work are all able to enjoy levels of economic well-being that are no lower than enjoyed in other highly developed economies of the world, in the present and in the future*. The goals are proposed under seven headings: world-class enterprise; innovation systems; skills and life-long learning; public and private investment; environmental kāwanatanga; equity and inclusiveness; and Auckland city. The vision and goals are supported by reference to recent policy documents.

¹ To illustrate this point, the Taskforce states that its approach has five key elements: significantly cutting government spending and tax rates; finding better, more effective, ways of ensuring the delivery of services the government does fund; substantially improving the rigour with which government spending proposals are evaluated; substantially improving, across the board, the quality of economic regulation; and getting government out of the ownership of business assets. These key elements are all about public economics, analysed within a particular paradigm, not about inviting stakeholders to engage with a credible analysis of market opportunities.

Demand side economic opportunities available to New Zealand as a result of its positioning in the global economy were explored in Chapter 2. Chapter 4 considered the economy's capability to respond to those opportunities, by paying attention to six major types of capital: physical capital; financial capital; human capital; natural capital; social capital and cultural capital. That approach was chosen on the basis that economists have long known that growth in capital (broadly understood) is what underpins a society's rising economic well-being. The chapter discussed the general strengths and constraints of the New Zealand economy under headings devoted to each of the six types of capital.

Chapter 5 integrates the demand-side analysis in Chapter 2 with the supply-side analysis in Chapter 4 to identify key economic strategy issues that are important for achieving the goals and vision set out in Chapter 3. It argues that New Zealand's economic strategy needs to pay particular attention to the country's core export sectors on the basis that they are internationally competitive and generate incomes that fuel domestic demand. To foster New Zealand's economic well-being, the strengths of these sectors need to be reinforced and weaknesses need to be addressed within the context of wider policy objectives of the government such as strengthening an inclusive society and enhancing the country's natural environment. Consequently the chapter finishes by considering how strategic investment in the six types of capital would assist the process of matching New Zealand's capabilities with its international market opportunities.

Because this report is offered as an issues paper, it has necessarily been selective in the issues it has highlighted, but these selections have not been arbitrarily made. Instead, the material presented in this report has drawn on the three authors' considerable experience in researching strategic economic development issues, summarised in an appendix to this report. That experience led to three major points that frame the report's contents:

1. A national economic strategy must begin with a credible analysis of the country's positioning in the global economy.
2. The economy's capability to respond to international market opportunities is determined by six major types of capital: physical, financial, human, natural, social and cultural.
3. A national economic strategy needs to pay particular attention to the country's core export sectors on the basis that they are internationally competitive and generate incomes that fuel domestic demand.

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Appendix About the Authors

The AERU was founded by Professor Bryan Philpott in 1962 and then led by Professor Bruce Ross from 1970 to 1985. The AERU was at the centre of early applied economics research in New Zealand, and has continued to produce rigorous economic, market and social research for domestic and international agencies, government departments, private companies and other organisations. Now under the leadership of Professor Caroline Saunders, the mission of the AERU is to exercise leadership in research for sustainable well-being.

This mission is consistent with the AERU's recent research achievements. Professor Caroline Saunders, for example, has received recognition from her peers (NZIER Economist of the Year in 2007) and from the Crown (made an Officer of the New Zealand Order of Merit in 2008) for her research on food miles. Professor Saunders has also developed the Lincoln Trade and Environment Model and the AERU International Market Watch research programmes. She and her senior colleagues have all led major research projects of national significance (see Table A1 on the following page), and hold leadership roles in the Royal Society of New Zealand, the New Zealand Association of Economists and the Australia New Zealand Regional Science Association.

A common theme that unites research programmes in the centre in recent years is a focus on sustainable well-being. This phrase echoes key concepts in New Zealand legislation such as the Resource Management Act and the Local Government Act. The latter, for example, requires regional, district and city councils to promote the social, economic, environmental and cultural well-being of communities, in the present and for the future. The AERU has been engaged in numerous projects to produce new knowledge that can be used to promote these four well-beings, not only in New Zealand but also internationally. This focus fits very well with the proud history of Lincoln University in its research on land-based activities that contribute to social, economic, environmental and cultural well-being

The AERU was initially created as a unit within the University's Commerce programme. At the beginning of 2009, the AERU was recognised as a University-level research centre, reporting directly to the Deputy Vice-Chancellor. This change reflected a desire to support the AERU as a strategic asset for advancing the mission of New Zealand's specialist land-based university to provide intellectual leadership in transforming land, people and economies.

Table A1 Recent Relevant Projects of the AERU Research Team

Research title	Research required	Principal end-user
Agricultural Research Group on Sustainability ARGOS (ongoing)	FRST-funded project evaluating the social, economic and environmental impacts of farming and how these relate to overseas market demands.	Fonterra, Zespri Meat Industry, MAF, MFAT
Education Employment Linkages for Young New Zealanders (ongoing)	FRST-funded project to improve systems that help young New Zealanders in transition.	DoL, MoE, MSD, MYD, TEC, TPK, Career Services
Leveraging Training and Skills Development in SMEs (2009)	A NZ country study for an international study hosted by the LEEDS programme of the OECD.	OECD, DoL, MED, TEC, Business New Zealand
Canterbury Regional Economic Development Strategy; CREDS (2009)	A project with five Canterbury economic development agencies to update CREDS 2005.	Canterbury Economic Development Co. Inc, funded by NZTE
Statistics for Sustainable Development (2008-9)	A review and development of indicators to assess how equity and cultural capital affect sustainability.	Statistics New Zealand
NZ Medical Technologies: A Sector Overview (2008)	Evaluation of the economic impact of medical technologies and survey to assess firms' needs to grow.	FRST, NZTE, NZ Bio
NZ Agribusiness – Indicators of Success (2006-2008)	Evaluation of the key elements of success and failure over the last 20 years in primary sector industries.	AGMARDT
Economic Evaluation of Pastoral Weed Control (2008)	Development of bio-economic model to assess economic benefits of different types of weed control	Crop and Food
Economic research into current and future risks and opportunities for market access (2008)	Assessment of criticisms of the Food Miles report. Investigation of potential threats to market access arising from consumer concerns.	MFAT
Consumer sustainability trends in overseas markets (2008)	Evaluation of consumer behaviour trends in overseas markets and their potential impact on New Zealand.	MORST
Social-economic change in the High Country (2008)	Evaluation of socio economic changes in high country farmers.	MAF
Eco-Verification Directory (2008)	Access database of eco-verification indicators relevant for New Zealand importers, exporters and consumers.	MFE MED

Recent Relevant Projects of the AERU Research Team (Continued)

Research title	Research required	Principal end-user
Integrating Employment, Skills and Economic Development in NZ (2007)	A NZ country study using Bay of Plenty as a case study for an international study hosted by the LEEDS programme of the OECD.	Department of Labour, Ministry of Economic Development, Ministry of Social Development
Contribution of Antarctic-Related Activities to the Economy (2007)	Economic Impact analysis of Antarctic-related firms and interviews with business operators to prepare an evaluation to CDC.	Canterbury Development Corporation, funded by NZTE
Applicability of Business Performance Indicators to Agribusinesses (2007)	Interviews with agribusiness firm managers to explore whether general business performance models can be applied to this sector.	MAF
Medical Research in Canterbury (2006)	Survey of medical researchers in Canterbury and development of a database of their activities.	Canterbury Medical Research Foundation
Phase II Forecast of Skills Demand in the High-Tech Sector in Canterbury (2006)	Telephone and email surveys of electronics and software firms in Canterbury to analyse their forecast skills demand.	Electro-Technology Industry Training Organisation, funded by TEC
Firm Responses to Changes in the Adult Minimum Wage (2006)	Semi-structured interviews with firms around New Zealand in sectors that employ young adults.	DoL
Food Miles: Comparing New Zealand and the United Kingdom (2006)	Collection and analysis of scientific data, preparation of a research report, and dissemination to a wide range of groups in NZ and overseas.	MFAT
ICT Strategy for Growth (2005/06)	Survey of 100 CEOs of high tech firms to assess factors affecting the sector's growth.	Hi-Growth project
Economic Contribution of Four Biotechnologies to New Zealand's Primary Sector (2005)	Interviews with firms and scientists involved in biotechnology innovation and commercialisation in New Zealand.	MoRST
Phase I Forecast of Skills Demand in the High-Tech Sector in Canterbury (2004)	A review of the high tech firms in Canterbury and their current and potential demand for labour by type	TEC
Regional Economic Development Planning (2003)	A study of the benefits and best practice in regional development including 3 case studies within NZ.	MED

Professor Caroline Saunders is Director of the AERU. She has more than 25 years of research expertise in the United Kingdom and New Zealand. She has over 100 publications specialising on the economic impact of policy, including research on international trade, resource use in regions, market access and development of new technologies. Her current research includes a focus on economic development in New Zealand. This includes assessing optimum use of New Zealand's resources to improve the well-being of New Zealanders. In addition she is developing novel ways of assessing the impact of development including social and environmental impacts. Caroline has undertaken research for a wide range of private and public bodies both in New Zealand and overseas. These include the EU commission, MAF, MFAT, Treasury, MFE, High Growth and various producer groups. She was named the NZIER Economist of the Year in 2007 and made an Officer of the New Zealand Order of Merit in 2008.

Professor Paul Dalziel has 25 years' experience undertaking research projects on a wide range of New Zealand economic issues. He has produced more than 150 research publications, including 43 publications listed in the American Economic Association's Econ-Lit database. Two of his four books on the New Zealand economy have been translated and published in Japan. He is Science Leader for FRST's research programme "Education for Employment". His specialist areas of research are regional economic development, labour market policy and macroeconomics. Paul has been a member of the Advisory Panel for Macroeconomic Forecasts of the New Zealand Treasury and a member of the Marsden Fund Economics and Human Behaviour Panel. He is currently President of the Australia New Zealand Regional Science Association International.

Associate Professor Bill Kaye-Blake has over 12 years of experience in agricultural economics research and consulting. He leads research at the AERU on economic impacts of technological development and on economic modelling. His research has examined consumer, producer, and economy-wide impact of new agricultural technologies, and has also estimated the economic value of specific novel products. He has conducted research for MAF, MoRST, ERMA, MfE, and Crop and Food Research, amongst others, and has published in several international journals. Before joining the AERU, Bill worked in California as a consulting economist, conducting valuations of agricultural enterprises and environmental impacts, and for the Farm Advisor's office in Placer County, specialising in smallholdings and horticulture. He is currently on the Council of the New Zealand Association of Economists and Trustee for the NZAE Education Trust, and serves as referee for international journals.

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