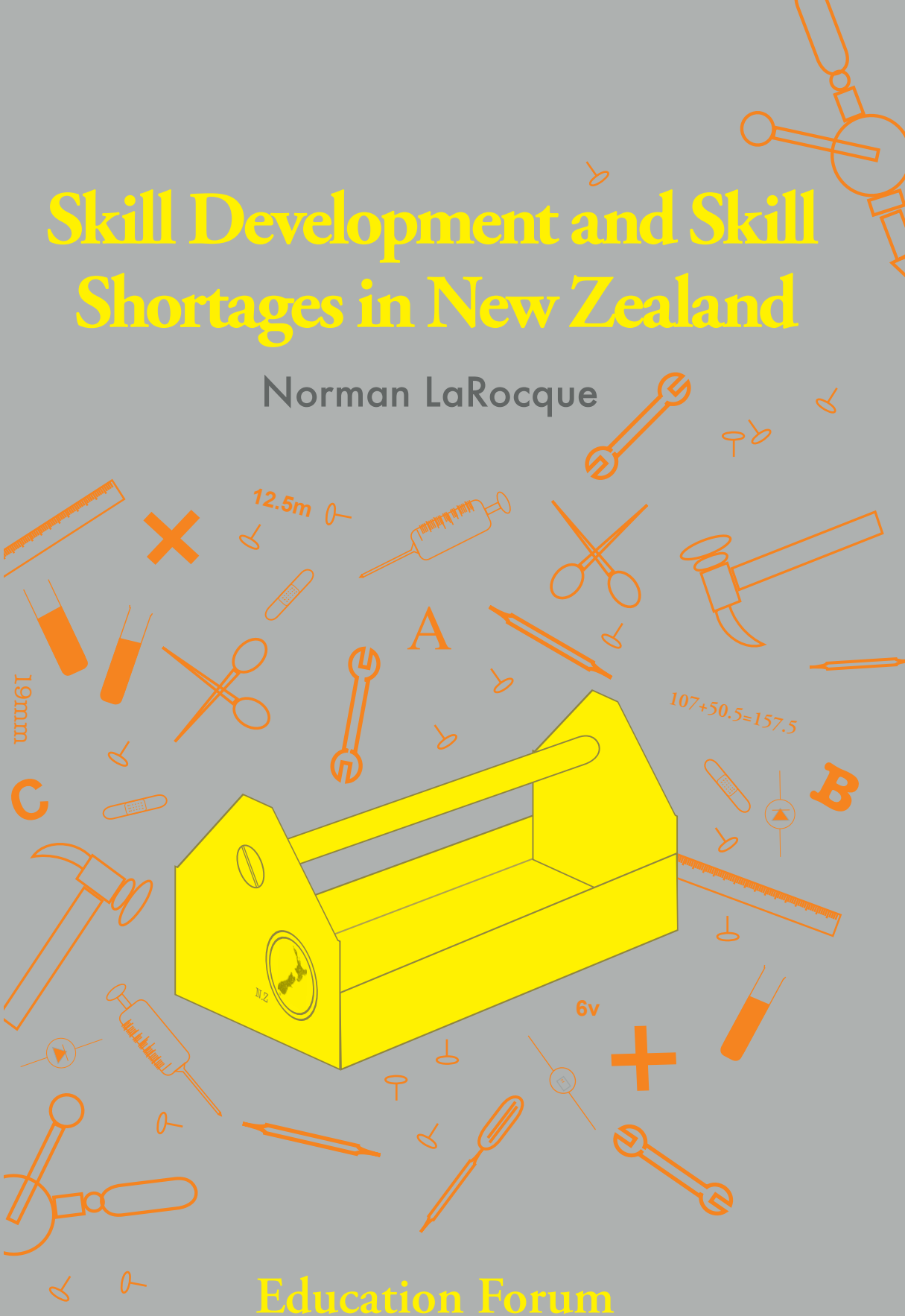
Skill Development and Skill Shortages in New Zealand

Norman LaRocque



Education Forum

Skill Development and Skill Shortages in New Zealand

Norman LaRocque

October 2007

Education Forum

National Library of New Zealand Cataloguing-in-Publication Data

LaRocque, Norman.
Skill development and skill shortages in New Zealand /
prepared by Norman LaRocque for the Education Forum.
ISBN 978–0–9582725–3–7
Includes bibliographical references.
1. Human capital—New Zealand. 2. Labour supply—
New Zealand. I. Education Forum (N.Z.) II. Title.
331.1140993—dc 22

First published in October 2007 by the Education Forum
PO Box 10–539, The Terrace, Wellington
www.educationforum.org.nz

ISBN 978–0–9582725–3–7

Cover design by *Lily Hacking, Wellington*
Typesetting by Flying Frog®, *Paraparaumu*
Printed and bound by *Astra Print Ltd, Wellington*

CONTENTS

List of tables

List of figures

List of abbreviations

DoL	Department of Labour
EFTS	Equivalent full time students
EMA	Employers and Manufacturers Association
ETSA	Education and Training Support Agency
GDP	Gross domestic product
IALS	International Adult Literacy Survey
IT	Information technology
ITF	Industry Training Federation
ITO	Industry Training Organisation
ITPs	Institutes of technology and polytechnics
JVM	Job Vacancy Monitor
MA	Modern Apprenticeship
NQF	National Qualifications Framework
NZIER	New Zealand Institute of Economic Research
NZQA	New Zealand Qualifications Authority
NZIS	New Zealand Immigration Service
OECD	Organisation for Economic Cooperation and Development
PIRLS	Progress in Reading Literacy Study
PISA	Programme for International Student Assessment
PPTA	Post Primary Teachers' Association
PTE	Private training establishment
QSBO	Quarterly Survey of Business Opinion
SERA	Survey of Employers who have Recently Advertised
STM	Standard training measure
TEC	Tertiary Education Commission
TIMSS	Trends in International Mathematics and Science Study

ABOUT THE AUTHOR

Norman LaRocque is a public policy consultant and an adviser to the Education Forum, based in Wellington, New Zealand. He has undertaken a number of consulting projects for domestic and international clients, including the World Bank, the International Finance Corporation, GTZ, the Asian Development Bank, the government of Mongolia, the Education Forum, the Industry Training Federation and the IBM Center for the Business of Government.

His work covers all levels of education and has focused on education policy, including regulatory frameworks, education contracting, education finance, public–private partnerships and student loans.

Norman LaRocque is the author of a number of publications, including *Contracting for the Delivery of Education Services: A typology and international examples, Who should pay? – Tuition fees and tertiary education financing in New Zealand, The Promise of E Learning in Africa: The potential for public–private partnerships, Private Education in the Philippines* and *School Choice: Lessons from New Zealand*.

He has an MA and a BA (Honors Economics) from the University of Western Ontario (Canada).

ACKNOWLEDGEMENTS

The author would like to thank Marilyn Brady, Greg Dwyer, Nicholas Green and Darel Hall for their helpful comments on earlier drafts of the report. Any errors or omissions remain the author's.

EXECUTIVE SUMMARY

The level of human capital is generally recognised as an important factor in a country's prosperity. Industry training – both firm-based and provider-based – contributes to the country's stock of human capital. New Zealand has seen sustained and significant shortages of skilled labour for a number of years. These shortages have occurred despite considerable government investment in tertiary education and training.

The ongoing nature of skill shortages raises questions about the design of industry training policy – and tertiary education policy more generally – in New Zealand and what, if anything can be done to address these shortages. There is no magical cure-all. Skill shortages have a range of causes, including cyclical factors, microeconomic factors; demographic factors; technological developments; policy factors; and public attitudes to and perceptions of trades training. Hence, solutions to skill shortages must encompass a wide range of policies.

In many respects, the industry training system has remained relatively stable since its inception in the early 1990s. The key building blocks of the Industry Training Act 1992 – industry leadership, flexibility, non-compulsion, broad coverage and cost sharing by industry and government – remain in place today.

Rather than seeking a magic bullet to 'cure' skill shortages, the role of government in addressing skill shortages should be to provide a conducive environment for individuals and firms to invest in human capital and skills that are optimal from both individuals' and society's point of view. Fulfilling this role implies a policy environment in which:

- stable and transparent fiscal and monetary policies encourage growth and investment in the New Zealand economy;
- flexible labour markets provide scope for employees and employers to enter into mutually beneficial arrangements that promote skill development, including traditional apprenticeships, and provide an environment where individuals and firms can be rewarded appropriately for investments in human capital;

- school-level policies ensure that students leave school with strong basic literacy and numeracy skills and provide a technology curriculum that prepares students well and encourages them to examine the full range of careers available, including those in trades;
- the tertiary education funding system is decentralised, demand driven, flexible and neutral across different types of providers and across different avenues of skill acquisition (eg firm-based versus provider-based training);
- industry training policy promotes vocationally oriented careers, is industry-led, flexible and non-compulsory, has broad coverage, is financed by industry and government, and promotes apprenticeships as a vehicle for skill development; and
- the wider policy environment – including tax and broader regulatory policies – makes New Zealand an attractive place to live and work.

Although the key building blocks of the industry training system remain sound, two possible reforms could be considered. The first is concerned with whether the relative size of per-student subsidies for firm-based and provider-based training is appropriate. A second issue is whether the system should allow individual firms to be funded for 'in-house' industry training programmes that would operate in parallel with the system of industry training organisations (ITOs).

More generally, a number of possible reforms to the industry training system have been identified by, among others, the Organisation for Economic Cooperation and Development (OECD), including tax incentives for firms to encourage skill development and the introduction of compulsory training levies and subsidies for individuals. Although tax incentives would undoubtedly encourage more training, they might not improve the overall welfare of the community. Qualifying investments may, for instance, yield a low return on the resources used. Some forms of training are likely to be preferred to others. Higher taxes would need to be imposed on other activities or tax cuts might be forgone. Tax incentives could end up subsidising training that is already occurring or that would have occurred in the absence of any tax assistance, would increase red tape and could lead to an erosion of the tax base. Compulsory training levies could impose a number of economic costs on employers and could weaken the responsiveness of ITOs to industry needs. The tertiary education and training funding system already provides considerable subsidies to individuals and is similar in some respects to a voucher programme.

An overarching issue in relation to proposals to increase investment in skill development is that it is not clear that such investment is too low now and that additional investment will generate desired returns. Indeed, government spending on tertiary education, as a proportion of both total public spending and gross domestic product, compares favourably with that in other OECD countries. The returns from additional investment in skill development must be weighed up against other priorities.

1
INTRODUCTION

In recent years, skill shortages have been a major topic of discussion in the business sector, in the popular press and in government policy circles. As highlighted in numerous surveys and studies from organisations such as the New Zealand Institute of Economic Research (NZIER), the Department of Labour (DoL), Business New Zealand and Grant Thornton, New Zealand has experienced, and continues to experience, severe skill shortages, which are having an adverse impact on the ability of New Zealand businesses to compete effectively.

This report provides a high-level assessment of three inter-related issues – skill development, industry training and skill shortages – from a New Zealand perspective. It does not provide a detailed assessment of these issues, nor does it attempt to dissect the industry training system in New Zealand. Further, it does not address the important phenomenon of informal training (eg mentoring, seminars), which takes place daily in firms and organisations.

The report is structured as follows. Section 2 provides a brief overview of industry training in New Zealand. Section 3 defines skill shortages and documents their extent and severity in New Zealand, using a variety of publicly available measures. Section 4 briefly examines the factors that influence skill shortages and also explores a range of strategies for addressing skill shortages in New Zealand. Section 5 presents a brief conclusion.

2

INDUSTRY TRAINING IN NEW ZEALAND

2.1 OVERVIEW

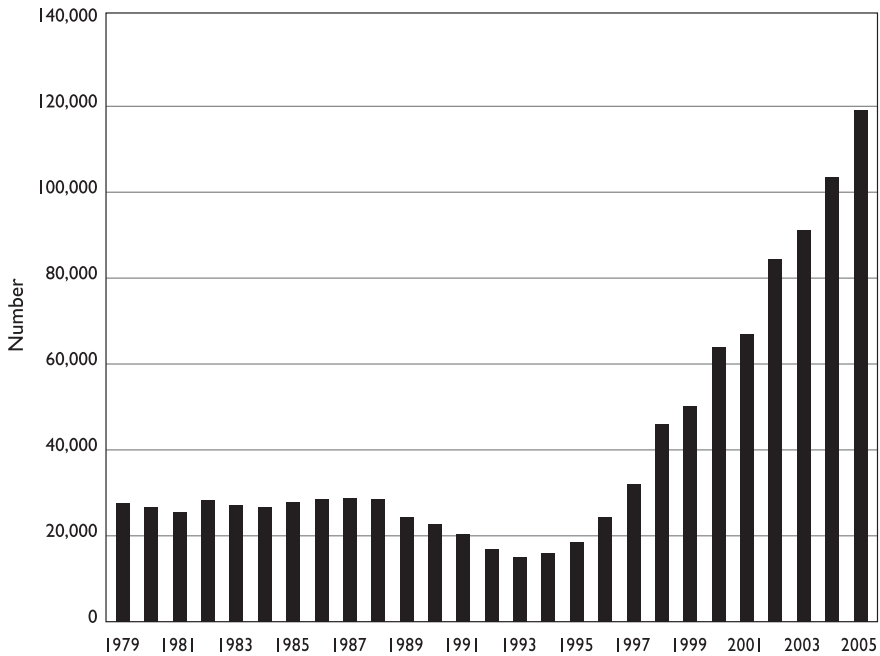
The current framework for industry training in New Zealand has been in place since the passage of the Industry Training Act 1992.

Industry training can take place in a number of different settings and can be delivered in a variety of ways. Workplace learning can be firm-based or delivered by registered training providers such as institutes of technology and polytechnics (ITPs) or private training establishments (PTEs). Firm-based training can be self-paced, or delivered by an experienced staff member or an external trainer. The structure of training can differ significantly, with some industry groups such as automotive and carpentry offering 'traditional' time-based traineeships and others offering more competency-based training. Workplace learning can be assessed in a variety of ways – by an approved staff member, an outside assessor, a tertiary education provider, or a combination of all three. To be eligible for industry training, in any of these forms, individuals must be employed by a firm and have a formal employment agreement.

As shown in Figure 1, the number of trainees has increased markedly in recent years. During much of the 1980s, the number of apprenticeship contracts in force remained steady at around 25,000–30,000, but began to decline in 1988, bottoming out at under 15,000 in 1993. Thereafter, the number of traineeships increased considerably, reaching 118,000 in 2005. The nature of trainees and traineeships, too, has changed substantially over time: traineeships today encompass a much wider range of training than the traditional apprenticeships of the 1980s, a change that reflects a number of factors, including growth in the service sector. Trainees are also now drawn from a much wider population group, whereas traditional trainees tended to be predominantly young and male.

Public funding of industry training has increased significantly in recent years. As shown in Figure 2, government spending on industry training (excluding Modern Apprenticeships) grew from $71 million in calendar year 2001 to $145.6 million in calendar year 2006 in nominal terms (GST inclusive). It is expected to reach $167.5 million (GST inclusive) in 2007, with further increases

Figure 1: Number of traineeships, 1979–2005



Source: Green, Nicholas, et al (2003) *A Brief History of Government Funding for Industry Training 1989–2002*. Industry Training Federation, Wellington; and Tertiary Education Commission.

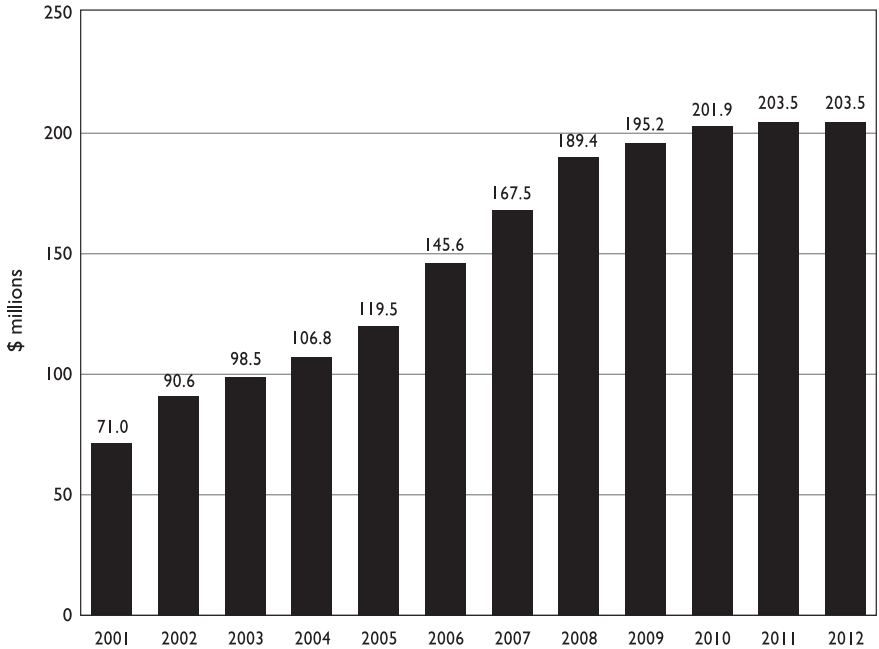
planned for the period to 2012. In 2007, spending on Modern Apprenticeships will reach $45.5 million (GST inclusive).

2.2 INDUSTRY TRAINING ORGANISATIONS

One of the key building blocks of the industry training policy framework is the system of industry training organisations (ITOs). ITOs have a number of roles in the industry training system, including:

- setting national standards for their industry;
- arranging for the delivery of firm-based training, including developing training packages for employers;
- arranging for the delivery of provider-based training;
- arranging for the assessment of training and ensuring, through moderation, that such assessment is valid; and
- arranging for monitoring the quality of training.

Figure 2: Industry training fund budget, 2006–2012



Note: All figures are GST inclusive. Figures includes spending on Industry Training Fund, Tertiary Education Sector Leadership Component and literacy and numeracy initiatives, but exclude spending on Modern Apprenticeships.

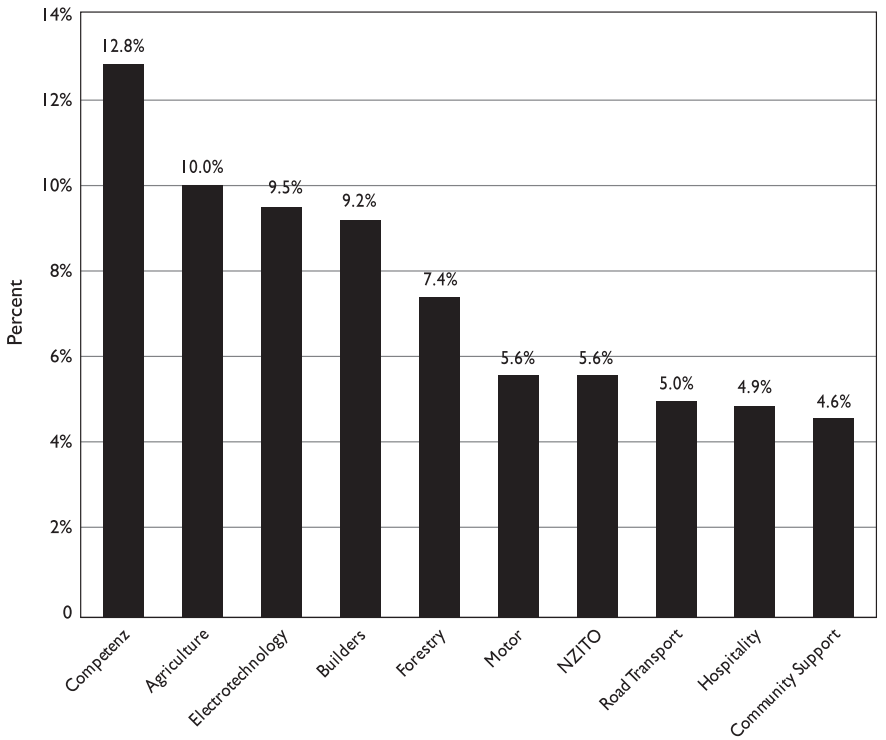
Source: Industry Training Federation.

Since 2003, ITOs have also been expected to provide leadership within their industry on matters relating to skill and training needs and to make provision in their governance arrangements for the collective representation of employees within their industry. ITOs must be recognised by the responsible minister under the Industry Training Act 1992.

ITOs cover, or are responsible for, particular industries or groups of industries. There are currently 41 ITOs – down from over 50 in the late 1990s. The 10 largest ITOs make up nearly 75 percent of the ITO sector, as measured by the standard training measure (STM); the largest ITOs are Competenz, Agriculture and Electrotechnology (see Figure 3).[1]

[1] An STM is the funding unit used for industry training. One STM is defined as a total of 120 National Qualifications Framework credits in an approved structured training programme designed to lead to a National Certificate.

Figure 3: Top 10 ITOs by size, 2006



Note: Size is measured based on STMs.

Source: Industry Training Federation.

For employers to participate in subsidised industry training, their industry must be covered by an ITO. It is estimated that ITOs cover some two-thirds of employers and over 70 percent of employees. Coverage varies by industry group, with 100 percent coverage for primary industries and 96 percent for manufacturing and construction industries. Several significant business service industries, including banking, finance and insurance, are not covered by ITOs.Outside these industries, ITO coverage of infrastructure and business service industries is nearly universal. There is much lower ITO coverage – only 28 percent – among community service industries such as central and local government, education, health and community and cultural industries.[2]

An organisation becomes an ITO through the process of recognition. From 1992 to 2002, ITOs were recognised by the Board of the Education and Training

[2] Tertiary Education Commission (2004) *Industry Training 2004*, Government of New Zealand, Wellington, p 7.

Support Agency (ETSA). This responsibility passed to the Tertiary Education Commission (TEC) in 2003 and to the minister of education in 2004. A recognised ITO is authorised to set standards and manage training for specific industries or groups of industries. Recognition lasts for five years. In recognising an organisation as an ITO, the minister must be satisfied that the organisation:

- has the ability to carry out the roles set out at the start of this section;
- represents and is funded by employers in the industries it covers;
- is knowledgeable about the relevant industries, and is likely to be responsive to changing industry needs; and
- will develop and arrange training across the range of the National Qualifications Framework (NQF).

ITOs are funded through a combination of public and private finance. The bulk of public funding is provided by the TEC in the form of STMs. ITOs contract annually with the TEC to deliver a certain number of STMs. STM funding rates currently vary among ITOs, but these are being aligned across industries. In 2003 the average payment per STM stood at around $3000. In order to access government subsidies, ITOs must obtain a cash contribution from their industry toward the cost of training. All ITOs access public subsidies. The size of the private contribution averages 30 percent, but varies widely across ITOs.

ITOs are listed in full in Annex 1. For further detail on ITOs, see the Industry Training Federation (ITF) website.[3]

[3] Industry Training Federation, www.itf.org.nz.

3

SKILL SHORTAGES IN NEW ZEALAND

3.1 DEFINING SKILL SHORTAGES

There has been much discussion of the phenomenon of skill shortages in the popular press in recent years and many attempts to measure such shortages. At one level, the concept of a shortage of skills seems simple enough: the number of workers with the appropriate qualifications and competencies who are willing to do a job is less than the number of jobs available, given current rates of pay. However, as several commentators have stressed, defining a skill shortage is far more complicated than it might appear at first glance.[4] Indeed, the Organisation for Economic Cooperation and Development (OECD) has argued that there is no universally applied definition of labour shortages.[5] Shah and Burke distinguish three types of skill shortage:

- A *shortage* occurs when the demand for workers in a particular occupation is greater than the supply of workers who are qualified, available and willing to work under existing market conditions. Conversely, if the supply is greater than demand then there is a surplus. Over time, the market might adjust in a number of ways, including through price and/or quantity adjustments, and the imbalance clears.
- A *skill gap* refers to a situation where employers are hiring workers whom they consider under-skilled or where their existing workforce is under-skilled relative to some desired level. Such gaps do not relate only to formal qualifications as employees may possess the necessary vocational qualification for their occupation, but may lack generic or 'soft' skills such as computer literacy or communication skills.

---

4 Ewart Keep (2005) *Dealing with Skill Shortages in the UK: Issues, problems and ways forward*, presentation to Industry Training Federation seminar, September, Wellington; Sue Richardson (2005) *What is a Skill Shortage*, National Institute of Labour Studies, Adelaide; Chandra Shah and Gerald Burke (2003) *Skills Shortages: Concepts, measurement and implications*, Working Paper Number 52, Centre for the Economics of Education and Training, Monash University.

5 OECD (2003b) *Trends in International Migration*, Paris, p 105.

- *Recruitment difficulties* refer to the situation where employers cannot fill vacancies in spite of an adequate supply of workers. The reasons for this situation vary; they could include relatively low pay, poor working conditions or poor image of the industry, unsatisfactory working hours, commuting difficulties, a firm's ineffective recruitment effort, or skills needs that are specific to the firm.[6]

In one sense, a skill shortage or gap involves a constraint on the labour supply side, while recruitment difficulties can be said to involve a constraint on the demand side. The classification of skill shortages into different types is one important factor in determining the underlying causes of and potential solutions to skill shortages. This report addresses primarily the first two of the above categories – skill shortages and skill gaps.

Not all skill shortages are created equal. Their impact on business operations will depend on a range of factors, including the duration and intensity of shortages, the degree of specialisation of skills that are in short supply, the length of time it takes for individuals to acquire such skills and the ability to substitute those skills (eg with technology) or to contract them in from an outside supplier. For example, the effect of skill shortages on a business will be much more severe if it takes several years for individuals to acquire the required skills than if it can be done in a matter of months. One recent Australian study showed that skill shortages had a range of impacts on firms, including higher overtime costs (for 72 percent of firms), reduced productivity (63 percent), production delays (58 percent), outsourcing of work (47 percent) and lost contracts (35 percent).[7]

3.2 SKILL SHORTAGES IN NEW ZEALAND

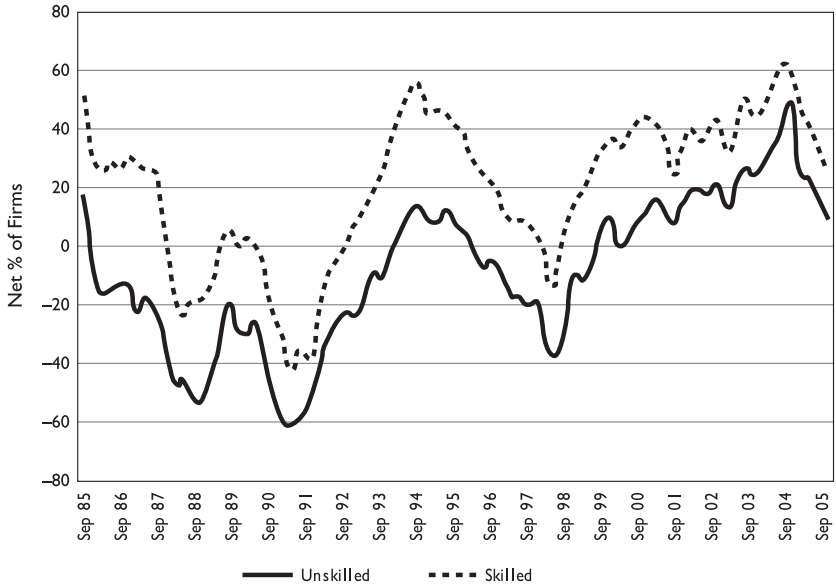
There is a variety of measures of skill shortages in New Zealand. Regular measures of skill shortages are provided by the NZIER's Quarterly Survey of Business Opinion (QSBO) and by a variety of DoL surveys and reports, including the monthly Job Vacancy Monitor (JVM), the annual Survey of Employers who have Recently Advertised (SERA), the annual Information Technology (IT) Recruiters Survey and a series of reports on occupational skill shortages.[8] Other surveys, including the Grant Thornton International Business Owners Survey, various Business New Zealand surveys, and specialised surveys such

6 Shah and Burke (2003), op cit, pp 6–9.

7 Australian Industry Group (2006) *World Class Skills for World Class Industries: Employers' perspectives on skilling in Australia*, Sydney, p 53.

8 See DoL, 'Job vacancy monitoring programme reports', www.dol.govt.nz/publications/jvm/job-ad-monthly-report.asp.

Figure 4: Difficulty in finding skilled and unskilled staff, September 1985 – March 2006



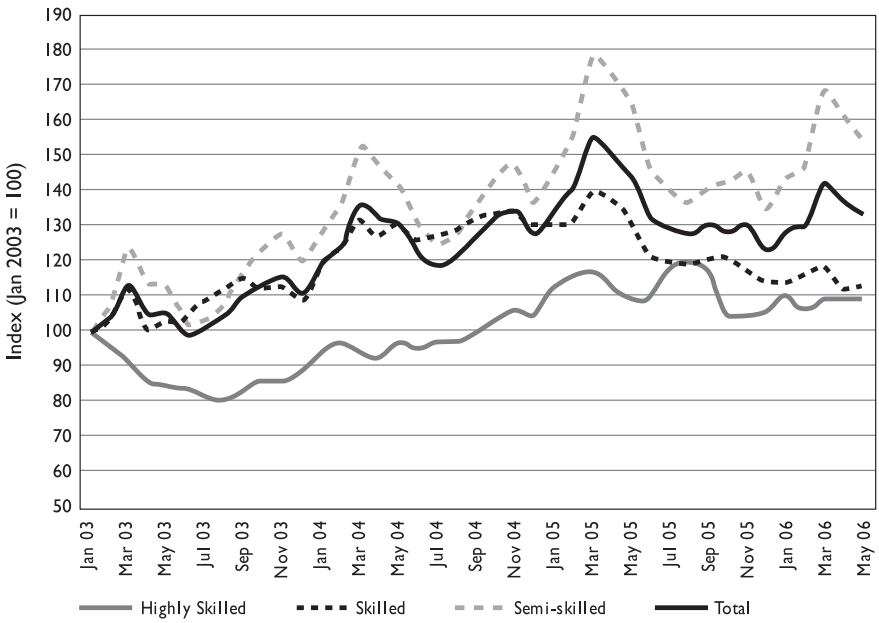
Source: QSBO.

as teacher vacancy surveys conducted by the Ministry of Education, provide further evidence on skill shortages in New Zealand.

The evidence from these various sources confirms what most employers already know – that there has been a significant shortage of labour in recent years. As Figure 4 shows, the net proportion of employers who had difficulty finding both skilled and unskilled staff has varied considerably since the mid 1980s – with peaks in the mid 1980s and mid 1990s and an extended period of shortage since the late 1990s. While the difficulty of finding skilled staff has eased somewhat (the net proportion of firms who had difficulty finding staff fell from 60 percent to 26 percent from March 2005 to March 2006), it remains high by historical standards. Similarly, the net proportion of firms that could not find unskilled staff stood at just 9 percent in March 2006 – well down from 49 percent a year earlier.

Evidence from the DoL's Job Vacancy Monitor is consistent with the QSBO data on skill shortages. The JVM shows that the job vacancy index (which measures job vacancies relative to a 2003 base) grew significantly from January 2003, peaked in early 2005 and has since declined. In the March 2006 quarter, job vacancies were down 8 percent over the previous year. Job vacancy growth has trended down since the June 2004 quarter, when it peaked at 23 percent. For

Figure 5: Job vacancy index, New Zealand, 2003–2006



Source: Department of Labour.

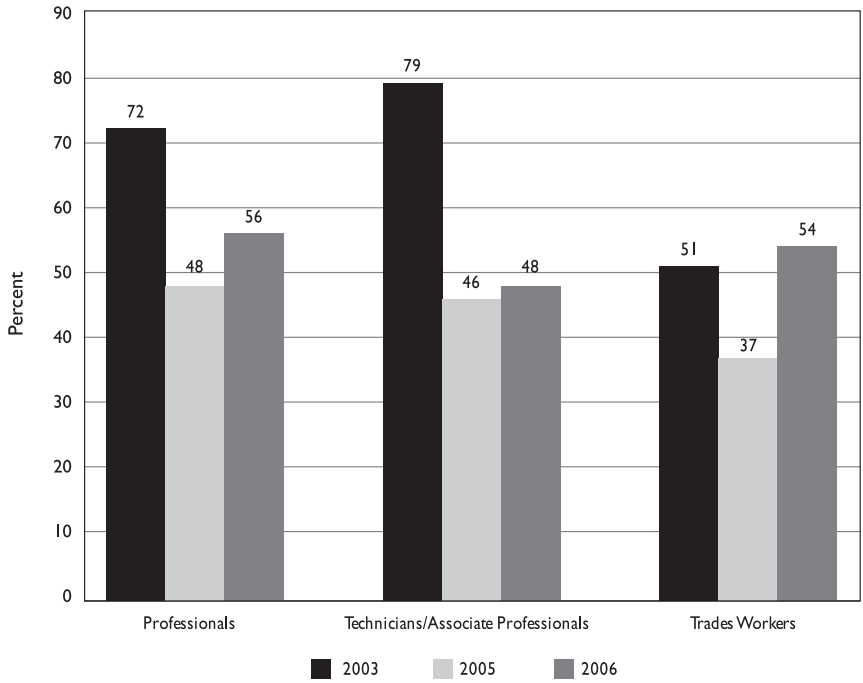
all but the most highly skilled category, the job vacancy index remains above its January 2003 level (see Figure 5).

The most significant recruitment difficulties, as measured by the job vacancy index, are in the semi-skilled, rather than skilled and highly skilled categories. Semi-skilled vacancies remain well above those in other categories and well above vacancies in earlier years, although they too have tailed off in the past year.

The DoL's annual SERA provides further evidence of the recruitment difficulties experienced by employers. The SERA collects information on whether advertised vacancies are being filled, and the number and suitability of applicants, as well as other information on employer recruiting. It calculates a fill rate for each occupation.[9] Occupations with fill rates below 80 percent are typically regarded as being in shortage. As shown in Figure 6, data on overall fill rates suggest that skill shortages deepened significantly between 2003 and 2005, with some improvement in 2006.

[9] The fill rate is defined as the proportion of vacancies included in the SERA sample which were filled with an adequately qualified and experienced person within six to eight weeks (for trade workers) and 8 to 10 weeks (for professionals, technicians and associate professionals).

Figure 6: Changes in overall fill rates, 2003–2006



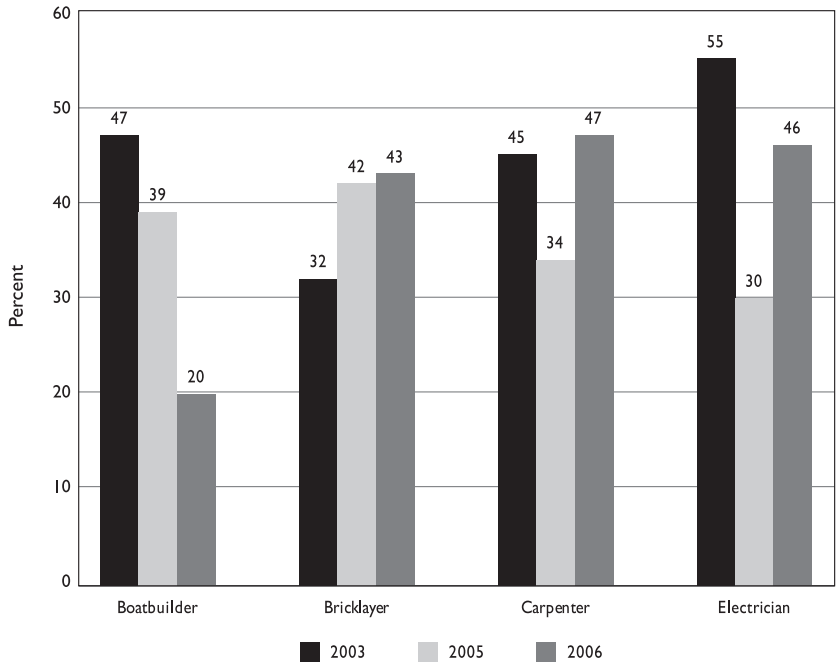
Source: Department of Labour (2007) *Occupations in Shortage in New Zealand: 2006*, www.dol.govt.nz/jvm/shortage2006/index.asp?from=alert.

Skill shortages have been particularly severe in the trades areas, although there has been considerable improvement between 2005 and 2006. The fill rates for selected trades are shown in Figure 7. These generally mirror the trend of worsening skill shortages between 2003 and 2005, with some improvement in 2006 (although boat building is an exception).

There is considerable evidence that skill shortages are having an adverse impact on business. For example, the Business New Zealand 2005 election survey revealed skill shortages to be employers' biggest obstacle to expansion. In addition, the recently released Grant Thornton International Business Report 2007, released in June 2007, found that 60 percent of New Zealand medium sized businesses surveyed saw the availability of a skilled workforce as a major constraint on expansion. This figure was up significantly from 38 percent a year earlier and placed New Zealand above all other countries in terms of concern over skill shortages – just ahead of Australia (59 percent) and South Africa (58 percent).[10]

[10] Grant Thornton International (2007) *International Business Report 2007*.

Figure 7: Changes in fill rates, selected trades, 2003–2006



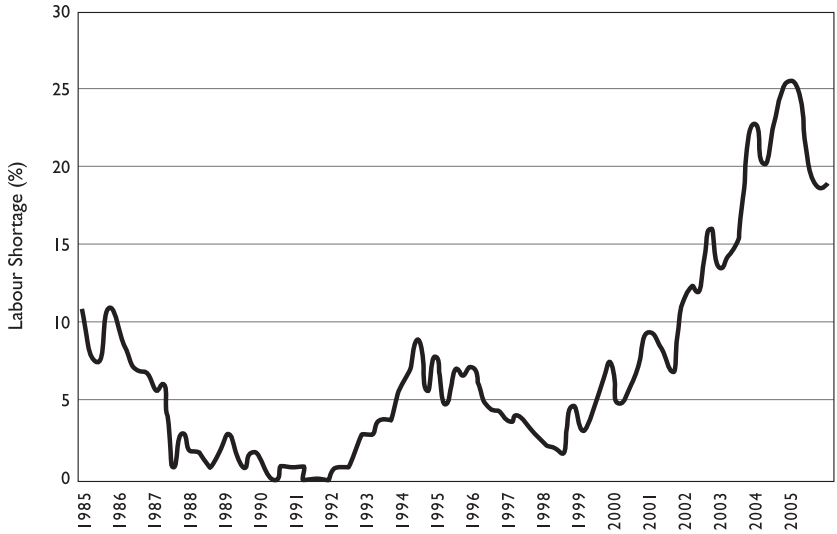
Source: Department of Labour (2007) *Occupations in Shortage in New Zealand: 2006*, www.dol.govt.nz/jvm/shortage2006/index.asp?from=alert.

These figures are consistent with those from the QSBO, which show that the proportion of employers who say that labour shortage is the main constraint on business expansion is at historically high levels – peaking at over 25 percent in 2005 (see Figure 8). Although these figures dropped somewhat in 2006, they remain well above historical norms.

The New Zealand Immigration Service (NZIS) maintains lists of occupations that are experiencing long-term and immediate skill shortages. Table 1 lists the occupations with long-term skill shortages. It includes early childhood and secondary teachers, veterinarians, nurses, midwives, orchard managers and a number of trades, IT and electronics occupations. The list of occupations with immediate skill shortages, which is 25 pages long, includes architects, bakers, farm managers, builders, butchers, dental therapists, dispensing opticians, furniture upholsterers, quantity surveyors, jockeys and skydive instructors.[11]

[11] New Zealand Immigration Service (2006) *Immediate Skills Shortage List*, Department of Labour, Government of New Zealand, Wellington, 24 July.

Figure 8: Labour shortage as the main constraint on expansion, 1985–2006



Source: QSBO.

Table 1: Selected occupations with long-term skill shortages, August 2006

Category	Occupations
Professional occupations	Food technologist, early childhood/secondary education teacher, veterinarian, university lecturer, social worker, professional engineer
Health groups	Anaesthetist, surgeon, pathologist, psychiatrist, radiologist, rural GP, midwife, nurse
Trades	Fitter welder, electrician, mechanic, fitter & turner, carpenter, joiner, plumber, boatbuilder
Horticultural occupations	Grower manager, orchard manager, crop production/agronomist manager
IT professionals	System analyst, computer application engineer, programmer, solutions architect
Creative industries	Film animator
Electronics	Design engineer – electronics/project engineer, management and project management staff, electronics technician
Service and sales workers	Chef

Source: Immigration New Zealand, *Long Term Skill Shortage List,* www.immigration.govt.nz.

4

ADDRESSING SKILL SHORTAGES IN NEW ZEALAND

4.1 FACTORS INFLUENCING SKILL SHORTAGES

Changes in the demand and supply for particular occupational skills are part and parcel of a functional market economy. As Shah and Burke note, some element of the demand for skills is random, but other elements are determined by a range of factors, including changes in technology, consumer tastes, economic transformation, demographic shifts and changes in commodity prices.[12] The demand for particular skills can also be affected by government policy or globalisation. Such influences may apply to particular sectors at different times. For example, the restructuring of the public sector in New Zealand, including the corporatisation and/or privatisation of government entities such as the post office and railways, will have affected the demand for skilled tradespeople in those areas. The supply of skills, for its part, can be affected by factors such as changes in the provision of education and training, preferences for various forms of work and demographic changes such as ageing and migration.

As in any market, firms and suppliers of skills will adjust to these ongoing shifts. But such adjustments take time so that, at any given time, in any given industry or at any given location, the demand for particular skills may exceed the supply (or vice versa). In a competitive economy, this situation should be self-correcting. In the case of a shortage, wages tend to rise as employers compete for available labour. As wages rise, employers substitute alternatives (for example, by using other types of labour, increasing the use of technology, shifting production to other sites, contracting out or reducing production), and the supply of workers with those skills increases as training providers shift provision into those areas or workers move from other industries and areas. Such transformations are occurring constantly in a functional economy and hence some employers will be reporting skill shortages, skill gaps or recruitment difficulties at various times during the process of adjustment.[13]

---

12 Shah and Burke (2003), op cit, p 11.

13 This section borrows heavily from Shah and Burke (2003), op cit, p 11.

Skill shortages reflect the interplay of the supply and demand for skills in the economy. Factors affecting the demand for skills can be classified into four groups: cyclical factors such as strong economic growth, which drives up the demand for labour generally in the economy; microeconomic factors such as changes in commodity prices; demographic factors such as an ageing population, technological developments, which can lead to demands for new skills; and policy/structural factors such as the design of the tertiary education and training system and skilled migration policies (see Table 2).

The causes of skill shortages may differ across occupations, industries, regions and time. For this reason, there is no single (or simple) solution to skill shortages – either for governments or for individual firms seeking to mitigate their impact. Skill shortages are of direct and immediate concern to New Zealand businesses and policy-makers. The Business New Zealand Election Survey 2005 showed that skill shortages – defined as the inability to get skilled staff – were the top concern of 57 percent of businesses that participated in the survey. This result placed the issue above other perennial business concerns such as the size of government, employment relations and taxation.[14]

Cyclical factors have clearly played a role in skill shortages in New Zealand in recent years. As shown in Figure 9, which plots the net proportion of employers reporting skilled labour shortages and the national unemployment rate for the 1985–2006 period, shortages of skilled labour tend to be closely associated with periods of high demand for labour. When the unemployment rate is high (as during the early 1990s), skilled shortages are low, while the opposite is true when the unemployment rate is low (as during the mid 1980s and much of the recent past). Skill shortages have been particularly severe in recent years, coinciding with strong economic growth and low unemployment. The recent fall-off in skill shortages is consistent with a slow-down in the economy, but the shortages remain high by historical standards.

That there is a cyclical element in skill shortages is hardly surprising given that many industries – including construction, transport and manufacturing – are heavily influenced by the general state of the economy. As a result of such influence, the demand for skills in those industries fluctuates as well. In buoyant conditions, like those we have seen in New Zealand in recent years, the demand for skills such as plumbing, carpentry and electrical can be expected to increase. During downturns – as experienced in the early 1990s and to a lesser extent during the Asia Crisis in the late 1990s – demand for these skills can be expected to decrease.

---

[14] Business New Zealand (2005a) *Business New Zealand Election Survey 2005*, Wellington.

Table 2: Factors influencing the demand for skills

Cyclical factors	Microeconomic factors	Demographic factors	Technological factors	Policy/structural factors
• National rate of economic growth	• Changes in consumer tastes	• Ageing population	• Emergence of new technologies	• Design of tertiary education and training system
• Regional economic growth	• Changes in commodity prices	• Labour force participation	• Development of new manufacturing processes	• Responsiveness of tertiary education and training sector
• Level of unemployment	• Relative wage rates	• Net migration of skilled labour		• Quality of school system in preparing school leavers
	• Growth/relocation of new industries	• Attitudes toward vocational qualifications		• Design of skilled migration policies
	• Government restructuring			• Design of labour market policies
				• Economic, tax and regulatory policy settings

There is little the government can do to address cyclical skill shortages or surpluses. The answer is not Keynesian-style management of economic demand. Rather, the government should create an economic environment that is conducive to long-term stable growth, including through stable and predictable monetary and fiscal policies, flexible labour markets, and policies that encourage appropriate decisions over skill investment.

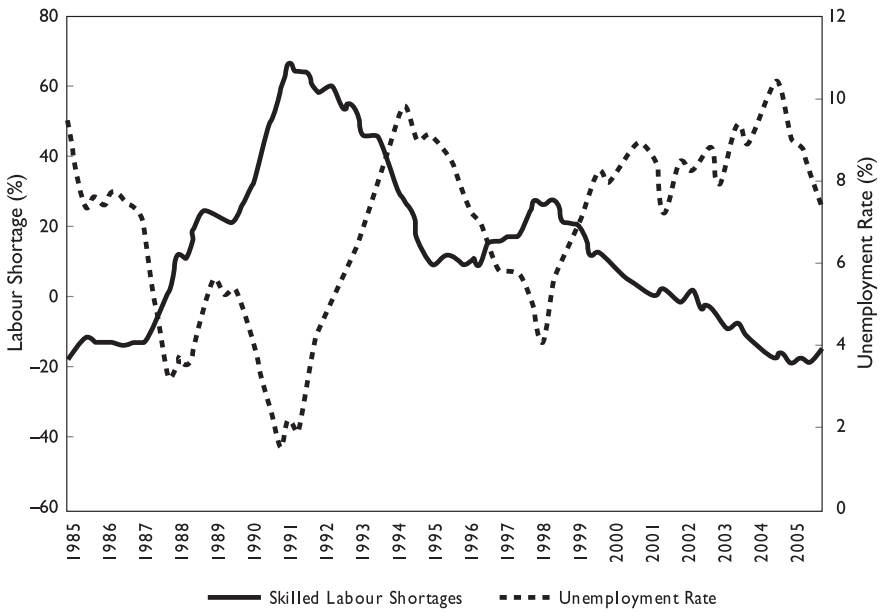
The persistence and severity of skill shortages over time and across economic cycles, as demonstrated by the QSBO data (see Figure 9), suggest that cyclical factors are not a complete explanation for skill shortages in New Zealand. According to the QSBO, New Zealand employers have reported a net shortage of skilled labour since the mid 1960s when the measure was introduced.[15]

Skill shortages are leading to market responses that will reduce them over time. These responses include wage increases in shortage occupations, increased human capital investment in skills of shortage occupations, inflows of migrants seeking jobs in shortage occupations and an improvement in the 'status' of trades and vocationally oriented courses. By their nature, these responses occur with some lag.

One of the key responses is the increase in wages in shortage occupations. For example, between June 2002 and June 2006 – a period characterised by severe skill shortages – average wages in trades occupations grew by nearly 16 percent (4.2 percent in real terms). Although concerns are often raised about

[15] On the other hand, non-skilled labour in New Zealand has generally been in 'surplus' according to the QSBO.

Figure 9: Net proportion of firms reporting skilled labour shortages and the unemployment rate, 1985–2006



Source: QSBO.

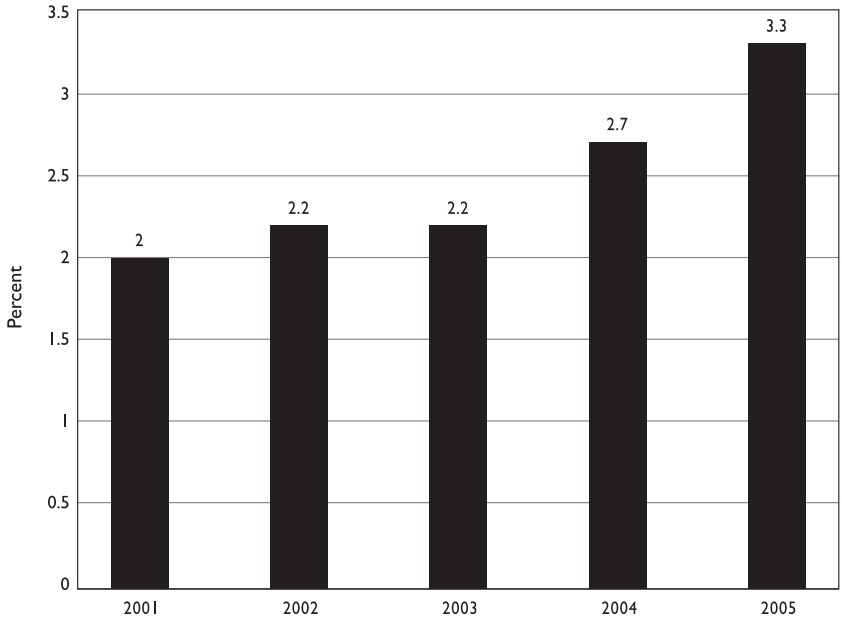
wage pressures, they are necessary to address skill shortages. The adjustment period can vary considerably, depending on factors such as the characteristics of the labour market and the nature of skills in shortage. It is likely to be longer where labour markets are highly regulated, the education and training sector is slow to respond to industry needs, and the skills to be replenished require a considerable lead-time to develop.

Concurrent with the increase in wages in trades, enrolments in trades training have been increasing. Between 2001 and 2005, enrolments in trades training doubled from 8000 to 16,000, while the trades training rate grew from 2 percent to 3.3 percent over that same period (see Figure 10).[16] The current trades training rate exceeds that required to replace tradespeople who are retiring, at least over the short term, and is higher than the rate in New South Wales, Australia.[17]

[16] The trades training rate measures the number of people achieving the benchmark qualification of National Certificate Level 4 as a percentage of the number of people employed in trades. The number of trainees in trades depends on how broadly one defines 'trades'. Figure 10 is based on the number of people in 14 trades and so is likely to understate the true number of trainees in trades.

[17] Department of Labour (2006) *Skill Shortages in the Trades: The 2005 picture*, June, www.dol.govt.nz/PDFs/jvmp-trades-overview-2005.pdf.

Figure 10: Growth in trades training rate, 2001–2005



Source: Department of Labour (2006) *Skill Shortages in the Trades: The 2005 picture*, June, p 6.

Migration is also contributing to the stock of skilled tradespeople. From 2003 to 2005, there was a net inflow of tradespeople in each year, which represented a reversal of the net outflow of 4600 tradespersons in the period from 1998 to 2001. This reversal in skilled migration has been due, in part, to adjustments to immigration policy such as the addition of a number of trade occupations to the Long Term Skill Shortage List, and increased emphasis on employability in the selection of applicants for residency through the Skilled Migrant Programme. Both changes have made it easier for trades workers to obtain permanent residence in New Zealand.[18]

A final factor that has lifted interest in trades training is the improved status or public perception of skilled occupations in the trades areas and of firm-based training more generally. This change is likely to be due to a range of factors, including the government's increased commitment to, and promotion of, industry training in recent years, the development of Modern Apprenticeships (MAs), market-driven wage increases, improved information

[18] Department of Labour (2006), ibid.

provided by the DoL's Worksite website[19] and the promotion of trades training by organisations such as the New Zealand Council of Trade Unions, Business New Zealand and the ITF.

While cyclical factors and market responses are helping to reduce skill shortages, of greatest concern is the component of skill shortages that is 'structural' or policy induced. Given the wide range of factors influencing skill shortages, as outlined in this section, the shortages cannot be 'solved' by any single reform or policy change. Instead, a range of strategies and reforms needs to be considered. For the rest of this section, a number of possible responses to skill shortages are briefly examined and assessed.

4.2 WILL MORE MONEY SOLVE THE PROBLEM?

The existence of skill shortages is often blamed on a lack of government investment in human capital: if the government just spent more money on tertiary education and training, the argument goes, the skills 'crisis' would be resolved. However, although additional investment would have some impact, skill shortages have persisted despite significant taxpayer investment in skills development.

As shown in Figure 11, the number of equivalent full time students (EFTS) in tertiary education more than doubled between 1991 and 2004 (and indeed more than tripled between 1984 and 2004). Over the same period, industry traineeships grew from around 20,000 to over 100,000 – and have continued to grow (to over 117,000 in 2005).[20]

Similarly, public spending on tertiary education and training has grown substantially over the past 15 years. Between 1991 and 2004, funding of tertiary education providers almost doubled in nominal terms from $993 million to $1.9 billion, and the overall tertiary education budget grew from $2 billion to $2.9 billion between 2000/01 and 2006/07.[21] In contrast, the Industry Training Fund budget grew in nominal terms from just $89 million in 2002/03 to $154 million in 2006/07.[22]

Since the mid 1980s, New Zealand has moved from being a laggard in terms of participation in tertiary education to having one of the highest entry

---

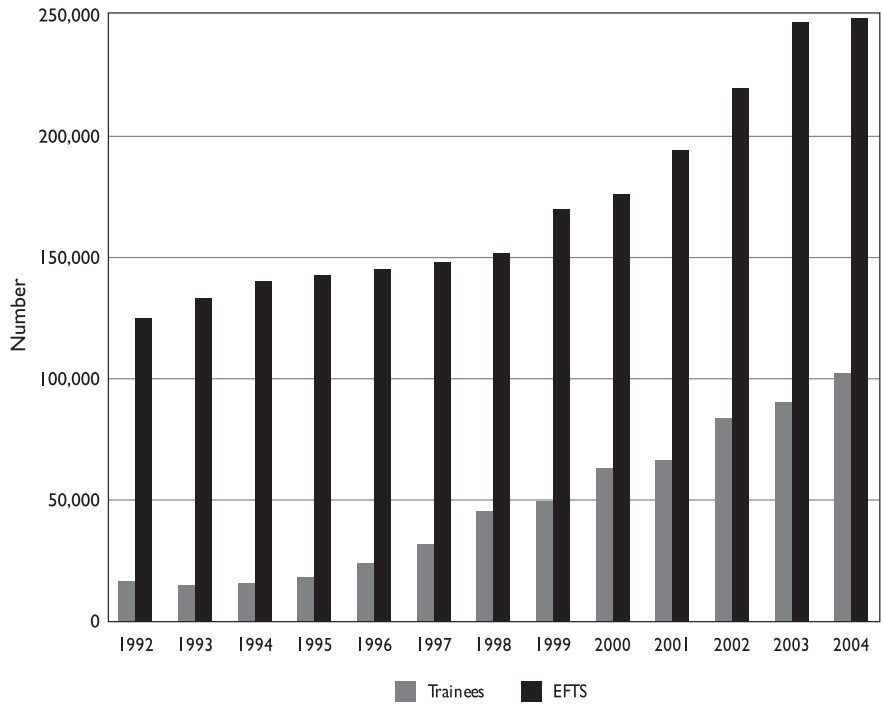
19 www.worksite.govt.nz.

20 The point of Figure 11 is to show trends in EFTS and traineeships, not to compare the relative size of the two groups or the relative growth in the two groups, as the two measures are not equivalent.

21 Ministry of Education data.

22 Industry Training Federation data.

Figure 11: Growth in EFTS and industry traineeships, 1991–2004



Source: Ministry of Education; Industry Training Federation.

rates into tertiary education among OECD countries.[23] As shown in Table 3, New Zealand is also a big spender on education relative to the bulk of other OECD countries. Indeed, few other countries commit the same level of resources to education relative to either the size of their public sector budget or gross domestic product (GDP).

In 2002 New Zealand spent 5.2 percent of its total public budget on tertiary education and 20.8 percent of its total public budget on all levels of education. These figures are well above the overall mean for OECD countries, and higher than the individual percentages for all other OECD countries apart from Mexico. Also in 2002, public spending on tertiary education in New Zealand represented 1.7 percent of GDP, while public spending on all levels of education represented 6.7 percent of GDP. Again, these figures are above the overall mean for OECD countries and higher than individual percentages for all but a handful of (primarily Nordic) OECD countries.

[23] OECD (2005) *Education at a Glance 2005*, Paris, p 249.

Table 3: Public spending on education, selected OECD countries, 2002

	Public spending to total public spending		Public spending to GDP	
	Tertiary education (percent)	**All education levels (percent)**	**Tertiary education (percent)**	**All education levels (percent)**
Australia	3.5	14.3	1.2	5.0
Austria	2.6	11.5	1.3	5.7
Belgium	2.7	12.5	1.4	6.3
Denmark	4.9	15.3	2.7	8.5
Finland	4.1	12.7	2.1	6.4
France	1.9	11.0	1.0	5.8
Germany	2.4	9.8	1.2	4.8
Ireland	3.6	13.0	1.2	4.4
Japan	1.6	10.6	.5	3.6
Korea	1.4	17.0	.3	4.2
Mexico	4.7	23.9	1.0	5.3
Netherlands	2.7	10.6	1.3	5.1
New Zealand	**5.2**	**20.8**	**1.7**	**6.7**
Norway	4.4	16.1	2.1	7.6
Spain	2.5	11.1	1.0	4.4
Sweden	3.7	13.1	2.2	7.6
United Kingdom	2.6	12.7	1.1	5.3
United States	3.8	15.2	1.4	5.6
Country mean	**3.0**	**12.9**	**1.3**	**5.4**

Source: OECD (2005) *Education at a Glance 2005*, Paris, p 205.

4.3 THE ROLE OF GOVERNMENT

The government plays a significant role as the funder of tertiary education and training in New Zealand, covering some 70 to 75 percent of the direct costs of tertiary education. A variety of arguments are made for some state role in funding tertiary education and training. It is possible that the individual investment decisions of workers and firms may result in less education and training being undertaken than is desirable from society's point of view. First, employers may finance a worker's acquisition of specific skills (ie those that are valuable only while the employee is with a particular firm) but may be unwilling to invest in general skills (ie those from which future employers might benefit). A second and related argument is that employers may be unwilling

to train workers for fear of losing their investment if employees are 'poached' by other employers.

Available evidence on whether such barriers to employer-sponsored training are important is mixed. For example, the OECD has argued that market failures result in the underprovision of formal training in member countries and the extent of underprovision is greater for individuals in lower-skilled jobs and those employed in small firms than for workers in higher-skilled jobs and those employed by medium and large firms.[24] In contrast, Betcherman, in a Canadian context, argues that, for a large number of firms, specific obstacles do not lead to real underinvestment in employee training.[25]

New Zealand evidence on whether there is underprovision of training is scarce. According to the 2003 Business New Zealand–ITF skills survey, firms had spent an average of 3.7 percent of payroll on employee training over the previous 12 months. Firms that participated in that survey did identify a number of barriers to training:

- 52 percent of firms saw cost as the main reason not to provide training, or to provide less than might otherwise be desirable;
- 14 percent stated they were too small to provide training (or at least to provide for all of their training needs);
- 11 percent suggested that the possibility of staff being 'poached' within one year or more of training was a disincentive against training employees; and
- approximately 20 percent of respondents saw 'red tape' and a lack of information about training as potential barriers to training.[26]

There are also reasons why individuals may choose to underinvest in education and training relative to the level that is 'optimal' from society's point of view. First, capital markets are not perfect and individuals may not be able to borrow to finance the costs of training – particularly for general skills. Second, training may produce externalities whose benefits cannot be captured by the individual undertaking the training.[27]

---

24 OECD (2003a) *OECD Employment Outlook 2003*, Paris, pp 248–253.

25 Gordon Betcherman (1998) *Barriers to Employer-sponsored Training in Canada*, CPRN, Ottawa, pp 15–16.

26 Business New Zealand and Industry Training Federation (2003) *Report of the Business NZ Skills and Industry Training Federation Training Survey 2003*, Wellington, p 8.

27 See Serge Coulombe and Jean-Francois Tremblay (2005) *Public Investment in Skills: Are Canadian Governments Doing Enough?*, CD Howe Commentary No 217, CD Howe Institute, Toronto, pp 3–4. Externalities are a cost or benefit attributable to an economic activity that is not reflected in the price of the goods or services being produced.

While there is a role for government in education, that role is limited to funding and regulation. There is no reason why government policy should favour public training providers over their private sector counterparts. A more even-handed policy goes against much of the recent policy direction, which has systematically favoured delivery by public polytechnics and ITPs over that by private training providers.[28] Such favouritism has occurred despite some evidence that the service orientation, flexibility and accountability of private training providers enable them to meet the training needs of employers more effectively.[29]

4.4 SCHOOL-LEVEL POLICY

Although the 'blame' for skill shortages is often placed solely on the lack of relevance of the skills produced in the tertiary education and training system, this viewpoint is unfair. In particular, it ignores the significant role that earlier levels of education play in providing New Zealanders with the skills they need to succeed in a modern economy. A school system that is performing well is critical to successful skill development outcomes. If students do not have strong oral and written communication skills, tertiary education and training providers face an uphill struggle in turning out skilled workers, and employers face a difficult task in addressing skill shortages. In a Canadian context, Coulombe and Tremblay focus strongly on the importance of school education to skill development outcomes and recommend a number of reforms, including more competition among schools, improved teacher quality through better teacher training and performance incentives, and greater use of school performance indicators.[30]

Business New Zealand, the Employers and Manufacturers Association (EMA) (Northern) and others have, in recent years, expressed concern about the state of literacy and numeracy of school leavers (and those who have already left school).[31] As Business New Zealand Chief Executive Phil O'Reilly has put it:

> There are still too many young people leaving school without the levels of competence they will need at work. It is no use us all talking about a high

---

28 Norman LaRocque (2005) *Private Tertiary Education: A New Zealand perspective*, speech to the Australian Council for Private Education and Training Conference, Adelaide, www.educationforum.org.nz.

29 Gordon Paterson et al (2006) *Engagement of Key Stakeholder Groups with the Tertiary Education Providers*, report to the Ministry of Education, Wellington, p 49.

30 Coulombe and Tremblay (2005), op cit, pp 10–11.

31 Business New Zealand (2005b) *Skills Perspectives*, Wellington, p 9; Paula Oliver (2003) 'Back to basics to get working', *New Zealand Herald*.

> skill workforce if these basic skills – the foundation skills that all the others are built on – are missing.[32]

A survey on literacy and productivity conducted by EMA (Northern) found that only 70 percent of employees were able to understand warning or hazard notices in the workplace, 85.7 percent of firms said completing documents sometimes resulted in inaccurate or missing data, and only 56 percent of employees always followed verbal instructions. More recently, the National Party has also raised concerns about the number of students leaving school without a basic qualification (27 percent of school leavers in 2005) and the potential impact on trades training.[33] While New Zealand students performed well on international surveys such as the OECD's Programme for International Student Assessment (PISA), evidence from other surveys such as the Trends in International Mathematics and Science Study (TIMSS), Progress in Reading Literacy Study (PIRLS) and International Adult Literacy Survey (IALS) suggests there is no room for complacency.

According to the Ministry of Education, the IALS showed that 'over a million adults are below the minimum level of competence, in each of the three [literacy] domains, required to meet the demands of everyday life' and that only 'around one in five New Zealanders are operating at a highly effective level of literacy'. The PIRLS results showed that New Zealand was placed thirteenth in terms of overall reading comprehension – near the bottom of the ladder among English-speaking countries. Furthermore, New Zealand exhibits one of the largest gaps between its students at the top and bottom levels of performance.[34] Similar concerns regarding the adequacy of school leavers' basic skills are being expressed in the United Kingdom.[35]

Another area for reform at the school level is an improvement in the quality of the technology curriculum. The curriculum must prepare students well for, and encourage them into, future careers in vocationally oriented areas such as trades. Perceptions developed at high school can significantly influence students' future career choices. A recent study by the Post Primary Teachers' Association (PPTA) highlighted a number of concerns with the technology curriculum and

---

32 Phil O'Reilly (2006) *Employers and the School System*, speech to the National Secondary Schools Qualifications Conference, Palmerston North, p 6.

33 Hon Bill English (2006) 'Maharey in denial over school leavers' stats', press release, 12 September; Colin King (2006) 'Trade training in trouble', press release, 14 September.

34 For a brief discussion, see Education Forum (2003) *A New Deal: Making education work for all New Zealanders*, Wellington, pp 7–15.

35 Alexandra Frean (2006) 'School leavers lack even basic skills warns CBI', *Times Online*, 21 August.

the teaching of technology in high schools, including the status of technology in schools, inadequacy of resources committed to technology, staff recruitment difficulties and insufficient focus on practical skills.[36]

4.5 TERTIARY EDUCATION POLICY

The government has recently put much effort into reforming the system of tertiary education funding and regulation. Recent exercises have included the reforms that came out of the Tertiary Education Advisory Commission process in the early 2000s and the more recent reform effort led by tertiary education minister Dr Michael Cullen.

The design of both the tertiary education policy framework and the industry training system is crucial to achieving good skill development outcomes and ensuring that self-correcting mechanisms are effective in responding to skill shortages. The design of both affect directly what courses will be delivered and the relative attractiveness of firm-based and provider-based training. A tertiary education funding system that is decentralised, neutral across different types of providers, demand driven and flexible is more likely to ensure that tertiary education providers are responsive to shifts in demand. As Barr and Crawford have argued:

> Universities have to be free to decide the prices they charge, the types of courses and the number of places … [S]tudent demand will be more attuned to continually evolving employer demand than central planning ever could.[37]

While there has been much criticism of the demand-driven funding system that is progressively being unwound, little of it is based on a systematic assessment of the system's strengths and weaknesses. The government's most recent attempt at reforming the tertiary education funding framework seeks to introduce a more 'planned' and 'strategic' approach to the funding of tertiary education. Some aspects of the government's proposed funding policy are welcome. In particular, the increasing emphasis on quality assurance, institutional performance and accountability for outcomes should assist in improving skill development. These changes will build on the government's earlier tertiary education reforms, including improvements in labour market information, the introduction of

---

36 New Zealand Post Primary Teachers' Association (2006) 'PPTA urges select committee to conduct technology inquiry', press release, 28 November, www.ppta.org.nz; Education Forum (2006) 'Education Forum supports PPTA call for review of technology curriculum', press release, 28 November, www.educationforum.org.nz.

37 Barr and Crawford (1998) 'Funding higher education in an age of expansion', *Education Economics*, vol 6, no 1, p 48.

MAs, the general expansion of industry training and the establishment of the Performance-Based Research Fund.

At the same time, there are good reasons to doubt whether the reforms will result in a tertiary education sector that delivers education and training that is of high quality and relevant to student and industry needs. Indeed, there are risks that the reforms could do the opposite, leading to a system that is less flexible and less responsive. Furthermore, some aspects of the reforms could represent a threat to ITOs and industry training more generally.

At a broad policy level, two of the key principles underpinning the reforms are of concern. First, much of the rationale for the new framework is that the so-called 'bums on seats' approach to funding is flawed and a more 'strategic' approach is needed. Although this concern has often been raised, it has rarely been clearly articulated or supported by any evidence. While not perfect, an enrolment-based funding system provides an objective starting point for allocating tertiary education funding. It can be combined with other criteria – course cost, quality and institutional performance – to ensure that institutional funding is effective, transparent and fair.

The government's proposed reforms involve the identification of national priorities and the negotiation of institutional plans, which raises a second concern. The proposed framework assumes that a system of centralised decision-making with priorities, strategies and plans will yield better outcomes than a decentralised system where students, institutions and employers are the key drivers. That is a heroic assumption and goes against the extensive history – in New Zealand and elsewhere – that central planning does not work. There is little evidence that the increased centralisation of funding in recent years has achieved much, if anything, in terms of better quality and greater relevance of provision, although it has significantly increased the amount of red tape facing institutions.

The reason for the ineffectiveness of central planning is straightforward – central planners have neither better information nor better incentives than students and institutions to determine which skills are, or will be, in demand in the economy or what areas of study will give people most personal satisfaction. Even in a country as small as New Zealand, information can be costly or impossible for the government to obtain – especially in a timely manner. And planners' informational handicaps are becoming more acute over time given globalisation, the more diversified nature of the tertiary student body, the advent of mass education, and technological developments.

It is highly unlikely that the TEC would have a better handle than the market on how many software engineers, linguists, forestry workers, nurses or carpenters are needed. This is not meant to be a criticism of the TEC's capacity

– the same criticism would apply to any other organisation. A centralised system is also more likely to be subject to the influence of ideologies and vested interests. A key concern is that the interests of public tertiary education institutions could be advanced over the country's wider interest in skill development. The current mechanism for determining the 'strategic relevance' of qualifications provides a case in point, given that some of its criteria appear to have more to do with protecting public institutions from competition than with improving the relevance of tertiary education.

A number of aspects of the proposed tertiary education funding framework are of direct concern in regard to industry training. First, the reforms' focus on 'distinct contributions' could see a widening of the role for ITPs, at the expense of both ITOs and PTEs. This possibility is made more likely by the government's proposal to differentiate funding on the basis of institutional type, with both universities and ITPs receiving increased funding per student, and by the proposal for ITPs to be regional 'facilitators'. To the extent that ITPs' provision is less flexible and less relevant than that of its private competitors, skill development outcomes could worsen as a result of the reforms. Providing greater funding neutrality across different types of institutions would ensure competitive pressures and would provide some assurance that funding goes to those providers who best meet the needs of industry.

4.6 INDUSTRY TRAINING POLICY

In many respects, the industry training system introduced in the early 1990s would appear to be sound. The passage of the Industry Training Act 1992 – introduced at a time when the apprenticeship system was ebbing – has coincided with an upsurge in the number of industry trainees since the mid 1990s.

The new industry training system replaced a trades training system that was seen as having several weaknesses: it was centrally regulated, sluggish and unresponsive, had limited coverage, and – from the late 1980s – was in decline.[38] The industry training system introduced in 1992 is credited with a number of successes:

- significantly broadening industry training coverage;
- extending structured training well beyond the traditional trades-related training areas;
- lifting the degree of industry engagement in the new system; and

[38] Nicholas Green et al (2003) *A Brief History of Government Funding for Industry Training 1989–2002*, Industry Training Federation, Wellington, p 9.

- improving the system's responsiveness to industry needs; and
- helping to build a workforce training culture across industries.[39]

Dunn praises the industry training system on a number of grounds. Among the benefits he identifies are its relatively simple administrative structure, the operation of ITOs at the interface of industry and training, its link to a comprehensive qualification system and its ability respond to skill shortages.[40]

The design of the industry training system has remained stable. Despite several changes of government and a number of major official reviews since its inception, the system's key building blocks – industry leadership, flexibility, non-compulsion, broad coverage, and cost sharing by industry and government – remain in place today. Political support for the system appears broad-based, as evidenced by the comparatively limited reform that it underwent, in contrast to the wider tertiary education sector, with the change of government in 1999. For example, the introduction of the MA scheme, designed to encourage young people into industry training, represented an extension of the existing industry training system, rather than a new policy direction.[41]

The main criticism of the system has generally been that there is insufficient funding to meet the demand for training – which may or may not be the case. Other criticisms generally centre on the relatively low 'status' of training within the TEC, the lack of an adequate coordinating body, and the need for more attention to policy development, data collection and research/evaluation.[42] Loudon has also criticised the system on a number of grounds, including that it is overly bureaucratic, is expensive for employers (particularly small ones) and entails high compliance costs.[43]

Apprenticeships offer a useful mechanism for lifting the skills base, given that they combine training and employment and allow employers and employees to share the costs of training. Common features of apprentice contracts are:

- they last for a duration specified at the start;
- apprentices are paid less than their productivity value during most of the period covered by the contract; and

---

39 Green et al (2003), ibid, p 7.

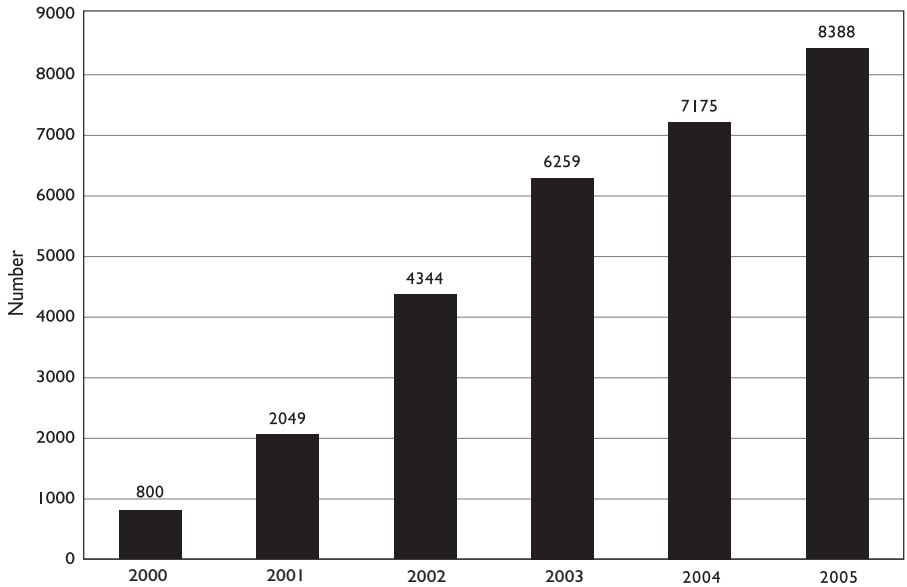
40 Chris Dunn (2005) *Industry Based Vocational Education and Training Strategies in Australia and New Zealand*, Industrial Relations Centre, Victoria University of Wellington, Wellington, p 13.

41 Green et al (2003), op cit, p 7.

42 Dunn (2005), op cit, p 13.

43 Trevor Loudon (2004) *Apprenticeships: Earn While You Learn*, speech to the ACT Upper South Regional Conference, 2 October.

Figure 12: Number of Modern Apprenticeships, 2000–2005



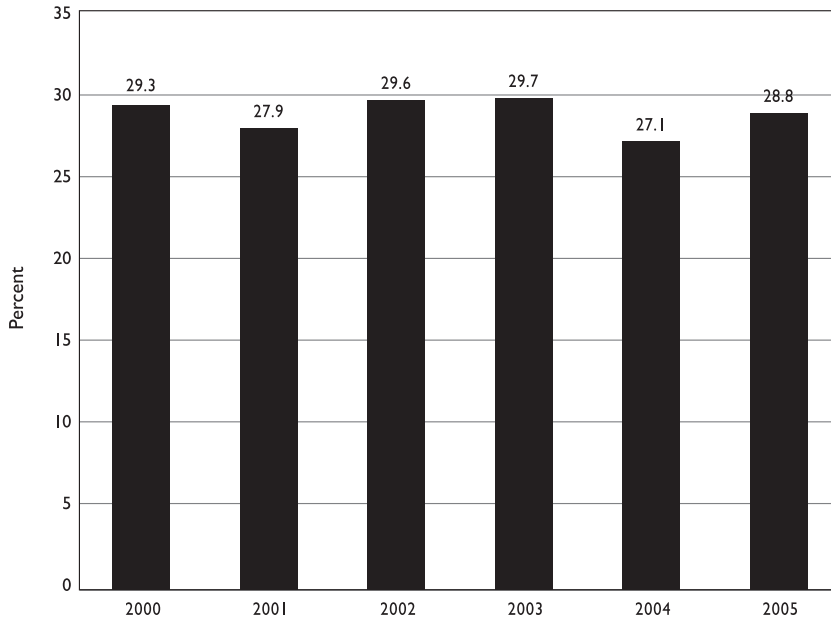
Source: Tertiary Education Commission.

- a recognised qualification is delivered at the end, with the apprentice receiving a substantial wage increase if he/she stays with the same firm after completing training.

Government policy should provide an environment that promotes apprenticeships. Measures to this end include retaining the ability of employers and trainees to negotiate appropriate pay and employment conditions, and minimising the compliance costs of operating such programmes. Policy-makers must be ever vigilant to keep compliance costs to a minimum so that industry training remains accessible to a wide range of firms. The competency-based nature of the industry training system means there will be a certain degree of administrative complexity. At the same time, the system is sufficiently diverse that it can incorporate various types of training arrangements – from time-based 'traditional' apprenticeships to much more outcome-focused industry training.

The government has moved to some extent toward more 'traditional' apprenticeships through the establishment of the MA programme in 2000. The programme's aims are to provide apprenticeships to young people aged 16–21 years on entry that will lead to national qualifications at Levels 3 and 4 of the NQF. MAs provide more support to trainees and employers, as reflected in an

Figure 13: Industry share of training costs, 2000–2005



Source: Tertiary Education Commission.

average cost per trainee ($3,700 in 2003) that is higher than for other traineeships. The number of MAs stood at over 8300 in 2005 (see Figure 12).

Overall, there has been little pressure for wholesale reform of the industry training framework in New Zealand. For example, the ITF's 2005 *Briefing to the Incoming Minister* contained a number of recommendations for change, but these largely represented modifications to the current framework. These changes include moving to a triennial funding system, inflation-adjusting STM rates, raising the current 10 percent limit on STM use above Level 4 of the NQF, and allowing ITOs to deliver training to owners and the self-employed. There appeared to be little difference in policy across the main political parties.[44]

Looking forward, a number of possible reforms to the industry training system could be contemplated. One issue that should be examined is the level of subsidy available for firm-based training relative to the level for provider-based training. As shown in Figure 13, the private cash contribution to industry training has represented between 27.1 and 29.7 percent of the combined industry and government cash contribution to industry training over the 2000 to 2005

[44] Industry Training Federation (2005) *Briefing to the Incoming Minister*, Wellington.

period.[45] This contribution compares with a private contribution of around 25 percent for EFTS-based tertiary education. If in-kind contributions are included, the industry contribution to the cost of training would increase significantly. In the late 1990s, it was estimated that the inclusion of in-kind contributions lifted the industry contribution from 39.5 percent to 68 percent of the total cost – well above the private share of EFTS-based tertiary education.[46]

There is no clear rationale for the difference in funding levels between firm-based and provider-based training. Significant differences can be problematic if they bias individuals' skill acquisition toward provider-based training simply because subsidies are higher, rather than for pedagogical or other reasons. The government should examine whether funding rates ought to be more closely aligned and how this could be done. While there are good reasons for government funding of tertiary education, it is not so clear that additional subsidies are justified, given that their current levels are already high (see section 4.2 above).

The government could also consider funding firms for 'in-house' industry training programmes that would operate in parallel with the ITO system. While firms can and do operate their own in-house training programmes now, they can only receive funding for them if they operate through an ITO. Yet firms might wish to operate a parallel system because of their unique circumstances or training requirements, for reasons of commercial sensitivity or because of philosophical differences with the relevant ITO. Such parallel systems would need to be accredited by the New Zealand Qualifications Authority (NZQA). Funding alternative systems would increase pressure on ITOs to meet members' needs and would allow for greater diversity in provision.

A number of other reforms aimed at improving training systems have been suggested. For example, the OECD has outlined a range of possible measures to improve training outcomes, including tax-based schemes such as tax concessions and training levies for firms, apprenticeships, loan schemes to cover individuals' cost of undertaking training, and tax incentives or subsidies to individuals undertaking training.[47] Three of these – tax incentives, compulsory training levies on firms and subsidies to individuals – are discussed briefly below.

---

45 According to the TEC, the measured industry cash contribution almost certainly understates the actual industry cash contribution. In addition, industry non-cash contributions are likely to exceed the cash contribution.

46 Green et al (2003), op cit , p 26.

47 OECD (2003a), op cit, pp 256–272.

Tax incentives

Unlike in many other countries, the New Zealand industry training system does not provide additional tax incentives to encourage employers to take on apprentices or provide training to employees.[48] Such tax incentives are used in a number of jurisdictions, including Canada, Italy, Austria, the United States and Luxembourg (see Table 4). In July 2006 the New Zealand government's Business Tax Review discussion document raised the possibility of introducing targeted tax concessions or tax credits for business investment in skills development. The stated aim of the policy was to address market failures that may arise from 'poaching' trained staff, which may lead to underinvestment in firm training.[49]

A subsequent officials' discussion document in November 2006 outlined a possible design for a training tax credit. The tax credit would have been limited to certain types of expenditure, would have been available only for training at Level 4 or below on the NQF, and would have focused on training leading to nationally recognised qualifications.[50] The proposed tax incentives were not introduced, but they received serious consideration.

Although there are potential grounds for government intervention – and for government funding in particular – to overcome market failures in tertiary education and training, it is not clear that further government subsidies – in whatever form – are required, as discussed above. In addition, there are a number of other reasons why tax incentives may not be the best way of meeting public policy goals in respect of industry training. Of particular concern is that tax incentives may:

- subsidise training that is already occurring or would have occurred without the tax credit – such costs could be particularly high if firms 'game' the system by reclassifying existing training to make it eligible for the tax credit, which would mean a smaller net increase in training and a higher government cost per trainee;
- lead to an erosion of the tax base over time; and
- increase red tape and the size of the bureaucracy – particularly if the government sets programme eligibility criteria in a way that limits the potential for gaming and deadweight costs. In other words, there is likely

---

48 British Columbia Construction Association et al (2006) *The Case for a British Columbia Human Resources Investment Tax Credit Program*, Victoria, p 2; OECD (2003a), op cit.

49 As noted in paragraphs 48–49 above, however, there is little direct evidence of underprovision of training.

50 Inland Revenue Department and The Treasury (2006) *Skills Training Tax Credits: Definition, eligibility criteria, eligible expenditure*, Government of New Zealand, Wellington, pp 5–6.

to be a trade-off between programme simplicity and attainment of other policy objectives.

Given that introducing a tax credit for skill development would narrow the tax base, such 'targeted' assistance to industry would need to be traded off against other industry assistance strategies such as more general reductions in the corporate tax rate. A subsidy-based system to encourage training – as exists now – may have advantages over tax credits in that they are likely to require less bureaucratic administration, be more transparent and reduce tax base erosion.

Table 4: International examples of training tax credits

Jurisdiction	Type of incentive	Details
Government of Canada	Apprenticeship job creation tax credit	• Introduced 2006 • Calculated as 10% of wages paid to apprentices • Maximum of C$2000/year/apprentice for two years
Province of Ontario (Canada)	Apprenticeship training tax credit	• Introduced 2004 • Refundable tax credit • Calculated as 25–30% of wages (based on firm size) paid to eligible apprentices • Tax credit limited to priority trades – mostly construction, industrial and motor trades • Maximum of C$5000/year/apprentice for three years • Applies to all apprentices, not just new ones
Province of British Columbia (Canada)	Training tax credit	• Announced 2006 • Under design – not yet implemented • C$90 million tax credit programme
State of Ohio (USA)	Training tax credit	• Introduced 2004 • Non-refundable tax credit • US$20 million in credits available, with no business getting more than US$100,000 per year
Austria	Training tax credit	• Introduced 2000 • Deduction of 120% of training costs from firm turnover • Non-refundable but can be offset against previous or future tax liabilities • Applies to externally provided training and internal training where organised by a separate training unit
Italy	Training tax credit	• Introduced 2001 • Deduction of 150% of training costs from firm turnover • Non-refundable but can be carried forward for up to four years
Luxembourg	Training tax credit	• Introduced 1999 • Deduction of up to 110% of training costs from turnover • Non-refundable but can be carried forward for up to 10 years

Table 4: International examples of training tax credits *cont'd*

Jurisdiction	Type of incentive	Details
France	Training expenditure tax credit	• Introduced 1988 • Tax credit of 35% for training expenditure in excess of that made in the previous year • Since 2002, has been restricted to small and medium enterprises with turnover of less than EUR 7.63 million
Netherlands	Training tax credit	• Introduced 1998 • Deduction of 120% of training costs from firm turnover – more generous for small firms and low educated workers • Applies only to training relevant to trainees' current functions • Only cost of trainer's time can be deducted for all internal training except training of some previously unemployed workers, where wages and indirect costs can also be deducted

Source: British Columbia Construction Association et al (2006) *The Case for a British Columbia Human Resources Investment Tax Credit Program*, Victoria; OECD (2003a) *OECD Employment Outlook 2003*, Paris.

Finally, government intervention to encourage skill development must be weighed up against market solutions. In particular, the flexible nature of the New Zealand labour market means that employers have considerable scope for designing contracts that allow them to retain employees in whom they have made significant training investments – for example, through apprenticeships, bonding or higher salaries upon completion of training.

The government dropped the proposed tax concession in the business tax package announced in the 2007 Budget.

Industry training levies

One proposal that is sometimes put forward to overcome potential 'market failures' such as the 'poaching' of employees is the imposition of an industry training levy. More than 30 countries, including France, Malaysia and the United Kingdom, have used or are currently using industry levies.[51] Since 2002 the Industry Training Act has allowed the government to impose a training levy on the members of an industry, payable to an ITO, if there is sufficient support for the imposition of that levy. A levy can only be introduced following a ballot of members of the ITO. In order to have a levy introduced, at least 60 percent of the ballots must be validly completed and returned and 60 percent of those returned

[51] Amit Dar et al (2003) *Training Levies: Rationale and evidence from evaluations*, World Bank, Washington DC, p 5.

ballots must support the imposition of a levy.[52] To date, no ITO has imposed a levy on industry, although some have reportedly investigated doing so.

The policy justification offered for levies often rests on the argument that employers 'free-ride' on other firms' training and hence firms should be 'taxed' to ensure that firms invest an appropriate amount in training. Politically such levies are seen as offering an attractive mechanism for governments to finance industry training as they allow money to be raised without the use of tax dollars. Despite this, the case for compulsory industry training levies is weak. As discussed above, any market failure that might exist is likely to be already compensated for through taxpayers' current significant contribution to tertiary education and training and because employers can, to some degree, protect themselves from behaviours that can lead to market failures such as 'poaching' through the design of their employment contracts. Additional spending on training may yield lower returns to the firm and to society than alternative uses of that money.

Compulsory levies can impose a range of economic costs on employers, similar to the effects of general taxes. They can also reduce one of the real advantages of the industry training system – the responsiveness of ITOs to employers and trainees. Incentives to serve members could wane if the link between ITO performance and funding is weakened. For this reason, proposals to strengthen the existing powers to impose compulsory industry levies should be resisted.

The existing power to impose compulsory levies in the Industry Training Act 1992 should be further limited by requiring that any proposal to impose a compulsory levy include a desirability test. This test would involve a full assessment of costs and benefits – in effect, a regulatory impact statement. It would bring the industry training provisions closer to those in similar legislation such as the Commodity Levies Act 1990, which requires, *inter alia*, the applicant to show that either:

- it would be impossible or impracticable to finance the relevant activity out of voluntary levies; or
- if the activities on which the levy is to be spent were financed by voluntary levies, people who did not pay those levies would derive unearned benefits.[53]

---

52 See Industry Training Act 1992, s 27.

53 See Commodity Levies Act 1990, s 4.

Subsidies for individuals

A third reform option is to introduce subsidies for individuals that help workers pay for training that is not sponsored by their employer. This option includes subsidy programmes, voucher programmes and individual learning accounts. A small number of such schemes exist in Europe, including in Italy, Austria and parts of Switzerland.[54] The New Zealand tertiary education funding system has some characteristics in common with a voucher programme (though less so than in the late 1990s as a result of recent policy changes).

Under voucher programmes, trainees would be eligible for a fixed training entitlement, which could be used at accredited training providers. One example is the Act on Continuing Training for Adults (2000) in the Swiss canton of Geneva, which provides an annual training voucher of up to 750 Swiss francs (CHF 750) (equivalent to 40 hours of continuing training courses) to all adults residing in the canton. The voucher can be used for basic training, professional skills training or the acquisition of new skills. The voucher can be carried over from one year to the next for up to three years. Trainees can use the voucher to attend courses offered by public or community training institutions and by certain accredited private establishments.[55] The Geneva programme has reportedly been effective, particularly in increasing training among immigrants.[56]

Individual learning accounts are bank accounts that benefit from special tax treatment or are publicly funded, and which individuals can co-finance and draw on to pay for future training. They have been introduced in a number of countries, including the United Kingdom, Canada, Spain and the Netherlands.

4.7 WIDER POLICY ENVIRONMENT

Addressing skill shortages requires adjustments to more than tertiary education and training policy. Attracting and retaining skilled workers depends on a wide range of factors, including broad policies that make New Zealand an attractive place to work and live. Effective measures therefore must encompass the country's policies in regard to immigration, occupational regulation, the labour market, tax and broader regulation.[57] Immigration policy plays a central role, given that it provides a direct (both short-term and long-term) response to

54 OECD (2003a), op cit, pp 267–269.

55 OECD (2003a), op cit, p 268.

56 Andrea Bassanini (2003) 'Solving the training divide', *OECD Observer*, March.

57 Anne Gibson (2006) 'Licensing set to worsen shortage of builders', *New Zealand Herald*, 25 September.

skill shortages. The Australian Bureau of Statistics reported that approximately 25 percent of all tradespeople in Australia in 1999 were born outside that country.[58] According to the EMA (Northern), a relatively high tax burden, restrictive employment laws and resource management law frustrate development and restrict New Zealand's ability to attract skilled workers.[59]

[58] Cited in Australian Chamber of Commerce and Industry (2000) *A Cure for the Common Cold*, ACT, p 3.

[59] Bruce Goldsworthy (2005) *Presentation to Education Forum*, EMA (Northern), Auckland, 11 November.

5
CONCLUSION

The level of human capital is generally recognised as an important factor in a country's prosperity. Industry training – both firm-based and provider-based – contributes to the country's stock of human capital. There have been sustained and significant shortages of skilled labour in New Zealand. Although there has been some improvement in recent years, skill shortages remain an issue both generally and for specific industries. These shortages have occurred despite considerable government investment in tertiary education and training.

The ongoing nature of skill shortages raises questions about the design of industry training policy – and tertiary education policy more generally – and what, if anything can be done to address the problem. There is no magical cure-all. Skill shortages have a range of causes, including cyclical, microeconomic and demographic factors; technological developments; policy issues; and public attitudes to and perceptions of trades training. Hence, solutions to skill shortages must encompass a wide range of policies.

In many respects, the industry training system appears to be sound and its design has remained relatively stable since its inception in the early 1990s. The key building blocks of the Industry Training Act 1992 – industry leadership, flexibility, non-compulsion, broad coverage and cost sharing by industry and government – remain in place today.

Rather than seeking a magic bullet to 'cure' skill shortages, the role of government in addressing skill shortages should be to provide a conducive environment for individuals and firms to invest in human capital and skills that are optimal to both the individual and society. Fulfilling this role implies a policy environment in which:

- stable and transparent fiscal and monetary policies encourage growth and investment in the New Zealand economy;
- flexible labour markets provide scope for employees and employers to enter into mutually beneficial arrangements that promote skill development, including traditional apprenticeships, and provide an environment where individuals and firms can be rewarded appropriately for investments in human capital;

- school-level policies ensure that students leave high school with strong basic literacy and numeracy skills, and provide a technology curriculum that prepares students well and encourages them examine the full range of careers available, including those in trades;
- the tertiary education funding system is decentralised, demand driven, flexible and neutral across different types of providers and across different avenues of skill acquisition (eg firm-based versus provider-based training);
- industry training policy promotes vocationally oriented careers, is industry-led, flexible and non-compulsory, has broad coverage, is financed by industry and government, and promotes apprenticeships as a vehicle for skill development; and
- the wider policy environment – including tax and regulatory policies – makes New Zealand an attractive place to live and work.

Two possible reforms to the existing industry training system could be considered. First, the government could consider whether the relative size of subsidies provided to firm-based and provider-based training is appropriate. Higher per-student subsidies may bias skill development choices toward provider-based training, when firm-based training may actually be the more appropriate means of skill acquisition for some. Differences in per-student subsidies could be addressed through transfers from other parts of the tertiary education sector. Second, the government could consider allowing firms to be funded for 'in-house' industry training programmes that would operate in parallel with the ITO system.

An overarching issue with proposals to increase investment in skill development is that it is not clear that such investment is too low now and that additional investment will generate desired returns. Indeed, government spending on tertiary education as a proportion of both total public spending and GDP compares favourably with other OECD countries. The returns from additional investment in skill development must be weighed up against other priorities, including tax reductions.

BIBLIOGRAPHY

Australian Chamber of Commerce and Industry (2000) *A Cure for the Common Cold*, ACT.

Australian Industry Group (2006) *World Class Skills for World Class Industries: Employers' perspectives on skilling in Australia*, Sydney.

Barr, Nicholas and Iain Crawford (1998), 'Funding higher education in an age of expansion', *Education Economics*, vol 6, no 1.

Bassanini, Andrea (2003) 'Solving the training divide', *OECD Observer*, March.

Betcherman, Gordon (1998) *Barriers to Employer-sponsored Training in Canada*, CPRN, Ottawa.

British Columbia Construction Association et al (2006) *The Case for a British Columbia Human Resources Investment Tax Credit Program*, Victoria.

Business New Zealand (2005a) *Business New Zealand Election Survey 2005*, Wellington.

Business New Zealand (2005b) *Skills Perspectives*, Wellington.

Business New Zealand and Industry Training Federation (2003) *Report of the Business NZ Skills and Industry Training Federation Training Survey 2003*, Wellington.

Coulombe, Serge and Jean-Francois Tremblay (2005) *Public Investment in Skills: Are Canadian Governments Doing Enough?*, CD Howe Commentary No. 217, CD Howe Institute, Toronto.

Dar, Amit et al (2003) *Training Levies: Rationale and evidence from evaluations*, World Bank, Washington DC.

Department of Labour (2007) *Occupations in Shortage in New Zealand: 2006*, www.dol.govt.nz/jvm/shortage2006/index.asp?from=alert.

Department of Labour (2006) *Skill Shortages in the Trades: The 2005 Picture*, June, www.dol.govt.nz/PDFs/jvmp-trades-overview-2005.pdf.

Department of Labour (2005) *Skill Shortages in New Zealand: Key findings from the Survey of Employers who have Recently Advertised 2005*, Government of New Zealand, Wellington.

Dunn, Chris (2005) *Industry Based Vocational Education and Training Strategies in Australia and New Zealand*, Industrial Relations Centre, Victoria University of Wellington, Wellington.

Education Forum (2006) 'Education Forum supports PPTA call for review of technology curriculum', press release, 28 November, www.educationforum.org.nz.

Education Forum (2003) *A New Deal: Making education work for all New Zealanders*, Wellington, pp 7–15.

Goldsworthy, Bruce (2005) *Presentation to Education Forum*, EMA (Northern), 11 November.

Grant Thornton International (2007) *International Business Report 2007*.

Green, Nicholas et al (2003) *A Brief History of Government Funding for Industry Training 1989–2002*, Industry Training Federation, Wellington.

Industry Training Federation (2005) *Briefing to the Incoming Minister*, Wellington.

Inland Revenue Department and The Treasury (2006) *Skills Training Tax Credits: Definition, eligibility criteria, eligible expenditure*, Government of New Zealand, Wellington, pp 5–6.

Keep, Ewart (2005) *Dealing with Skill Shortages in the UK: Issues, problems and ways forward*, presentation to Industry Training Federation seminar, September, Wellington.

LaRocque, Norman (2005) *Private Tertiary Education: A New Zealand perspective*, speech to the Australian Council for Private Education and Training Conference, Adelaide, www.educationforum.org.nz.

Loudon, Trevor (2004) *Apprenticeships: Earn while you learn*, speech to the ACT Upper South Regional Conference, 2 October.

New Zealand Immigration Service (2006) *Immediate Skills Shortage List*, Department of Labour, Government of New Zealand, Wellington, 24 July.

New Zealand Post Primary Teachers' Association (2006) 'PPTA urges select committee to conduct technology inquiry', press release, 28 November, www.ppta.org.nz.

OECD (2005) *Education at a Glance 2005*, Paris.

OECD (2003a) *OECD Employment Outlook 2003*, Paris.

OECD (2003b) *Trends in International Migration*, Paris.

Paterson, Gordon et al (2006) *Engagement of Key Stakeholder Groups with the Tertiary Education Providers*, report to the Ministry of Education, Wellington.

Richardson, Sue (2005) *What is a Skill Shortage*, National Institute of Labour Studies, Adelaide.

Shah, Chandra and Gerald Burke (2003) *Skills Shortages: Concepts, measurement and implications*, Working Paper Number 52, Centre for the Economics of Education and Training, Monash University.

Tertiary Education Commission (2004) *Industry Training 2004*, Government of New Zealand, Wellington.

Annex 1: Industry Training Organisations, as at June 2006

Agriculture ITO
Apparel and Textile ITO
Aviation, Tourism and Travel Training Organisation
Boating ITO
Building and Construction ITO
Building Service Contractors of New Zealand Incorporated
Community Support Services ITO
Competenz
Electricity Supply ITO
ElectroTechnology ITO
Fire and Rescue Services ITO
Forest Industries Training and Education Council
Funeral Service Training Trust of New Zealand
Hospitality Standards Institute
InfraTrain New Zealand
Joinery ITO
Local Government ITO
Master Plumbers, Gasfitters & Drainlayers NZ Inc
New Zealand Sports Turf ITO
NZ Equine ITO
NZ Extractive ITO
NZ Flooring ITO
NZ Furniture ITO
NZ Hairdressing ITO Inc
NZ Journalists' Training Organisation
NZ Motor ITO
NZ Painting Contractors Association of Employers
NZ Road Transport and Logistics ITO
Opportunity – The Training Organisation
Pharmacy ITO
Plastics and Materials Processing ITO
Print NZ
Public Sector Training Organisation
REINZ ITO
Retail ITO
Retail Meat ITO Inc
Seafood ITO
Sport, Fitness and Recreation ITO
Te Kaiawhina Ahumahi Social Services Tranzqual ITO