

FUTURE OF WORK OVERVIEW

Introduction

Recent years have seen heightened interest in the future of work. The reasons for this are not hard to identify. The rapid and widespread introduction of new technologies, most notably computers, over the past two decades has produced a palpable sense of change in workplaces. The ageing of the baby boom generation signals impending changes in the size and composition of the labour force. Cross-border economic activity has grown, presenting new opportunities and new sources of competition.

While some of these changes are highly promising, others are a source of anxiety. Structural problems in OECD labour markets in the 1990s brought economic dislocation to many workers of a magnitude not seen since the 1930s. In some countries, incomes have become more dispersed, and some less skilled workers have seen their earnings stagnate. It also seems that working arrangements have become more varied. 'Atypical' employment arrangements have been on the increase, and the 40-hour week is a reality for a diminishing number of workers.

In light of these changes many commentators have asserted the nature of work is undergoing a fundamental transformation. Indeed, there has been no shortage of theories, whether gloomy or optimistic, to describe the shape of the labour market in the future. The more radical of these predict the end of jobs in the traditional sense, or suggest that careers as we have known them are a thing of the past.

Some describe a future in which traditional employees – working for a single employer, in the employer's premises for a given wage or salary – are replaced by free-lancers, 'portfolio' workers, or teleworkers.¹ Technology, they argue, will enable tomorrow's highly skilled technicians and professionals to engage in work through fluid networks, rather than the rigid hierarchies that defined the conventional 'job'. Choice and flexibility will be the order of the day. Perhaps even the distinction between work and leisure will become blurred, as the new forms of work are more compatible with personal fulfilment.

More pessimistically, some have raised the spectre of mass unemployment,² the casualisation of work, or the division of the workforce into a 'core' of skilled, well-compensated employees, and a low-skilled part-time or temporary 'periphery'.³ Flexibility here means the flexibility of employers to expand and reduce their workforces as the needs of global competition dictate. This is a future characterised by a high degree of insecurity about work and incomes for a large part of the population.

¹ Charles Handy, *The Age of Unreason*. (Boston: Harvard Business School Press, 1989); William Bridges, *Job Shift: How to Prosper in a Workplace Without Jobs* (Reading, MA: Addison Wesley, 1994)

² Jeremy Rifkin, *The End of Work: the Decline of the Global Labour Force and the Dawn of the Post-Market Era*, (New York: G.P. Putnam 1995); Stanley Aronowitz and William DiFazio, *The Jobless Future: Sci-tech and the Dogma of Work* (Minneapolis: University of Minnesota Press, 1994).

³ G. Betcherman and R.Chaykowski, *The Changing Workplace: Challenges for Public Policy* Research Paper No.R-96-13E (Ottawa:Human Resources Development Canada. 1996); P. Cappelli, L. Bassi, H. Katz, D. Knoke, P. Osterman and M.Useem, *Change at Work* (New York:Oxford University Press 1997).

Clearly the changing nature of work is a matter of widespread and urgent interest to policy-makers, academics, social commentators and the general public alike. At the same time, we must be careful about accepting dramatic predictions about how the labour market is changing. Important changes are taking place, but they tend to be more subtle and complicated than these accounts suggest. Many of these predictions generalise from trends observed in narrow segments of the work force over short periods of time, or by identifying a single driving force that seems to explain a range of observed phenomena. An understanding of the changes in work and working life requires a careful assessment of the empirical evidence, and a recognition of the complexity of the forces in operation.

This paper reviews the main developments in work and employment in recent times, and discusses the driving forces behind them. Because of the broad range of issues to be covered, the paper is divided into a number of sections. The first three deal with the main influences on work and employment stemming from:

The changing economy: Technology and globalisation are changing what we produce and the way we produce it.

The changing workplace: New ways of organising work, and changes in employment relationships are changing the ways in which work is done.

The changing workforce: The ageing of the population, international migration, and growing ethnic diversity are influencing the make-up of New Zealand's workforce.

Two further themes are singled out for discussion because of their relevance to people in the world of work. These are:

Work-life balance: Reconciling commitments to work and family, and finding time for personal interests promises to be one of the most challenging issues for tomorrow's workers.

Skills, Education and Training: The possession of the right skills has become increasingly important to successful participation in the labour market.

Where relevant, New Zealand literature on the subjects is listed.

The changing economy

The work that people do reflects the goods and services society produces and how it chooses to produce them. These production decisions in turn reflect the composition of consumer demand, the state of technology, the scope of markets, the nature and level of government activity, and the relative scarcity or abundance of different factors of production. Together these factors determine the structure of the economy and the distribution of employment across industries and occupations.

There is a widely held perception that developed economies are undergoing rapid structural changes. Since the industrial revolution technological and organisational innovations and the expansion of markets have brought about large changes in the composition of economic activity. It has been argued that the pace of change has accelerated in recent times, primarily

as a result of information and communications technologies (ICTs), but also because of globalisation. If this is so, it can be expected to affect the nature of the tasks that workers perform, the skill requirements of their jobs, and the organisational contexts within which work is undertaken.

After reviewing the trends in employment by industry and occupation, this section discusses the implications of technological change and globalisation.

Trends in employment by industry and occupation

Industrial composition of employment

Economies exhibit broadly similar trends in the composition of output and employment by industry, usually characterised as an evolution from agriculture, to manufacturing, to services. During industrialisation, the share of employment in agriculture declines, and the manufacturing sector grows. However, as productivity growth reduces labour requirements in primary and secondary industries, manufacturing employment also falls. Finally, as incomes rise, the share of their incomes consumers spend on services rises, and employment in this sector rises.

Agriculture's share of total employment steadily declined over the twentieth century. Employment in manufacturing rose until about the 1960s or 1970s and has fallen, in percentage terms, thereafter. In some countries, employment in these sectors has fallen in absolute terms as well. Services already account for about two thirds of employment in developed economies. They include a diverse mix of activities, ranging from low-skill, labour-intensive production to knowledge intensive sectors that make considerable use of technology. Recent years have seen strong growth in knowledge-intensive services, including education, health and community services, and property and business services. Industries related to leisure and entertainment, such as cultural and recreational services and accommodation, cafes and restaurants have also grown faster than average.

It is worth noting that the industrial classification may not capture some changes in the nature of work very well. Some service work, for example in fast-food restaurants, has more in common with work in goods-producing sectors than with other kinds of service work. Furthermore, most existing industrial classification systems are based upon the end product. In some cases, however, the distinction between goods and services is unclear. The characteristics traditionally associated with services are intangibility, difficulty of storage, and the need for direct interaction between the producer and the consumer. These apply well, for instance, to haircuts and doctors' consultations, but not to computer software code.

Occupational composition of employment

Data on employment by occupation provides another perspective on the changing structure of the economy. Some of the changes in the occupational structure mirror changes in employment by industry. The increasing proportion of service and sales workers, professionals, and technicians results in part from the growth of the service industries that are their primary employers. Likewise, the stable or declining share of agricultural workers and

elementary occupations is largely accounted for by employment trends in primary and secondary industries.

The occupational mix of employment within industries is also changing. These within industry shifts are also contributing to the shift towards white-collar work. In most industries, the share of manual workers has been declining, while the share of managers, professionals and technicians has been increasing. Similarly, the proportion of the workforce in clerical occupations has declined, reflecting the impact of information technology.

There is limited work on changes in the occupational structure in New Zealand. The Department of Labour has undertaken an analysis of recent trends in the occupational and skill mix of employment in New Zealand.

Andrews, G. and D. Rose, *Occupational Projections to the Year 2000*, (Wellington: Business and Economic Research Ltd. 1995).

Callister, Paul, *Tomorrow's skills*, (Wellington: New Zealand Planning Council, 1990).

Callister, Paul, *Tomorrow's skills: 1993 update*, (Wellington: The Career Service Quest Rapuara, 1993).

Technological change

Technology has featured prominently in recent debates about the future of work as information and communication technologies have driven widespread change in workplaces. Some commentators have likened the impact of new technologies to the Industrial Revolution of the nineteenth century.⁴ Information technology is what economists refer to as a 'general purpose technology'⁵ – a class of inventions distinguished by their broad applicability and their role in enabling a wide range of innovations. Earlier examples of general purpose technologies include the steam engine, the electric motor and railways. Such technologies not only led to the emergence of new industries, but, more importantly, generate productivity-enhancing improvements in wide swathes of the economy.

Whether recent developments really constitute an industrial revolution remains an open question. Technological change, economically speaking, is difficult to measure directly, and may not be captured by existing data series (eg, investment in IT, or research and development). As technology is a major factor in productivity growth, economists have been trying to assess the impact of information technology indirectly by studying productivity trends. Numerous studies from the 1980s and 1990s found little if any change, despite the widespread use of computers. More recent studies from the US – generally recognised as the technological leader – report a productivity surge in the late 1990s.⁶ Much of this was

⁴ International Monetary Fund, *World Economic Outlook*, October 2001 (Washington DC: International Monetary Fund, 2001), Chapter 3 "The Information Technology Revolution" pp.105-144
www.imf.org/external/pubs/ft/weo/2001/02/pdf/chapter3.pdf.

Jeremy Greenwood, "The Third Industrial Revolution: Technology, Productivity, and Income Inequality" *Federal Reserve Bank of Cleveland Economic Review*, Vol. 35, no. 2, 1999 Quarter 2, pp.2-12.
www.clev.frb.org/research/review99/third.pdf

⁵ T. F. Bresnahan and M. Trajtenberg, "General Purpose Technologies: 'Engines of Growth'?" *Journal of Econometrics*, 65 (1), 2000, pp.83-108.

⁶ Dale W. Jorgenson and Kevin J. Stiroh, "Raising the Speed Limit: U.S. Economic Growth in the Information Age" *Brookings Papers on Economic Activity*, 1:2000, pp.125-211.

confined to semiconductor manufacturing,⁷ so it is not yet clear how much IT will enhance the productivity of users of the technology. Nevertheless, the development of IT so far presents some analogies with earlier major technological revolutions, such as railroads.⁸

The three aspects of the relationship between technology and employment that have attracted the most attention in the literature are its impacts on net job creation, skill requirements, and the organisation of work. These will be discussed in turn.

The effect of technology on net job creation

A persistent concern since the Industrial Revolution has been that technology will destroy jobs.⁹ This fear arises because the direct effect of new technology tends to be labour saving, i.e., reduces the hours of labour required to produce a given quantity of output. But to generalise from this observation that technology reduces total employment is overly simplistic.

On the one hand, new technology creates jobs where that technology is embodied in new products. Where the new technology alters the way existing products are produced, the impact is more complicated. Although the direct effect of new technology may be labour saving, its ultimate impact on employment depends on a number of offsetting influences, such as the extra demand generated by price falls in the product concerned, or demand for capital goods embodying the new technology.

While technology both creates jobs and destroys them, the net effect is usually to increase employment. The fear that technology will lead to a 'jobless society' certainly does not appear to be justified. By increasing productivity, technology increases income and therefore demand in the economy as a whole.

Of greater concern is the fact that some workers who lose their jobs due to changes in technology may not have the skills, or the means to acquire the skills, that will be demanded in the labour market of the future.

Technology and skill requirements

A growing literature has focussed on how technology affects workers with different levels of skill. The consensus emerging from recent research is that new technologies, on average, increase the demand for highly skilled labour and reduce the demand for low skilled labour. This so-called 'skill-bias' of technical change has been held responsible for a growing gap between the earnings of skilled and unskilled workers.¹⁰

⁷ Stephen D. Oliner and Daniel E. Sichel, "The Resurgence of Growth in the Late 1990s: Is Information Technology the Story?" *Journal of Economic Perspectives* vol. 14, number 4, 2000, pp.3-22.

⁸ International Monetary Fund, op. cit.

⁹ For a recent, and widely publicised, version of this view see Jeremy Rifkin *The End of Work: the Decline of the Global Labour Force and the Dawn of the Post-Market Era*, (New York: G.P. Putnam, 1995).

¹⁰ For recent reviews of the link between technological change and wage inequality see Daron Acemoglu, "Technical Change, Inequality and the Labour Market," *Journal of Economic Literature*, 40, March 2002, pp.7-72 and Katz, Lawrence and David Autor, "Changes in the Wage Structure and Earnings Inequality," *Handbook of Labour Economics* Vol. 3A, eds: Orley C. Ashenfelter and David Card (Amsterdam: Elsevier Science, 1999), pp.1463-1558.

Several hypotheses could account for the skill-bias of new technologies. The most straightforward is that equipment embodying the new technology requires more skill on the part of its operators. Information technology, for instance, has led to an increase in the demand for highly skilled technicians such as computer programmers. But this is not the only way in which technology might increase the demand for skills. Many users of information technology employ it for tasks (such as email or word-processing) that do not require sophisticated technical skills. In this case information technology, by reducing the cost of sharing information, may have increased the demand for those adept at using it, for example, individuals with good decision-making and communication skills. A third possibility is that during times of rapid technological change workers need to be more adaptable. As skilled workers tend to be more adaptable, demand for them increases when technological change speeds up.

Technological change will probably continue to be skill biased in the near future, as existing technologies continue to diffuse through the economy. In the long-term this may reverse, however, as firms adjust their technology and work practices according to the cost and availability of skilled labour. The shrinking of working age populations in industrial nations, for instance, could induce innovations in labour saving and user friendly technology and equipment. This would reduce the skill bias of new technologies, enabling firms to make more use of cheaper unskilled labour.

Work organisation

Major technological innovations are often associated with changes in the structure of firms and the organisation of work. Such reorganisation is necessary to realise the productivity benefits of new technology.

At the present IT is leading to considerable changes in the way work is organised and performed.¹¹ Historically, it was expensive to gather and distribute information. This encouraged the development of hierarchical organisational structures and centralised decision making because they economised on information. By making information sharing cheap and easy, IT allows for the decentralisation of decision making and flatter management structures, potentially enhancing flexibility and process innovation. Vertical controls are being replaced by horizontal coordination through teamwork.

New technologies including IT and programmable machine tools are much more flexible than the single-task machines of early to mid-twentieth century industrial production. Their optimal use may require a more flexible workforce. As well as requiring more skilled workers, this may also lead to greater flexibility in job design and the assignment of tasks.

There may be a long lag between the introduction of new technology and the widespread adoption of complementary organisational innovations. Learning how to make optimal use of technology can involve considerable time and expense. Consequently, the reorganisation of work associated with recent technological developments will probably be a long-term process.

¹¹ Erik Brynjolfsson and Lorin M. Hitt, "Beyond Computation: Information Technology, Organizational Transformation and Business Performance," *Journal of Economic Perspectives*, Vol. 14, no.4, 2000, pp.23-40

New Zealand research

Case study research affords some insights into the effects of technology and innovation on the nature of work in New Zealand. This work illustrates the flexibility with which technology can be employed or utilised in workplaces.

Most of the works listed here are studies of the supply of scientific and technical human resources in New Zealand.

- Diewert, Erwin and Denis Lawrence, “Measuring New Zealand’s Productivity,” *Treasury Working Paper 99/5*, New Zealand Treasury, 1999.
- Engelbrecht, Hans-Jürgen, “Changes in the Information Work Force of a Strongly Reforming Economy: The Case of New Zealand 1976 – 1996” Discussion Paper 00.07, Department of Applied and International Economics, Massey University, 2000.
- Foundation for Research, Science and Technology, *Technological Learning and Knowledge Application Review*, (Wellington: FORST, 1998).
- Foundation for Research, Science and Technology, *A Profile of the Human Capital Resource in New Zealand* (Wellington: FORST, 1998).
- Ministry of Research, Science and Technology, *The New Zealand Knowledge Base*, (Wellington: MORST, 1997).
- Ministry of Research, Science and Technology (1998) *Human Resources in Science and Technology in New Zealand* (Wellington: MORST, 1998).
- Perry, M., C. Davidson, and R. Hill, *Reform at Work: Workplace Change and the New Industrial Order*, (Auckland: Longman Paul, 1995).
- Walker, P. and F. Edwards, *A Review of Available Information on the Supply of Scientific and Technical Human Resources in New Zealand* (Wellington: Ministry of Research, Science and Technology, 1997)
http://www.morst.govt.nz/publications/report59_s&t_hr/index.htm.
- Walker, P. and J. Liu, *A Profile of New Zealand’s High Technology Competitiveness in Manufacturing Production and Trade*, (Wellington: Ministry of Research, Science and Technology, 1998).
- Whatman, R. “Case Study Research in the Accommodation, Winemaking and Brewing Industries” Department of Labour Occasional Paper 1999/4, 1999.

Globalisation

The world is becoming more interconnected as a result of the falling costs of transportation and communication, as well as capital market and trade liberalisation. Though there has been much discussion of globalisation lately, there is no agreed-upon definition. In economic terms, globalisation refers to the increase in economic transactions taking place across national boundaries. These transactions include flows of goods and services, capital, labour and technology. Yet, there are also social, cultural and political dimensions to globalisation.

To discuss all the implications of globalisation is beyond the scope of this paper. However, it is worth drawing attention to two views on how globalisation will affect the spatial distribution of economic activity that are particularly pertinent to a small peripheral economy. According to one, globalisation is bringing about the ‘death of distance.’¹² As new technologies drive down the costs of transport and communication, the location of work will become less relevant. Rather than relocating in order to find work, firms and individuals will be able to work wherever they choose to live. To the extent that New Zealand is seen to offer a good lifestyle this would be a favourable scenario.

Alternatively, globalisation may accentuate the effects of distance. On this view, close proximity to large urban areas or localised industry ‘clusters’ allows firms and individuals to take advantage of shared ideas, social networks, and specialised inputs.¹³ As capital and labour become more mobile internationally they will congregate in order to reap the higher returns afforded by these externalities. Under this scenario New Zealand’s small size and low population density may make it more difficult to compete internationally and retain skilled people.

Effects of trade on low-skilled workers

The New Zealand economy is increasingly exposed to international competition. Lowering of trade barriers has increased the access of New Zealand producers to overseas markets, but has also increased competition from foreign goods. While international trade produces net benefits for the participating countries, it, like changes in technology, may disadvantage some groups of workers. For example, trade with countries that have a comparative advantage in low-skilled labour-intensive production may adversely affect low-skilled workers in New Zealand by driving down their wages.

The effect of trade on wages has attracted a great deal of attention in the international literature. Studies that have assessed the effect of trade on the demand for unskilled workers have found a relatively modest downward pressure on wages and employment. This can be explained by the fact that most trade occurs between developed countries with similar proportions of skilled and unskilled labour. However, it is difficult to empirically distinguish the effects of increased international trade from other forces, such as technological change, migration and changes in labour market institutions. Trade might, for instance, accelerate technology adoption in import-competing industries in developed countries.¹⁴

Some Treasury working papers have assessed the degree of economic integration between New Zealand and the rest of the world. Deardorff and Lattimore (1999a, 1999b) and Lang (1998) have examined the effect of international trade on incomes. Other New Zealand focussed research is listed below.

- Blumenfeld, S., A. Crawford and P. Walsh, “Trade and the Wage Structure: the Case of Manufacturing” in *Labour, Employment and Work in New Zealand, Proceedings of the Ninth Conference, 23rd & 24th November 2000*.

¹² Frances Cairncross, *The Death of Distance: How the Communications Revolution Will Change Our Lives*, (Cambridge: MA Harvard Business School Press, 1997).

¹³ Sarah Box, “Economic Geography – Key Concepts” *Treasury Working Paper 00/12*, New Zealand Treasury, 2000.

¹⁴ Acemoglu, Daron “Technical Change, Inequality and the Labour Market,” *Journal of Economic Literature*, 40, March 2002, 7-72

- Claridge, Megan, and Box, Sarah, “Economic Integration, Sovereignty and Identity – New Zealand in the Global Economy”, *Treasury Working Paper 00/22*, New Zealand Treasury, 2000.
- Coleman, Andrew, “Economic Integration and Monetary Union”, *Treasury Working Paper 99/6*, New Zealand Treasury, 1999.
- Coleman, Andrew and Daghish, Toby, “Regional Price Convergence in Australia and New Zealand 1984-1996”, *Treasury Working Paper 98/3*, New Zealand Treasury, 1998.
- Deardorff, A. and R. Lattimore, ‘Trade and factor-market effects of New Zealand’s reforms’, *New Zealand Economic Papers*, 33(1), 1999, pp.71-91.
- Deardorff, A. and R. Lattimore, ‘Trade and factor-market effects of New Zealand’s reforms - Revisited’, *New Zealand Economic Papers*, 33(2), 1999, pp.81-86.
- Lang, K., ‘The effect of trade liberalization on wages and employment: The case of New Zealand’, *Journal of Labour Economics*, 16 (4), 1998, pp.792-814.
- Plater, Vicki & Megan Claridge, “Facts about Economic Integration: How Integrated is New Zealand with the Rest of the World?” *Treasury Working Paper 00/21*, New Zealand Treasury, 2000.
- Papers presented at “Off the Map In the Global Economy?: Implications of economic geography for small and medium-sized economies at the peripheral locations”, Symposium hosted by Victoria University, 20-21 November 2001.

The changing workplace

What we think of as a typical job – working for a single employer, for a wage or salary and with an expectation of long-term employment – became the predominant means of organising work in the nineteenth century. The development of the modern job reflected the shift in the economy from agricultural to an industrial base and the growth of organisations as a way of coordinating large scale operations. This created a need for people to work full time on the employer’s premises. The idea of working for 40 hours a week over a 40-year career only emerged in the twentieth century.

The proportion of the workforce covered by this set of arrangements probably peaked in the first three decades after WWII. And while conventional job-holding remains the norm, alternative working arrangements have been growing. For instance fewer people work in jobs that conform to the ‘standard’ model of permanent, full-time work. It has also been suggested that long-term relationships between employees and employers, based on reciprocal loyalty, have declined.

The sections that follow review:

- the nature and growth of non-standard employment
- changes in employment relationships
- new forms of work organisation.

Non-standard employment

Non-standard employment has been gradually increasing in New Zealand and, consistent with overseas trends, is becoming a significant feature of the employment landscape. ‘Non-standard employment’ is a catchall term for all forms of employment that deviate in some respect from the ‘standard’ model of permanent, full-time and waged or salaried employment. As such it may be:

- part-time
- self employment
- casual
- irregular hours or on-call work
- seasonal, temporary or fixed term contracts
- undertaken as ‘homework’
- undertaken in the ‘black’ economy
- any combination of the above

The growth of these forms of employment has often been seen as a cause for concern. Non-standard jobs are widely perceived to be of low quality – offering low pay, little security, and few opportunities for training and career development. However, this generalisation does not hold for all non-standard work. The expression covers a wide range of employment relationships affecting employees with varying characteristics. Many non-standard workers enjoy good incomes, job stability, adequate protections from health and safety risks and opportunities for training and development.

There are some non-standard workers who do not experience such benefits. These workers may be in ‘precarious’ jobs. Precarious jobs pay relatively low wages, provide little job security, are associated with greater exposure to health and safety risks, offer little or no control over workplace conditions or hours of work and provide limited opportunity for training and skill development¹⁵.

One way of assessing the likelihood that a certain form of non-standard employment is precarious is to consider the employees’ motivations for entering into it. In many cases employees prefer non-standard arrangements to full-time, permanent jobs. Even jobs with low pay and uncertain duration may provide a useful source of supplementary income. Of more concern are those non-standard jobs employees take due to the unavailability of standard jobs. Those in the former category are more likely to be self-employed, part-time or independent contractors; those in the latter tend to be casual, temporary or fixed-term workers.

We know from official data sets that part-time and self-employment in New Zealand have been increasing for the past 15 years, but we do not have recent figures on casual, fixed-term or temporary employment.

Part-time work is the most prevalent form of non-standard work, and it would appear that supply-side factors dominate. Carroll’s (1999) analysis of Household Labour Force Survey statistics showed most people who work part-time chose this over full-time work.

¹⁵ Precariousness is caused by a combination of factors, rather than any one aspect of a job. Therefore, there are many dimensions to precariousness and different degrees of it.

The self-employed can be split into two categories – those that choose to be self-employed and those that are pushed into self-employment. Bururu (1998) found that, in New Zealand, most self-employed people are so by choice – the ‘pull’ factors have attracted them (such as independence and the possibility of increased financial reward).

Overseas literature suggests that, in general, the more contingent and less desirable the form of non-standard employment (in terms of pay and conditions) the more dominant are demand-side factors. It is clear from the literature that the non-standard work arrangements most likely to be precarious are casual work, temporary work, fixed-term work.

Brosnan and Walsh (1996) undertook the most detailed New Zealand study into these types of employment. Their survey of employers found that, while the large majority of those employed were in permanent jobs, a significant proportion were in casual, fixed-term or temporary employment (11%).¹⁶

There is little data available on the number of persons engaged in non-standard work in New Zealand. Statistics New Zealand does not collect data on most types of non-standard employment through the Household Labour Force Survey, Quarterly Employment Survey or Census. Official data sets give us some insight into only two categories of ‘non-standard work’ – part-time and self-employment.

Given the importance of the topic, the Department of Labour is planning to undertake research in this area, including in-depth employee case studies in organisations where workers may be engaged in precarious non-standard work arrangements.

Existing research on non-standard work in New Zealand is listed below.

- Brosnan, P. and Walsh P., “Plus ca change . . . : The Employment Contracts Act and Non-standard Employment in New Zealand, 1991-1995” *Labour, Employment and Work in New Zealand, Proceedings of the Seventh Conference on 26th & 27th November 1996*.
- Bururu, Richard “Self-employment in New Zealand” in Philip S. Morrison (ed.) *Labour, Employment and Work in New Zealand: Proceedings of the Eighth Conference, 26th & 27th November 1998* (Institute of Geography, Victoria University of Wellington, 1998).
- Carroll, Nick, “Non-Standard Employment: A Note on Levels, Trends and Some Implications”, *Labour Market Bulletin*, 1999, pp. 101-121.
- Whatman, R, M Burrell and J Byrne, “Non-standard work – A summary”, Department of Labour, unpublished paper, 1994.
- Whatman, R. “Non-standard work in New Zealand” in P S Morrison (ed) *Labour, Employment and work in New Zealand, proceedings of the 6th Conference, November 1994* (Wellington: Victoria University 1995).

¹⁶ They defined casual workers as employees hired on a periodic basis as need arises. Temporary workers are employees taken on for a relatively short but unspecified period. Fixed-term workers are employees on a contract with a specified expiry date or employed to complete a specific project.

Changing employment relationships

It is often said that employment relationships have changed in fundamental ways over the last 20 years. Many commentators have lamented the decline of job security and long-term, predictable careers.¹⁷ Declarations that “The old employment system of secure, lifetime jobs with predictable advancement and stable pay is dead”¹⁸ or that “The career, as an institution, is in unavoidable decline”¹⁹ apparently express a widespread concern. Surveys show that employees’ perceptions of job security have declined in many OECD countries.²⁰

However, pinning down how and to what extent employment relationships have changed is not an easy task. Those who argue that dramatic change in employment relationships has occurred usually begin from a set of assumptions about the kinds of relationships that existed in the first three decades after WWII. These are said to have involved long-term commitments between employers and employees, underpinned by a “psychological contract” in which the employer provided security and predictability in exchange for loyalty and reasonable performance. Such arrangements provided employees with job security, insulating them to some extent from changes in product market conditions, and offered the prospect of rising responsibility and income.

In the 1980s and 1990s the conditions that supported employment relationships of this type were challenged. Increasing competition, the argument goes, has forced the restructuring of workplaces and undermined the ability of employers to offer job security, while rapid technological change and shorter product cycles have reduced the value of long-tenure employees to firms. This is reflected not only in reduced job security for some groups of employees, but also in the growing use of human resource management practices such as performance-based pay, the use of non-standard workers, and outsourcing.

However, empirical evidence provides little support for this view. Studies in the United States and Britain indicate only modest declines in job tenure (the length of time employees have spent with one employer). Labour force statistics for the United Kingdom, for instance, show that the percentage of employees who have been with their current employer for 10 years or more hardly changed between the mid-1980s and the present.²¹ Disaggregated tenure data reveal some interesting variations for different segments of the workforce. Female tenure has been rising, off-setting falls in tenure for some males. Also, as the average age of the workforce increases average tenure tends to rise also (since older workers have more time to accumulate tenure and are less inclined to change jobs). However, there do appear to have been falls in tenure for older male employees with particular age bands. In the case of the US, tenure has also declined for long tenure workers.²² Even so, the magnitude of the falls in

¹⁷ See, e.g., Richard Sennett, *The Corrosion of Character: The Personal Consequences of Work in the New Capitalism* (New York: W.W. Norton and Company, 1998); Peter Cappelli, *The New Deal at Work: Managing the Market-Driven Workforce* (Boston: Harvard Business School Press, 1999). For a summary and assessment of these views see Edmund Heery and John Salmon, eds., *The Insecure Workforce* (London: Routledge, 2000).

¹⁸ Cappelli, *The New Deal at Work*, p.17.

¹⁹ Fernando Flores and John Gray, *Entrepreneurship and the Wired Life: Work in the Wake of Careers* (London: Demos, 2000), p.9.

²⁰ OECD *Employment Outlook*, July 1997 (Paris: OECD, 1997), Chapter 4, “Is job insecurity on the increase in OECD countries?” pp.93-128; Stefanie R. Schmidt, “Long-Run Trends in Workers’ Beliefs about Their Own Job Security: Evidence from the General Social Survey” *Journal of Labor Economics* 17, 1999, vol.4, pp.127-41

²¹ Trades Union Congress, *The Future of Work, 2000* (http://www.tuc.org.uk/em_research/tuc-2397-f0.cfm)

²² For an overview of some recent evidence see, David Neumark, “Changes in Job Stability and Job Security: A Collective Effort to Untangle, Reconcile, and Interpret the Evidence” NBER working paper no.7472. NBER, 2000.

tenure for some groups of workers are quite modest, and do not appear to justify blanket claims about the demise of long-term employment relationships.

There remains debate about how far reaching changes in employment relationships have been and whether they are likely to persist.²³ The evidence for changes is mixed. Employment practices have presumably been affected by a more competitive economic environment, but it is perhaps too early to tell at this stage whether old systems of employee management are being discarded or merely adapted to new circumstances.

Relevant New Zealand research is listed below.

- Allen, C., P. Brosnan and P. Walsh, “Human resource strategies, workplace reform and industrial restructuring in Australia and New Zealand” *International Journal of Human Resource Management* 10:5, October 1999, 828-841.
- Auckland University and the New Zealand Institute of Management, ‘Human Resource Management Practices and Strategies’, Cranfield Project, (1999).
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Work organisation and performance

The potential of alternative systems of work organisation to enhance the productivity of workers and improve the quality of working life has long been a concern of management theorists and social researchers. Recent interest in this subject has centred on systems involving teamwork and the delegation of responsibility, often referred to in the literature as “high-performance” work practices.²⁴

The literature contrasts these practices with the kind of work organisation that prevailed under “traditional” mass production, which involved hierarchical organisation, the separation of planning from the execution of tasks, and well-defined jobs, often requiring little skill or discretion. This system proved very efficient at producing long runs of standardised products allowing mass producers to exploit economies of scale and offered significant cost advantages over craft production.

The 1950s and 1960s are widely considered to be the “golden age” of mass production in which mass production and mass consumption fed each other in a virtuous cycle. Since the 1970s, the argument continues, market conditions have been less conducive to this competitive strategy. Increased competition from overseas producers, the emergence of new production technologies and shifting consumer tastes have meant that firms need to be more flexible, competing on quality, customisation and innovation, rather than cost. These

²³ A useful overview see Sanford M. Jacoby, “Are Career Jobs Headed for Extinction?”, *California Management Review*, Vol. 42, no.1, 1999, pp.123-145, and Peter Cappelli, “Career Jobs are Dead”, *California Management Review*, Vol. 42, no.1, 1999, pp.146-167.

²⁴For an overview see E. Appelbaum and R. Batt, *The New American Workplace: Transforming Work Systems in the United States* (Ithaca, NY: ILR Press. 1994).

circumstances put mass producers at a disadvantage due to the rigidity of their production processes.

High-performance work systems overcome this rigidity by reintegrating thinking and doing in all stages of production and drawing more heavily on the skills, knowledge and problem-solving capabilities of the workforce. Although the literature identifies a wide range of practices, some of the more frequently cited ones include:

- the assignment of work to teams rather than individuals;
- the minimisation of hierarchy;
- looser job descriptions and the multi-skilling of employees;
- productivity-based pay systems; and
- employee involvement in decisions about the organisation of work.

In high performance work systems staff at all levels look for ways of improving products and processes. This enables them to utilise the knowledge and experience of all employees in the organisation. At the same time, it entails a substantial delegation of responsibilities to frontline employees, and therefore a workforce with higher levels of skill and discretion.

A key feature of high-performance work systems is a heavy reliance on self-managing teams. This is a clear move away from the vertical division of labour, reducing the need for supervisory and middle-management positions. Flatter management structures have the advantage of being less resistant to change, and they potentially allow for improved communication flows.

As the responsibility for coordinating tasks and meeting production schedules devolves onto lower level employees, frontline staff are required to exercise what were formerly managerial capabilities. In particular, there is a need for greater communication and decision-making skills and individuals who can deal with cognitive complexity and learn new skills. The use of high-performance work systems therefore entails additional costs for employers associated with recruiting workers with these attributes and investments in training.

Relevant New Zealand research is listed below.

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The changing workforce

New Zealand's population has changed considerably over the last 50 years, and will continue to do so. But the demographic trends of the next 50 years will be quite different from those we have witnessed in the past. The ageing of the populations of developed countries is historically unprecedented. Society will have to adjust to a new set of challenges.

To begin with, population growth is expected to slow. Population projections prepared by Statistics New Zealand suggest that New Zealand's population will stabilise at just under 4.5 million in the 2030s, and will even decline marginally in the 2040s²⁵. This represents a 20.4% increase in population in the fifty years from 1996 to 2046, with an average annual growth rate of 0.4%. In contrast, in the fifty years from 1945 to 1996 the New Zealand population more than doubled, increasing at an average rate of 1.6% per year.

Despite this relative stability in the level of the population, there will be important compositional changes. The average age of the population will increase, and the number of people in younger age groups will eventually decline. New Zealand will also become more ethnically diverse over coming decades. Finally, migration will have an ongoing impact on the size of the population, its ethnic mix, and other characteristics.

How these developments will affect the workforce and its capability will be treated in the sections that follow.

The ageing of the population

New Zealand's population, like those of other developed countries, is ageing. The main factor in this is the ageing of the large cohorts born between 1945 and 1973. Life expectancy increased rapidly during the first two thirds of the twentieth century, while fertility fell steeply after the post-war baby boom. As a result, smaller cohorts are succeeding the baby boomers. Around 2010 the baby boomers will begin to reach 65 and retire in large numbers.

The growth rate of New Zealand's main working age population is projected to decline, and become negative after about 2020.²⁶ This can be expected to lead to a reduction in the size of the labour force. The timing and magnitude of this reduction depends on participation rates. As life spans increase, people may choose to continue working into old age. On the other hand, there may be decreased participation by those caring for elderly relatives.

²⁵ These population projections assume net inward migration of 5,000 per year (the annual average for the last century) and assume medium fertility (1.9 births per woman) and mortality rates (life expectancy at birth for males increases from 75.2 years to 82.0 years, and from 80.4 years to 86.5 years for females over the fifty year projection period). See Khawaja M. "Population Ageing in New Zealand." *Population Ageing in New Zealand*, Wellington, Statistics New Zealand. 26 July 2000.

²⁶ Statistics New Zealand, Population Projections. The official definition of the working age population includes everyone aged 15 and over. Here we take the main working age population as all people from the ages of 15 to 65, as this gives a more accurate picture of the potential labour supply.

In any case, New Zealand will rely largely on people who are already in the working age population to meet labour and skill demands. It will therefore be important to maintain the willingness and ability of these people to participate.

One of the main concerns about population ageing is that the increasing number of retired people will potentially reduce growth in GDP per capita and living standards. In 1970 there were seven people of working age in New Zealand for every one aged 65 and older. In thirty years there will be fewer than three. Once we take into account the smaller number of children the rise in dependency is more modest. The ratio of people aged below 15 and over 64 to the working age population will increase from about 0.53 today to 0.71 by 2021. The potential adverse impacts of the rising dependency ratio may be mitigated by higher rates of labour force participation, better levels of health and activity in old age, and faster productivity growth.

Fewer young workers

In most OECD nations, the flow of new entrants to the labour market will be considerably less than the flow of retirees out of the labour market. This poses quite a few challenges to these economies, particularly with regard to younger workers. Fewer young people entering the labour market means that young workers will be at a premium and the cost to both society and the economy of wasting their potential rises.

The decline in the flow of the labour market entrants could affect the choice of educational attainment because:

- a smaller cohort faces less immediate competition for jobs, which tends to discourage them from acquiring enhanced qualifications but
- the increased earning potential for qualified workers from a smaller cohort will provide a countervailing force.²⁷ A greater concentration of skills within a highly educated minority suggests a potential for considerable wage dispersion.

For New Zealand, the impact of fewer new labour market entrants is still about ten years off. However, while the issues discussed in the preceding paragraphs may not impact on New Zealand as much as other industrial countries in the upcoming decade, they are still likely to become relevant in following decades.

Implications of an older workforce

Older workers will make up a growing proportion of the labour force. Between now and 2011, the number of older workers (those aged 45-64 years) will rise from about 640,000 to almost 830,000. New Zealand will have to rely more on mid- and late-career workers to meet skill demands. Employers may have to create new employment patterns to retain older workers.

There are both pluses and minuses to an older workforce. Older workers are likely to have higher levels of experience and hence be more productive and generally higher paid. This implies that growth in productivity per worker is likely to be boosted by the higher age mix of

27. Richard Disney, *Can we afford to grow older?* (Cambridge, Mass., MIT Press, 1996), chapter 6.

the workforce. Higher productivity generally equates to higher wages and incomes, which in turn implies a greater capacity for society to support its dependants.

However, this positive factor could become a negative as more of these older workers choose to retire, or are forced to retire due to incapacity or discrimination. Improvements in general health mean that older workers are, in general, more physically capable to work at advanced ages than previously. Thus, current and future generations of older workers are (and will be) physically better placed to be economically active for longer periods of their lives than previous generations. For older workers themselves, while there will be few physical or mental limitations to working longer, keeping their skills up-to-date will be essential.

Evidence on the substitution patterns for workers of different ages is reasonably limited, but indicates that workers of different ages are quite good substitutes in production. To the extent that this finding is reliable, it suggests that modest declines in the relative earnings of older workers would be sufficient to secure employment for them in the future. However, this sidesteps the difficult issue of whether an older workforce will be less adaptable.

Many older job-seekers currently face difficulties in finding work. Some report discrimination by employers, although we do not know how widespread this problem is. Certainly, in recent times older workers have a greater risk of experiencing long-term unemployment. Making maximum use of the workforce will require breaking down the negative stereotypes that surround age.

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The ethnic structure of the population

The ethnic composition of the population is also changing. The Maori and Pacific populations have higher fertility rates and a younger average age profile than Pakeha/European New Zealanders. In addition, both populations have a higher proportion of women in the main reproductive ages. As a result Maori and Pacific people will increase their shares of the working age population and the labour force. The Maori share of the working age population is projected to rise from about 15% at present to almost 20% by 2031. The share of Pacific people, though smaller, is projected to double from about 5% to just over 10% during the same period. Because of the youthful age profiles of the Maori and Pacific populations this growth will be more pronounced among new labour force entrants. By 2031 almost a quarter of New Zealanders aged 15-24 will be Maori. Migration is also changing the ethnic makeup of the population. Over the past 15 years Asia has become the main region of origin for permanent and long-term immigrants.

It should be noted that these ethnic categories do not represent homogenous groups. For example, at the time of the 2001 census 44% of the Maori ethnic group also recorded at least one other ethnicity. This was due to high rates of inter-ethnic marriage and the fact that ethnicity is self-reported, and thus reflects a range of factors in addition to ancestry.

The changing ethnic composition of the population is often seen as negatively impacting on capacity. Such views implicitly assume that existing disparities in economic performance will persist. Indeed the current relatively low level of participation of Maori at higher levels of educational achievement is likely to have ongoing adverse impacts on Maori ability to match capacity with opportunity. But participation rates, on average, for non-Europeans in higher levels of education are improving, and recent trends indicate that this upskilling is translating into an expansion of Maori employment in professional and skilled occupations.

It is also worth noting the differences within the Maori population. On average, Maori have worse labour market outcomes than non-Maori. However, the variation in income within the Māori and non-Maori ethnic groups is actually much greater than the variation between the Māori and non-Maori ethnic groups. Accordingly, knowing that someone is Maori does not provide a reliable guide as to whether a person is likely to be successful in the labour market.

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International migration

The number of people migrating to and from New Zealand on a permanent or long-term basis is higher than ever before. Migration flows have been increasing for several decades due to the growing ease of international travel and communication. People are now less likely to remain permanently in one destination.

Demographic developments are likely to accentuate this trend to increasing worker mobility. The OECD is projecting that over the next 25 years around 70 million people will retire in OECD countries, with just five million workers coming into the workforce – a reduction in the ‘working age’ population of 65 million. This contrasts with the past 25 years when 45 million new pensioners were replaced by 120 million baby boomers in the workforce.²⁸ One expected consequence of this projected reduction in the domestic supply of workers in OECD countries is that the search for workers will become more international. Migration policies around the world will become more open and more competitive. Indeed, there are already signs of a more relaxed approach to migration in Europe and, for more and more occupations, the effective labour market will become a global one.

The international movement of labour provides both opportunities and threats to New Zealand. Opportunities arise from the potential to gain skills and valuable links into the global economy. One can now contemplate undertaking projects here without having to compromise on the skills and ability of workers. New Zealanders have opportunities to gain experience working in other countries, and the lessons that they learn from this experience can also be spread to other New Zealanders should they return to New Zealand. On the other hand, if prospects in New Zealand are not seen to be very promising this might encourage skilled New Zealanders to permanently leave the country and it can make it more difficult to attract new migrants. In the long term, ensuring the quality of labour supply depends upon making New Zealand an attractive place to live and work for skilled immigrants and New Zealanders alike.

Through migration a continuous exchange of workers is taking place. The implications of this exchange for New Zealand’s labour force depend on the relative capacities of those arriving and departing, and the speed of integration of new migrants. An examination of net migration flows by occupational category suggests that fears of a ‘brain drain’ may be exaggerated. However, immigrants are not always ready replacements for departing New Zealanders for a number of reasons. Employment rates for recent (ie up to 10 years) migrants remain well below those of New Zealanders.

²⁸OECD Policy Brief No.5-1998, “Maintaining Prosperity in an Ageing Society”.

Because more New Zealanders depart the country on a permanent long-term basis than return each year, the migrants who replace them are an important resource. However, ensuring good labour market outcomes for those migrants remains a challenge.

There is quite a large literature on migration to and from New Zealand. The most comprehensive study of the labour market outcomes of immigrants is Winkelmann and Winkelmann's (1998) analysis of census data.

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Income inequality

A substantial body of research has accumulated in recent years detailing the rise in earnings inequality in New Zealand. The dispersion of earnings grew quickly during the 1980s, and has continued to rise at a slower pace during the 1990s. New Zealand is not alone in this. Similar trends have been observed in other English-speaking countries, and, to a lesser extent, in continental Europe.²⁹

The distribution of earnings is of interest for a number of reasons. Inequality in earnings is a major source of inequality in incomes and thus may have important welfare implications. However, considerable care is needed in interpreting the welfare implications of changes in the distribution of earnings. The data we have provide ‘snap-shots’ of the income distribution at different points in time. They do not track individuals’ incomes across time. People in the top or bottom quartile of the income distribution will not necessarily be there at a later point in time.

We can think of cases in which a rise in cross-sectional income inequality would not correspond to a decrease in welfare. For instance, a rise in the number of tertiary students supporting themselves through their courses of study by taking part-time or low wage jobs would increase the proportion of the workforce on low incomes at that time. However, as these students could be expected to have higher lifetime earnings, there may even be a long-term welfare gain.

Another reason for studying the distribution of earnings is to gain insights into other developments in work and the labour market. The wages of workers reflect a wide variety of supply and demand side influences. These include skill levels, the demographic composition of the workforce, technology, work organisation and trade. Changes in the distribution of

²⁹ Overseas literature on trends in earnings inequality is reviewed in OECD, *OECD Employment Outlook*, July 1993 “Earnings inequality: changes in the 1980s”, pp.157-184, and Peter Gottschalk and Timothy Smeeding, “Cross-national comparisons of earnings and income inequality”, *Journal of Economic Literature*, 35(2), 1997, pp.633-687.

earnings therefore provide a way of gauging the impact of various economic trends and which groups of workers are most affected.

Economic researchers distinguish between two forms of wage inequality. The first occurs between groups of workers with different characteristics, such as age, sex, education, and occupation. The second occurs within groups defined by these characteristics. Evidence from New Zealand and overseas indicates that both ‘between-group’ and ‘within-group’ wage inequality have increased since the 1970s.

The rise in between-group wage inequality has been linked with an increase in the relative demand for more skilled workers. Wage differentials associated with education and workforce experience have expanded. It is notable that this occurred at a time when average levels of education in the workforce have increased considerably, as we would expect the greater supply of skills to reduce their price. This suggests that the skill requirements of jobs have out-paced the rising skill levels of the workforce.

The two most frequently cited explanations for the rising demand for skills are international trade and technological change. With respect to trade, the argument is that imports from countries with more abundant, and hence cheaper, low skilled labour reduce the demand for low skilled labour in this country. Certainly the trade exposure of New Zealand has been growing. However, most of our trade is with other OECD countries, which have workforces of similar skill composition, and thus would not be expected to put downward pressure on low-skilled wages here.

Perhaps the most widely accepted explanation for growing wage differentials is technological change. Economists believe that technological change in recent times has been ‘skill-biased’, that is, that new technologies are substitutes for low skilled labour or complements to high skilled labour. In the case of unskilled workers, routine, simple tasks can be automated. Technology may increase the demand for skills in a number of ways. Most directly, new technologies, such as information technology may be complicated to use and therefore require skilled operators. Technology may also increase the demand for skilled labour indirectly by bringing about changes in the structure of firms and the organisation of work. Information and communications technologies permit more frequent and complex interactions within firms and between firms and their customers and suppliers, requiring better communication skills and the ability to assimilate information from a range of sources.³⁰

Alternatively, earnings inequality may reflect not the specific nature of technology in the workplace but the rate of technological change. During periods of rapid technological change workers who are more adaptable, ie, are able to acquire new skills more easily, can command higher salaries. Conversely, the premium falls as technology plateaux.³¹

Will income inequality continue to increase? Changes in relative earnings trigger demand and supply side responses. For instance, actual or prospective workers will spend longer in education and training to reap higher wages associated with increasing demand for certain skills. Likewise, employers will adopt different technologies or work practices to take

³⁰ Timothy Bresnahan, Erik Brynjolfsson, and Lorin Hitt, “Information Technology, Workplace Organization and the Demand for Skilled Labour: Firm-Level Evidence,” *Quarterly Journal of Economics*, 118, February 2002, pp.339-376.

³¹ Oded Galor and Omer Moav “Ability-Biased Technological Transition, Wage Inequality, And Economic Growth” *Quarterly Journal of Economics*, vol. 115, issue 2, 2000, pp.469-497

advantage of an abundance of low skilled labour. While such considerations suggest that wage inequality will narrow somewhat, these adjustments may take some time.

Research in New Zealand so far has not disentangled the relative contributions of these factors to the growth of earnings inequality. The majority of the growth in earnings inequality among wage and salary earners may not be captured by labour market variables currently collected.³² Differentials in the returns to unobserved skills may be increasing, or earnings may have become more volatile.

The widening of New Zealand's income distribution over the last 15 years has attracted the attention of many researchers. O'Dea (2000) summarises the New Zealand literature.

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³² S. Dixon, "Growth in the dispersion of earnings", *Labour Market Bulletin*, 1998 nos.1/2, 71-107. Barry Martin, "Change in the Distribution of Income of the Working-age Population, 1976-1996", *Labour Market Bulletin*, 2000-2002, pp.132-156.

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Work/life balance

The ability to balance paid-work, unpaid work and leisure is a major factor in people's quality of life. Most people have a number of responsibilities outside paid work, including to children, parents and communities, as well as personal interests. When these obligations conflict, we feel stressed and our overall performance in at least one of these roles is likely to suffer. But, conflict between paid work and other responsibilities is not only a matter of time pressure. The demands of work or caring can spill over into other domains through their emotional or physical impacts.

The issue of work-life balance has risen in prominence for a number of reasons. Increased female participation in paid work has given rise to more dual earner families, and more sole parents in the workforce. As the population ages more of the workforce is likely to be involved in caring for elderly relations. The changing demands of work may also have increased the potential for work-life conflict. More people report working more than 50 hours a week now than 15 years ago. More work may also be taking place outside the normal business hours of 8am to 6pm.

Work-life conflict is potentially an issue for everyone in the workplace, but affects some groups more acutely. It tends to be more of a problem for women than men due to caring responsibilities. Discussion of work-life balance often revolves around ‘work and family’ or ‘family-friendly workplaces’, which serve to emphasise the priority that care-giving usually has on people’s time.

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Skills, education and training

Skill refers to a competency or proficiency in performing a task. Skills can be attained in a variety of contexts including through education, work or life experience, and depend upon

personal attributes. Skills are often measured in terms of years of schooling or formal qualifications. However, this may be a weak proxy for skills, as people can gain skills through other activities such as on-the-job experience. Skills are both attributes of jobs and individuals. Consequently, changes in skill demands may be related to either changes in the *skill content* of jobs, the *amount of skills* a worker has, or an interaction between the two.

For the purposes of considering the skills needed for work, we often distinguish between generic and occupation-specific skills.³³ *Generic skills* refer to a wide range of general skills that can be transferred between occupations, including problem solving, communication skills, literacy and numeracy. *Occupation-specific skills* are those skills unique to a particular occupation, for example computer-programming skills, technical drafting skills, knowledge of legal terminology or counselling skills.

Research overseas suggests that the importance of generic skills is increasing relative to vocational skills in occupations.³⁴ This is due to the nature and pace of changes in the workplace such as the increasing role of technology and people changing careers more frequently.

Changing skill demands

On average, the skill requirements of jobs appear to be increasing. Recently in New Zealand, there have been fewer jobs, in percentage terms, in manufacturing and more in services. This decline in goods production employment has resulted from substantial increases in productivity due to technology and, partially, the loss of labour-intensive manufacturing industries to lower-wage countries. The increase in employment in the service sector has been influenced by increases in disposable incomes, as the proportion of their incomes people spend on services rises as incomes rise. This shift in sectoral employment has resulted in changes in the relative importance of skills, for example demand for manual skills is declining relative to communication skills. The fastest rates of industry employment growth in the last 10 years have been in knowledge-intensive services, which employ a large number of professionals, such as health, education, and property and business services.

Within industries also there appears to have been some upskilling of employment, with occupations like managers, professionals and associate professionals increasing their employment share in most sectors, while the proportion of labourers and operators has declined.

The wider use of information technology has made the channels of communication within organisations increasingly efficient. This efficiency has increased the autonomy and responsibility at the lower levels of occupations. Concurrently, organisational structures have flattened and the number of traditional, hierarchical roles within a workplace has decreased. Organisations have progressively moved towards team-based structures and decision-making has become more decentralised. This has increased the need for communication and other interpersonal skills. It may have also raised the need for workers to display judgement, leadership and initiative.

³³ National Skills Task Force, “Skills for all: Research report from the National Skills Task Force” (London: DfEE, 2000), pp.21-24.

³⁴ Murnane, R. J., Willett, J. B. and Levy, F., “The growing importance of cognitive skills in wage determination”, *Review of Economics and Statistics*, vol. 77, 1995, pp. 251–66.

The relationship between qualifications and earnings

Earnings provide some evidence of increased demand for skills. Maani (1999) demonstrated that there was a strengthening relationship between qualifications and earnings in New Zealand between 1981 and 1996. For example, in 1981 an employed male with a bachelor's degree was expected to have an after tax income 40% higher than an employed male without school qualifications. In 1996, this had increased to 64%. Similarly, in 1981 females with a degree earned an average 13.3% more than those without school qualifications, compared to 67.4% in 1996. Some caution needs to be exercised in interpreting a relationship between education and earnings causally, as other factors may contribute to the findings. For example, the magnitude of gains for women may reflect their rising participation in work between 1981 to 1996. However, the findings do suggest that there is a positive relationship between qualifications and higher earnings.

It is notable that this occurred at a time when the average educational qualifications of the workforce were growing substantially. About half the people in employment in 1981 had no school qualifications. By 1991 this had dropped to approximately one third. Despite this decline, these figures suggest that there continue to be a relatively high level of people leaving school without qualifications. Over the same period, the percentage with tertiary qualifications increased from 5.5–7.7% for males and 2.7–5.2% for females.

Census results from 2001 suggest that the proportion of the adult population with no qualifications has decreased significantly since 1996. Further, there has been a 50% increase in the number of National Certificates awarded through Industry Training programmes between 2000 and 2001.

Foundation skills

Foundation skills provide a basis on which to develop higher level generic, vocational and technical skills. While there is some debate about the actual skills required to continue to learn, those skills that are generally accepted to be foundation, basic or key skills include literacy, numeracy, technological literacy, self-confidence, resilience, the ability to work with others and communication skills. In recent years there has been an increasing emphasis on the importance of literacy. Literacy may be defined broadly as the ability to understand and employ printed and spoken information in daily activities, across domains such as prose, documents and quantitative data. For most people, literacy provides a good indicator of foundation skills.

In 1997, New Zealand participated in the International Adult Literacy Survey (IALS), which was the first internationally comparable estimate of literacy skills in the adult population. The IALS tested respondents from 12 OECD countries on prose comprehension; comprehension of graphs, timetables, and charts; and applying arithmetic operations to numbers embedded in written material. The results showed that a substantial proportion of the New Zealand workforce (about one in five workers) had pressing literacy needs. Almost half of all adults aged 16–65 were estimated to be at the lowest levels of ability. New Zealand compared favourably with other countries in terms of prose literacy but showed below average quantitative and document literacy scores for adults. New Zealand was not unique in this, with similar proportions of workers with low literacy scores in America, Britain and Australia.

In December 2001, the OECD released findings of an international study on the reading, mathematical and scientific literacy of 15 years olds in member countries. In terms of its mean scores, New Zealand was among the six best performing countries for reading, mathematical and scientific literacy. However, the spread of scores in New Zealand was disturbingly wide.

The above findings suggest that although New Zealand is showing high levels of literacy for some groups, there continue to be disparities for others. Associated research suggests that adults with low literacy and numeracy levels are more likely to be unemployed, earn low incomes and have children with poor educational achievement. This is an issue of concern, given that even those jobs that do not require advanced educational qualifications are more likely to need higher levels of literacy in the future.

Participation in training and education

Interest in the training of adult workers has grown in recent years. Training is seen as a way of improving individual employment outcomes and raising productivity. Technological and organisational change may also increase the importance of training.

Though some years out of date, the 1996 Education and Training survey (a one-time supplement to the September Household Labour Force Survey) provides information about participation in education and training among people in employment. Amongst its findings, it showed that, in the year to September 1996 almost half of wage or salary earners had participated in some form of education or employment-related training. About half of the episodes of education or training were supported by employers. More educated workers are more likely to receive training. Compared to other OECD countries, however, New Zealanders' participation in training and education was relatively evenly distributed across educational levels. People in low skilled occupations, part time workers and workers who have been with their employer for shorter periods of time were less likely to received employer provided or supported training.

Recent findings continue to suggest an increasing role for training occurring in the workplace. In December 2001, 66,000 students were engaged in workplace learning, involving nearly 22,000 employers (Ministry of Education). For those people who are attending educational institutions, there are increasing trends towards alternative providers. In 2001, the share of people going to university decreased to 38% of learners, down from 44% in 1999, whereas the proportion of learners going to private providers, wananga and polytechnics increased from 52–59% over the same period. For further information on trends in education and training, refer to the Ministry of Education website on <http://www.minedu.govt.nz/> and the Skill New Zealand website on <http://www.skillnz.govt.nz/>.

New Zealand literature

New Zealand surveys provide few direct measures of skill (as opposed to formal qualifications attained). The New Zealand component of the International Adult Literacy Survey is an exception. John Gibson has examined ethnic differences in employment-related training and their effects. Gobbi (1998) and O'Neill (1998) examine evidence from the Education and Training Survey. This provides an indication of the level of training activity taking place in New Zealand. There are several works addressing the returns to education.

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