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UNEMPLOYMENT AND THE AUSTRALIAN LABOUR MARKET



Economic Group
Reserve Bank of Australia
and
Centre for Economic Policy Research
Australian National University

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UNEMPLOYMENT AND THE AUSTRALIAN LABOUR MARKET

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Introduction

Guy Debelle

While in recent years the unemployment rate has fallen from its peak of over 11 per cent in the early 1990s, the current rate of unemployment – at just over 8 per cent, about the average for the past fifteen years – is still of concern for both economic and social reasons. From an economic perspective, unemployment represents the underutilisation of one of the economy's main resources, labour. Socially, unemployment is associated with an array of problems, not least a lower standard of living and lower self-esteem for the unemployed.

The higher rate of unemployment since the mid 1970s is not a problem unique to Australia. A large number of OECD countries have experienced a similar rise. There have, however, been some exceptions. Most notably, the unemployment rate in the United States has fluctuated around a relatively constant level for over three decades. Whereas in the 1960s and early 1970s the structure of the labour market in the United States was sometimes criticised for delivering higher unemployment rates than other OECD countries, today it is often held up as the example to which other countries should aspire. On the other hand, the relatively low unemployment rate in the United States has been associated, in the past two decades, with widening wage inequality.

The contrast between continental Europe and the United States is often seen as illustrating a trade-off between a lower unemployment rate and a more unequal earnings distribution. An important consideration in such a trade-off is the interaction of the labour market with the social security system. A wider distribution of labour income could be mitigated by an appropriately targeted tax and welfare system that sought to avoid high effective marginal rates of taxation that might act to discourage individuals from seeking or accepting employment opportunities.

The papers in this volume were commissioned by the Bank and the Centre for Economic Policy Research at the Australian National University to consider the issue of unemployment in Australia and to contribute to the debate about policies to reduce unemployment. The papers covered three main issues:

- The labour market experiences of other OECD countries have been diverse over the past three decades, as evidenced by the range of unemployment outcomes. These varied experiences can provide lessons for Australia about the impact on unemployment of different labour market institutions and the effectiveness of different policies. Cross-country comparisons can also shed light on the existence of the 'diabolical trade-off' between higher unemployment and greater wage inequality, and on measures that can be undertaken to circumvent such a trade-off.
- The microeconomic aspects of the Australian labour market are important in determining the appropriate policies to reduce unemployment. However, little is known at the microeconomic level about the way in which employment and wages adjust in response to developments both within and outside the labour market. Nevertheless, it is clear that the incidence of unemployment has been unevenly distributed across different sections of the Australian population.

- There is an array of possible solutions to unemployment. A common theme that runs through all the papers presented at the conference is that there is no easy policy prescription to reduce unemployment. Rather, any approach must encompass a range of different measures, and further, important synergies may emerge when a coherent strategy is adopted that simultaneously implements these measures.

International perspectives

Many commentators have highlighted the distinction between labour market developments in continental OECD Europe and the United States. The stylised description is that the United States has enjoyed a lower unemployment rate than continental Europe because of greater flexibility in its labour market, but that this has come at the cost of a wider dispersion of incomes.

The paper by Jackman reveals that such a stylised description conceals a variety of differences within continental Europe. The dispersion of unemployment rates between European countries is greater than that between Europe and the United States. Some of the countries with relatively heavily regulated labour markets, such as Austria, have had low unemployment rates for a number of years.

Furthermore, a simple static comparison between Europe and the United States may be misleading. An important feature of labour market institutions is their ability to cope with unexpected shocks. In the 1960s, the different structures of labour market institutions across countries may have been less important in the relatively benign economic climate. However, the more tumultuous economic environment of the 1970s may have exposed the previously hidden deficiencies in labour market structures in a number of countries.

It is difficult to isolate those features of the US and the various European labour markets that have led to such divergent outcomes. Moreover, it is dangerous to draw strong conclusions about the efficacy of a particular labour market policy without considering the interactions of that policy with the other labour market institutions in the country concerned. Thus, the adoption in Australia of a policy that has been effective in another country may not generate the same beneficial outcomes given the different institutional structure.

This lesson is further borne out in the comparison between the labour market experiences of Australia, New Zealand and the United Kingdom described in the paper by Wooden and Sloan. Significant differences in the speed and process of labour market reforms in the three countries have not, to date, generated dramatically different labour market outcomes. However, the labour market outcomes are also likely to have been affected by other factors, such as differences in the macroeconomic environment and the nature of the reform process in other areas of the economy, in particular the product market.

The United States is often held up as the benchmark for assessing the effectiveness of labour market institutions in other developed countries. The paper by Katz describes the multiple dimensions of the US labour market experience. From the standpoint of overall employment outcomes, the US labour market is outstanding. The employment to population ratio in the United States has risen steadily over the past twenty-five years, indicative of the fact that the US labour market has absorbed the concurrent large increase

in labour supply, particularly of females. The US labour market has provided good outcomes for females and young workers compared with a number of European countries where labour market interventions have served to primarily protect the employment of prime-aged males at the expense of other groups in the workforce. On the other hand, the employment to population ratio of prime-aged males has declined in the US.

The degree of, and trends in, income inequality in the United States appear less favourable in international comparisons. The US has historically had a relatively wide wage distribution and over the past two decades, wage inequality has been growing and real wages at the bottom end of the distribution have fallen. This outcome has been partially attributed to the impact of skill-biased technological change; that is, developments in technology over a number of years have tended to favour high-skilled or more-educated workers.

It is often argued that the interaction of skill-biased technological change with the more flexible wage-setting system in the US has resulted in increased wage dispersion, whereas in many European countries, skill-biased technological change has been reflected in rising unemployment rates of less-skilled workers. However, the empirical evidence suggests that such a characterisation is simplistic. Firstly, unemployment rates are higher in Europe than in the US across all skill categories. Secondly, much of the rise in inequality is 'within group' inequality; that is, wages have become more dispersed for workers with very similar characteristics including education and measurable skills. The lack of a satisfactory explanation for these trends in inequality in the US complicates the task of drawing lessons for Australia.

Unemployment in Australia

Since 1960, the ratio of the number of people employed to the working-age population in Australia has fluctuated around a relatively constant level, while the unemployment rate has risen from around 2 per cent in the 1960s to an average of around 8½ per cent over the past fifteen years, with most of the rise occurring in the second half of the 1970s. By definition, this implies that the growth in the demand for labour has not kept pace with the growth in the supply of labour, which is indicative of shortcomings in the operation of the Australian labour market.

The trends in the unemployment rate over the past thirty years highlight the key influence of economic growth and trends in labour costs on labour market outcomes. Increases in the unemployment rate occurred primarily in three relatively short episodes associated with the sharp contractions in economic activity in the mid 1970s, 1982–83 and 1990–91. Furthermore, the rises in the unemployment rate in these episodes tended to be considerably faster than the falls in the subsequent recoveries, highlighting the costs of variability in growth. The sharp rise in labour costs in 1974 and 1982 exacerbated the cyclical rises in unemployment experienced at those times (and indeed contributed to the contractions in economic activity themselves). Falling unemployment throughout the second half of the 1980s owed a lot to restraint in aggregate wage growth, as well as the sustained period of expansion in economic activity.

The effects of adverse movements in labour costs may also be quite persistent. While restraint in the growth of wages has seen real unit labour costs return to the levels of the 1960s, the unemployment rate still remains considerably higher. This is consistent with the idea that changes in labour costs can have long-lasting effects through their influence on investment decisions which, in turn, determine the stock of physical capital and therefore the productive potential of the economy.

Examining developments in the labour market from an aggregate perspective can conceal important developments at a more disaggregated level. The paper by Borland and Kennedy documents variations in the incidence of unemployment across different groups in the population. While the unemployment rate has risen for all sections of the population, the rise has not been uniform. The labour market experiences of males and females have differed significantly: the male employment to population ratio has declined by more than 15 percentage points over the past thirty years, whereas that of females has increased by a similar amount. This largely reflects the divergent performance of industries which predominantly employ males, such as manufacturing, compared with those which employ more females, such as service industries. It also reflects the large increase in part-time employment. Over the medium term, one might expect to see the divergent labour market trends of the two genders diminish as males increasingly seek part-time work and employment in industries that have historically employed more females.

The other notable divergence in labour market outcomes is that between skilled and unskilled workers. Unemployment rates are considerably higher for less-educated and less-skilled workers. Again, this is not particular to Australia, but is evident in most OECD countries, and may reflect the impact of skill-biased technological change. As discussed above, skill-biased technological change need not lead to higher unemployment rates for less-skilled or less-educated workers if the relative wage paid to those workers declines. In Australia, the tendency has been for quantity adjustment rather than price adjustment, as evidenced by the relatively higher unemployment rates of the less skilled. However, there has also been a quality adjustment in the Australian labour force. The increase in high-school retention rates and the increased participation in tertiary education both suggest that people are responding to the divergence in the unemployment rates induced by the skill-biased technological change, by seeking to improve their skill and education levels. If this is so, then in the medium term, the increased supply of skilled labour should reduce the difference in unemployment rates and decrease wage dispersion.

The substantial rise in the unemployment rate and the wide range of unemployment rates across different groups in the population both suggest that much of the adjustment in the labour market occurs, at least in the shorter term, through adjustment in quantities – that is, the number of people employed – rather than price – that is, the wage. The institutional structure of the labour market has a large influence on the extent to which prices or quantities adjust.

The institutional structure of the labour market and the social security system also have a large influence on income distribution. The unemployed receive relatively low incomes because their primary source of income is unemployment benefits. Thus, the unemployed are at the lower end of the individual income distribution. In principle, however, many unemployed people could live in households where there are other

sources of income which might offset their low personal income. Harding and Richardson present evidence in their paper that suggests this is generally not the case. Many unemployed people live in a household where there is no other breadwinner. Consequently, households with an unemployed member are disproportionately concentrated at the lower end of the household income distribution. In contrast, households with individuals who are employed on relatively low wages are more evenly spread across the household income distribution.

The evidence also shows that government cash benefits are the primary source of income for families with an unemployed member, but are only a very small source of income for families with wage and salary earners, implying that the welfare system in Australia is relatively well targeted. However, it also means that any possible solution to unemployment must consider the interaction of changes in the wage structure with the welfare system.

Finally, to understand the rise in unemployment it is important to understand how the labour market adjusts to adverse developments. It is necessary to know how firms adjust their hiring and investment decisions in response to changes in the macroeconomic environment and to changes in the costs of employing labour or capital. The paper by Freebairn documents that, unfortunately, there is comparatively little evidence on the microeconomic workings of the Australian labour market. Such information is vital when considering the design of policies to address unemployment.

Solutions

When contemplating possible solutions to unemployment, the experiences of Australia and other OECD countries indicate no obvious or easily implementable path. Rather, an effective solution needs to draw on a number of different elements. Furthermore, consideration of the interaction of the different components of the policy package is important, rather than analysing and adopting each policy in isolation. For example, labour market programs are likely to be more effective in an environment of sustained growth.

A critical element in any approach is the maintenance of a non-inflationary rate of economic growth that is as steady as possible. The paper by Dungey and Pitchford highlights that output growth is a major determinant of employment growth, and that recessions can have large and long-lasting detrimental effects on the unemployment rate. Consequently, macroeconomic policy can contribute to improved labour market outcomes by aiming to achieve the highest possible rate of economic growth while maintaining a low inflation environment.

There are, however, limits to the extent to which growth alone can permanently reduce the unemployment rate. Unemployment in Australia currently has a sizeable structural component. Attempts to further reduce unemployment below this rate through macroeconomic stimulus are likely to be inflationary. Specific policies are needed to reduce this structural component.

The paper by Debelle and Vickery suggests that moderate, but sustained, wage restraint can deliver sizeable reductions in the structural unemployment rate. The difficulty is determining the means by which to achieve aggregate wage restraint. In

abstract terms, too high a level of aggregate wages reflects an imbalance of labour market power between active participants in the labour market (insiders), and those with a less effective presence (outsiders). Such an imbalance can diminish the benefits of productivity-enhancing reforms if the increase in productivity is captured predominantly by those already employed, in the form of higher wages, rather than being more evenly distributed across the whole population, in the form of increased employment.

One means of increasing the bargaining power of outsiders is to use active labour market programs. Drawing on the large variety of programs that have been adopted in OECD countries, the paper by Martin presents a checklist of those labour market programs that appear to work and those that do not. The general aim of such programs is to increase the ability of the unemployed to compete effectively in the labour market by increasing 'job readiness' in terms of basic work skills and by assisting the unemployed in locating employment opportunities through the provision of information, or the provision of wage subsidies which increase their attractiveness to potential employers. Labour market programs which target potentially disadvantaged groups at an early age, while initially expensive, can avoid greater costs in the future.

A particularly effective type of labour market program is one that provides opportunities for the workforce to increase their education and skill levels. However, care must be taken to avoid the pitfall of encouraging individuals to remain in certain forms of education which, while temporarily reducing the measured unemployment rate, do not provide them with the necessary training to increase their future employability. Education, like all other forms of labour market programs, needs to be carefully targeted. Furthermore, labour market institutions should be structured to allow the unemployed with increased skills and education to compete effectively with the insiders.

A necessary element in any solution to unemployment is entrepreneurship. Without a sufficient pool of entrepreneurial skills, there will not be adequate employment opportunities for the workforce to utilise their skills and education. Impediments to risk-taking need to be minimised so that businesses can create jobs in response to enhanced labour market flexibility and the availability of skills.

Some decrease in unemployment could be achieved through increased relative wage flexibility, rather than through increased aggregate wage flexibility. That is, the wide range of unemployment rates across the different groups in the workforce may reflect the inability of the wage-setting system to allow relative wages to adjust to imbalances in labour demand and supply. Allowing greater adjustment in relative wages may also deliver a lower aggregate wage level, as relative wages fall for those groups experiencing the higher unemployment rates.

An outcome where wages fall for certain sections of the population may raise concerns about equity. However, the inequity of lower wages must be weighed against the inequity of unemployment, particularly given that unemployed households are, in general, lower in the income distribution than low-wage households. An important issue in such a debate is whether the employment generated by the lower wage outcomes is the first point in a career path that leads to higher wages later in the working life, or whether those gaining employment predominantly remain locked into low-wage employment. The evidence on this in Australia is, however, fairly scant.

A policy prescription to reduce unemployment that includes a reduction in real wages should also consider the interaction of the wage system with the social welfare and tax systems. The social welfare system is an effective channel for providing assistance to low-income households, but it is essential to ensure that it does not create incentives for benefit recipients to avoid participation in the workforce. Thus, a necessary component of any reform package should be the reduction of high effective marginal tax rates facing lower income workers, without compromising the social objectives of the welfare system.

In summary, there are many dimensions to unemployment and correspondingly many elements in any solution to unemployment. A policy approach that is likely to lead to a sustained fall in unemployment will require the maintenance of steady non-inflationary growth, and will include measures that increase the employability of those without jobs, such as education and re-skilling, and increase their relative bargaining power, to restrain growth in labour costs.

Reflections on US Labour Market Performance

Lawrence F. Katz

1. Introduction

The United States has produced rapid employment growth (almost entirely in the private sector) and an impressive unemployment record relative to most other advanced nations over the past two decades. The contrast of strong US labour market performance to persistent high unemployment throughout much of the OECD has been particularly striking in the 1990s. From 1990 to the fourth quarter of 1997, total employment in the US increased by 10.9 per cent, and the US unemployment rate declined from 5.5 per cent to 4.7 per cent. Over the same period in OECD Europe, total employment actually declined by 1.7 per cent and the unemployment rate increased from 8.0 per cent to 10.2 per cent (OECD 1998, pp. 40–41). Furthermore, the United States has combined strong employment growth with low and declining inflation in the 1990s.

How has the US economy managed to do a much better job at creating private sector jobs to absorb the growth of its working-age population than other advanced nations? The conventional explanation is that the US labour market is relatively flexible, and labour markets in Western Europe and some other OECD nations are relatively rigid (e.g. OECD 1994; Krugman 1994). The US labour market has rather decentralised wage-setting with limited influence of unions and government, and thereby is viewed as exhibiting greater flexibility of real wage levels and of relative wages. US labour market flexibility also arises from unemployment benefits of more limited duration, less stringent employment protection rules, and more geographically mobile workers than in most OECD nations. Although this US model appears to have generated buoyant employment growth in recent decades, the United States has also experienced slow real wage growth and a substantial increase in overall wage inequality and in educational wage differentials. The consequent large declines in the real and relative earnings of less-educated and low-paid workers have been associated with a large rise in the non-employment rate among less-skilled men, increased family income inequality, high and persistent poverty rates, and a wide range of social problems concentrated among those from disadvantaged backgrounds and living in low-income neighbourhoods. The nations of continental Europe have experienced much greater real wage growth and much less increase in wage and income inequality than the United States.

Thus no advanced nation appears to have been able to fully escape rising wage inequality, secular increases in unemployment, or both. Unemployment and/or non-employment rates have increased significantly for the less skilled throughout the OECD. Both adverse macroeconomic events (e.g. oil price increases in the 1970s, a slowdown in total factor productivity growth since 1973, and high real interest rates in the 1980s and 1990s) and strong shifts in labour demand against the less skilled (possibly arising from rapid skill-biased technological change and globalisation pressures) probably

have played important roles in the jobs problems of OECD nations. But, as the comparison of the United States and Europe suggests, the jobs problem manifests itself somewhat differently in different countries. The typically unconventional Paul Krugman (1994, p. 71) has summarised the hard-headed version of the conventional flexibility hypothesis for these patterns by noting that ‘the European unemployment problem and US inequality problem are two sides of the same coin’ in which markets will tend ‘to produce increasingly unequal outcomes, or to produce persistent high unemployment if this tendency is repressed’. While this interpretation probably contains substantial grains of truth, reality appears to be somewhat messier. Unemployment among the unskilled has tended to be lower in some rigid wage nations (e.g. Norway, Germany) than in more flexible Britain and Canada (Nickell 1996). Labour market adjustments to changes in the relative demand for skill also depend on education and training policies, macroeconomic policies and experiences, and wage-setting institutions in a manner possibly more complicated than suggested by a simple diabolical trade-off between inequality and unemployment (Freeman and Katz 1994, 1995).

This paper undertakes two primary tasks. The first is to provide a more detailed assessment of the performance of the flexible US labour market over the past few decades. The second is to attempt to distil the lessons from the US experience for how to improve the labour market outcomes of less-skilled and disadvantaged workers, while maintaining the benefits of labour market flexibility. Section 2 places the evolution of US unemployment in a comparative perspective. Section 3 uses a simple framework for thinking about the determinants of the equilibrium unemployment rate (the ‘natural rate of unemployment’) to examine alternative explanations for divergent unemployment patterns in the United States and other OECD nations. Section 4 documents growing inequality in US labour market outcomes and measures of economic well-being. Section 5 offers some brief concluding remarks on the available evidence on the effectiveness of alternative policies to assist low-wage and disadvantaged workers under the US flexible labour market model.

2. The US Unemployment Experience in Comparative Perspective

Table 1 summarises the unemployment experiences of the United States, selected other countries, and the OECD as a whole from 1950 to 1997.¹ The OECD unemployment rate averaged about 3 per cent during the 1950s and 1960s. Unemployment throughout the OECD increased sharply in the aftermath of the oil shocks of the 1970s and continued rising in the worldwide recession of the early 1980s. The overall OECD unemployment rate more than doubled from 2.8 per cent in the 1960s to 7.0 per cent in the 1980s, and has remained at an even higher rate in the 1990s.

1. The data, for the most part, represent OECD standardised unemployment rates which should be more comparable between countries than the published unemployment rates from national sources.

Table 1: Unemployment Rates in Selected OECD Countries^(a)
Unemployment as a per cent of total labour force

	1950s	1960s	1970s	1980s	1990s ^(b)	1997
United States	4.4	4.7	6.1	7.2	6.0	4.9
Canada	3.8	4.7	6.6	9.3	9.9	9.2
Japan	2.1	1.3	1.7	2.5	2.7	3.4
OECD Europe	–	–	4.5	8.8	10.0	10.4
France	1.5	1.7	3.8	9.0	11.1	12.4
Germany ^(c)	4.9	0.6	1.9	5.7	6.5	7.7
Italy	7.2	3.8	4.7	7.5	10.2	12.1
Netherlands	1.5	0.9	4.0	9.6	6.9	5.2
Norway	1.7	1.7	1.6	2.8	5.3	4.1
Portugal	2.2	2.4	4.6	7.3	5.8	6.8
Spain	2.1	2.3	4.2	17.5	20.3	20.8
Sweden	1.7	1.5	1.8	2.2	7.0	10.2
United Kingdom	1.7	2.0	4.4	10.1	8.7	7.1
Australia	1.5	2.0	3.9	7.5	9.1	8.7
New Zealand	0.9	0.9	1.5	4.1	8.1	6.7
OECD	3.5	2.8	4.3	7.0	7.3	7.3

Notes: (a) The reported numbers are OECD standardised unemployment rates.

(b) The average for 1990 to 1997.

(c) West Germany, data for the 1990s are from Council of Economic Advisers (1998).

Sources: Martin (1994, Table 1) and OECD (1997, 1998).

Table 1 indicates that most major OECD nations shared a pattern of rising unemployment from the 1960s to the 1970s to the 1980s. But the magnitudes of the increases vary widely across countries, with the largest increase in Spain, and unemployment experiences have diverged somewhat in the 1990s, with continued increases from the 1980s in most European countries and Australia, but unemployment declines in the United States, United Kingdom, and Portugal.

The table highlights the distinctive aspects of the evolution of US unemployment. The United States has moved from having a consistently higher unemployment rate than the OECD as a whole in the 1950s, 1960s and 1970s to having a much lower rate in the 1990s. The United States is the only major OECD economy with a lower average unemployment rate in the 1990s (from 1990 to 1997) than in the 1970s: 6.0 per cent in the 1990s versus 6.1 per cent in the 1970s. In fact, the current US unemployment rate of 4.3 per cent in April 1998 is the lowest experienced since 1970.

The composition of US unemployment also differs substantially from many other OECD nations. The United States has much larger month-to-month flows into and out of unemployment than most OECD economies (OECD 1994) and a much lower

incidence of long-term unemployment than any advanced OECD economy. Long-term unemployment (six months and over) as a percentage of total unemployment in 1996 stood at 17.4 per cent in the United States as compared with 27.7 per cent in Canada, 48.7 per cent in Australia, 61.5 per cent in France, 66.7 per cent in Portugal, and 72.2 per cent in Spain (OECD 1996). US unemployment rates for the working-age population are particularly low (and employment/population ratios are particularly high) for young workers (those aged 16 to 24), women and older workers (those aged 55 to 64). But the non-employment rate for US prime-aged men increased from the early 1970s to the mid 1990s, with a rise in persistent withdrawal from the labour force among less-educated and low-wage males (Juhn 1992; Murphy and Topel 1997). Long-term joblessness in the United States tends to show up in non-employment, but not in unemployment. In fact, the non-employment rate of males aged 25 to 54 was higher in the United States in 1996 than in the OECD as a whole (12.1 per cent versus 11.9 per cent), despite a lower US unemployment rate among this group: 4.3 per cent versus 5.5 per cent (OECD 1997). Overall, the US labour market does a relatively good job of moving new entrants and women into employment. European labour market institutions (especially employment protection laws) seem geared to keeping married males in work, but appear to make it tougher for new entrants to gain steady employment.

2.1 Cyclical versus structural unemployment

Most analytical discussions of unemployment since Friedman (1968) and Phelps (1968) start with the hypothesis that at any given time, a national economy is characterised by a 'natural rate of unemployment' (also denoted the non-accelerating inflation rate of unemployment or NAIRU). Aggregate demand expansions can (at least temporarily) push the economy below this rate of unemployment, but only at a cost of accelerating inflation. Shocks that raise unemployment above the natural rate similarly lead to decelerating inflation. As long as policy avoids explosive inflation or deflation, the economy cannot remain persistently above or below the natural rate of unemployment, but it may fluctuate around it.

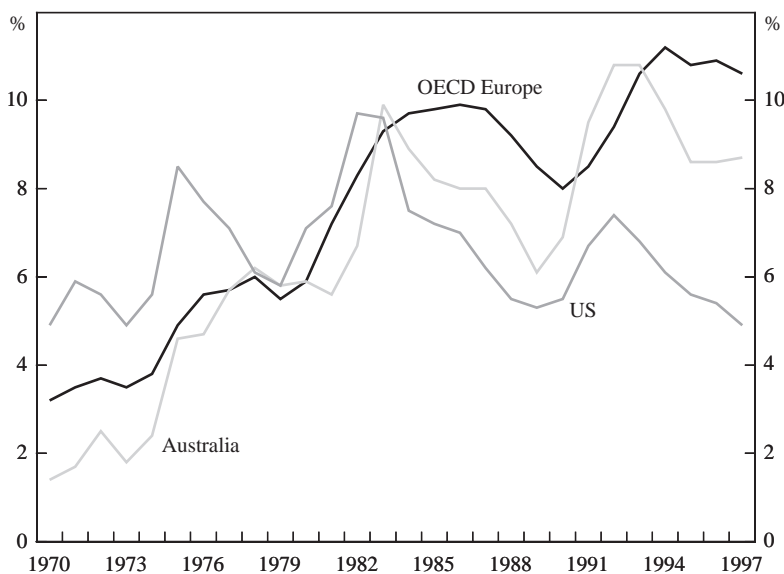
This hypothesis suggests separating changes in unemployment into 'cyclical' fluctuations around the natural rate, and 'structural' movements in the natural rate itself. In an influential but extremely long sentence, Milton Friedman (1968, p. 8) explained: 'The natural rate of unemployment is the level which would be ground out by the Walrasian system of general equilibrium equations, provided that there is imbedded in them the actual structural characteristics of the labour and commodity markets, including market imperfections, stochastic variability in demands and supplies, the cost of gathering information about job vacancies and labour availabilities, the costs of mobility, and so on'. Thus, changes in labour market institutions, changes in unemployment benefits policies, demographic changes and Friedman's catch-all category of 'so on' are potential structural sources of changes in unemployment.

Figure 1 illustrates the time patterns of the unemployment rates for the United States, OECD Europe, and Australia from 1970 to 1997.² The figure suggests cyclical

2. See Debelle and Swann (1998) for a detailed assessment of the recent evolution of unemployment and employment in Australia.

unemployment fluctuations around a relatively stable natural rate in the United States, and a possible upward drift in the natural rate in Europe and Australia. The unemployment rates appear to have ratcheted upward in Europe and Australia with each successive business cycle. The acceleration in inflation in most European economies in the late 1980s, despite much higher unemployment rates than in the 1960s or early 1970s, strongly indicates a large rise in natural rate of unemployment. The deceleration of inflation in the early 1990s suggests some additional cyclical component has played a role in recent high European unemployment.

Figure 1: Unemployment in the US, OECD Europe and Australia



2.2 Unemployment and inflation in the United States and OECD Europe

I next explore in a bit more depth, the extent to which a relatively stable natural rate of unemployment since 1970 or so is consistent with the experience of the flexible US labour market, and inconsistent with the experience of less flexible OECD labour markets (proxied by OECD Europe). The standard framework for estimating the natural rate of unemployment (u_n) is the expectations-augmented (or accelerationist) Phillips curve in which the rate of growth of price inflation (or more generally the difference between current inflation and expected inflation) depends on the deviation of the unemployment rate from the natural rate:

$$\Delta p - \Delta p_{-1} = -\beta(u - u_n) + \varepsilon = \alpha - \beta u + \varepsilon \quad (1)$$

where p is the log of the price level, u is the unemployment rate, β is a positive coefficient, α equals βu_n , and ε is an error term. Expected inflation is assumed to equal the lagged inflation rate (Δp_{-1}). A regression of the change in the inflation rate on the unemployment

rate yields estimates of the natural rate of unemployment ($u_n = -\alpha/\beta$). The basic idea behind Equation (1) is that price inflation increases when unemployment is below the natural rate and decreases when it is above.

Columns (1) to (3) in Table 2 present estimates of several versions of Equation (1) for the United States using annual data from 1970 to 1997, with the adjusted Consumer Price Index (CPI-U-X1) as the measure of the price index (for comparability with our European data) and the overall civilian unemployment rate. Gordon's (1997a, b) state-of-the-art reduced-form Phillips curve specification includes longer lags of past inflation, price control dummies, a slowly moving natural rate, and controls for supply shocks. But this simple formulation does a reasonable job of capturing the relation between US price inflation and unemployment. The restriction that the coefficient on lagged inflation (Δp_{-1}) equals one in the price-price Phillips curve equation does not do much injustice to the US data for the period since 1970.³ The estimates in column (2) of

Table 2: Price Inflation and Unemployment in the United States and OECD Europe

	United States			OECD Europe	
	(1)	(2)	(3)	(4)	(5)
Constant	5.08 (1.26)	4.93 (1.22)	5.68 (1.30)	7.33 (1.55)	4.29 (1.36)
D80			-0.04 (0.59)	2.08 (1.11)	2.04 (1.30)
D90			-0.92 (0.58)	2.13 (1.38)	2.96 (1.58)
Δp_{-1}	1.08	1.00*	1.00*	0.73 (0.09)	1.00*
Unemployment rate (u)	-0.85 (0.23)	-0.77 (0.18)	-0.84 (0.20)	-0.89 (0.23)	-0.78 (0.27)
Durbin-Watson statistic	1.71	1.60	1.78	1.73	1.80
R ²	0.74	0.74	0.77	0.89	0.84
n	28	28	28	25	25

Notes: The US regressions cover 1970 to 1997; the regressions for OECD Europe include 1971 to 1995. The dependent variable in all regressions is the inflation rate (Δp). * indicates that the coefficient is constrained to equal 1. The numbers in parentheses are standard errors.

$p = 100 \times \log(\text{Consumer Price Index})$, using the CPI-U-X1 for the United States and the average inflation rate for OECD Europe (using CPI information in each country and relative PPP GDP weights); u is the civilian unemployment rate measured in per cent; D80 = 1 for the 1980s and 0 otherwise; D90 = 1 for the 1990s and 0 otherwise.

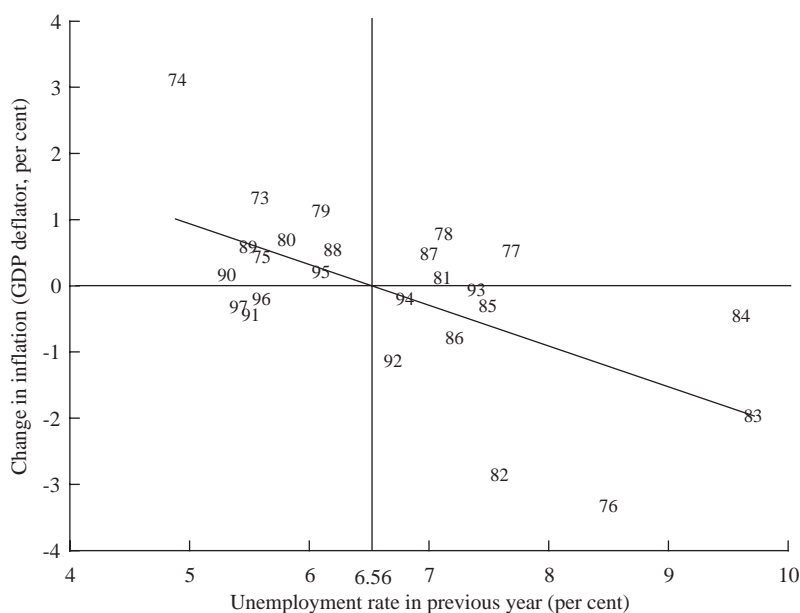
Sources: Citibase and the Council of Economic Advisers (1998) for the United States. The data for OECD Europe were provided by Olivier Blanchard and are based on data from the OECD.

3. The coefficient on lagged inflation in the price-price relation of Equation (1) is much lower for the pre-1970 period and has increased over time as inflation has become more persistent in line with the Lucas (1976) critique of the Phillips curve.

Table 2 imply a natural rate of unemployment of 6.4 per cent. Despite the high t-statistics, Staiger, Stock and Watson (1997) have shown that such estimates do not tightly determine the natural rate once one takes into account parameter uncertainty. Experimentation with time trends, or with decade dummies, suggests a rather stable US natural rate, but provides some evidence of a reduction in the US natural rate of unemployment in the 1990s (to 5.7 per cent according to column (3) of Table 2).

The extent to which inflation accelerates when unemployment is low and decelerates when the rate is high is further illustrated for the United States in Figure 2. Following Staiger, Stock and Watson (1997), we plot the change in inflation (using the chain-weighted GDP deflator) on unemployment in the previous year for the past 25 years and the OLS prediction line for the relationship. The implied natural rate of unemployment is 6.56 per cent over this period. The plot shows that inflation tends to accelerate in the next year when unemployment is below the estimated (time-invariant) natural rate (9 out of 12 observations) and tends to decelerate when unemployment is above this unemployment level (9 out of 13 observations). Inflation decelerated in 1996 and 1997 despite quite low unemployment rates in the previous year, further suggesting a decline in the US natural rate in the 1990s or some favourable (transitory) supply shocks (Gordon 1997b). One can do somewhat better with more sophisticated models, or with a demographically adjusted unemployment rate. Still, the natural rate hypothesis with a reasonably stable NAIRU and cyclical fluctuations in unemployment around the NAIRU seems to work fairly well for the United States. But the experience of the past few years of continued declines in unemployment below previous estimates of the NAIRU (typically 6 per cent or higher in the early 1990s) with no acceleration in inflation, raises the issues of what appears to have caused a recent decline in the US natural rate of unemployment.

Figure 2: Change in Inflation versus Unemployment in Previous Year
US; annual data; 1973–97



We now turn to OECD Europe. Figure 1 illustrates that the unemployment rate rose from 3.2 per cent in 1970 to 10.8 per cent in 1995. Columns (4) and (5) of Table 2 present estimates of simple reduced-form Phillips curve specifications for OECD Europe where inflation (Δp) is measured by the average inflation rate in OECD Europe (using CPI information in each country and relative PPP GDP weights) and the unemployment measure (u) is the unemployment rate for the whole of OECD Europe (the ratio of total unemployment to the total labour force). To capture the trends displayed in Figure 1 in a relatively agnostic manner, we use dummy variables for each decade.

In contrast to the United States, there has been a clear upward shift in the natural rate. Column (4) of Table 2 implies point estimates of the natural rate for OECD Europe of 5.5 per cent in the 1970s, 8.1 per cent in the 1980s, and 9.3 per cent in the 1990s, although the shifts are not very precisely estimated. There also appears to be a strong relation between the change in inflation and the (increasing) natural rate: the coefficient on unemployment is of similar magnitude and nearly as significant as the corresponding coefficient for the United States.

The (time-varying) natural rate model appears to be fairly consistent with unemployment and inflation behaviour in the US and Europe. The large differences in unemployment experiences of the past twenty-five years largely reflect a large rise in structural unemployment in most OECD countries relative to the United States.

3. Possible Explanations for US Unemployment Performance

A large and growing literature examines a wide variety of explanations for the rise in the natural rate of unemployment in most OECD economies and for cross-country differences in levels and changes in unemployment (e.g. Bean 1994; Jackman, Layard and Nickell 1996; Layard, Nickell and Jackman 1991; OECD 1994; Phelps 1994). In this paper, I focus on a selective list of factors that may play a role in the distinctive unemployment performance of the US economy: the treatment of the unemployed (the generosity of the welfare state), wage-setting institutions, and employment protection policies.

The US labour market has been characterised by less generous and shorter duration unemployment benefits, less union and government influence in wage-setting, and fewer onerous restrictions on hiring and firing than most other OECD countries for many decades. This US model translated into higher unemployment than experienced by other OECD economies prior to the 1970s and has been associated with relatively low unemployment in the 1990s. This pattern suggests that large macroeconomic shocks and market forces pushing towards greater wage inequality (e.g. skill-biased technological change) may have differential impacts depending on an economy's labour welfare-state policies and labour market institutions. The short duration of unemployment benefits and flexibility of wages may make the United States less susceptible to developing widespread long-term unemployment following an adverse shock.

3.1 A simple framework

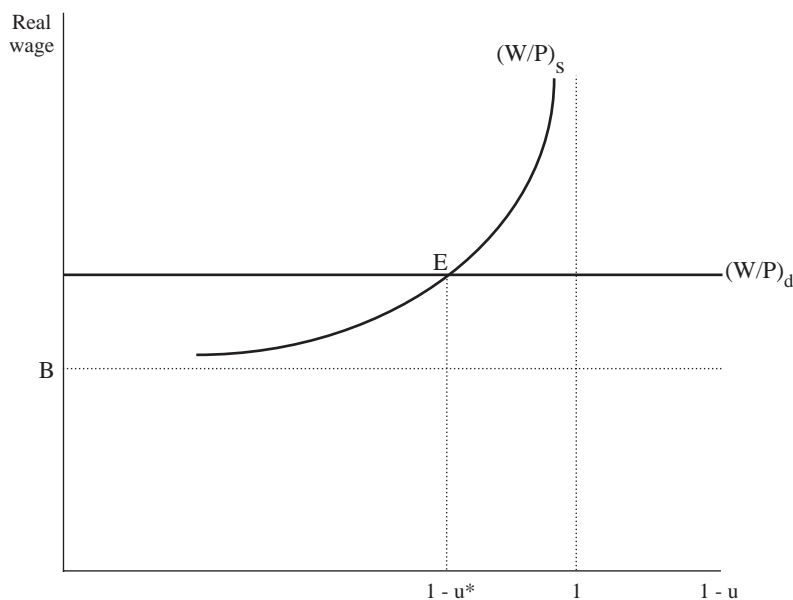
I begin by developing a simple framework based on Blanchard and Katz (1997), for thinking about the determinants of the natural rate of unemployment. Theories of the

natural rate of unemployment have developed along four main lines emphasising different aspects of wage-setting. The competitive approach focuses primarily on the heterogeneity of reservation wages, and how, especially at the bottom end of the wage distribution, workers shift back and forth between employment and non-employment in response to changes in labour market opportunities (Juhn, Murphy and Pierce 1993).

The three other main approaches explore deviations from competitive wage-setting. The efficiency-wage approach focuses on the complexity of transactions of labour between workers and firms, and the potential role of wages in affecting productivity. Firms may choose to pay workers more than their reservation wage in order to get and keep better workers, economise on turnover costs, or to motivate greater effort or co-operation from their employees (Katz 1986). Furthermore, firms and workers typically have some bargaining power. The bargaining power of workers arises from the fact that they cannot be costlessly and instantaneously replaced. The bargaining power of firms arises because most workers cannot costlessly and instantaneously find an equivalent job. The matching approach emphasises the large flows of workers in the labour market and has formalised wage determination as the result of decentralised bargaining (Diamond 1982; Pissarides 1990). Formal models of union wage-bargaining behaviour represent a similar alternative approach (Layard, Nickell and Jackman 1991).

Despite their many differences, these four approaches have a common basic structure. They can be represented in a simple graph like Figure 3, which has the real wage on the vertical axis and one minus the unemployment rate on the horizontal axis. They each lead to a natural rate of unemployment determined by the intersection of an upward-sloping 'supply wage relation' (or wage-setting curve), such as $(W/P)_s$ in Figure 3, and a horizontal 'demand wage relation' (or price-setting curve), such as $(W/P)_d$ in Figure 3. The demand wage relation gives the wage that firms can afford to pay. The supply wage curve shows the wage firms have to pay as a function of unemployment.

Figure 3: Determination of the Natural Rate of Unemployment



These two relations can be represented by the following two equations:

$$W/P = B g(u, X_s) \quad g_u < 0 \quad (2)$$

$$W/P = A f(X_d) \quad (3)$$

where W is the nominal wage, P is the price level, u is the unemployment rate, B is the reservation wage, A measures the level of total productivity (under the assumption of Harrod-neutral technological progress), X_s includes factors affecting wage-setting (such as unionisation, wage-setting institutions, and the extent of labour market flows), and X_d represents all the factors which affect the real wage that firms can afford to pay (including the real interest rate and prices of other non-labour inputs). The reservation wage B is likely to depend on the generosity of unemployment benefits, the value of leisure, non-labour income, and 'black market' earning opportunities. The reservation wage might also be thought of as an 'aspiration wage' to the extent it is affected by fairness considerations related to past or customary rates of real wage growth.

Equation (2) gives the wage as a function of labour market conditions. Each of the main theories has the implication that the tighter the labour market, the higher the real wage given the reservation wage. In a weak labour market, workers will be willing to settle for a lower wage in bargaining/matching models. In a strong labour market, the bargained wage will be much higher than the reservation wage. Efficiency wage models also tend to imply the tighter the labour market, the higher the wage required to prevent shirking (by increasing the cost of job loss), raise morale or limit turnover. The exit rate from unemployment, rather than the unemployment rate itself, is likely to be the correct measure of labour market tightness in efficiency wage and matching/bargaining models. What matters to the unemployed is not how many of them there are, but how many there are relative to the number of hires firms are willing to make. Thus the escape rate from unemployment (H/U), where H is the number of hires and U the number of unemployed, belongs in X_s . The $(W/P)_s$ curve could also represent a standard upward-sloping labour supply curve in a competitive labour market.

The demand wage relation, given by Equation (3) and represented by the horizontal line $(W/P)_d$ in Figure 3, shows the real wage consistent with the employment decisions of firms. If we focus on the medium run – a period long enough for firms to adjust all factors of production including capital – we can think of the real wage of the firm as independent of the level of employment. This can be thought of as a factor-price frontier, giving the real wage consistent with other input prices and the condition that firms make zero pure profit. In this case, the demand wage depends on the level of productivity, characteristics of the production function, and other input prices (including the real interest rate). When firms operate in imperfectly competitive goods markets, the behaviour of the mark-up of price over marginal cost will also matter for wages. The higher the price of goods given the wage, the lower the real wage paid by firms.

The natural rate of unemployment (u^*) is the rate at which the supply wage equals the demand wage:

$$g(u^*, X_s) = (A/B) f(X_d) \quad (4)$$

This equilibrium is given by point *E* in Figure 3. The natural rate of unemployment is negatively related to the ratio of productivity to the reservation wage (A/B) and depends on the other factors affecting the supply wage and demand wage. I next use this framework to help assess alternative explanations for differences in the evolution of the natural rate of unemployment in the United States and other OECD nations.

3.2 Unemployment benefits, insider power and hysteresis

The resources available to the unemployed may be an important determinant of the natural rate of unemployment. An increase in the generosity of unemployment benefits generates two effects that tend to raise the natural rate. The first direct effect is an increase in the reservation wage relative to productivity, leading to an upward shift of the supply wage relation $(W/P)_s$ in Figure 3. Increased transfers to the unemployed are likely to require increased taxes (typically payroll taxes) on the employed and thereby increase the ‘tax wedge’ and produce a downward shift in the demand wage $(W/P)_d$ in Figure 3 (interpreting W/P as the take-home real wage).⁴

Much microeconomic evidence indicates that more generous unemployment benefits – in terms of both benefit levels and the duration of benefit availability – are associated with longer duration of unemployment spells (e.g. Katz and Meyer 1990; Meyer 1990). Of course, the longer unemployment spells of benefit recipients could be offset by shorter spells of non-recipients (Levine 1993). But increased benefit generosity for experienced workers tends to reduce the cost of job loss at a given unemployment rate and thus raise the bargaining power of incumbent workers as well as firms’ optimal efficiency wages. A rather consistent finding in cross-country studies using data from the 1980s and 1990s is that greater unemployment benefit generosity (higher replacement rates and especially greater duration of benefits) is associated with higher unemployment (Layard, Nickell and Jackman 1991; Forslund and Krueger 1997).

By almost any measure, the United States has a less generous unemployment benefit system and overall set of welfare-state supports for the unemployed and poor relative to most other advanced economies. The OECD (1994) rates the US average replacement rate (over five years of unemployment for various demographic groups) as the third lowest among 21 countries with data (only Italy and Japan come out as less generous). The relatively short duration of unemployment benefits (6 months for most eligible workers but sometimes expanded by several more months in recessions) is the driving force behind the US ranking.

Less generous support for the unemployed is clearly a possible explanation for a more flexible US labour market and currently lower structural unemployment in the United States than in Europe or Australia. But similar differences in unemployment benefits were apparent in the 1950s, 1960s and 1970s when the United States had persistently higher unemployment than these other countries. Although unemployment benefits have expanded in some countries over the past few decades (e.g. Portugal,

4. A potentially offsetting effect is that higher unemployment benefits may allow the unemployed to wait longer to find better employment matches, increasing average productivity and the demand wage. But little evidence exists suggesting such an effect is empirically important.

Norway), large increases in unemployment are present in countries with rather stable estimates of replacement rates and benefit duration (e.g. Germany) and those with declining generosity (e.g. United Kingdom). Thus an explanation focusing on the welfare state policies must explain why generous benefits are associated with much higher unemployment in the 1990s than in the 1960s or 1970s. Two possibilities are that the generosity of the treatment of the unemployed affects the dynamic response to adverse macroeconomic shocks or has become more costly in terms of unemployment in the face of a decline in the relative demand for less-skilled workers. Explanations for the strong recent performance of the United States because of wage flexibility arising from relatively little union influence or government influence in wage-setting, also must focus on how such institutions affect the evolution of unemployment in the face of shocks.

This logic has motivated the analysis for explanations based on ‘hysteresis’ – the notion that the history of unemployment itself may have long-lasting effects on the natural rate (Blanchard 1991; Blanchard and Summers 1986). Various shocks to many OECD economies, including the oil shocks of the 1970s and tight monetary policy in the 1980s, led to high unemployment. Even after these shocks had played out by the late 1980s, sustained high unemployment dominated by long-term unemployment translated into a higher natural rate of unemployment. The periods of high unemployment were of shorter duration in the United States, and the lower generosity of unemployment benefits and lower insider bargaining power, meant the unemployed continued to put strong pressure on wage-setting in the United States.

A number of potential channels exist for hysteresis in unemployment. A long period of high unemployment, particularly when unemployment benefits are long-lasting, leads to an increase in the proportion of the long-term unemployed. This pattern is apparent in the 1980s in most countries with persistent high unemployment into the 1990s. If the human capital of the long-term unemployed depreciates or if they become discouraged and less effective in job search, their impact on wage bargaining will decrease, leading to an upward shift of the $(W/P)_s$ relation and a higher natural rate of unemployment. Concentrated high rates of joblessness and (perceived or real) lack of opportunity in the legitimate labour market may further erode human capital by increased crime involvement and drug use. These changes may have long-lasting effects across generations through family and neighbourhood effects. Sociological factors may also effectively increase the reservation wage of the unemployed by reducing the stigma of joblessness and making it more acceptable to utilise benefits to their fullest (Lindbeck 1995).

Much evidence is suggestive of such ‘social hysteresis’ effects in concentrated poverty areas of US cities (Wilson 1996). The empirical case for these hysteresis mechanisms affecting the evolution of national unemployment rates is somewhat ambiguous. But Ball (1997) presents striking evidence that those OECD countries with longer or larger disinflations, especially those with both long disinflations and generous (long duration) unemployment benefits, experienced larger increases in the natural rate of unemployment from 1980 to 1990. Under this scenario, the United States experienced no increase in the natural rate of unemployment in the 1980s because of a sharp but rapid disinflation in the early 1980s and because of short duration unemployment benefits reducing hysteresis effects.

3.3 Relative demand shifts

Skill-biased technological progress may well have important effects on unemployment. It is simplest to think of two groups of workers: the skilled and the unskilled. The unskilled are paid a wage very close to their reservation wage. The skilled are likely to be paid a wage much higher than their reservation wage. Shifts in the demand for the unskilled imply movements along a very flat labour supply schedule, shifts in the demand for skilled workers imply movements along a steep labour supply curve. Thus, relative shifts in demand towards the skilled lead to an increase in the natural rate when the reservation wages of the skilled and unskilled do not move proportionately with shifts in the wages firms can afford to pay them. Juhn, Murphy and Topel (1991) and Murphy and Topel (1997) present suggestive evidence of such differences in labour supply responses to wage shocks for high- and low-skill US males.

A rapid pace of relative demand shifts favouring the more skilled (possibly driven by an increased rate of skill-biased technological change or by globalisation factors) as compared with growth in the relative supply of skilled workers can have differential effects on unemployment and wage inequality depending on labour market institutions. Higher relative minimum wages, more generous social benefits for the non-employed, and greater pressure for wage compression in most OECD nations in comparison with the United States, imply a larger increase in unemployment among the less skilled and a greater increase in overall unemployment. These same factors imply larger increases in wage inequality in the United States.

This hypothesis suggests a much larger increase in unemployment for unskilled than for skilled workers in rigid-wage countries. The absolute differences in unemployment rates between high- and low-education males have increased sharply in most countries, but the proportional changes have not been very different over the past two decades (Nickell and Bell 1995). If education provides only a noisy indicator of skill, a rise in unemployment among a small share of less-skilled but highly educated workers could generate such a pattern of similar proportional increases in unemployment for high and low education groups. Furthermore the rise in within-group wage inequality in the United States even among the highly educated suggests that policies maintaining within-group wage compression could reduce the employment of relatively less-able workers in all education groups especially if support for the unemployed is generous and such individuals are quite reluctant to compete for less-skilled jobs. But patterns of changes in unemployment and employment/population ratios by demographic group do not appear to line up closely with differences in the growth of between-group wage inequality across countries (e.g. Card, Kramarz and Lemieux 1996; Krueger and Pischke 1997; Nickell and Bell 1995).

3.4 Labour market rigidities: employment protection

Employment protection policies are often mentioned as a possible culprit for high European unemployment, and the lack of restrictions on hiring and firing is viewed as facilitating rapid employment growth in the United States. OECD (1994) rates the United States as having the lowest degree of legislated employment protection among 21 OECD countries. This raises the question of whether greater employment protection should increase the natural rate of unemployment.

Matching models provide a useful framework for assessing the effects of such restrictions (Blanchard and Katz 1997). Firing restrictions are likely to have three separate effects. First, firing restrictions lead firms to retain workers they otherwise would have laid off. This will lead to fewer job separations, and thus fewer hirings in equilibrium. Second, these restrictions may reduce the effectiveness of the matching of workers to firms and lower average productivity and the demand wage. Third, firing restrictions insulate incumbent workers from the outside labour market, strengthens them in bargaining, leading them to obtain a higher wage for given labour market conditions.

Thus, firms can afford to pay a lower wage, but workers can extract a higher one at a given exit rate from unemployment (H/U). The equilibrium exit rate from unemployment unambiguously has to go down: labour market prospects have to be sufficiently dismal to make workers accept the lower wage despite their higher bargaining power. The effect on unemployment, however, is ambiguous. In terms of Figure 3, the demand wage declines, but the supply wage schedule could move in either direction depending on the relative magnitudes of the effects of greater worker bargaining power at a given exit rate (a leftward shift) combined with a lower exit rate (a rightward shift). Greater firing restrictions lead to a more sclerotic labour market with lower flows of workers and a longer average duration of unemployment, but they do not necessarily lead to a higher rate of unemployment (e.g. Blanchard 1998).

The cross-country evidence strongly suggests that greater employment protection is associated with lower worker flows and a higher level of long-term unemployment, but there appears to be little robust relationship between firing restrictions and overall national unemployment rates (Blanchard and Portugal 1998; Nickell 1996). Although employment protection appears to have large effects on the operation of the labour market and on unemployment duration, its effect on unemployment appears ambiguous when it is analysed in isolation. But the interaction of firing restrictions with other labour market distortions (e.g. high minimum wages and/or strong union roles in influencing wages in new positions) and with product market restrictions (e.g. regulatory barriers to the formation of new enterprises) might have a large effect on the unemployment rate of some groups (young workers, new labour market entrants) and thereby affect the overall unemployment rate. Such interactions may play important roles in the greater concentration of high unemployment among young workers and women in Spain and Italy. It is also unclear how the introduction of fixed-length contracts not covered by employment protection affects the overall labour market. They allow more new entrants to be hired, but may reduce investments in stable employment relationships. Employment protection by insulating insiders from labour market pressures may also increase the persistence of unemployment in response to shocks. These are important issues for future research.

More generally, the multiple features of US labour market flexibility (a less generous welfare state, decentralised wage-setting with only modest direct union and government influence, comparatively few onerous restrictions on hiring and firing) combined with relatively unfettered product markets may add up to more than their individual parts in terms of creating an environment of strong employment growth and much labour market competition. But such overall flexibility with relatively low levels of social protection implies much greater disparities in wages and incomes than other OECD nations.

Substantial geographic labour mobility in response to regional shocks also may play a role in the ability of the US economy to respond to shifts in product demand (Blanchard and Katz 1992). Pragmatic monetary policy (that has recently been willing to experiment with gradual reductions in unemployment rates to below previous estimates of the NAIRU) also may be an important component of US success in the 1990s.

These observations suggest that piecemeal reforms of 'rigid' labour markets (e.g. just reducing unemployment benefit levels) may have a small impact in the face of large remaining labour and product market restrictions and overly cautious monetary policy. For example, Italy, with stringent employment protections rules and a strong impact of wage adjustments favouring low-wage workers (the *scala mobile*) in the 1980s, generated high and persistent unemployment despite less generous unemployment benefits than the United States. And moves to temporary contracts have not solved high unemployment in France and Spain. Such interaction effects are difficult to identify in standard cross-country regressions with few observations. Thus more detailed analyses of the effects of specific labour market reforms may be helpful.

3.5 Has the US natural rate of unemployment declined in the 1990s?

The continuing decline of US unemployment over the past few years to levels well below existing estimates of the NAIRU may be indicative of favourable structural developments that have reduced the US NAIRU. Several hypotheses have been offered for this strong recent employment and inflation performance.

The first posits favourable demographic shifts from the entry of baby-boom cohorts in the 1970s to much smaller young cohorts in the 1990s. But the decline in unemployment is found in all demographic groups and the timing does not appear quite right. A second posits increased anxiety and perceived (and possibly actual) job insecurity which has reduced the willingness of workers to hold out for high wages even in a seemingly very tight labour market. A rise in earnings instability (Gottschalk and Moffitt 1994) and some evidence of (cyclically adjusted) increased rates of permanent job displacement are consistent with this view (Farber 1996). But the high levels of consumer confidence in recent polls do not suggest unusually widespread anxiety. A third hypothesis is that favourable supply shocks (e.g. a decline in the rate of growth of health care costs, spectacular reductions in computer prices, increased competitive pressures on pricing from a strong dollar) are the driving force, and these factors may be transitory (Gordon 1997b).

A fourth explanation is that the efficiency of job matching and labour market competition have been increased by the growth of private sector employment intermediaries (especially temporary help agencies). Employment in temporary help services increased from under 0.5 per cent of US employment in the early 1980s to approximately 2 per cent by 1996, and employment growth in temporary agencies accounted for approximately 10 per cent of all US employment growth in the first several years of the recovery from the unemployment peak of 1992 (Autor 1998). The greater ease for firms of locating qualified and screened employees through intermediaries lowers hiring costs, creates greater pressure on wage-setting of incumbent workers by

reducing bottlenecks in the labour market, and may facilitate better employment matches. An inward shift in the Beveridge curve relationship between the help-wanted index (a proxy for the vacancy rate) and unemployment is consistent with this hypothesis (Bleakley and Fuhrer 1997), but declining use of help-wanted ads with more use of intermediaries may play a role in this pattern.

In summary, only time and further research will allow us to determine the extent that the recent strong US unemployment record with low inflation reflects structural changes reducing the NAIRU or favourable transitory factors. The strong economic expansion of the past five years and currently tight labour market appears to have improved the economic situation of less-educated and disadvantaged workers, but changes in the distribution of labour market outcomes over the past few decades display the downside of the US flexible labour market model.

4. Rising Inequality in US Labour Market Outcomes

The inequality of economic well-being has increased substantially along many dimensions in the United States over the past two decades. The enormous disparities in the fortunes of American families in recent years have largely been associated with labour market changes that have increased overall wage inequality, and shifted wage and employment opportunities in favour of the more educated and more skilled. These changes have been carefully documented by many researchers using a wide variety of publicly available household and establishment data sets.⁵ While much debate exists concerning the causes of rising inequality, there is substantial agreement concerning the ‘facts’ that need to be explained.

Recent broad changes in US labour market outcomes can be summarised as follows:

- From the 1970s to the mid 1990s wage dispersion increased dramatically for both men and women, reaching levels of wage inequality for men that are probably greater than at any time since 1940. The weekly earnings of a full-time, full-year worker in the 90th percentile of the US earnings distribution (someone whose earnings exceeded those of 90 per cent of all workers) relative to a worker in the 10th percentile (someone whose earnings exceeded those of just 10 per cent of all workers) grew by approximately 45 per cent for men and 35 per cent for women from 1971 to 1995 (Katz and Autor 1998). Earnings inequality has expanded even more rapidly if one considers the very top part of the distribution (the upper 1 per cent). This pattern of rising wage inequality was reinforced by changes in the distribution of non-wage compensation and working conditions (Hamermesh 1998; Pierce 1997).
- Wage differentials by education and occupation increased. The labour market returns to years of formal schooling, academic achievement as measured by test scores, work-place training, and computer skills appear to have greatly increased in the 1980s and early 1990s. The earnings of young college graduates increased by 33 per cent relative to those of young high school graduates from 1979 to 1995. But the gender differential in wages has narrowed substantially since 1979.

5. See Freeman and Katz (1994), Gottschalk (1997), Gottschalk and Smeeding (1997), Katz and Autor (1998), and Levy and Murnane (1992) for recent surveys of the literature and more detailed references.

- Wage dispersion expanded within demographic and skill groups. The wages of individuals of the same age, education, and sex, working in the same industry and occupation, are much more unequal today than ten or twenty years ago.
- The real earnings of less-educated and lower-paid workers appear to have declined relative to those of analogous workers two decades ago. Non-employment rates for less-educated males have increased over the past two decades and the official employment and unemployment numbers understate this rise since the burgeoning population of those incarcerated (over 1.5 million in 1995) is not included in the civilian non-institutional population (Freeman 1996).
- Increased cross-sectional earnings inequality has not been offset by increased earnings mobility. Permanent and transitory components of earnings variation have risen by similar amounts (Gottschalk and Moffitt 1994). But this implies that year-to-year earnings instability has also increased substantially over the past two decades.
- These labour market changes have translated into a large widening of the family income distribution, as the earnings of husbands and wives have become more positively correlated over time (Károlyi and Burtless 1995). While pre-tax money income is a noisy measure of economic well-being, increased inequality is also apparent when one directly examines consumption and accounts for in-kind benefits and government transfers (e.g. Cutler and Katz 1991; US Department of Labor 1995a).

The overall spreading-out of the US wage distribution for men and women from 1971 to 1995 is illustrated in Figure 4 using data on real weekly wages of full-time, full-year workers from the March Current Population Survey (CPS).⁶ The figure shows an almost linear spreading-out of the wage distributions for both men and women, substantial gains of women on men throughout the wage distribution, and declining real earnings for males below the 60th percentile. The timing of the overall rising wage inequality (as measured by the 90–10 log wage differential) for men and women is illustrated in Figure 5. Rising wage inequality (driven initially by increases in within-group inequality) began in the 1970s for men. The period from 1980 to 1985 of a deep recession and large decline in manufacturing employment is the period of most rapid growth of wage inequality. The rate of growth of wage inequality appears to have slowed down in the 1990s. Figure 6 illustrates the evolution of the US college wage premium for all workers and young workers. The upsurge in the college wage premium in the 1980s more than offset a decline in the 1970s.

The slowdown of productivity growth since the early 1970s combined with growing inequality of labour market outcomes has translated into increased disparities in family incomes over the past twenty-five years. Figure 7 illustrates rapid income growth and declining inequality from 1947 to 1973, and increased inequality with declining family incomes in the bottom quintile (using pre-tax, post-transfer money incomes deflated by the consumer price index) from 1973 to 1996. Similar (but modestly less extreme) patterns of growing family income inequality and persistent poverty over the past couple of decades are apparent when adding in-kind benefits to money incomes, adjusting for family size, or looking at consumption expenditures per adult equivalent.

6. Nominal wages are converted into constant dollars using the chain-weighted personal consumption expenditures deflator of the national income accounts.

Figure 4: Change in Log Real Weekly Wage by Percentile
1971–95

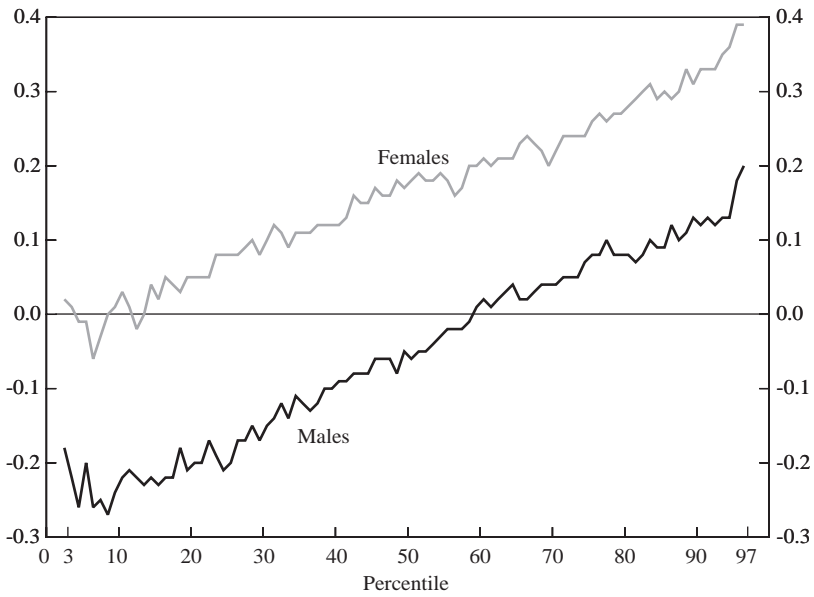
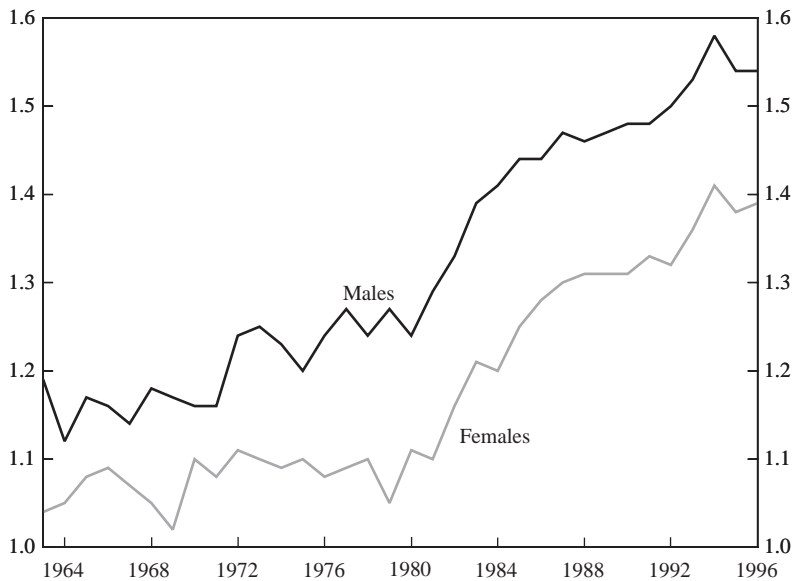


Figure 5: Overall US Wage Inequality
90–10 log weekly wage differentials



Source: Full-time full-year wage, March Current Population Survey.

Figure 6: College/High School Wage Differential
Difference in log weekly wage

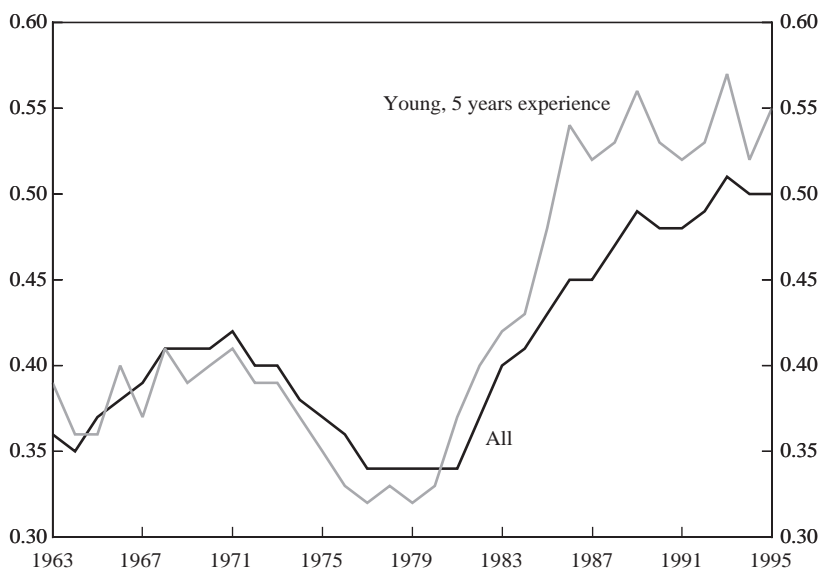


Figure 7: Family Income
Average annual percentage change



4.1 Understanding changes in the US wage structure

What roles did supply, demand and institutional factors play in explaining rising wage inequality in the United States? Most researchers conclude that a major factor underlying rising US wage dispersion and educational wage differentials is a strong secular shift in labour demand favouring more-skilled workers (Autor, Katz and Krueger 1998; Bound and Johnson 1992; Juhn, Murphy and Pierce 1993; Katz and Murphy 1992). The industrial and occupational distribution of US employment has been shifting strongly in favour of college graduates and women for many years. Employment has declined in goods-producing sectors that have disproportionately provided high-wage opportunities for blue-collar men and expanded in professional, medical, business, and other services that employ many college graduates and women. The internationalisation of the US economy has contributed some to these between-industry shifts, but (possibly naive) calculations of the factor content of US trade flows indicate that actual net trade flows explain only a modest portion of the shift in demand against less-educated workers necessary to be consistent with observed changes in educational wage differentials (Borjas, Freeman and Katz 1997). Most of the growth in the utilisation of more-educated workers reflects within-industry and even within-establishment skill upgrading (Autor, Katz and Krueger 1998; Dunne, Haltiwanger and Troske 1996). Within-industry changes in labour demand appear to be strongly related to technological and organisational changes favouring skills, and are strongly positively correlated with investments in computers and research and development (Autor, Katz and Krueger 1998; Berman, Bound and Griliches 1994).

Demand-side factors are not the entire story. Demand shifted in favour of more-educated workers in the 1970s and the 1980s–90s, but educational wage differentials narrowed in the 1970s and expanded dramatically in the 1980s–90s. The supply side of the market helps explain the difference between the two periods. The relative supply of college graduates grew extremely rapidly in the 1970s with the enrolment of baby boomers and incentives from the Vietnam War to enter and remain in college. The rate of growth of the relative supply of college graduates declined substantially in the 1980s and 1990s with the labour market entry of ‘baby bust’ cohorts. A large influx of immigrants with less than a high school education also contributed to slower growth in the supply of highly educated workers relative to less-educated workers in the 1980s and the 1990s (Borjas, Freeman and Katz 1997). A smooth secular shift in demand favouring more-educated workers, combined with variation in supply growth across decades, goes a fair distance to explaining the time pattern of the evolution of US skill differentials from the 1960s to the mid 1990s. Nevertheless, some acceleration in the rate of demand shifts against the less-skilled is required to more fully explain the magnitude of the growth of skill differentials in the 1980s. Autor, Katz and Krueger (1998) find an acceleration in the rate of within-industry demand for college workers in the post-1970 period relative to the 1960s.

Two institutional changes further contributed to rising US wage inequality in the 1980s. The precipitous decline in unionism is estimated to explain as much as one-tenth to one-fifth of the growth in educational wage differentials and wage dispersion among males (Freeman 1993; Card 1998a). Changes in unionisation do not appear to be an important factor in the evolution of the female wage structure. The large decline in the

real and relative value of the Federal minimum wage from 1981 to 1990 also contributed to rising wage inequality especially for women (DiNardo, Fortin and Lemieux 1996; Lee 1998). Of course, it is unclear the extent to which the decline of unions and minimum wages are exogenous events as opposed to endogenous institutional changes in response to strong changes in market conditions. A disproportionate decline in employment in high-wage industries for less-educated workers (a loss of labour rents) also contributed to rising educational wage differentials in the 1980s.

In summary, sizeable and somewhat accelerated demand shifts favouring more-educated workers, a reduction in the rate of growth in their supply, and institutional changes, all contributed to sharp increases in US wage inequality since the early 1980s. Similar demand shifts appear to have had smaller impacts on wage inequality in countries with stronger institutional interventions in wage-setting. Furthermore, educational wage differentials did not increase as much in countries with smaller decelerations in the rate of growth of the supply of highly educated workers (Freeman and Katz 1995).

5. Some Concluding Remarks

The flexible US labour market has generated strong employment growth and been somewhat resistant to the persistent, high levels of (predominantly long-term) unemployment experienced by many other OECD economies over the past two decades. But the US model has also generated much greater inequality of labour market outcomes and family incomes. Despite higher average real incomes, the real hourly earnings of low-wage workers (those in the bottom decile of the wage distribution) are substantially lower (placed on a purchasing power parity basis) than those of the analogous workers in advanced Europe (Freeman 1997). The tight labour markets and rapid economic growth of the past few years are drawing more disadvantaged individuals into employment and starting to raise real earnings in the bottom quarter of the US wage distribution. Such tight labour markets need to be complemented with workforce preparation strategies that better enable those without college degrees and from poor backgrounds to take advantage of emerging opportunities, and possibly also with policies to subsidise the employment of the less skilled.

Market incentives for increased individual educational investments and skill upgrading can play some role in alleviating growing inequality in the United States. The large increase in the college wage premium in the 1980s and early 1990s has been associated with an increase in college enrolment rates from 49 per cent of high school graduates in 1980 to more than 60 per cent in the early 1990s. But the process of supply adjustment can take many years, and many disadvantaged individuals face financial and informational barriers to pursuing further education and training.

Much recent work has evaluated the effectiveness of alternative active labour market policies for improving the labour market prospects of the disadvantaged.⁷ Policies to increase years of schooling for those from low-income families appear to have high returns (Card 1998b). Public-sector-sponsored training programs have a mixed record

7. See US Department of Labor (1995b) and Stanley, Katz and Krueger (1998) for recent reviews of the evidence on the effectiveness of US employment and training programs and demonstrations.

with strong positive returns for disadvantaged adults (particularly adult women) but more disappointing results in evaluations of programs for disadvantaged out-of-school youths (LaLonde 1995; Stanley, Katz and Krueger 1998; US Department of Labor 1995b). Employer-side wage subsidies (or employment tax credits) that are highly targeted on very specific socioeconomic groups appear somewhat effective for disadvantaged youth but have substantial administrative burdens and may even stigmatise some targeted groups (e.g. welfare recipients and ex-convicts). Policies using an intermediary (a public employment agency, non-profit training organisation, *etc.*) that combine job development, job-search assistance, training, and employment subsidies appear more successful for targeting specific disadvantaged groups (Katz 1998). The earned-income tax credit, which currently provides up to a 40 per cent earnings supplement for low-income workers with two or more children, also appears to be an effective part of a strategy to improve the earnings of less-skilled workers and encouraging movements from dependency to work.

References

- Autor, D. (1998), 'Why Do Temporary Help Firms Provide Free General Skills Training?', mimeo, Harvard University, April.
- Autor, D., L. Katz and A. Krueger (1998), 'Computing Inequality: Have Computers Changed the Labor Market?', *Quarterly Journal of Economics*, 113(4), forthcoming.
- Ball, L. (1997), 'Disinflation and the NAIRU', in C. Romer and D. Romer (eds), *Reducing Inflation*, University of Chicago Press, Chicago, pp. 167–185.
- Bean, C. (1994), 'European Unemployment: A Survey', *Journal of Economic Literature*, 32(2), pp. 573–619.
- Berman, E., J. Bound and Z. Griliches (1994), 'Changes in the Demand for Skilled Labor within US Manufacturing Industries: Evidence from the Annual Survey of Manufactures', *Quarterly Journal of Economics*, 108(2), pp. 367–397.
- Blanchard, O. (1991), 'Wage Bargaining and Unemployment Persistence', *Journal of Money, Credit and Banking*, 23(3), pp. 277–292.
- Blanchard, O. (1998), 'Employment Protection and Unemployment', mimeo, MIT, March.
- Blanchard, O. and L. Katz (1992), 'Regional Evolutions', *Brookings Papers on Economic Activity*, 1, pp. 1–76.
- Blanchard, O. and L. Katz (1997), 'What We Know and Do Not Know About the Natural Rate of Unemployment', *Journal of Economic Perspectives*, 11(1), pp. 51–72.
- Blanchard, O. and P. Portugal (1998), 'What Hides Behind an Unemployment Rate: Comparing Portuguese and US Unemployment', mimeo, MIT, March.
- Blanchard, O. and L. Summers (1986), 'Hysteresis and the European Unemployment Problem', in O. Blanchard and S. Fischer (eds), *NBER Macroeconomics Annual*, MIT Press, Cambridge, Massachusetts, pp. 15–78.
- Bleakley, H. and J. Fuhrer (1997), 'Shifts in the Beveridge Curve, Job Matching, and Labor Market Dynamics', *New England Economic Review*, September/October, pp. 1–18.
- Borjas, G., R. Freeman and L. Katz (1997), 'How Much Do Immigration and Trade Affect Labor Market Outcomes?', *Brookings Papers on Economic Activity*, 1, pp. 1–90.
- Bound, J. and G. Johnson (1992), 'Changes in the Structure of Wages in the 1980s: An Evaluation of Alternative Explanations', *American Economic Review*, 82(3), pp. 371–392.
- Card, D. (1998a), 'Falling Union Membership and Rising Wage Inequality: What's the Connection?', NBER Working Paper No. 6520.
- Card, D. (1998b), 'The Causal Effect of Education on Earnings', in O. Ashenfelter and D. Card (eds), *Handbook of Labor Economics*, North-Holland, Amsterdam, forthcoming.
- Card, D., F. Kramarz and T. Lemieux (1996), 'Changes in the Relative Structure of Wages and Employment: A Comparison of the United States, Canada, and France', NBER Working Paper No. 5487.
- Council of Economic Advisors (1998), *Economic Report of the President*, US Government Printing Office, Washington, D.C.
- Cutler, D. and L. Katz (1991), 'Macroeconomic Performance and the Disadvantaged', *Brookings Papers on Economic Activity*, 2, pp. 1–74.
- Debelle, G. and T. Swann (1998), 'Stylised Facts of the Australian Labour Market', Reserve Bank of Australia Research Discussion Paper No. 9804.
- Diamond, P. (1982), 'Wage Determination and Efficiency in Search Equilibrium', *Review of Economic Studies*, 49(2), pp. 217–227.

- DiNardo, J., N. Fortin and T. Lemieux (1996), 'Labor Market Institutions and the Distribution of Wages, 1973–1992: A Semi-Parametric Approach', *Econometrica*, 64(5), pp. 1001–1044.
- Dunne, T., J. Haltiwanger and K. Troske (1996), 'Technology and Jobs: Secular Changes and Cyclical Dynamics', NBER Working Paper No. 5656.
- Farber, H. (1996), 'The Changing Face of Job Loss in the United States, 1981–1993', NBER Working Paper No. 5596.
- Forslund, A. and A. Krueger (1997), 'An Evaluation of Swedish Active Labor Market Policy: New and Received Wisdom', in R. Freeman, R. Topel and B. Swedenborg (eds), *The Welfare State in Transition*, University of Chicago Press, Chicago, pp. 267–298.
- Freeman, R. (1993), 'How Much Has De-unionization Contributed to the Rise in Male Earnings Inequality?', in S. Danziger and P. Gottschalk (eds), *Uneven Tides*, Russell Sage, New York, pp. 133–163.
- Freeman, R. (1996), 'Why Do So Many Young American Males Commit Crimes and What Might We Do About It?', *Journal of Economic Perspectives*, 10(1), pp. 25–42.
- Freeman, R. (1997), *When Earnings Diverge*, National Planning Association, Washington, D.C.
- Freeman, R. and L. Katz (1994), 'Rising Inequality: The United States vs. Other Advanced Nations', in R. Freeman (ed.), *Working Under Different Rules*, Russell Sage, New York, pp. 29–62.
- Freeman, R. and L. Katz (1995), *Differences and Changes in Wage Structures*, University of Chicago Press and NBER, Chicago.
- Friedman, M. (1968), 'The Role of Monetary Policy', *American Economic Review*, 58(1), pp. 1–21.
- Gordon, R. (1997a), 'The Time-varying NAIRU and its Implications for Economic Policy', *Journal of Economic Perspectives*, 11(1), pp. 11–32.
- Gordon, R. (1997b), 'The Sectoral Origins of the Recent Decline in the NAIRU', mimeo, Northwestern University, November.
- Gottschalk, P. (1997), 'Inequality in Income, Growth and Mobility: The Basic Facts', *Journal of Economic Perspectives*, 11(2), pp. 21–40.
- Gottschalk, P. and R. Moffitt (1994), 'The Growth of Earnings Instability in the US Labor Market', *Brookings Papers on Economic Activity*, 2, pp. 217–272.
- Gottschalk, P. and T. Smeeding (1997), 'Cross-national Comparisons of Earnings and Income Inequality', *Journal of Economic Literature*, 35(2), pp. 633–687.
- Hamermesh, D. (1998), 'Changing Inequality in Markets for Workplace Amenities', NBER Working Paper No. 6515.
- Jackman, R., R. Layard and S. Nickell (1996), 'Combating Unemployment: Is Flexibility Enough?', mimeo, London School of Economics.
- Juhn, C. (1992), 'Decline of Male Labor Market Participation: The Role of Declining Market Opportunities', *Quarterly Journal of Economics*, 107(1), pp. 79–121.
- Juhn, C., K. Murphy and B. Pierce (1993), 'Wage Inequality and the Rise in Return to Skills', *Journal of Political Economy*, 101(3), pp. 410–442.
- Juhn, C., K. Murphy and R. Topel (1991), 'Why has the Natural Rate Increased Over Time?', *Brookings Papers on Economic Activity*, 2, pp. 75–142.
- Karoly, L. and G. Burtless (1995), 'Demographic Change, Rising Earnings Inequality and the Distribution of Well-being, 1959–1989', *Demography*, 32(3), pp. 379–405.
- Katz, L. (1986), 'Efficiency Wage Theories: A Partial Evaluation', in O. Blanchard and S. Fischer (eds), *NBER Macroeconomics Annual*, MIT Press, Cambridge, Massachusetts, pp. 235–276.

- Katz, L. (1998), 'Wage Subsidies for the Disadvantaged', in R. Freeman and P. Gottschalk (eds), *Generating Jobs: How to Increase Demand for Less-skilled Workers*, Russell Sage Foundation, New York, Chapter 1.
- Katz, L. and D. Autor (1998), 'Changes in the Wage Structure and Earnings Inequality', in O. Ashenfelter and D. Card (eds), *Handbook of Labor Economics*, North-Holland, Amsterdam, forthcoming.
- Katz, L. and B. Meyer (1990), 'The Impact of the Potential Duration of Unemployment Insurance Benefits on the Duration of Unemployment', *Journal of Public Economics*, 41(2), pp. 45–72.
- Katz, L. and K. Murphy (1992), 'Changes in Relative Wages, 1963–87: Supply and Demand Factors', *Quarterly Journal of Economics*, 107(1), pp. 35–78.
- Krueger, A. and J. Pischke (1997), 'Observations and Conjectures on the US Employment Miracle', Princeton University Industrial Relations Section Working Paper No. 390.
- Krugman, P. (1994), 'Past and Prospective Causes of High Unemployment', in *Reducing Unemployment: Current Issues and Policy Options*, Federal Reserve Bank of Kansas City, Kansas City, Missouri, pp. 49–80.
- LaLonde, R. (1995), 'The Promise of Public-sector Sponsored Training Programs', *Journal of Economic Perspectives*, 9(2), pp. 159–168.
- Layard, R., S. Nickell and R. Jackman (1991), *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford University Press, Oxford.
- Lee, D. (1998), 'Wage Inequality in the US During the 1980s: Rising Dispersion or Falling Minimum Wage?', mimeo, Princeton University.
- Levine, P. (1993), 'Spillover Effects Between the Insured and Uninsured Unemployed', *Industrial and Labor Relations Review*, 47(1), pp. 73–86.
- Levy, F. and R. Murnane (1992), 'US Earnings Levels and Earnings Inequality: A Review of Recent Trends and Proposed Explanations', *Journal of Economic Literature*, 30(3), pp. 1333–1381.
- Lindbeck, A. (1995), 'Hazardous Welfare-state Dynamics', *American Economic Review*, 85(2), pp. 9–15.
- Lucas, R. (1976), 'Econometric Policy Evaluation: A Critique', *Carnegie-Rochester Conference Series on Public Policy*, 1, pp. 19–46.
- Martin, J. (1994), 'The Extent of High Unemployment in OECD Countries', in *Reducing Unemployment: Current Issues and Policy Options*, Federal Reserve Bank of Kansas City, Kansas City, Missouri, pp. 1–40.
- Meyer, B. (1990), 'Unemployment Insurance and Unemployment Spells', *Econometrica*, 58(4), pp. 757–782.
- Murphy, K. and R. Topel (1997), 'Unemployment and Nonemployment', *American Economic Review*, 87(2), pp. 295–300.
- Nickell, S. (1996), 'Unemployment and Wages in Europe and North America', Oxford University, Labour Market Consequences of Technical and Structural Change Discussion Paper Series No. 6.
- Nickell, S. and B. Bell (1995), 'The Collapse of Demand for the Unskilled and Unemployment Across the OECD', *Oxford Review of Economic Policy*, 11(1), pp. 40–62.
- OECD (1994), *Employment Outlook*, OECD, Paris.
- OECD (1996), *Employment Outlook*, OECD, Paris.
- OECD (1997), *Employment Outlook*, OECD, Paris.

- OECD (1998), *Main Economic Indicators*, OECD, Paris, April.
- Phelps, E. (1968), 'Money-wage Dynamics and Labor-market Equilibrium', *Journal of Political Economy*, 76(4, part 2), pp. 678–711.
- Phelps, E. (1994), *Structural Slumps: The Modern Equilibrium Theory of Unemployment, Interest, and Assets*, Harvard University Press, Cambridge.
- Pierce, B. (1997), 'Compensation Inequality', mimeo, US Bureau of Labor Statistics.
- Pissarides, C. (1990), *Equilibrium Unemployment Theory*, Basil Blackwell, Oxford.
- Staiger, D., J. Stock and M. Watson (1997), 'The NAIRU, Unemployment and Monetary Policy', *Journal of Economic Perspectives*, 11(1), pp. 33–50.
- Stanley, M., L. Katz and A. Krueger (1998), 'Impacts of Employment and Training Programs: The American Experience', mimeo, Harvard University, May.
- US Department of Labor (1995a), *Report of the American Workforce*, US Government Printing Office, Washington.
- US Department of Labor (1995b), *What's Working (and What's Not): A Summary of Research on the Economic Impacts of Employment and Training Programs*, Office of the Chief Economist, January.
- Wilson, W. (1996), *When Work Disappears: The World of the New Urban Poor*, Knopf, New York.

Discussion

1. Glenn Stevens

Any conference on unemployment has to devote a substantial part of its time to examining the international evidence and in particular, the exceptional performance of the US labour market. If we are interested in the generation of jobs, there is no other country which matches the US over the past fifteen years or so. As such, the US labour market is the best international benchmark for a discussion of Australian issues, and Katz's paper gets our discussion off to a good start, covering a lot of ground in an authoritative way.

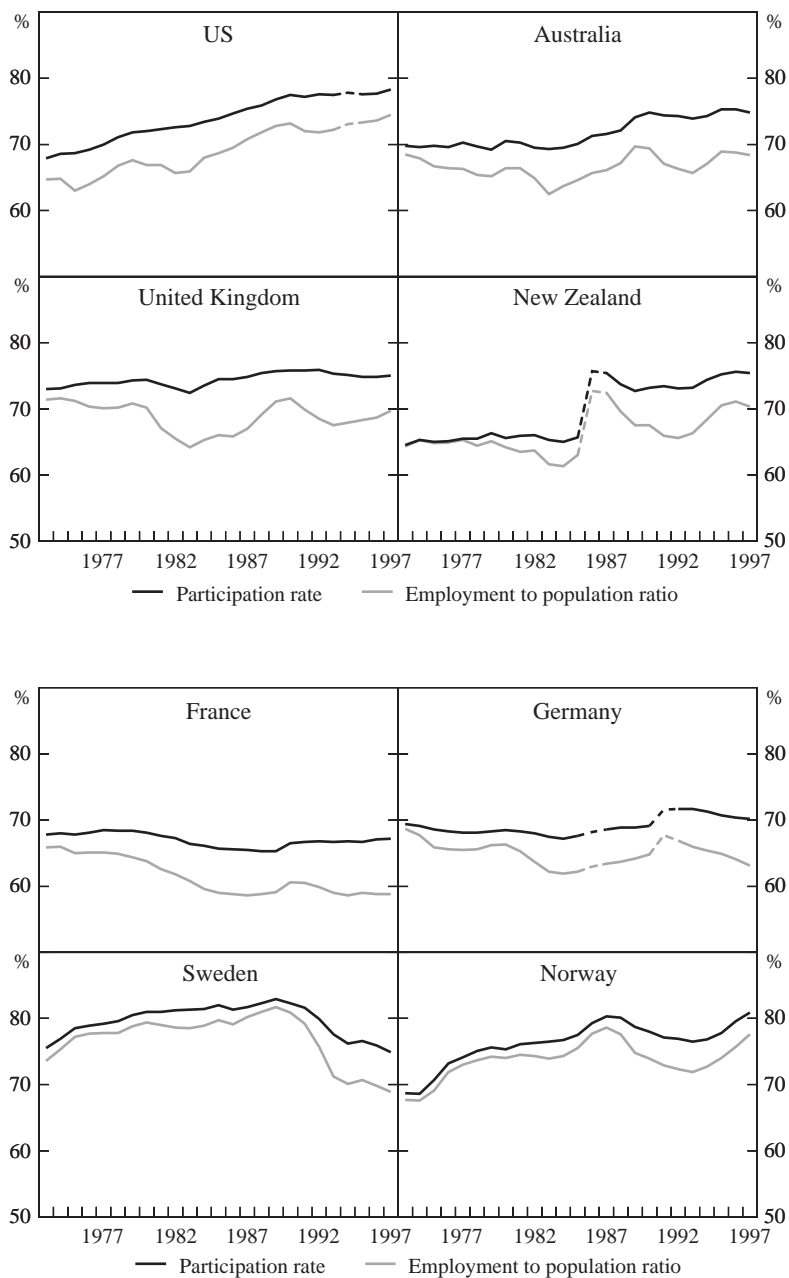
The paper begins by summarising the long-term time-series evidence across countries. It is commonplace to compare the US with Europe, and such comparisons are frequent throughout both the papers for this session. Table 1 of Katz's paper is a useful reminder in that context that while US unemployment rates are widely admired today, this has not always been so. Through the 1950s, 1960s and 1970s, the US was a high unemployment country (and Australia a low unemployment country) by the standards of the OECD average. Indeed, I am told that many years ago, it was not unknown at international meetings for the US to be berated by other countries for its unemployment performance. This only really began to change in the 1980s, when US unemployment began to fall after the early 1980s recession; it did not rise much in the 1990 recession, and has fallen considerably after it. The contrast with Europe is striking.

It is perhaps worth noting – and Katz does note in passing – that the comparisons of end-point unemployment rates may flatter the US to some extent, because the early 1990s recession was mild in the US but severe in Germany due to the unique shock of unification and, by the wonders of the ERM, therefore severe in much of continental Europe. The US is also more or less at the end of an exceptional period of above-trend growth, whereas Europe has barely begun.

Nonetheless, the likelihood of structural differences in unemployment rates remains. The paper utilises a simple, standard NAIRU framework to analyse the time series for the two regions, and reaches the conclusion that the US NAIRU has not changed much over three decades, but that the NAIRU in Europe increased in the 1980s and increased again in the 1990s. This is a pretty standard result, and will not find much disagreement around the table. On the quantities dimension of labour market performance, then the US is clearly, to use the current adjective of choice, triumphant.

This point can be made even more clearly using statistics on labour force participation rates and employment to population ratios (Figure 1). What is striking here is partly the level the US employment/population ratio has reached, which is about equal to the highest amongst the OECD group, but more importantly, the size of the increase in this ratio – about 10 full percentage points over twenty-five years. Virtually no other country in the OECD group has seen an increase of this magnitude. In the big continental European economies, E/P ratios were higher than in the US in the mid 1970s, but have actually fallen and are now a long way below American levels. Those in the UK have shown no net change.

Figure 1: Labour Force Participation and Employment to Population Ratios



Note: Working-age population is persons aged 15-64.

When I look at these, it seems to me that comparing unemployment rates may understate the degree of contrast between the US and Europe. Is it too crude to say that the US economy has seen a massive increase in the supply of labour, mainly in the form of women wanting to work, and that it has been remarkably effective in finding ways of utilising that increased supply to grow the economy's output? And that European labour markets, for whatever reason, have been stagnant or declining for the best part of twenty-five years? And, finally, that the Australian experience is somewhere between these two extremes (as it seems to be on most international comparisons)?

The paper considers various candidates for explaining the performance of the US *vis-à-vis* Europe on unemployment. Amongst these candidates are the usual ones like generosity of unemployment benefits and the extent of general labour market intervention which is less in the US than in Europe. As Katz (and others) point out, however, this was always true – so to explain the change in relative positions on unemployment over the past twenty years requires some additional hypothesis. One might be that European NAIRUs were always higher, but actual unemployment was held down by some other factor for a long time, though not permanently. Richard Jackman's paper contains an intriguing idea of this kind, which I'm sure discussion will want to take up.

Katz points out the way that various others have tried to handle this, which is by focusing not just on the labour market and regulatory structures, but also on how those structures interact with the shocks to which economies have been subject.¹ One set of shocks specifically mentioned is the rise in inflation in the 1970s, followed by efforts at disinflation, and the possibility that there are hysteresis effects as a result of this. The paper notes that evidence is pretty mixed across countries on hysteresis, but cites Larry Ball's work which suggests that longer or larger disinflations, combined with longer durations of unemployment benefits, seem to be associated with bigger rises in NAIRUs. Hence it was not until inflation rose in the 1970s and countries needed to have major disinflations, that we found out the real importance of these supply-side characteristics.

In Katz's models of the US and European Phillips curves, the sensitivity of inflation to unemployment is about the same in Europe as in the US. So Europe would not need a larger unemployment gap for any given amount of disinflation than the US, unless something else – like inflation expectations for example – were moving adversely. And I find it hard to believe that European central bankers set out to disinflate more slowly than the Fed. This seems to me to put any hysteresis back on to the labour market structures or other features of the economies in question, rather than different choices in disinflation strategies *per se*. There is still, furthermore, a question as to why it was that the 1950s and 1960s were apparently so conducive to such low unemployment in Europe (and Australia). Was it really just luck, with an absence of large adverse shocks?

Structures of the complete set of markets in the economy are no doubt relevant to employment and unemployment outcomes of the kind delivered by the US over the years; this point is touched on when Katz says that the labour market structures combined

1. This would then raise the question of whether all economies have been subject to the same shocks of the same intensity. One can think of some differences – such as German unification for example – but the other major shocks, such as the OPEC shocks and the productivity slowing in the mid 1970s, seem pretty common.

with liberal product markets ‘may add up to more than their individual parts’ in creating strong employment growth. My feeling is that there is quite a lot in this observation: the general dynamism of the US economy seems an important part of the economic outcomes there across the board. Flexibility of the labour market – with its hard edges and all – is part of the very essence of that dynamism, but there are other elements of the US system which are able to take advantage of that flexibility to produce the outcomes.

On the price dimension of US labour market experience, the paper is careful to acknowledge the downside to which many have pointed, namely the decline in real wages of US workers and the increased dispersion of wages across the earnings distribution and the resulting income inequality. I found the section on understanding the changes in the US wage structure instructive. This summary of the US literature suggests that demand shifts favouring skilled workers have been an important part of the story behind the changes in relative wages, with changes *within* industries and firms more important than changes *between* industries. Foreign trade has made some difference, but more importance is attached to technological change. In other words, the *nature of work* in virtually every part of the modern American economy is changing. Surely this is or will soon be true elsewhere as well.

The extent to which greater dispersion of wages is ‘bad’ may depend on whether those earning the lowest rates of pay stay permanently in that position, or whether they are earning low incomes simply at one stage of their working lives and moving up thereafter. If ‘McJobs’ were confined largely to teenage students who subsequently became skilled employees on higher incomes, perhaps we should worry less about this inequality than if they were a lifetime experience. So one question would be about the extent of such mobility in the US economy and whether it is changing. It might be worth us considering the evidence for this in other countries as well. I’m told that OECD work suggests differences in mobility are not that large between countries, though the US appears to have a bit more than others.

A related question which I am not clear on, is what light the US experience casts on the question of whether it is *relative* wage flexibility or *aggregate* wage flexibility which is most important in delivering strong employment outcomes. I think it is widely accepted that large changes in aggregate real wages mattered a great deal for aggregate employment outcomes in the 1970s and 1980s in Australia. But it seems to me that the unemployment we presently observe in Australia is decidedly unequal by broad skill classification. Is the US experience teaching us that there are substantial shifts in relative demands for skills, and that relative wage changes help to send signals which induce the necessary adjustments in labour supply?

If so, we will have to re-examine some cherished notions about the wage-setting system in Australia. Given historical concerns about equity, this will raise difficult questions about the nature of other support which might be given to the less well-off. Discussion of this in the paper is relatively brief. There are some tantalising references to various measures, including subsidies, training, and tax credit schemes right at the end of the paper. These issues of how to design the tax-welfare-wage interactions are at the heart of current thinking about better labour market outcomes in Australia. They will be taken up by other papers in some detail.

What questions for discussion can we take away from this paper?

I think from an Australian point of view one natural question to ask is what aspects observed in the US labour market experience might be expected here in future (to the extent they are not seen already). We have already seen a significant degree of increase in wage dispersion, though the Australian social security system has softened the edges of this trend to some extent if we look at household disposable incomes. Will this continue? What would be the costs of trying to resist it? We appear to be seeing changes in the relative demand for skilled versus unskilled labour. Will this result in higher relative returns to education? My understanding is that the available Australian data do not show an increase in returns to education thus far, perhaps because increased supply is keeping up with demand, and perhaps because the data are out of date.

Second, there is the relationship between the structure of labour markets and that of product markets. We have had considerable liberalisation of product markets in Australia, and this is driving labour market outcomes, generally in the direction of forcing considerable gains in productivity. But at that point, I think we need to include the rather vague notion of 'entrepreneurship' – the capacity and willingness to take and manage risks in pursuit of new opportunities, utilising the flexibility of markets and responding to their incentives. The US economy seems to have a lot of this. Does Australia? Australian firms since the end of the 1980s have pursued quite substantial productivity improvements involving reductions in workforce numbers, including in previously very secure areas such as banking, and middle management areas of large organisations. Is the supply of these displaced individuals to the employment market resulting in opportunities for 'entrepreneurship' to create new products and jobs? Or are those resources remaining underutilised?

Third, the obvious and probably most fundamental question for the conference: is there any way of combining the undoubted capacity of the US system in generating jobs and quickly re-locating displaced people into other forms of employment with the degree of equity in incomes which, other things equal, most would prefer to see? Or are we left with what some of the papers refer to as the 'diabolical choice' between a high employment, low average wage, high wage dispersion equilibrium and one characterised by a more compressed wage structure and low employment?

2. General Discussion

See the general discussion following the paper by Richard Jackman (p. 67).

European Unemployment: Why is it So High and What Should be Done About it?

Richard Jackman

1. Introduction

At the end of 1997 the average unemployment rate across Europe was just over 10 per cent, more than twice the rate in the United States. Worse, the average (standardised) unemployment rate in Europe has exceeded 10 per cent in every year since 1993. By contrast, the average annual unemployment rate in the United States since the war has never exceeded 10 per cent in any year and the highest annual rate recorded over the past ten years has been 7.5 per cent in 1992.

The failure of European labour markets to achieve full employment is generally regarded as one of the most serious weaknesses of the European approach to economic policy. In the United States, and increasingly in the UK and in other English-speaking countries, the high rates of unemployment are seen to symbolise inefficiency and dysfunctionality, whose solution requires a radical transformation of the European style of economic management. In Europe it tends to be thought that unemployment is, in some sense, the price to be paid for labour market and social insurance arrangements which preserve the dignity of work and a harmonious society. While there is no attempt to minimise the unemployment problem, the search is for solutions which at the same time preserve the essential elements of the consensual European approach to economic policy.

But the antithesis between low unemployment market capitalism in the United States on the one hand, and high unemployment interventionist Europe on the other, is plainly too simple an account of matters. For many years in the 1960s and 1970s, most European countries had lower unemployment rates than America. The range of variation of unemployment rates in Europe has been large. For example, during the 1980s, the Nordic countries had amongst the lowest unemployment rates of any of the OECD countries despite highly protective social institutions. Further, the relative unemployment rates of different countries have changed over time: in the 1980s, Sweden had one of the lowest unemployment rates in Europe whilst now it is one of the highest, whereas the UK, which was one of the worst performers in the 1980s, has now a relatively low unemployment rate.

Thus many economists have preferred not to focus on the Europe/US comparison but rather look at the overall determinants of unemployment rates within nations. Such investigations have generally examined the impact of variables suggested by economic theory – for example, unemployment benefit systems, trade union coverage, employment protection legislation, structural mismatch, *etc.* – and reasonably good explanations of cross-country differences in unemployment rates have been suggested along these lines. But it has been noted that these correlations are not very stable and, perhaps worse, they appear to provide no explanation of the variation in countries' unemployment rates over

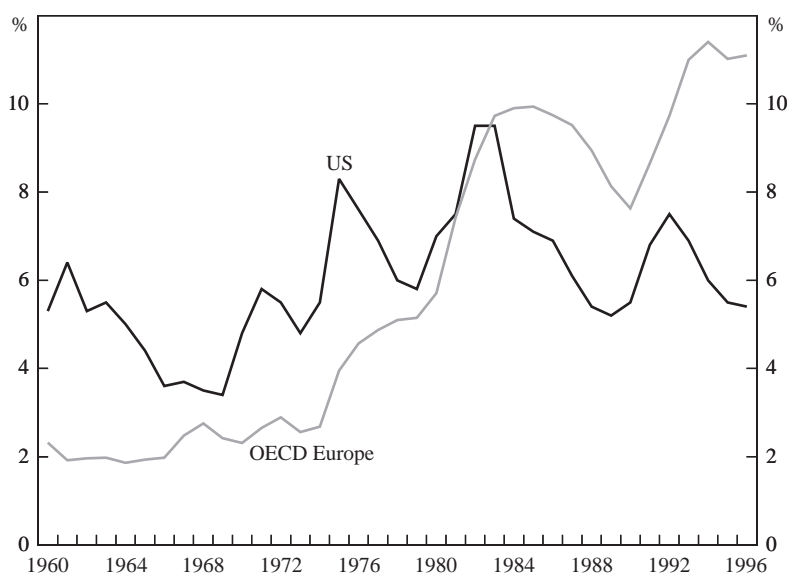
time. For example, in the UK the 1979 Conservative Government of Mrs Thatcher reduced benefits and attacked union power yet generated the sharpest increase in unemployment since the Great Depression. Likewise, in the early 1990s, Sweden lurched from being a low unemployment to a high unemployment country without any enormous change in its structure or institutions.

In this paper I first briefly review the evidence (in Section 2) and offer some general perspectives on its interpretation. Section 3 describes the existing theoretical debate on the causes of unemployment. Because of unsatisfactory features of some existing theories, it turns out to be helpful to construct a simple model of labour market ‘sclerosis’ which helps to explain a number of key features of labour market experience. Section 4 describes some aspects of the policy debate in Europe and Section 5 offers a brief conclusion.

2. A Brief Review of the Evidence

First, the time series. While it now tends to be taken for granted that the United States has lower unemployment than Europe, this is in fact only quite a recent development. Figure 1 compares the ‘European’ unemployment rate with that of the United States annually from 1960 to 1996. The European rate is the weighted average of the unemployment rates in 14 countries, weighted by their labour force. The countries are Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland and the UK. Unemployment rates are standardised for all countries except Austria, Denmark, Ireland and Switzerland. Germany is West Germany until 1991, and the whole country thereafter (arithmetically, the inclusion

Figure 1: Unemployment Rates



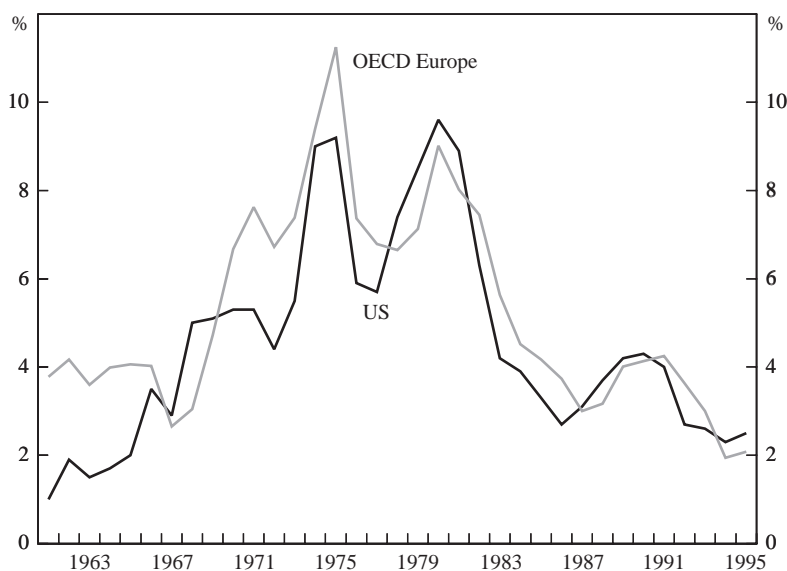
Source: Standardised unemployment rates, *OECD Economic Outlook*, various issues.

of the former East Germany raises German unemployment by 1.5 to 2.0 percentage points, and thus European unemployment by 0.3 to 0.4 percentage points a year between 1991 and 1994: from 1995 only all Germany figures are reported). I compare Europe with the United States rather than with the rest of the OECD because of doubts concerning the comparability of the Japanese unemployment data with those of Western countries, and the thought that the other English-speaking countries retain some European characteristics, so that any comparison with Europe would be less sharp.

Until the end of the 1970s, average European unemployment was, in every year, substantially lower than the US unemployment rate. By 1979, European unemployment had come quite close to the US level, which was then 5.8 per cent. Unemployment then rose sharply almost everywhere in response to the deflationary policies taken in reaction to OPEC II, and both in the US and in Europe reached around 9.5 per cent in 1982/83. But in the US this turned out to be a peak, and unemployment then started to decline quite rapidly, whereas in Europe unemployment continued to rise. In retrospect, the early 1980s in the US appeared like a cyclical downturn, albeit quite a severe one but followed by a recovery within a normal business-cycle timescale, whereas in Europe the reaction to OPEC II was a substantially and permanently higher rate of unemployment.

Many who argue that European policies and institutions have been the cause of high and persistent unemployment in the 1980s and 1990s, have been troubled by the thought that not-dissimilar policies and institutions appeared to have been compatible with full employment in the 1960s and early 1970s. As Nickell (1997, p. 65) puts it 'in the 1960s the unemployment rankings across countries were completely different but, roughly speaking, the labour market institutions were the same. So how can the labour market institutions have anything to do with unemployment?'. An immediate reaction is that perhaps they do not: the United States experienced a substantial fiscal boost in the early 1980s resulting from the Reagan tax cut initiative and the deficits which followed it. By contrast, most European countries followed orthodox fiscal and monetary policies and demand was held back, and even reduced sharply in some countries such as the UK. But at the time, such policies were seen to reflect a feature of reality learnt in the 1970s, namely that even in times of high unemployment, demand expansion led only to inflation. Thus labour market institutions were seen as permitting expansionary policies in the States while preventing them in Europe, and the rather similar inflation outcome in Europe and the US from the early 1980s (Figure 2) provides support for this interpretation. But how then to explain the differences between the period since 1980 from the period before, if labour market institutions had not changed over this time? There are perhaps three general lines of explanation.

The first, most simply, is that there were in fact sufficient changes in institutional arrangements, comparing the 1980s and 1990s with the 1960s and 1970s, to account for the increase in unemployment. Thus Siebert (1997, p. 39) argues that 'institutional changes affecting Europe's labour markets over the last 25 years are a central reason for Europe's poor labour market performance'. Along these lines it may be noted that over this period many governments were happy to legislate to strengthen union rights and employment protection, to improve working conditions through measures affecting hours of work, holiday and parental leave entitlement, and in some countries, minimum wages. In most countries, the scope and generosity of the unemployment benefit system

Figure 2: Inflation Rates

Notes: Weights calculated at current gross domestic product (GDP) and 1990 exchange rates. Inflation is defined as the year-to-year percentage change in the GDP deflator. Turkey is excluded from OECD Europe.

Source: *OECD Economic Outlook*, December 1995.

were increased thus raising the reservation wage. All this involved higher taxes or contributions, which in many countries were levied directly on employment. On this interpretation, Europe's labour market institutions were compatible with a low equilibrium rate of unemployment in the 1960s, but have changed sufficiently over the past 25 years that they are now the source of high equilibrium unemployment.

A second set of explanations rests on the idea of inertia or hysteresis in unemployment. The idea here is that European labour markets do not cause unemployment directly but rather lock in high rates of unemployment caused by macroeconomic downturns, in this particular case, the OPEC shocks. Such explanations suppose that 'institutions had a big impact on the way in which each of the economies of the different countries responded to the major adverse shocks of the 1970s and the way in which some of these responses, notably unemployment persisted through the 1980s and 1990s' (Nickell 1997, p. 66). The role of insiders in wage bargaining, the consequences of long spells of unemployment, firing costs and employment protection and capital shortages have all been cited as possible mechanisms through which an adverse shock to unemployment can have long-lasting effects. For example, a firm which has been obliged to cut its workforce in bad times may act in the interests of those who are still employed, the 'insiders', and retain a smaller workforce (and pay them more) when the economy recovers. Similarly, if the experience of unemployment, and in particular of long spells of unemployment, reduces a person's capacity to work effectively in the future (or is thought to do so) it will become difficult for people who have experienced lengthy spells of unemployment to

find work. The strength and persistence of these mechanisms will depend on the institutional structure of the labour market.

A third argument, which has become more popular recently, rests on the interaction of labour market institutions not with macroeconomic recession but with technological change. If recent technological changes have had the effect of increasing the relative demand for skilled labour because of computers and the like, and if there is no corresponding increase in the supply, then one would expect the relative wages of skilled workers to rise. In the United States, there has been a sharp increase in the relative wages of skilled workers, but in most European countries there has been little change in relative wages. A fall in relative demand with no change in relative wages can only lead to a fall in the relative employment rates of unskilled workers. This may then manifest itself in higher unemployment rates of the unskilled, and hence increased unemployment overall. If the rigidity of relative wages in Europe can be ascribed to its labour market institutions, then in the context of skill-biased technical change, they could be responsible for increased unemployment in Europe.

It could also be argued that the European unemployment rate of the 1960s and early 1970s was unsustainably low, reflecting a policy commitment to full employment and a view of the inflation/unemployment trade-off according to which low unemployment might lead to faster, rather than to accelerating, inflation. During the 1960s, inflation, though relatively low, was rising both in Europe and in the US (Figure 2). In Europe the average inflation rate was around 4 per cent in 1960, 8 per cent by the early 1970s and reached nearly 12 per cent in the aftermath of the first OPEC shock. Inflation in the United States was also rising over this period, from only 2 per cent in 1960 to nearly 10 per cent after OPEC I, and excess demand was evidently as much a characteristic of the American economy as of the European economies during the 1960s. Even so, it is possible that due to institutional rigidities, inflation was slower to respond to excess demand in Europe, which in turn allowed the European economies to be run with unemployment further below its equilibrium for longer periods of time than would have been possible in the US.

The second main empirical observation is that differences between the European countries have been large both in absolute terms and relative to the difference between Europe and the US. Since 1960, the average variance of unemployment rates across European countries has been about 30 per cent, which may, for example, be compared with the variance of relative unemployment rates across regions within a country which is typically of the order of 5–10 per cent. Further, even during the recent period of peak unemployment in Europe as say in 1985 or 1990, the average European unemployment rate exceeded that of the US by less than 40 per cent. In these years, if the European countries were ranked in order of their unemployment rates, the US would come about half way down the list (this is consistent with the US having a lower unemployment rate than the EU average because most of the European countries with low unemployment rates are small). By 1995, however, things have diverged more sharply, with the average European unemployment double that of the US and only one country (Switzerland) achieving a lower unemployment rate than America. If perhaps not extraordinary in itself, the high variance of unemployment across European countries counsels against a simplistic explanation of European unemployment. Table 1 presents some measures of

labour market institutions which might be relevant to unemployment. On almost any of these measures, the United States is more different from the European countries than they are different from one another.

Even more striking is the observation that many of the most regulated of the European economies are those with the lowest unemployment rates. During the 1970s and 1980s in particular, the unemployment rate in Sweden, Norway and other corporatist countries was substantially lower than in the United States let alone than elsewhere in Europe. Following this observation, various models (starting with Calmfors and Driffill 1988) have been put forward to show that where the labour force is substantially unionised, centralised wage bargaining can be associated with lower equilibrium unemployment. The reason for this is essentially that there is a 'decentralisation externality', where unions do not take account of various adverse effects of their actions on third parties and force up wages without regard to its effects on unemployment in the economy as a whole. This externality will be 'internalised' if wage bargaining is centralised. In such models the relationship between unemployment and the degree of co-ordination of wage bargaining is not monotonic: there are benefits from complete decentralisation (competition) and from complete centralisation (co-ordination) while intermediate arrangements offer the worst of both worlds. (This was described by Calmfors and Driffill as a hump-shaped relationship between unemployment and the degree of co-ordination of wage bargaining.)

More generally, the free-market equilibrium unemployment rate is neither the minimum attainable or necessarily optimal, particularly given the payment of unemployment benefits. Hence, various interventionary policies may be able to reduce unemployment (e.g. recruitment subsidies or other active labour market policies) so there is no necessary monotonic relationship between unemployment and institutions.

It may also be noted that economies with centralised wage bargaining may be able to respond in a more co-ordinated way, and hence more quickly, to shocks, as originally suggested by Bruno and Sachs (1985). In an economy where wages are set independently by numerous firms, it is difficult to adjust to a different overall rate of wage growth without disrupting the pattern of relative wages, but with centralised wage bargaining, problems of this type do not arise. A more centralised system would, however, seem less able to deliver the wage flexibility needed to respond to skill-biased technical progress. Indeed, it could be claimed that it was the inability of systems with centralised bargaining to adjust to changes in the relative demand for different types of labour which led to their breakdown during the 1990s (Freeman and Gibbons 1993).

The third main observation is that the ranking of unemployment rates across countries has not been stable over time. Ten years ago, in 1987, the unemployment rates of Sweden, Germany and the UK were 2.3 per cent, 6.3 per cent and 10.6 per cent respectively. Now the order is reversed: in 1997 the unemployment rates were 10.2 per cent (Sweden), 9.7 per cent (Germany) and 7.1 per cent (UK). Table 2 shows the rank order correlations over various periods. Over short periods of time these are quite high, but over longer periods they are much lower. They are typically lower than rank order correlations across regions within European countries, though not across regions within the United States. Again, while institutional arrangements change within each country, it seems implausible to think that they change at the pace necessary to achieve so substantial a re-ordering of

Table 1: Institutional Variables^(a)

1983–94

	Replace- ment rate		Benefit duration		ALMP		Union coverage		Union co- ordin- ation		Employer co- ordin- ation		Employ- ment pro- tection		Change in inflation	
Austria	60	50	4		8.7	8.3	3		3		3		16		-0.46	0.06
Belgium	60		4		10.0	14.6	3		2		2		17		-0.76	-0.52
Denmark	90		2.5		10.6	10.3	3		3		3		5		-0.86	-0.46
Finland	75	63	4	2	18.4	16.4	3		3	2	3		10		-0.26	-0.72
France	57		3.75	3	7.2	8.8	3		2		2		14		-1.38	-0.30
Germany	63		4		12.9	25.7	3		2		3		15		-0.34	-0.04
Ireland	50	37	4		9.2	9.1	3		1		1		12		-1.52	-0.54
Italy	2	20	0.5		10.1	10.3	3		2		1	2	20		-1.68	-0.52
Netherlands	70		4	2	4.0	6.9	3		2		2		9		-0.14	0.14
Norway	65		1.5		9.5	14.7	3		3		3		11		-0.34	-1.12
Portugal	60	65	0.5	0.8	5.9	18.8	3		2		2		18		-2.74	-1.28
Spain	80	70	3.5		3.2	4.7	3		2		1		19		-1.24	-0.60
Sweden	80		1.2		59.5	59.3	3		3		3		13		-0.75	-1.02
Switzerland	70		1		23.0	8.2	2		1		3		6		-0.12	-0.50
United Kingdom	36	38	4		7.8	6.4	3	2	1		1		7		0.16	-1.02
Australia	39	36	4		4.1	3.2	3		2		1		4		0.02	-1.24
Canada	60	59	0.5	1	6.3	5.9	2		1		1		3		-0.08	-0.84
Japan	60		0.5		5.4	4.3	2		2		2		8		-0.20	-0.36
New Zealand	38	30	4		15.4	6.8	2		2	1	1		2		0.36	-1.22
United States	50		0.5		3.9	3.0	1		1		1		1		-0.04	-0.48

Note: (a) When a variable changes between the two subperiods, the first number is for 1983–88 and the second for 1989–94.

Sources: Jackman *et al.* (1996). 'Replacement rate' and 'Benefit duration': Mainly US Department of Health and Social Services, *Social Security Programmes throughout the World*, 1985 and 1993. See Layard, Nickell and Jackman (1991), Annex 1.3. 'ALMP': *OECD Employment Outlook* 1988 and 1995. For the first subperiod the data relate to 1987 and for the second to 1991. We include all active spending except on the disabled. 'Union coverage', 'Union co-ordination' and 'Employer co-ordination': See Layard, Nickell and Jackman (1991), Annex 1.4 and *OECD Employment Outlook* 1994, pp. 175–185. 'Employment protection': *The OECD Jobs Study 1994*, Part II Table 6.7 col. 5 p. 74. Country ranking with 20 as the most strictly regulated. 'Inflation': *OECD Economic Outlook*.

unemployment rates across countries. Further, as noted above, attempts to explain time-series movements in unemployment rates by the types of factors that explain the international cross-section have not been successful. The model of unemployment sclerosis outlined in Section 3.4 attempts to address the apparent instability in the relationship of unemployment to institutional factors.

Table 2: Rank Order Correlation Coefficients

	1960	1965	1970	1975	1980	1985	1990	1995
1960	1	–	–	–	–	–	–	–
1965	0.96	1	–	–	–	–	–	–
1970	0.74	0.82	1	–	–	–	–	–
1975	0.55	0.50	0.57	1	–	–	–	–
1980	0.62	0.60	0.65	0.80	1	–	–	–
1985	0.50	0.53	0.60	0.77	0.94	1	–	–
1990	0.69	0.65	0.63	0.83	0.89	0.84	1	–
1995	0.43	0.42	0.64	0.26	0.70	0.49	0.54	1

Note: Spearman rank order coefficients of the ordering of the standardised unemployment rates.

Figure A1 in the Appendix graphs the unemployment rate of the 18 major OECD countries. These graphs serve to illustrate the changing fortunes of individual countries, and show no very consistent pattern: for example, in few countries does the variation of unemployment follow a conventional business cycle pattern. There is some evidence of a ratchet effect, where unemployment rises quite sharply but falls back more slowly and does not return to its former level.

3. Explanations

The conventional wisdom is that the high rates of unemployment in Europe, or in some European countries, are structural in nature, although the term structural has been used in a number of different senses. Sometimes it is used to refer broadly to any factors affecting the sustainable, natural or equilibrium rate of unemployment or the NAIRU, and simply means that unemployment is not caused by a deficiency of demand. Sometimes it refers to factors affecting the speed of adjustment, or flexibility, rather than to factors affecting the long-run equilibrium. And sometimes it is used in the narrower sense of sectoral imbalances. However, on none of these definitions has the structural approach been wholly successful. As noted above, the medium-term fluctuations in unemployment seem hard to explain within this framework and there does not seem to be great stability in the cross-section results.

3.1 Models of aggregate wage pressure

The defining feature of aggregate models of European unemployment has been the central role accorded to collective bargaining as the mechanism of wage-setting. At its simplest, the argument is that unions set wages too high and this reduces the demand for labour below the number who would like to work, thus causing what is sometimes called ‘classical’ unemployment. More plausible models based on imperfect competition in the product market with normal cost pricing by firms, have the actual real wage determined by the mark-up of prices over costs chosen by firms. In such models the real wage demands of workers are influenced by the rate of unemployment. In equilibrium, unemployment is needed to restrain wage demands to the attainable real wage.

Hence, 'European' models of unemployment have tended to focus on 'wage push' factors. The harder unions push, the more unemployment is needed to offset that wage pressure. Key variables are seen to be those describing union institutional effectiveness (e.g. the proportion of workers belonging to unions), and those which may affect their power within the wage bargain, such as unemployment benefits which reduce the costs both of strikes and of job losses to union members. The rate of unemployment likewise affects the wage bargain through its effects on the income of workers during strikes and of those who may lose their jobs as a result of a high settlement. The higher the unemployment rate, the more difficult it is for workers in either group to find other work and hence the worse their income prospects.

This is not to say that US-style job-search factors have been entirely ignored. But they enter the model through the rather tortuous channel of influencing the amount of competition a worker who becomes unemployed can expect to face in the labour market and hence that worker's chance of finding a job. This in turn affects the expected costs of becoming unemployed which, to the extent that wage demands are moderated by the fear of unemployment, feeds back into lower wage pressure. Thus, for example, long-term unemployment can raise total unemployment within this framework to the extent that the long-term unemployed are less active or effective in job search and therefore do not offer much competition to newly unemployed workers whose fear of unemployment is consequently less. This then leads to higher wage demands for a given total of unemployment. Along the same lines, active labour market policies which bring the long-term unemployed back into the effective job-seeking labour force can depress wage demands, and may hence reduce aggregate unemployment.

The question whether differences in unemployment rates across countries can be explained by factors of these types has been subject to extensive analysis following the innovative work of Bruno and Sachs (1985) and Layard and Nickell (1986). Of numerous subsequent studies, those of Calmfors and Driffill (1988), Layard *et al.* (1991), Elmeskov (1993) and Bean (1994) have perhaps been most influential, while Heylen *et al.* (1996) and Jackman *et al.* (1996) offer the most recent accounts. All these studies suffer from the fact that the number of countries (observations) is small (usually between 15 and 20) relative to the number of possible explanatory variables. By way of illustration, Table 3 reproduces the recent results of Jackman *et al.* (1996).

Whatever may be felt about the statistical power of econometric analysis in this context, such studies do appear to have established some empirical regularities going beyond the simplistic 'all intervention is bad' approach. Most robustly, the evidence is that while measures of union power such as membership or coverage tend to be associated with higher unemployment, highly unionised economies where bargaining is centralised are able to sustain low unemployment rates over long periods of time. It is a matter of concern, however, that the most significant variables are those such as 'employer co-ordination' which are somewhat subjectively measured. Employment protection legislation appears to have no strong effect on overall unemployment because its effects in reducing turnover offset its effects in increasing the duration of spells. Both the magnitude and the duration of unemployment benefits affect unemployment. While the overall burden of taxation tends to increase unemployment, there is no separate effect of labour-specific (payroll) taxes. Active labour market policies generally appear to have

a beneficial effect, though to some extent this may just be a ‘Sweden dummy’, because Sweden has an extreme value for this variable. (There are also serious problems of endogeneity with this variable, given that spending on active labour market policies may respond to, as well as have an effect on, unemployment.)

From a policy perspective it seems reasonable to conclude that these studies offer some general support for the deregulation of labour markets but caution against headlong

Table 3: Regressions to Explain Log Unemployment Rate
20 OECD countries; 1983–88 and 1989–94

	Total unemployment	Long-term unemployment	Short-term unemployment
Replacement rate (percentage)	0.011 (1.6)	0.004 (0.5)	0.009 (1.2)
Benefit duration (years)	0.09 (1.3)	0.16 (1.9)	0.04 (0.6)
ALMP (percentage)	-0.008 (0.7)	-0.03 (2.0)	-0.0008 (0.07)
Union coverage (1–3)	0.66 (2.7)	0.56 (1.7)	0.54 (2.2)
Co-ordination (1–3)	-0.68 (3.2)	-0.29 (0.9)	-0.57 (2.4)
Employment protection (1–20)	-0.005 (0.2)	0.09 (2.7)	-0.04 (1.6)
Change in inflation (percentage points per annum)	-0.17 (1.7)	-0.13 (1.1)	-0.15 (1.6)
Constant	-3.96 (7.3)	-3.28 (2.9)	-3.8 (7.0)
Dummy for 1989–94	0.16 (1.9)	0.1 (0.9)	0.16 (2.1)
Log short-term unemployment	–	0.94 (4.0)	–
R ²	0.59	0.81	0.41
Standard error	0.51	0.59	0.52
No. of observations	40	38	38

Notes: Dependent variables: Total unemployed as percentage of labour force; Long-term unemployed (over one year) as percentage of labour force; Short-term unemployed (under one year) as percentage of labour force.

t-statistics in brackets. These are based on the method of ‘random effects’. ALMP is measured by current active labour market spending as percentage of GDP divided by current employment. To handle problems of endogeneity and measurement error, this is instrumented by active labour market spending in 1987 as percentage of GDP divided by the average unemployment rate in 1977–79. The coefficients measure the proportional effect on unemployment of a unit change in an independent variable, where the unit is measured as in Table 2.

or indiscriminate liberalisation. Some interventions may actually have benign effects, for example co-ordinated wage bargaining, others, such as employment protection legislation, have no discernible net effect on unemployment but may have other desirable (or for that matter harmful) effects, while others, like unemployment benefits, may lead to higher unemployment but still be desirable on social grounds. That is to say, these results suggest it may be possible to balance the adverse effects on unemployment of particular institutions (which may be desirable on other grounds) by further appropriately designed interventions which hold unemployment down.

3.2 Models of hysteresis

Since the oil shocks of the 1970s, the underlying growth rate of productivity has slowed down quite considerably throughout the OECD region, but real wages in Europe have continued to grow, while in the United States real wages have fallen. Famously, *The OECD Jobs Study* (OECD 1994) has a graph contrasting real wages and employment in Europe and the US since 1980, which shows wages in Europe growing at about 2 per cent per year with no growth in employment, while in the US, employment grows at about 2 per cent a year with no growth in wages. Some slightly more detailed data is given in Table 4 (Lindbeck 1996).

Table 4: Average Annual Growth Rates of GNP, Employment, Labour Productivity, Real Consumption and Real Product Wage
Per cent

	GNP	Employment	Labour productivity (Per worker)	Real consumption wage (Per hour)	Real product wage (Per hour)
United States					
1973–79	2.5	2.5	0.0	0.6	1.2
1979–85	2.0	1.3	0.6	-0.2	0.0
1985–90	2.7	1.9	0.8	-1.7	-1.5
1990–95	2.4	1.2	1.1	-0.2	0.3
1973–95	2.4	1.8	0.6	-0.3	0.1
Western Europe					
1973–79	2.7	0.7	2.0	2.2	3.3
1979–85	2.0	0.4	1.6	0.3	0.7
1985–90	3.2	1.3	2.0	1.9	2.2
1990–95	1.7	0.0	1.7	0.8	1.0
1973–95	2.4	0.6	1.8	1.3	1.8

Notes: Western Europe is equivalent to OECD Europe for the GNP, employment and productivity figures. Greece, Iceland, Ireland, Luxembourg, Portugal, Spain and Turkey are excluded in the wage figures.

Sources: For GNP and employment figures: *OECD Economic Outlook*, June 1995. For wage figures: *Wages and Total Labour Costs for Workers*, Swedish Employers' Federation, March 1995.

The hysteresis explanations for this experience conveniently divide into ‘insider’ and ‘outsider’ mechanisms; the former concerned with the idea that those who hold on to their jobs after a shock then set wages to further their own interests without regard to the plight of those whose jobs were lost, and the latter with the idea that those who have been unemployed for a long time lose contact with the labour market and are no longer part of the effective labour supply. The theory and evidence on these mechanisms are fully reviewed by Bean (1994), who concludes that there is little evidence in support of the insider channel, but some, if not overwhelming, support for the outsider approach focusing on the effects of long-term unemployment. In this context, the main institutional culprit is the provision, in most European countries, of indefinite and effectively unconditional unemployment benefits to those out of work, which enables unemployed people to abandon job search and to reconcile themselves to a life on the dole.

Though this argument may be reasonably plausible, it cannot account for more than a small part of the problem. For example, even if one were to take the extreme view that long-term unemployed people are no longer capable of work, or stop searching or have become unacceptable to employers, one would still need to explain why, in many countries, the rate of short-term unemployment in the 1980s was up to three times as high as the total unemployment rate in the 1960s.

3.3 Models of structural unemployment

It is well known that unemployment rates differ substantially across groups. In most countries, youth unemployment rates are much higher than adult rates, unemployment rates in professional and managerial occupations are lower than those of manual workers, and the more educated have lower unemployment rates than those leaving school at the minimum school-leaving age. These differentials are quite stable across countries and time periods and seem not greatly affected by variations in aggregate unemployment. Thus many discussions of aggregate unemployment ignore sectoral variation.

The renewed interest in this issue has been sparked by the massive increase in wage inequality in the United States since 1970. This has generally been interpreted in terms of an increase in the rate of skill-biased technological change, which has raised the relative demand for skilled labour. While Europe has presumably been subject to much the same technological developments, the wage distribution in most European countries (the UK being an exception) has remained compressed. Krugman (1994 p. 64) has depicted this as a ‘collision between welfare state policies that attempt to equalise economic outcomes and market forces that are pushing towards greater inequality’. The outcome, he suggests, is likely to be unemployment of unskilled workers, so that ‘growing US inequality and growing European unemployment are different sides of the same coin’ (*op. cit.* p. 62). In other words, structural imbalances in European labour markets may have become much more severe, and this could explain increased unemployment rates of unskilled workers.

Despite the plausibility of this line of argument, it has frequently been noted that in Europe the unemployment rates of skilled as well as of unskilled workers has risen. Indeed the ratio of the two has remained much the same and, in fact, the relative unemployment rate of unskilled workers has, if anything, risen more in the US than in

Europe. Whether this is the relevant statistic, or whether what matters is the absolute (percentage point) difference between skilled and unskilled unemployment rates, which has widened in Europe relative to the US, or the decline in the number of unskilled jobs is, however, a matter of dispute.

Rather than argue about what measure to use, it seems better to analyse how to model the effects of demand shifts on aggregate unemployment. If wages in each sector depend on economy-wide unemployment, then a relative demand shock will change neither relative wages nor aggregate unemployment, but simply the distribution of employment and unemployment between sectors. If on the other hand, wages in each sector are affected only by the unemployment rate in that sector, then a demand shock will be at least, in part, offset by wage adjustments, and any aggregate effect will rest on asymmetries in the sectoral adjustment process. Analysis of this issue turns out to be something of a conceptual minefield but, following earlier work by Layard *et al.* (1991), has been attempted by Nickell and Bell (1995), Manning and Gregg (1997) and by Jackman *et al.* (1997). Given that most empirical wage curves appear to be approximately log linear, studies of this type tend to find that the ratio of sectoral unemployment rates offers the best measure of mismatch, and conclude therefore that it has not increased in Europe in recent years. Empirically, the main reason for this appears to be an increase in the relative supply of skilled workers. This has resulted from the expansion in the education systems in most European countries over this period such that cohorts of relatively well-educated young workers are replacing older workers who received much less education in their youth (Table 5). It then follows that the reason for the stability in the wage distribution is not so much wage rigidity as the absence of structural imbalance in the first place, the increase in demand for the more skilled being matched by an increase in supply.

The implication of this argument, that wages are approximately market-clearing in response to shocks, leaves open the question why there are such large and apparently stable differences between the unemployment rates of different groups. One suggestion (Manning and Gregg 1997) is that labour supply is responsive to relative rather than absolute wages.

A third approach has wages throughout the economy set by a 'leading sector'. In this case unemployment in the leading sector is independent of relative demand, but unemployment in the other sector(s), given the rigidity of relative wages, does depend on relative demand. In this type of model, a shift in relative demand towards skilled workers (who constitute the leading sector) would, on impact, reduce skilled unemployment and increase unskilled unemployment. Lower unemployment in the leading sector would then lead to wage pressure which would increase unemployment in both sectors until equilibrium was restored in the skilled sector. The effect on aggregate unemployment would thus be measured by the increase in unemployment in the unskilled sector. However, the evidence seems to point to wages being influenced mainly by unemployment rates within their own sector.

Table 5: Annual Growth Rates (x100) in Supply, Employment and Demand for Skills

Countries	Sample (No. obs)	Labour supply	Employ- ment rate	Employ- ment	Sample (No. obs)	Demand	Excess demand
Australia	1979–93 (15)	5.36 (0.17)	5.43 (0.19)	0.07 (0.05)	–	–	–
Canada	1979–93 (14)	5.49 (0.17)	5.46 (0.17)	0.03 (0.07)	–	–	–
France	1978–94 (17)	5.80 (0.15)	6.07 (0.13)	0.27 (0.04)	1984–94 (11)	6.47 (0.23)	0.36 (0.08)
United Kingdom	1974–92 (19)	6.82 (0.31)	7.03 (0.32)	0.21 (0.08)	1974–92 (19)	7.55 (0.27)	0.73 (0.13)
Germany	1976–89 (7)	4.54 (0.61)	5.29 (0.56)	0.75 (0.12)	1976–89 (7)	5.11 (0.61)	0.58 (0.11)
Italy	1977–92 (16)	6.46 (0.06)	6.86 (0.08)	0.41 (0.02)	1977–91 (12)	6.52 (0.15)	0.06 (0.14)
Netherlands	1979–93 (8)	5.84 (0.34)	5.83 (0.34)	0.00 (0.00)	1979–93 (8)	4.75 (0.21)	-1.08 (0.20)
Norway	1972–93 (22)	6.02 (0.12)	6.23 (0.13)	0.21 (0.03)	–	–	–
Spain	1977–93 (17)	5.05 (0.22)	5.58 (0.24)	0.53 (0.07)	–	–	–
Sweden	1971–93 (21)	6.93 (0.10)	6.94 (0.10)	0.01 (0.02)	–	–	–
United States	1970–91 (22)	4.59 (0.20)	4.74 (0.22)	0.15 (0.04)	1970–89 (20)	5.24 (0.13)	0.41 (0.17)
	1970–79 (10)	6.77 (0.15)	6.94 (0.21)	0.16 (0.09)	1970–79 (10)	5.67 (0.10)	-1.11 (0.23)
	1979–91 (13)	3.21 (0.12)	3.25 (0.17)	0.04 (0.01)	1979–89 (11)	4.73 (0.35)	1.48 (0.24)

Notes: The growth rates refer to the annual growth of the ratio of skilled to unskilled in each category and are measured as the estimated coefficients on a linear time trend (x100) interpolated through the series of logarithms. Demand is measured by the share of the total wage bill. Standard errors in brackets.

Source: Jackman *et al.* (1997) which provides details of sources and methods of calculation.

3.4 A model of unemployment sclerosis

The history outlined in Section 2 suggests that the political economy underlying the structural model is not entirely accurate: countries did not at any point consciously choose high unemployment, rather they undertook various policies for various different reasons and only subsequently discovered that the outcome was high unemployment. In this section I suggest a simple model of unemployment ‘sclerosis’, which looks at some implications of this idea.

Suppose then a government has a range of policy instruments which in one way or another improve the conditions of workers. These instruments may be legislation on employment protection, or measures to strengthen union rights, or measures to support declining industries or minimum wages or improvements in the unemployment insurance system. These instruments may, in the short to medium run, reduce unemployment – for example, employment protection is obviously likely to reduce the unemployment inflow in the short run and likewise unions are likely to use their power to protect jobs. But in the longer term, these instruments are more likely to increase than to reduce unemployment. For example, employment protection and trade union rights both strengthen the powers of insiders in the wage bargain and hence increase wage pressure.

To model this, we may assume the equilibrium rate of unemployment at time t (u_t) is affected by policies effective at time t (s_t) according to the equation:

$$u_t = u_N - s_t + as_{t-1} \quad (a > 0) \quad (1)$$

This equation states that a policy instrument s introduced at time t will reduce unemployment at time t by one unit, but if the policy remains in force it will increase (or reduce) unemployment in all subsequent periods by $(a-1)$ units. The case where $a > 1$ represents sclerosis, where the net long-run effect of the policies is to raise unemployment. The equilibrium rate of unemployment in the absence of any such policies is u_N , which takes account of the effects of economic structure and privately created institutions on unemployment.

The second strand of the model is a policy reaction function. The government is assumed to react to unemployment in excess of some target (u^*) by increasing policy interventions:

$$s_t = s_{t-1} + b(u_t - u^*) \quad (b > 0) \quad (2)$$

Equations (1) and (2) give a simple dynamic equation for s_t :

$$s_t = gs_{t-1} + u_{gap} \quad (3)$$

where $g = (1 + ab)/(1 + b)$ and $u_{gap} = b(u_N - u^*)/(1 + b)$

Equation (3) is stable if $g < 1$, for which a necessary condition is that $a < 1$. While the more interesting case is where $a > 1$, and Equation (3) is unstable, it is nonetheless worth considering the properties of the system when it is stable.

If $a < 1$, the system converges to a stable equilibrium given by:

$$u = u^* \quad \text{and} \quad (4a)$$

$$s = (u_N - u^*)/(1 - a) \quad (4b)$$

This equilibrium has a few interesting properties:

- The unemployment rate reflects policy objectives not institutions. This is consistent, for example, with the rather obvious point that countries which have had low unemployment are typically those which wanted to have low unemployment like say Sweden.

- If we cannot observe u^* , Equations (4a) and (4b) together give $u = u_N - (1-a)s$, so that unemployment will be increasing in factors affecting the ‘innate’ natural rate and decreasing in policy instruments which can offset it.

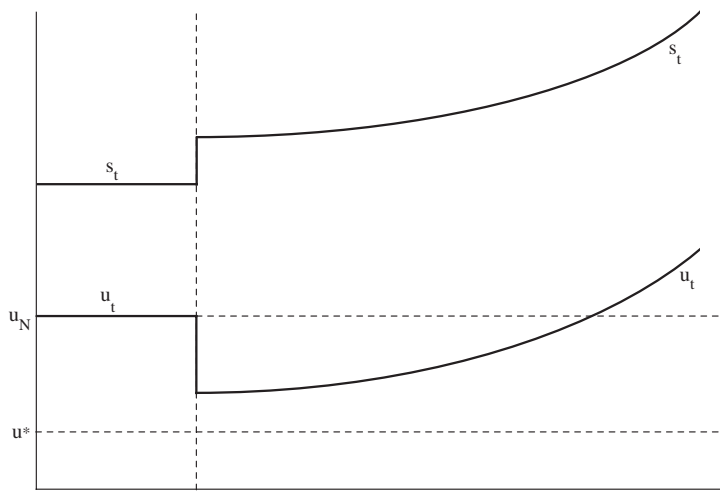
The more interesting case is where the long-run effects of interventions are adverse ($a > 1$). In this case the dynamic equations for u_t and s_t are:

$$u_t = u^* + (u_N - u^*)g^t / (1 + ab) \quad \text{and} \quad (5a)$$

$$s_t = (u_N - u^*)(g^t - 1) / (a - 1) \quad (5b)$$

It may be noted from Equations (5a) and (5b) that both u_t and s_t will be increasing over time. This model is intended to capture some of the features of the data set out in Figure 1. Suppose that in the immediate postwar period the European countries decide to introduce interventionist policies which include the aim of reducing unemployment to some target value, u^* . Initially the policies have the effect of reducing unemployment below u_N , but as time proceeds, unemployment starts to rise, further policies are introduced and we move into the vicious spiral of increasing unemployment leading to further interventions which, in the long run, lead to even higher unemployment. The model described by Equations (5a) and (5b) is illustrated in Figure 3, which is similar to Figure 1 with u_N taken as the US average unemployment rate of around 6 per cent.

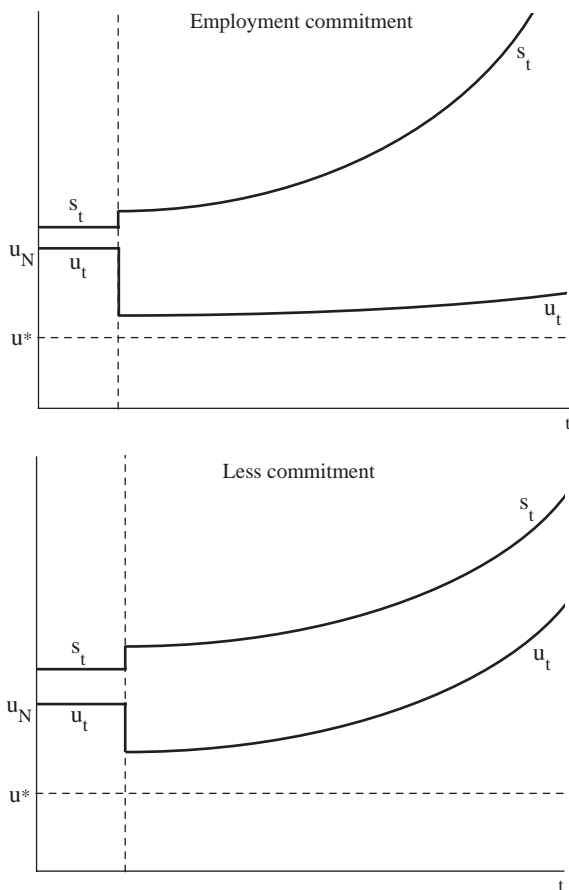
Figure 3: Timepath of Unemployment and of Policy



The unstable paths described by Equations (5a) and (5b) may be thought consistent with the lack of robust findings in the international cross-section data. The nature of the correlation between s and u will depend on the source of differences between countries. If, for example, different countries embark on the interventionary policy regime given

in Equation (2) at different times, for political or historical reasons, then a cross-section at any point in time will essentially be contrasting countries with high values of t , and hence, other things equal, of s_t and u_t , with countries with lower values of these variables. Thus we would expect to find a positive correlation between s and u . Perhaps more interestingly, countries strongly committed to full employment, which could be represented by a low value of u^* or a high value of b , will tend to have more interventionary policies, which will in turn lead to lower unemployment than countries which are less concerned about unemployment. Figure 4 shows the timepaths of s_t and u_t for two otherwise identical countries which differ in the parameter b , the employment commitment of the government. This will lead to a negative relationship between s and u , which might, roughly speaking, correspond to the difference observed in the 1970s and 1980s between the EU and the European countries outside the EU.

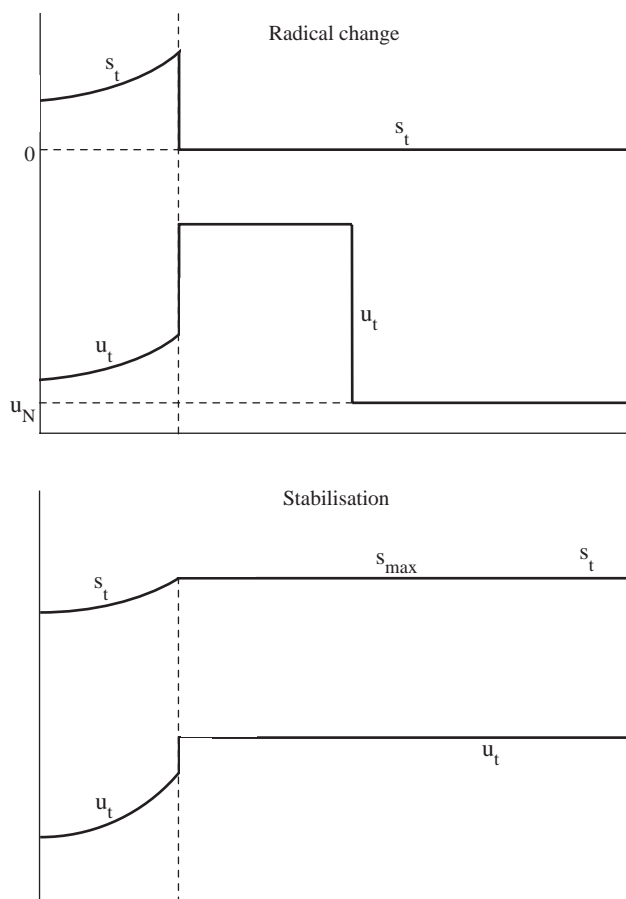
Figure 4: The Policy Stance and the Timepath of Unemployment



In Equations (5a) and (5b), unemployment and policy interventions increase explosively over time, and this cannot, of course, go on forever. We can imagine governments could react in one of two ways. First, they might realise that their policies were unsustainable

and were doing no good in the long run, and reverse them. A sudden reduction in s would be associated in the short run with a sharp increase in unemployment, but in the long run with a reduction of the unemployment rate to u_N . An alternative approach would be to imagine that there might be some ceiling or maximum value s might take, and once it reached that maximum it would be held constant at that value. A government adopting this approach would see a small increase in unemployment the year it stabilised s , and unemployment thereafter remaining at the higher level. The contrast between these two approaches is shown in Figure 5.

Figure 5: Radical Change versus Stabilisation



Obviously, this application of the model attempts to capture in a simple way, the contrast between the confrontational Thatcherite policies pursued in the UK (and in some other countries) and the more consensual and gradualist policies followed in most of continental Europe. Note that immediately following the 'big bang', unemployment rises to unprecedented heights at a time when the interventionary policies which were its cause are being dismantled. (This is rather akin to the argument often heard in

Eastern Europe or Russia to the effect that high unemployment is caused not by the liberalisation but by the mess that preceded it.)

Why should we observe the perverse short-run effect? If one has for many years been supporting an inefficient industrial sector and then abandons that support, clearly in the short run firms will fail and workers will be thrown out of their jobs. The money saved can, of course, fund other activities and will do so in the long run, but jobs can be destroyed more quickly than they can be created and in the short run, given the combination of the structural imbalance and the consequential macroeconomic tightening, unemployment will emerge. Similarly, a loosening of employment protection legislation in the first instance is likely to lead to a greater rate of job separations.

More generally, it might be that governments, concerned about the apparent trend towards ever-increasing intervention, would choose to introduce a new regime within which s was stable. In some countries, s might be stabilised at a high level and in others at a low level. But it may be noted that, after the introduction of the new policy regime (of constant s), the short-run effects on unemployment and the long-run effects go in opposite directions, which again makes difficult the task of identifying the relationship of s and u .

4. Policy Initiatives

In describing a 'European approach' to economic policy, one encounters immediately a fundamental socio-political difference between most of the nations of continental Europe which maintain a consensual, corporatist outlook on policy as against the neo-liberal approach of the UK and increasingly of some of the smaller economies such as Denmark or the Netherlands. Most of the continental countries base their approach to employment policy on the principle that people should be able to earn a decent living, to support themselves and their dependents with wages and social benefits derived from their work, and that the structure of wages plays an important role in maintaining social cohesion. Economic well-being is the responsibility of the 'social partners' (employers, unions and government), and employers and unions are thus involved in areas of policy formation going beyond the employment contract. This contrasts with the orthodox liberal position which is that wages should be set to clear markets and thus should reflect market forces, while social objectives should be the responsibility of governments accountable to the people through the processes of representative democracy, and should be implemented through the tax and social security systems.

This fundamental difference between the UK and the other major EU countries, in particular France and Germany, has bedevilled the development of any coherent EU approach to employment or labour market policy. Under the former Conservative Government, the UK refused to sign the 'Social Chapter' of the Maastricht Treaty, because of ideological objections to, for example, the requirement that countries introduce a minimum wage and controls over working hours. While, arguably, these problems could have been finessed, there is no doubting that the direction of social policy within the EU as embodied in the Social Chapter has been in the direction of enhancing worker protection and raising employment costs.

Most government policy on unemployment in Europe has been based on the premise that unemployment is caused by there being too few jobs. Hence policies have attempted either to create more jobs, or to reduce the labour supply. In the former category, there is in many European countries, a clear nostalgia for old-fashioned Keynesian-style public investment policies, and in some quarters an aspiration that co-ordinated demand expansion throughout the EU could allow an increase in activity without running into the balance of payments constraint. (It could, of course, but it is inflationary pressure rather than the balance of payments which is the fundamental constraint on demand.) There are also policies to maintain activity in uncommercial sectors (e.g. agriculture), primarily on employment grounds. Attempts to achieve wage moderation also fall into this category, especially where this can be achieved through agreement with the union movement (the 'social partners'). In much of Europe there is an aversion to reducing unemployment through the creation of 'bad jobs', and a belief that the American free enterprise approach has bought full employment at the expense of creating an 'underclass' of people whose living standards fall well below a socially acceptable level.

Of the latter, two types of policy have been particularly important: limits on hours of work and early retirement. As shown in Table 6, overall labour supply, taking together hours and participation, is substantially lower in most European countries than in the United States.

In the UK, by contrast, policies have been focused on deregulation and increasing labour market flexibility. Examples include the gradual erosion of trade union rights during the 1980s, the ending of the wage councils (which imposed minimum wages in various low-pay sectors) in 1993, and weakening of employment protection legislation. At the same time, the value of unemployment benefits was allowed to fall relative to wages, and the duration of benefit entitlement was reduced from a year to six months in 1996, while the unemployed were encouraged to search more actively through the Restart program which had been introduced in 1986 and gradually extended. The final step, taken by the new Labour Government's Welfare to Work program is to require young people after 9 months to take work or go on a training scheme, or else lose their benefit.

While most employment policies remain at a national level, the European Union (EU) has itself been sufficiently concerned about the high unemployment rates in many of its member states to mount a number of policy initiatives with the objective of tackling unemployment. The most substantial of these was the Employment White Paper ('Delors Report') which was published in December 1993 (Commission of the European Communities 1993). The White Paper set a target of halving the EU unemployment rate, which then stood at 10.7 per cent, by the year 2000. By December 1997, the unemployment rate had been reduced but only to 10.4 per cent, and the target now looks unattainable.

The White Paper focused on the perceived 'competitive weaknesses' of the EU economies and proposed policies of increased investment and labour market deregulation to improve competitiveness. At the time, the White Paper proposals generated controversy because the proposed investment initiatives were largely in the area of public infrastructure, e.g. improved transport links, and were seen by some as being inspired more by a belief in job creation through public works than by any argument about improving regional competitiveness. The accompanying idea that these projects could be financed by the

Table 6: Measures of Labour Supply
1995

	Employment/ population ratio Whole working-age population (Per cent)	Employment/ population ratio Males aged 25–54 (Per cent)	Annual hours worked per worker	Overall labour supply (Per cent)
Austria	67.3	86.6	1 600	51.6
Belgium	56.1	87.4	1 580	42.6
Denmark	75.0	86.6	1 510	54.5
Finland	67.1	82.4	1 770	57.1
France	59.8	87.9	1 650	47.4
Germany	65.2	87.0	1 600	50.0
Ireland	53.2	80.3	1 750	44.8
Italy	54.0	84.3	1 730	44.9
Netherlands	62.2	86.5	1 510	45.2
Norway	73.3	87.4	1 430	50.4
Portugal	69.3	90.6	2 000	66.6
Spain	47.5	81.5	1 820	41.6
Sweden	75.6	88.2	1 510	52.0
Switzerland	78.6	94.7	1 640	62.0
United Kingdom	69.6	86.7	1 750	58.6
Canada	70.6	84.7	1 740	59.0
United States	73.1	88.2	1 940	68.2
Japan	73.4	95.9	1 960	69.2
Australia	68.2	86.5	1 870	61.3
New Zealand	68.0	86.6	1 830	59.8

Note: Column (4) is column (1) multiplied by column (3) divided by 2 080 (i.e. 52 weeks of 40 hours).

Source: *OECD Employment Outlook 1996*, Tables A, B and C.

issue of EU bonds which would not count as part of national budget deficits (which were, at the time, subject to strict limitation by reason of the Maastricht criteria for EMU) was likewise seen to undermine the principles of sound finance which have been a prerequisite for monetary union. Thus when the European Council met at Essen in December 1994 to determine what measures to take on the basis of the White Paper, it abandoned the public investment initiative and instead focused on five areas (the 'Essen Conclusions') on which member states were urged to take action. These were:

- investment in vocational education;
- increasing the employment intensity of growth;
- reducing non-wage labour costs;
- improving the effectiveness of labour market policy; and
- more help for groups particularly hard hit by unemployment.

It is clear that the Essen Conclusions do not embody a specific hypothesis about the causes of high unemployment in Europe or what might be done about it. Rather there are various piecemeal proposals for intervention which seem likely to encounter minimum resistance. The administrative procedure following Essen has been a series of studies and meetings in which member governments are invited to outline their progress in tackling unemployment.

In the meantime, the OECD published in 1994 its celebrated *Jobs Study*, which has provided one of the finest and most comprehensive statistical sources for the analysis of unemployment. Though the research for the OECD study was carried out at the same time as that for the EU White Paper, it appears that the two pieces of work were undertaken completely independently of one another with no communication between those involved. The OECD study was not specifically directed at Europe, but it was clearly concerned about European labour market problems, and its recommendations are particularly aimed at European countries. Unlike the EU study, however, it approached the labour market from a free market rather than a consensualist ideological standpoint, and its conclusions embody a general thrust towards deregulation and greater flexibility.

5. Conclusion: Implications for Policy

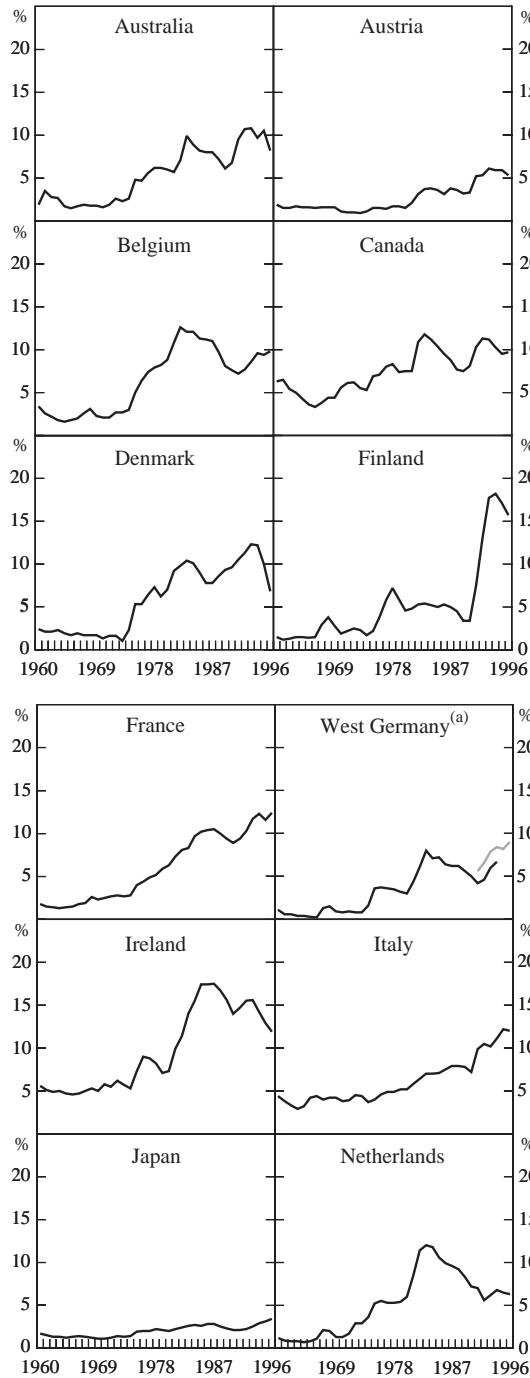
Policy choices could perhaps be seen in terms of ‘first best’ as against ‘second best’ approaches. The first-best approach puts its faith in the workings of the market and favours policies of flexibility, deregulation and generally the reduction of government intervention in the labour market. Second-best policies, by contrast, recognise the imperfections of economic arrangements and seek instead to offset and counteract their ill-effects by suitably designed interventions. The evidence reviewed in this paper has essentially been inconclusive in terms of this distinction: there is no conclusive evidence that economies where governments intervene a lot in the labour market have higher unemployment rates than economies where the role of government is minimal.

However, the sclerosis model sketched in Section 3.4 suggests that such static evaluations may not address the right question. The model suggests that interventionary policies may assist matters in the short run, but in the long run they only make things worse. According to this model, the right policy is not to attempt to ameliorate the problems created by one set of interventions by further intervention but rather to remove the first set and recreate a free market in labour. Any beneficial effects of policy interventions on unemployment today are bought at the expense of higher unemployment in the future. The model also suggests that reversing such policies may have adverse effects in the short run, which again means that static comparisons at a point in time may miss the key elements of policy development.

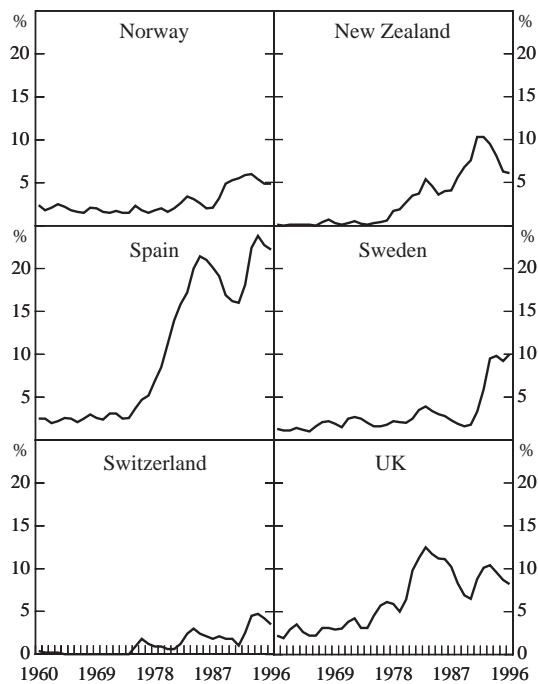
If this analysis is correct, the prospects for European unemployment must be pessimistic. There is political and ideological aversion to economic liberalism throughout most of continental Europe, in particular among the bigger countries which influence EU policy. The financial consequences of ever-increasing government expenditure seem likely to restrain further growth of labour market intervention, but Europe as a whole appears condemned to high unemployment, as the cumulative effect of its past policies weaken market forces and inhibit the functioning of the labour market.

Appendix

Figure A1: Unemployment



continued

Figure A1: Unemployment (continued)

Note: (a) Grey line is for the whole of Germany, 1991–96.

Source: Standardised unemployment rates, *OECD Economic Outlook*, various issues.

References

- Bean, C. (1994), 'European Unemployment : A Survey', *Journal of Economic Literature*, 32(2), pp. 573–619.
- Bruno, M. and J. Sachs (1985), *Economics of Worldwide Stagflation*, Harvard University Press, Cambridge, Massachusetts.
- Calmfors, L. and J. Driffill (1988), 'Bargaining Structure, Corporatism and Macroeconomic Performance', *Economic Policy*, 6, pp. 14–61.
- Commission of the European Communities (1993), 'Growth, Competitiveness, Employment: The Challenges and Ways Forward into the 21st Century. White Paper', *Bulletin of the European Communities*, Supplement 6/93.
- Elmeskov, J. (1993), 'High and Persistent Unemployment: Assessment of the Problem and its Causes', OECD Economics Department Working Paper No. 132.
- Freeman, R. and R. Gibbons (1993), 'Getting Together and Breaking Apart: The Decline of Centralised Collective Bargaining', NBER Working Paper No. 4464.
- Heylen, F., L. Goubert and E. Omeij (1996), 'Unemployment in Europe: A Problem of Relative or Aggregate Demand for Labour', *International Labour Review*, 135(1), pp. 17–36.
- Jackman, R., R. Layard, M. Manacorda and B. Petrongola (1997), 'European versus US Unemployment: Different Responses to Increased Demand for Skill?', Centre for Economic Performance Discussion Paper No. 349.
- Jackman, R., R. Layard and S. Nickell (1996), 'Combating Unemployment: Is Flexibility Enough?', in *Macroeconomic Policies and Structural Reform*, OECD, Paris, pp. 19–58.
- Krugman, P. (1994), 'Past and Prospective Causes of High Unemployment', in *Reducing Unemployment: Current Issues and Policy Options*, Federal Reserve Bank of Kansas City, Kansas City, Missouri, pp. 49–80.
- Layard, R. and S. Nickell (1986), 'Unemployment in Britain', *Economica*, 53(210S), pp. S121–S169.
- Layard, R., S. Nickell and R. Jackman (1991), *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford University Press, Oxford.
- Lindbeck, A. (1996), 'The West European Employment Problem', *Weltwirtschaftliches Archiv*, 132(4), pp. 609–637.
- Manning, A. and P. Gregg (1997), 'Skill-biased Change, Unemployment and Wage Inequality', *European Economic Review*, 41(6), pp. 1173–1200.
- Nickell, S. (1997), 'Unemployment and Labour Market Rigidities: Europe versus North America', *Journal of Economic Perspectives*, 11(3), pp. 55–74.
- Nickell, S. and B. Bell (1995), 'The Collapse in Demand for the Unskilled and Unemployment Across the OECD', *Oxford Review of Economic Policy*, 11(1), pp. 40–62.
- OECD (1994), *The OECD Jobs Study: Facts, Analysis, Strategies*, OECD, Paris.
- Siebert, H. (1997), 'Labour Market Rigidities: At the Root of Unemployment in Europe', *Journal of Economic Perspectives*, 11(3), pp. 37–54.

Discussion

1. Judith Sloan

Richard Jackman's paper is a very useful contribution to this volume. His paper reminds us that unemployment is not a simple story, even though present day comparisons between unemployment in Europe and in the United States might suggest that it is. He makes three very strong points. First, it was not always so that unemployment in Europe was higher on average than in the United States; in the 1960s and 1970s, the reverse was true. Second, there is more variability between unemployment rates within Europe than there is variability between the rates of unemployment in Europe and the United States. In other words, some European countries (mainly ones with small populations) have relatively low unemployment rates while some other European countries have relatively high rates. Some European countries with relatively low unemployment in the mid 1990s are: Denmark, the Netherlands, Austria, Norway and the United Kingdom. The third point that Jackman makes is that the ranking over time of European countries in terms of their unemployment record has not been stable. Some countries which experienced relatively low unemployment in the 1960s and 1970s – Sweden and Germany are examples – are now high unemployment countries.

Jackman also warns us about the danger of placing too much confidence in cross-country regression analysis which is a common technique used to explore the causes of unemployment. In addition to the relatively small number of developed economies for which there are reliable data, there are relatively few observations relative to the potential number of independent variables. He also makes a case for excluding Japan from cross-country comparisons, given the uncertainty surrounding the reliability of the unemployment figures for that country.

Two additional points can be made. First, there is a degree of arbitrariness in the classification of some of the variables used in these cross-country comparisons. This is particularly acute in the case of the classification of the degree of centralisation of wage bargaining in particular countries, on the one hand, and of the strength of employment protection laws, on the other. In the former case, many countries will typically combine elements of centralised and decentralised bargaining, in which cases the category into which these countries should be assigned is very unclear. As far as the strength of employment protection laws are concerned, the 1996 OECD *Employment Outlook* ranks Australia as 4, while it puts Belgium at 17. At first blush, it is difficult to place much confidence in the proposition that Belgium's employment protection laws are four times stronger than those of Australia.

It can also be argued that the unemployment rate is not the most appropriate dependent variable. Not only are there some differences in measurement (although in theory the standard US definition of unemployment is used throughout the OECD), there are wide variations in the activities of non-employed persons across developed countries. In particular, wide variations in the take-up rates of various types of disability pensions and the use of early retirement schemes can distort comparisons of countries' unemployment rates. Likewise, the use of public employment to ramp up overall employment can distort

comparisons of countries' employment to population ratios. It is proposed in this commentary that changes in the ratio of private sector employment to population is the preferred measure of the strength of a country's labour market over time.

One of the central questions posed by Jackman in his paper is this: are Europe's current unemployment problems the result of rigid labour market institutions? He notes that Europe enjoyed relatively low unemployment in the 1960s and 1970s, notwithstanding the rigid labour market institutions that existed at that time. Does this therefore suggest that the explanation of Europe's unemployment problem lies somewhere other than the inflexible regulatory framework governing most of Europe's labour markets? Jackman argues that there are a number of responses to this conundrum, including the proposition that the cost and complexity of the regulations affecting many of Europe's labour market have in fact increased over time. A similar point could be made about the institutional arrangements governing Australia's labour market. Notwithstanding some relatively recent reforms, it is possible to list a large number of developments from the mid 1960s that have significantly altered the institutional landscape of Australia's labour market. This list includes the following:

- the aftermath of the O'Shea affair in the late 1960s and the effective demise of the penal provisions against industrial action;
- the spread of long service leave as a standard award benefit;
- the spread of leave loading as a standard award condition;
- the spread of superannuation benefits as a standard award conditions;
- the spread of parental leave and, more recently, carer's leave, as standard award benefits;
- the termination, change and redundancy (TCR) clauses in awards setting out consultation requirements and minimum redundancy payments;
- the minimum rates adjustment process whereby the award pay of low-wage earners was lifted through increased supplementary payments; and
- the strengthening of federal employment protection provisions from 1993.

Taken together, the effect of these changes was to raise labour costs, *ceteris paribus*, since most of the changes effectively added to the cost of employing workers – certainly full-time, permanent workers. The relevance of this discussion is that in Australia, as elsewhere, it is incorrect to assume that labour market institutions have been static; any explanation of unemployment must therefore take into account the changes thereto.

As Jackman notes, one of the interesting features of European unemployment is the relatively superior performances recently of some of the smaller countries, *viz.* the Netherlands, Austria and Ireland, although in the latter case, the rate of unemployment is still high but falling. All these three countries operate a consensus-based incomes policy. There is the broader issue, however, of the virtues of 'smallness', both geographically and in population terms. In order to develop 'encompassing coalitions', to use Mancur Olson's (1971) term, it is necessary for all groups to be aware of the source and magnitude of negative spillover effects generated by others. If these spillovers are not obvious, it is much more difficult to generate an environment in which groups will desist from generating these spillovers in the first instance. Smallness may be one feature of such a conducive environment.

By the same token, these countries have undertaken policies in addition to a centralised incomes policy which may be the key to their unemployment results. For instance, the minimum wage was reduced in the Netherlands and, in Ireland, sound fiscal policy has been instituted. On this last point, the evidence would appear to support the requirement of prudent fiscal policy in terms of generating an environment of low unemployment, in combination with other features. In France, for instance, the *franc fort* policy was detrimental to employment growth, irrespective of the institutional arrangements in that country.

Returning to the core of Jackman's paper, my main criticism is that the conclusion does not flow from the substance of the paper. Midstream, he argues that '[it] may be possible to balance the adverse effects on unemployment of particular institutions (which may be desirable on other grounds) by further appropriately designed interventions which hold unemployment down' (p. 49). This implies, for instance, that a country can run with strong employment protection laws which increase unemployment but offset the adverse effects by pursuing active labour market programs. In other words, there are various, feasible trade-offs that can be welfare-enhancing as well as compatible with low unemployment. In the conclusion of the paper, however, Jackman argues that '[the] model suggests that interventionary policies may assist in the short run, but in the long run they may make things worse' (p. 60). Of particular interest are his conclusions that 'big bang' reforms will lead to higher unemployment in the short run but lower unemployment in the long run, whereas interventions to reduce unemployment may succeed only in the short run or require additional interventions to produce sustained low unemployment over time.

Admittedly, Jackman's model is rudimentary but it does highlight the dynamics of the process and the lags between policy action and final outcomes. Unfortunately, we do not understand very well either the nature or duration of these lags. In addition, it remains unclear, among the range of regulatory interventions in labour market, which really bind and which effectively match the market and are therefore neutral in their impact. There is scope for important further research in both these areas.

Overall, Jackman's paper is a useful contribution to the debate on unemployment. Given the fashion of comparing the US and Europe in total, his paper is a useful reminder of the diversity of outcomes across European countries and the variability over time. The answers are much more complex than simple comparisons between the US and Europe allow. His model highlights the importance of the government's objectives in respect of unemployment and the potentially perverse effects of interventions when the outcomes are viewed dynamically.

References

- Olson, M. (1971), *The Logic of Collective Action: Public Goods and the Theory of Groups*, Harvard University Press, Cambridge, Massachusetts.

2. General Discussion

Discussion of the papers by Larry Katz and Richard Jackman focused on four issues:

- the role of income mobility in offsetting inequality in income distribution;
- the labour market experiences of different sections of the population;
- the analysis of shifts in the natural rate of unemployment; and
- the complementarity of policies and institutions in labour market adjustment.

Some participants noted that greater inequality in the distribution of income would not be such a problem if there was a large degree of income mobility. That is, if workers enter the workforce at the lower end of the income distribution but move up the distribution over their working lives, from a lifetime perspective, inequality would be less of an issue. It was noted that across countries, those with greater income inequality appear to exhibit greater income mobility. However, in the US, there has been little change in income mobility to offset the widening in the income distribution in the past two decades.

There was some discussion of the varied labour market performance of different groups of labour market participants in different countries. The employment to population ratio of prime-aged males in the US has declined in recent years, and does not compare favourably with the European experience for this group. Some part of this is due to the high levels of incarceration of prime-aged males in the US. However, for nearly all other labour market groups, the employment to population ratios are much greater in the US than in Europe. In particular, it was noted that the US had been very successful in absorbing the increase in the labour supply of females. It was argued that this difference was in part the result of labour market regulations and institutions primarily being designed to protect the jobs of prime-aged males in Europe, whereas this was not the case in the US.

Estimates of the natural rate are generally imprecise, so it may be difficult to discern movements in the natural rate through time. Consequently, some participants suggested examining movements in the Beveridge curve, which plots the relationship between unemployment and job vacancies. However, for the US, the Beveridge curve is difficult to estimate because of unreliable vacancies data. This has been further complicated by an increased reliance on temporary help agencies in matching workers looking for jobs with vacancies, which has reduced the number of measured vacancies. One participant noted that when comparing Beveridge curves across countries, it was important to bear in mind that differences in wage-setting institutions will shift an economy along a given Beveridge curve as well as shift the curve itself.

Finally, most participants agreed that it was essential to consider labour market institutions and policies as a whole when assessing their impact on labour market outcomes, and when considering a set of policy measures to reduce unemployment. There are complementarities between policies so that the total impact of a set of labour market reforms implemented concurrently is likely to be greater than the sum of the impact of the reforms implemented in a piecemeal fashion. Furthermore, introducing only one reform in isolation from other reforms is likely to reduce its impact. Participants noted that there is both empirical and theoretical evidence of the importance of the complementarities.

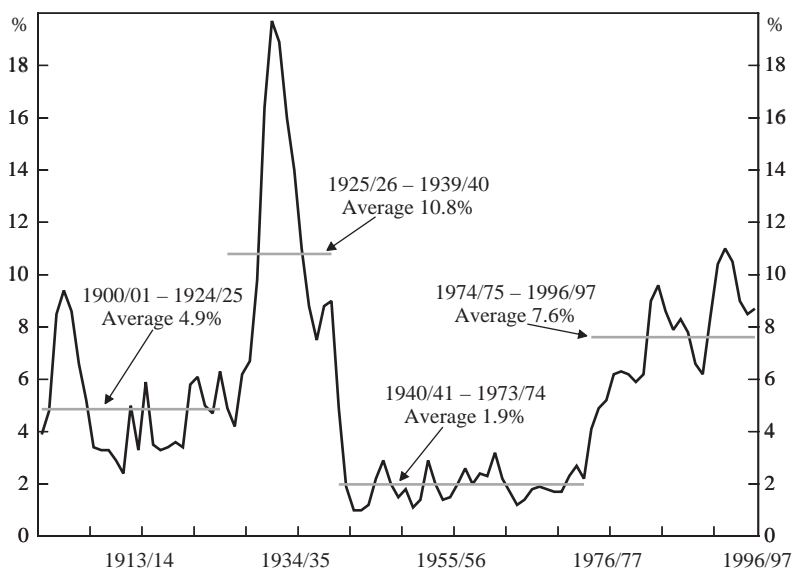
Dimensions, Structure and History of Australian Unemployment

Jeff Borland and Steven Kennedy*

1. Introduction

It is commonly presumed that – with the exception of wartime – the Great Depression of the 1930s marked the low point in the level of well-being in industrial societies in the twentieth century. Certainly, there is much to support this presumption. As Figure 1 illustrates, there has been no other period in Australia where the rate of unemployment remained at such high levels for such a sustained length of time. However, it is also important to recognise that comparisons between the Great Depression and other periods are a matter of degree. The average rate of unemployment since the mid 1970s might not have been as high as during the Great Depression, but it is much closer to the average

Figure 1: Unemployment Rate – 1900/01 to 1996/97



Source: Goodridge *et al.* (1995).

* CEPR, Australian National University, and Analytical Services, Australian Bureau of Statistics respectively. Opinions expressed in this paper are those of the authors and should not be attributed to the Australian Bureau of Statistics. We are grateful to Trevor Breusch, Tom Crossley, Guy Debelle, and in particular to Bob Gregory, for helpful discussions; to Nic Groenewold, Alf Hagger, Boyd Hunter, Cezary Kapuscinski, Frank Morgan, Alison McLelland and Don Weatherburn for assistance with references; to Robert Dixon, Mariah Evans, Don Harding, Ivan Neville, Beth Webster, Richard Webster and the Household Income and Expenditure section of the ABS for assistance in obtaining various pieces of data; and to Yvonne Dunlop and Margi Wood for programming assistance.

during that time than, for example, in the thirty years prior to the mid 1970s. Moreover, the current episode of mass unemployment must be considered by historical standards to have now persisted for a very long period. Viewed from this perspective there can be little doubt that unemployment should properly be regarded as the most significant economic and social problem currently facing policy-makers in Australia.

This paper provides an overview of the main features of unemployment in Australia, and its consequences. Its main objectives are to:

- describe the main features of the evolution and distribution of unemployment;
- present information on labour market outcomes underlying the changes in unemployment – with the aim of providing some insights into the nature of unemployment and its potential causes; and
- describe a range of consequences of unemployment.¹

Section 2 describes the evolution of the rate of unemployment in Australia from the mid 1970s. Section 3 presents a variety of information on the background to changes in the rate of unemployment – how changes in employment and labour force participation have affected unemployment; the relation between labour market flows and unemployment; and on long-term unemployment. Section 4 describes the distribution of unemployment between different demographic and skill groups, and examines in some detail the issues of teenage and regional unemployment. Section 5 reviews a range of consequences of unemployment – relating, for example, to effects on the distribution of income and life satisfaction. A brief summary is presented in Section 6.

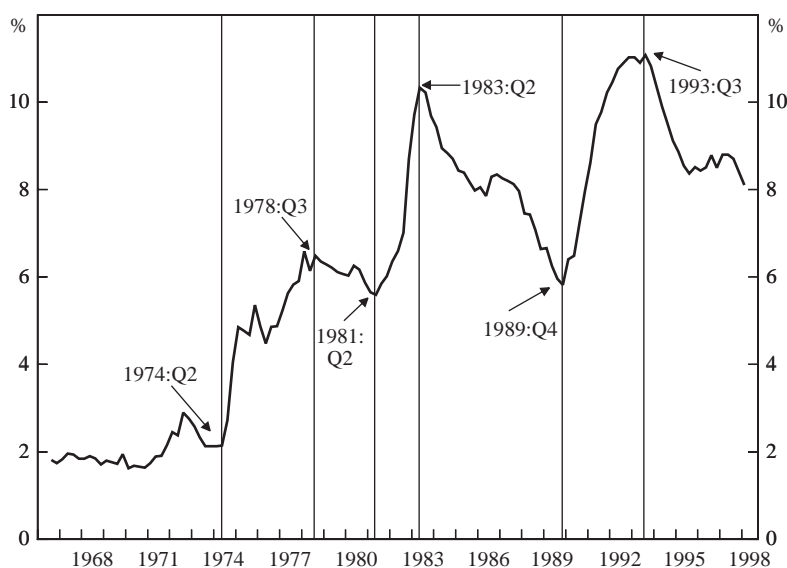
2. The Evolution of Unemployment

A number of distinct phases characterise the evolution of unemployment in Australia since the mid 1970s. Figure 2, which shows the rate of unemployment from 1966:Q3 to 1998:Q1, illustrates these phases. In the first phase, from the mid to late 1970s, the rate of unemployment increased from around 2 per cent to 6 per cent. This increase was not significantly reversed in the subsequent period from the late 1970s to early 1980s. The second phase, in the early 1980s, saw the rate of unemployment increase from about 6 per cent to 10 per cent. This increase was reversed during a six and a half year period from the mid to late 1980s. In the third phase, from the late 1980s to early 1990s, the rate of unemployment increased from about 6 per cent to 11 per cent. Some reversal of this increase has subsequently taken place. In April 1998 the rate of unemployment was around 8 per cent.

Two main features stand out from this description of changes in the rate of unemployment. First, from a starting point in the early 1970s to the present, there has been an upward trend in the rate of unemployment. Much of this upward shift appears to be accounted for by increases in the rate of unemployment between the mid and late 1970s which were not subsequently reversed. Second, there has been a strong cyclical pattern to changes in the rate of unemployment. The size and speed of increases in unemployment have represented a significant departure from the period prior to the

1. Previous reviews of unemployment in Australia are Fahrer and Heath (1992), Goodridge *et al.* (1995), Dorrance and Hughes (1996), Freebairn (1997), Groenewold and Hagger (1998a), and Debelle and Swann (1998).

Figure 2: Unemployment Rate
 Civilian population aged 15 years and over; seasonally adjusted

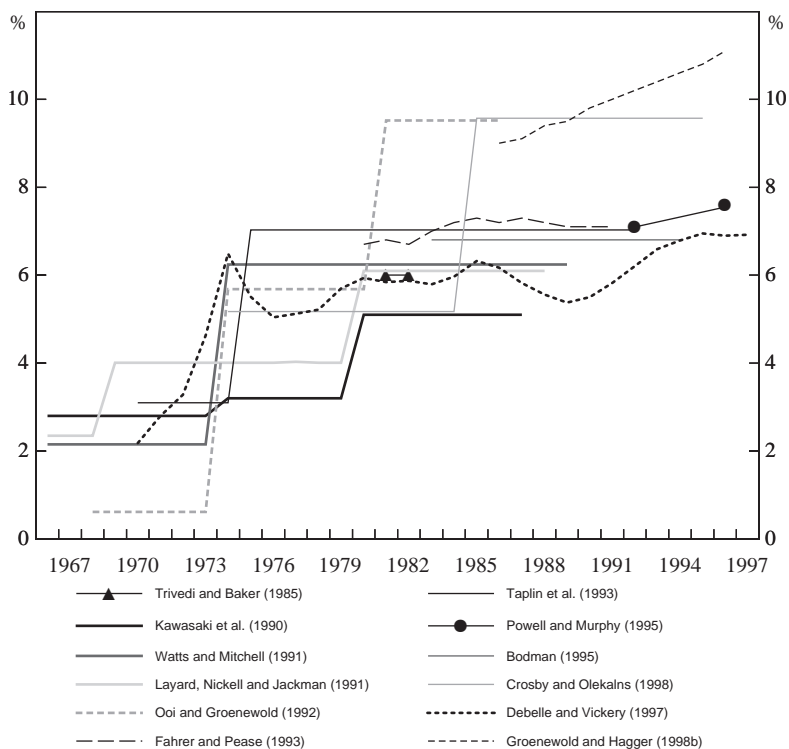


Sources: Data for pre-1978 – *The Labour Force, Australia, Historical Summary 1966 to 1984*, ABS cat. no. 6204.0, Table 2; for 1978–1995 – *The Labour Force, Australia 1978–1995*, ABS cat. no. 6204.0, Table 2; for post-1995 – *Labour Force, Australia*, ABS cat. no. 6203.0, Table 2.

mid 1970s. A further important aspect of cyclical changes has been an asymmetry in the speed of upward and downward adjustment in the rate of unemployment. This is particularly evident in changes in the rate of unemployment during the 1980s.

An alternative perspective on the evolution of the rate of unemployment in Australia can be obtained from studies of the natural rate. Figure 3 shows estimates of the natural rate of unemployment taken from econometric studies. Measures of the natural rate of unemployment are intended to abstract from short-term cyclical fluctuations in the rate of unemployment and hence provide useful information on the ‘permanent’ or ‘general equilibrium’ component of the rate of unemployment (Friedman 1968). The studies summarised in Figure 3 use various approaches to estimate the natural rate of unemployment – for example, estimation of a NAIRU from a Phillips curve; estimation of a structural model for unemployment with steady-state conditions imposed to derive a natural rate of unemployment; and estimation of a Beveridge curve relation with steady-state conditions again imposed to derive the natural rate of unemployment. One problem with estimates of the natural rate of unemployment is that their associated confidence intervals are often extremely large. Nevertheless, the studies shown in Figure 3 present a story that is consistent with the interpretation of movements in the actual rate of unemployment presented above. First, it appears that the natural rate of unemployment increased from around 2 per cent to 6 per cent from the mid 1970s to early 1980s. Second, most studies show the natural rate of unemployment remaining constant or increasing only slightly from the early 1980s onwards. A ‘consensus’ estimate of the natural rate of unemployment in the mid 1990s would appear to be between 6½ and 7½ per cent.

Figure 3: Estimates of the ‘Natural’ Rate of Unemployment



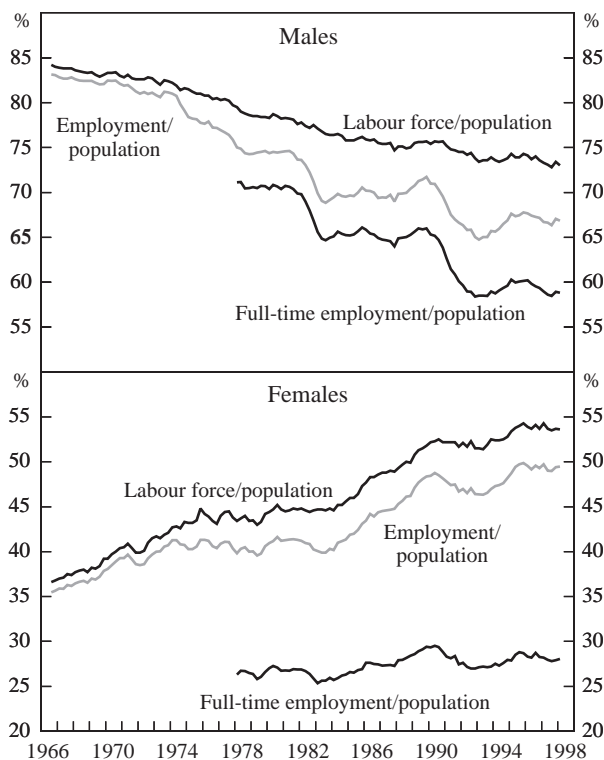
3. Behind the Rate of Unemployment

3.1 Employment and labour force participation

Underlying changes in the rate of unemployment are changes in employment and the labour force. Figure 4 shows long-run trends in these series for males and females. Labour force participation for males and females has moved in opposite directions. For females, the participation rate has increased from 36.6 per cent to 53.6 per cent between August 1966 and February 1998, whereas for males, the participation rate declined from 84.2 to 73.0 per cent over the same period. For males, the employment/population rate also declined – primarily due to decreases in the full-time employment/population rate (from 71.1 per cent to 58.8 per cent between February 1978 and February 1998). At the same time, increases in the part-time employment/population rate for females (from 13.5 per cent to 21.4 per cent between February 1978 and February 1998) have caused a significant rise in the employment/population rate for females.

Figure 4: Employment/Population Rate and Labour Force Participation Rate

Civilian population aged 15 years and over



Source: See Figure 2.

How have these changes in employment/population and labour force participation rates affected the rate of unemployment? To investigate this issue, Table 1 reports the results of a decomposition analysis of the effects on the aggregate rate of unemployment of changes in male and female employment/population and labour force participation rates. For example, the first row in Table 1 shows that between 1974:Q2 and 1978:Q3 the rate of unemployment increased by 4.4 percentage points. Declines in the male full-time employment/population rate over this period would have had the effect – absent any other changes in employment or labour force participation – of increasing the rate of unemployment by 6.6 percentage points.

A first main finding from the decomposition analysis is that cyclical phases where increases in the rate of unemployment occur have primarily been associated with decreases in the male full-time employment/population rate; on the other hand, in the main cyclical phase where decreases in the rate of unemployment occurred (during the 1980s), the most significant factors affecting the rate of unemployment were large increases in the female full-time and part-time employment/population rates which were offset by significant growth in female labour force participation (see also Gregory 1991).

Table 1: Sources of Changes in the Rate of Unemployment
Seasonally adjusted

Period	Change in rate of UE	Males			Females		
		FTE/POP	PTE/POP	LFP/POP	FTE/POP	PTE/POP	LFP/POP
1974:Q2–1978:Q3	+4.4	+6.6	-1.3	-2.4	+2.3	-1.6	+1.0
1978:Q3–1981:Q2	-0.9	-0.1	-0.1	-0.7	0.0	-0.7	+0.5
1981:Q2–1983:Q2	+4.7	+5.0	-0.3	-1.1	+1.1	+0.3	+0.1
1983:Q2–1989:Q4	-4.5	-1.1	-1.3	-0.8	-3.4	-4.1	+5.7
1989:Q4–1993:Q3	+5.3	+6.3	-0.8	-1.6	+1.7	-0.5	0.0
1993:Q3–1998:Q1	-2.7	-0.3	-1.3	-0.5	-0.8	-1.7	+1.4

Notes: UE denotes unemployment; FTE, full-time employment; PTE, part-time employment; POP, population; and LFP, labour force.

The decomposition is derived from:

$$RUE_t \approx -\ln[\alpha_{mt}((FTE/POP)_{mt} \cdot (POP/LFP)_{mt}) + \alpha_{mt}((PTE/POP)_{mt} \cdot (POP/LFP)_{mt}) + (1 - \alpha_{mt})((FTE/POP)_{ft} \cdot (POP/LFP)_{ft}) + (1 - \alpha_{mt})((PTE/POP)_{ft} \cdot (POP/LFP)_{ft})]$$

where RUE is the rate of unemployment, α_{mt} = proportion of males in labour force at time t , $(FTE/POP)_{mt}$ and $(PTE/POP)_{mt}$ are the full-time and part-time employment/population rates for males, and $(POP/LFP)_{mt}$ is the inverse of the labour force participation rate for males. The decomposition of the change in the rate of unemployment between periods t and $t+1$ is undertaken by sequentially varying components of the expression for the rate of unemployment (from period t to period $t+1$ values) in order as shown in the table. Findings from the decomposition analysis were not found to be affected by changes to the order of decomposition. Note that the decomposition is approximate so that the individual effects do not sum exactly to the change in the rate of unemployment.

Source: See Figure 2.

To investigate the sources of changes in employment across cyclical phases in a little more detail, Table 2 presents changes in employment by industry by gender for selected cyclical phases. Columns (1), (2) and (4) show changes in employment by industry for males during cyclical phases in which increases in the rate of unemployment occurred; and column (3) shows changes in employment by industry for females in the 1980s period where the rate of unemployment decreased. A strong pattern emerges from this table. Declines in employment for males in each downturn have been concentrated primarily in manufacturing, construction and agriculture. For females, employment growth has occurred mainly in trade, finance, community services and personal services industries.

Table 2: Changes in Total Employment by Industry
Selected cyclical phases

Industry	1974:Q3 – 1978:Q3	1981:Q2 – 1983:Q2	1983:Q2 – 1989:Q4	1989:Q4 – 1993:Q3
	Males (1)	Males (2)	Females (3)	Males (4)
A. Total (thousands)				
Agriculture	-39.9	-7.1	14.1	-21.7
Manufacturing	-123.9	-101.8	34.7	-102.0
Construction	-36.8	-67.2	32.6	-49.3
Wholesale/retail trade	63.2	-9.0	241.3	-6.2
Finance, property <i>etc.</i>	16.6	0.9	165.0	-14.6
Community services	66.6	-5.5	228.6	13.8
Recreation, personal services <i>etc.</i>	5.9	2.8	115.3	11.2
Other	52.1	37.5	75.9	-36.5
B. Percentage				
Agriculture	-11.9	-2.2	13.5	-6.9
Manufacturing	-12.3	-10.7	11.4	-11.3
Construction	-7.6	-15.3	69.5	-9.3
Wholesale/retail trade	9.4	-1.2	40.8	-0.6
Finance, property <i>etc.</i>	7.1	0.2	62.0	-3.1
Community services	23.7	-1.4	34.9	2.8
Recreation, personal services <i>etc.</i>	4.1	1.6	52.4	4.2
Other	8.0	4.1	38.0	-2.5

Notes: Data are for 1974:Q3 rather than 1974:Q2, as industry employment information is only available for the August quarter in that year. Data are not seasonally adjusted.

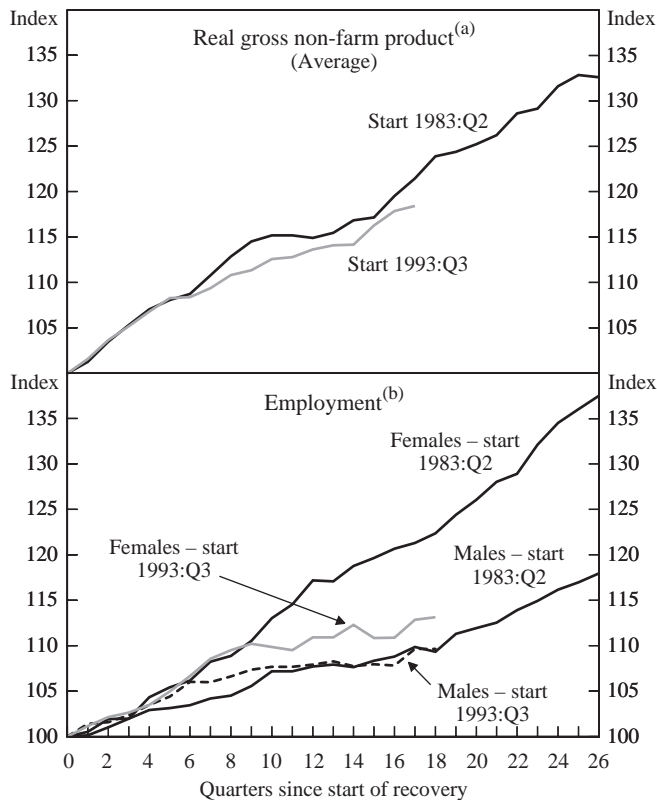
Sources: Data for pre-1978 – *The Labour Force, Australia, Historical Summary 1966 to 1984*, ABS cat. no. 6204.0, Table 20; for 1978–89 – *The Labour Force, Australia, 1978–1989*, ABS cat. no. 6204.0, Table 13; and for 1993 – *Labour Force, Australia, August 1993*, ABS cat. no. 6203.0, Table 41.

A second finding from Table 1 is that the current period of expansion in the 1990s, although now almost as long as that during the 1980s, has not brought the same magnitude of reduction in unemployment, and in particular, has had much weaker growth in female employment and labour force participation. In fact, had female labour force participation grown at the same rate in the expansion in the 1990s as in the 1980s expansion, it is apparent that the rate of unemployment would now be about 3.5 percentage points higher.

Further detail on outcomes in expansionary periods is presented in Figure 5, which compares the paths of real output and employment of males and females between the expansion during the 1990s (beginning 1993:Q3) and the 1980s expansion (beginning

1983:Q2). Each series is normalised to have a value of 100 at the start of each recovery. The upper panel shows that growth in real Gross Non-farm Product in the 1990s has been below its 1980s path in recent periods, but only slightly so. (Comparisons using real GDP(A) and real GDP(A) per capita are very similar.) The lower panel shows that male employment has evolved at a similar rate in the 1990s to the 1980s; however, growth in female employment has been much slower than during the 1980s – in particular over the past nine quarters.²

Figure 5: Comparison of Expansions – 1980s and 1990s



Notes: (a) Index of real GDP (base = 100 at start of recovery).

(b) Index of aggregate employment (base = 100 at start of recovery).

Sources: Real gross non-farm GDP (seasonally adjusted) – DX data – NPDQ.AK90NFP#A; employment (seasonally adjusted) – see Figure 2.

2. Debelle and Swann (1998) also present a comparison of the 1980s and 1990s expansions. That study, however, uses movements in real GDP rather than unemployment to date cyclical phases. Their beginning dates for the expansions are therefore 1983:Q1 and 1991:Q2 rather than 1983:Q2 and 1993:Q3. Comparison of the evolution of the rate of unemployment between expansions is somewhat sensitive to the difference in dating methods. However, the studies have in common the finding that female employment and labour force growth have been significantly weaker in the 1990s than 1980s expansion.

What can explain the slower growth in female employment in the current expansion compared to the 1980s? Possible explanations involve both demand-side and supply-side influences. On the demand side, Figure 5 suggests that a small fraction may be due to slower employment growth across all industries associated with the slightly lower rates of GDP growth. However, much more important would seem to be a set of specific demand-side factors which caused slower employment growth in industries which are female-dominated. Between November 1995 and February 1998, only 46 500 extra jobs have been created in the retail, finance/insurance/property, and health and community services industries; whereas female employment increased by around 215 500 in these industries in the similar phase of the 1980s expansion (*The Labour Force, Australia, 1978–1995*, ABS cat. no. 6204.0). This difference can account for about one-half of the difference in total female employment growth between the 1980s and 1990s expansionary phases. The message from these numbers appears to be that female employment has been particularly badly affected by the depressed performance of the retail sector, by downsizing in the finance/insurance industry, and by public sector cutbacks in the health and community services sector.

On the supply side, a number of factors might have played a role. First, it is possible that there has been increasing competition between males and females for part-time jobs. Male part-time employment has grown steadily over the past decade (from 6.6 per cent to 11.5 per cent of total employment between February 1988 and February 1998). Growth in the proportion of males seeking part-time employment has probably been due both to increases in the proportion of younger males in schooling, and to constraints on the availability of full-time jobs for males aged 25–54 years. Second, changes to government benefits during the 1990s – for example, increases in payments to females who are at home looking after children, and reductions in assistance for child-care – may have increased the reservation wage and hence reduced labour supply of females with dependent children. Data on female labour force participation by family status – which show that the phenomenon of slower participation growth has been more pronounced for females in families with dependent children than without dependent children – tend to support this argument. For example, between July 1983 and June 1987, labour force participation of females in families with dependent children rose from 45.2 per cent to 54.1 per cent, whereas between June 1993 and June 1997, participation increased only slightly from 59.6 per cent to 60.9 per cent. Over the same periods, labour force participation of females in families without dependent children increased from 37.1 per cent to 41.0 per cent, and from 45.8 per cent to 48.0 per cent (*Labour Force Status and Other Characteristics of Families, Australia*, ABS cat. no. 6224.0). Third, reductions in average mortgage repayments since the early 1990s may, through an income effect on labour supply, have caused lower female labour force participation (see Connolly and Spence (1996) for evidence on the effect of home loan ‘affordability’ on female labour supply).

3.2 Labour force flows

Changes in the stocks of persons unemployed provide a ‘point in time’ perspective on the evolution of unemployment. However, any change in stocks which takes place between two points in time will be composed of flows into and out of unemployment

which occur in that time interval. This can be seen in the following decomposition of the change in the rate of unemployment between time periods t and $t+1$:

$$\Delta RUE_{t,t+1} = [(I_{t,t+1} - O_{t,t+1}) / L_{t+1}] + U_t[(1 / L_{t+1}) - (1 / L_t)] \quad (1)$$

where $I_{t,t+1}$ and $O_{t,t+1}$ are, respectively, inflows to and outflows from unemployment between periods t and $t+1$, and U_t and L_t unemployment and labour force at period t . Equation (1) shows that changes in the rate of unemployment can be expressed as a function of inflows to and outflows from unemployment as a proportion of the labour force, plus a residual term which depends on the change in the labour force.

Two data sources are available to study flows into and out of unemployment in Australia. First, using monthly data from the ABS *Labour Force Survey* on numbers of persons unemployed and in the labour force, and on the numbers of persons with unemployment durations of less than or equal to four weeks, it is possible to calculate approximate monthly series of inflows and outflows. Second, data on gross flows using matched records from the ABS *Labour Force Survey* are also available (Dixon (1998) describes some problems which exist with the latter data source).

Table 3 presents information on flows into and out of unemployment using information from the first data source. Inflows and outflows – in aggregate and for disaggregated gender and age groups – are expressed as a proportion of the total labour force. Hence, following Equation (1), each entry can be read as the per month effect of inflows or outflows on the aggregate rate of unemployment. For example, the entry for males for 1978:Q3–1981:Q2 shows that the average monthly effect of inflows to unemployment by males over this period was to increase the aggregate rate of unemployment by 0.61 percentage points; over the same period the effect of outflows was to lower the aggregate rate of unemployment by 0.63 percentage points per month.

A number of findings emerge from Table 3. First, inflows and outflows follow a predictable cyclical pattern. Inflows are relatively higher during periods where the rate of unemployment rises, whereas outflows are relatively higher during periods where the rate of unemployment falls. Second, female inflows and outflows are disproportionately large relative to their labour force share; however, cyclical changes in net inflows minus outflows for males are larger than for females. Figure 6 also shows that the average duration of unemployment has displayed – at least until the end of the 1980s – larger cyclical variability for males than females. Third, inflows and outflows for young labour force participants are disproportionately large relative to their labour force share; but cyclical fluctuations – in net inflows minus outflows – are mainly driven by labour force participants aged 25 years and above. Again, Figure 6, which shows little cyclical variation in unemployment of teenage labour force participants, is consistent with this finding.

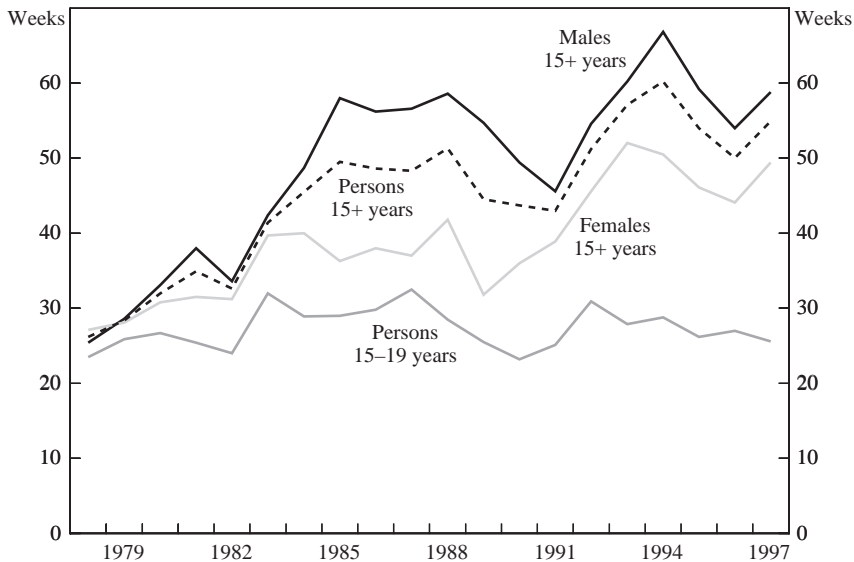
A final point is that there is some evidence of an increase in the sum of aggregate unemployment outflows and inflows for males. To investigate this issue further, Figure 7 uses the second data source to present information on the sum of flows into and out of unemployment from employment and out of the labour force as a proportion of the total labour force. Little change in either series is evident for females; however, for males both series are clearly at a higher level in the 1990s expansion than in the 1980s expansion. On average, about 90 000 extra males are moving into and out of unemployment each

Table 3: Monthly Flows Into and Out of Unemployment as a Proportion of Total Labour Force
Civilian population aged 15 years and over

	Average inflow per month	Average outflow per month	Average labour force effect		Average inflow per month	Average outflow per month
Persons				15–19 years		
1978:Q3–1981:Q2	0.01307	0.01316	-0.00938	1978:Q3–1981:Q2	0.00437	0.00445
1981:Q2–1983:Q2	0.01426	0.01222	-0.00691	1981:Q2–1983:Q2	0.00441	0.00419
1983:Q2–1989:Q4	0.01392	0.01439	-0.01642	1983:Q2–1989:Q4	0.00427	0.00433
1989:Q4–1993:Q3	0.01469	0.01346	-0.00327	1989:Q4–1993:Q3	0.00405	0.00397
1993:Q3–1997:Q4	0.01401	0.01441	-0.01384	1993:Q3–1997:Q4	0.00380	0.00381
Males				20–24 years		
1978:Q3–1981:Q2	0.00616	0.00630		1978:Q3–1981:Q2	0.00275	0.00280
1981:Q2–1983:Q2	0.00715	0.00570		1981:Q2–1983:Q2	0.00304	0.00262
1983:Q2–1989:Q4	0.00654	0.00687		1983:Q2–1989:Q4	0.00283	0.00292
1989:Q4–1993:Q3	0.00734	0.00649		1989:Q4–1993:Q3	0.00284	0.00267
1993:Q3–1997:Q4	0.00704	0.00732		1993:Q3–1997:Q4	0.00264	0.00271
Females				25+ years		
1978:Q3–1981:Q2	0.00690	0.00686		1978:Q3–1981:Q2	0.00594	0.00591
1981:Q2–1983:Q2	0.00710	0.00651		1981:Q2–1983:Q2	0.00679	0.00540
1983:Q2–1989:Q4	0.00737	0.00751		1983:Q2–1989:Q4	0.00682	0.00712
1989:Q4–1993:Q3	0.00735	0.00697		1989:Q4–1993:Q3	0.00779	0.00681
1993:Q3–1997:Q4	0.00697	0.00709		1993:Q3–1997:Q4	0.00755	0.00788

Notes: Inflows to unemployment between month t and $t+1$ are estimated as the number of persons who reported having been unemployed for 4 weeks or less in month t . Outflows from unemployment between months t and $t+1$ are then estimated as inflows plus unemployment in month $t+1$ minus unemployment in month t .

Sources: *Labour Force, Australia*, ABS cat. no. 6203.0. Flows into and out of unemployment – information on duration of unemployment (e.g. Table 27 in August 1997) from each monthly publication. Labour force – information on numbers of persons unemployed and on labour force from Figure 2.

Figure 6: Average Duration of Unemployment

Notes: Data are annual August observations for the civilian population. The unemployment spells are incomplete.

Sources: Data for 1978–95 – *The Labour Force, Australia, 1978–1995*, ABS cat. no. 6204.0, Table 21; data for post-1995 – *Labour Force, Australia*, ABS cat. no. 6203.0.

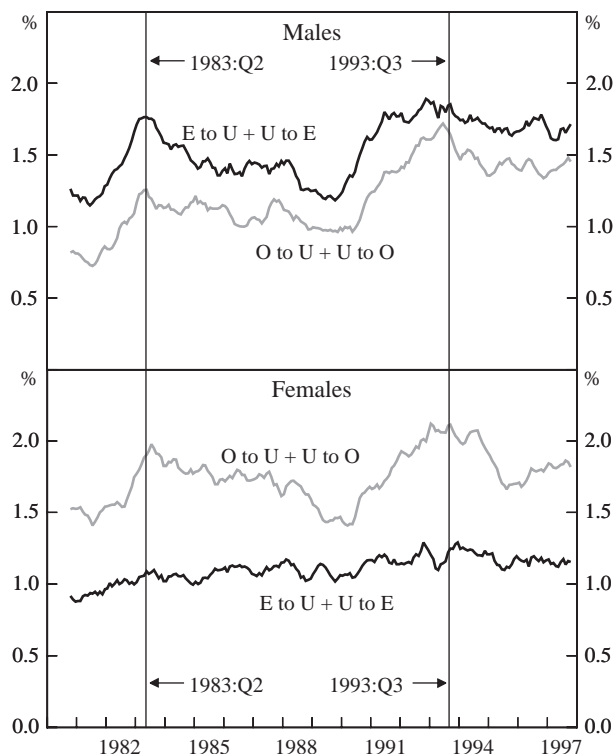
month in the 1990s expansion compared to a comparable period in the 1980s. This may represent one factor behind anecdotal evidence of increases in job insecurity in Australia in the 1990s.

3.3 Hidden unemployment

Conventional unemployment measures do not capture two important dimensions of underutilisation of labour. First, some persons may be in employment but working less hours than they would like. Second, there may be ‘hidden unemployed’ who remain out of the labour force but who would like to be employed. Measuring hidden unemployment as the number of persons who are out of the labour force but report being ‘discouraged workers’, or as the number of persons who are classified as ‘marginally attached to the labour force’, yields estimates of the total rate of unemployment of 9.8 per cent or 16.6 per cent respectively in September 1997 (*Persons Not in the Labour Force, Australia, September 1997*, ABS cat. no. 6220.0, Table 1). At that time the official rate of unemployment was 8.7 per cent. In addition, recent estimates by Wooden (1996) indicate that the rate of underutilisation of labour in Australia can be estimated as equal to double the rate of unemployment.

Figure 7: Monthly Gross Flows as a Proportion of Total Labour Force

Civilian population aged 15 years and over; seasonally adjusted;
five-month moving average



Notes: Gross flows information are used to calculate estimates of labour force in each month. Data are seasonally adjusted using ratio to moving average method. Missing data for October 1982 were interpolated as the mean of observations for September and November 1982.

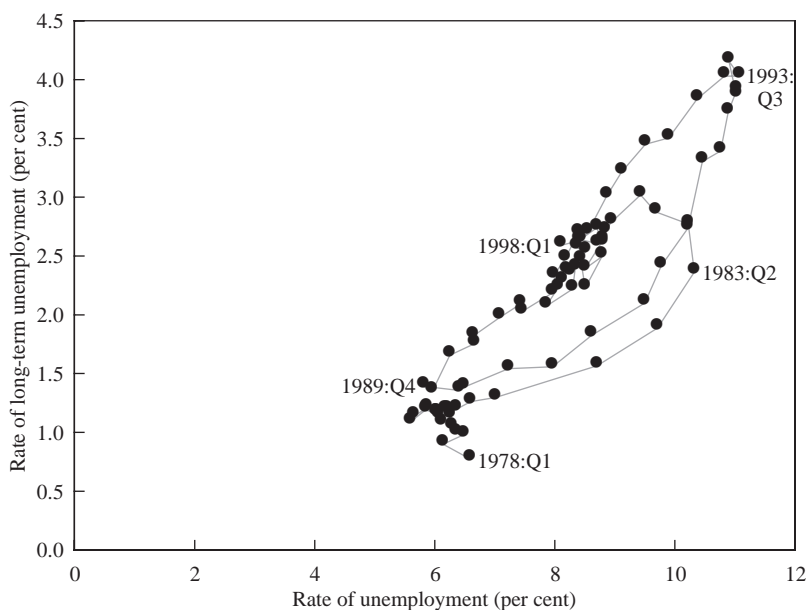
Sources: *Labour Force, Australia*, ABS cat. no. 6203.0. Information from each monthly publication (e.g. Table 33 in August 1997). Unpublished data on gross flows for September–December 1987 and September–December 1992 were kindly provided by Robert Dixon.

3.4 Long-term unemployment

Australia's prolonged experience with high rates of unemployment has meant that attention has focused on the issue of long-term unemployment (e.g. Junankar and Kapuscinski 1991). In February 1998 about 250 000 persons had been unemployed for over a year. This represented approximately thirty per cent of the total group of unemployed persons. Figure 8 shows the relation between the rate of unemployment and rate of long-term unemployment in Australia. It is evident that the two series are strongly correlated with movements in the rate of long-term unemployment slightly lagging movements in the rate of unemployment. Interestingly, it does not appear that – correcting for cyclical factors – there has been any long-run increase in the rate of long-term unemployment (see also EPAC 1996, p. 131). This may suggest that

hysteresis-type influences on unemployment associated with the proportion of long-term unemployed (e.g. changes in average search effectiveness) are not likely to have had a significant impact in Australia in the period since the late 1970s. In interpreting Figure 8, it is, however, also important to be aware that policies to alleviate unemployment may have impacted disproportionately on long-term unemployed, and that labour force withdrawal may have been greater amongst long-term than short-term unemployed.

Figure 8: Rate of Unemployment and Rate of Long-term Unemployment
Civilian population aged 15 years and over; seasonally adjusted



Sources: 1978–95 – *The Labour Force, Australia, 1978–1995*, ABS cat. no. 6204.0, Table 23; post-1995 – *Labour Force, Australia*, ABS cat. no. 6203.0, Table 26.

4. The Distribution of Unemployment

4.1 The current situation

The incidence of unemployment in Australia varies between labour force participants with different demographic and skill characteristics. To illustrate this point, Table 4 presents information on the rate of unemployment and distribution of unemployment for a variety of demographic and skill groups. Unemployment is concentrated disproportionately amongst younger and less-educated labour force participants. The incidence of unemployment is also disproportionately high for workers whose last job was as a labourer or tradesperson, and in the manufacturing, construction and accommodation/restaurant/cafe sectors. Unemployment does not appear to be unevenly distributed between Australian-born and immigrant labour force participants; however,

Table 4: The Distribution of Unemployment
 Civilian population aged 15 years and over; February 1998

	Rate of unemployment	Percentage of labour force	Percentage of unemployed	Percentage of long-term unemployed
A. Age				
Males				
15–19	22.7	4.2	10.6	4.7
20–24	15.3	6.6	11.0	9.6
25–34	7.8	14.2	12.3	14.1
35–44	6.7	14.1	10.5	
45–54	6.1	11.5	7.8	27.3
55–64	7.2	6.3	5.0	8.0
Females				
15–19	21.0	4.0	9.4	4.7
20–24	12.6	5.6	7.8	6.5
25–34	7.4	10.7	8.7	6.1
35–44	7.8	10.8	9.4	
45–54	5.7	8.8	5.6	16.6
55–64	5.5	3.2	1.9	2.4
B. Education				
Males				
Degree	6.1	7.7	4.1	
Diploma	8.0	5.4	3.9	
Vocational qualification	8.2	16.1	11.7	
Completed high school	13.5	9.7	11.7	
Not completed high school	16.3	19.1	27.8	
Females				
Degree	6.3	6.3	3.1	
Diploma	5.0	5.0	2.9	
Vocational qualification	7.6	7.6	6.9	
Completed high school	8.5	8.5	10.2	
Not completed high school	14.6	14.6	17.7	
C. Occupation				
Manager/administrator	1.3	7.1	2.0	1.7
Professional	2.4	27.0	14.7	11.0
Tradesperson	5.0	13.8	15.4	15.1
Labourer <i>etc.</i>	9.8	10.5	23.1	28.6
Clerk/salesperson/service worker	4.0	32.1	29.3	26.6
Production/transport worker	7.4	9.5	15.5	17.0

continued

Table 4: The Distribution of Unemployment (*continued*)
Civilian population aged 15 years and over; February 1998

	Rate of unemployment	Percentage of labour force	Percentage of unemployed	Percentage of long-term unemployed
D. Industry				
Agriculture	5.2	5.5	6.2	5.4
Manufacturing	6.4	13.9	19.0	22.1
Construction	5.9	7.6	9.5	12.2
Trade	4.8	21.8	22.4	20.5
Accommodation <i>etc.</i>	5.7	4.9	6.0	5.1
Transport/storage	4.6	4.9	4.9	6.0
Finance, business <i>etc.</i>	3.7	11.0	8.7	7.9
Government	4.5	4.1	4.1	6.8
Education/health <i>etc.</i>	2.4	16.3	8.4	6.9
Personal services	8.9	2.6	4.9	2.5
Other	3.6	7.4	5.9	4.6
E. Immigrant status				
Australian-born	8.9	75.4	74.1	
Immigrant	9.5	24.6	25.9	
Time of arrival:				
pre-1976	7.1	13.9	8.8	
1976–85	8.9	6.8	5.8	
1986–95	12.1	6.5	8.7	
post-1995	17.0	1.4	2.6	
F. Family status				
Family				
Husband/wife	5.6	58.5	36.2	
with dependents	5.7	33.8	21.6	
without dependents	5.4	24.7	14.6	
Sole parent	17.4	4.2	8.1	
Dependent student	18.9	4.7	9.9	
Non-dependent child	14.0	19.2	12.4	
Other family member	16.3	1.6	2.9	
Non-family				
	11.5	15.1	19.3	
Other				
	11.8	3.4	4.5	

Notes: Unemployment rates by education are for the civilian population aged 15 to 69 years in February 1994. Labour force and unemployment by occupation and industry include as employed, all persons employed in the respective occupation or industry at the time of the survey, and as unemployed, all persons who were unemployed at the time of the survey who had worked for at least two weeks full-time in the previous two years and whose last job was in the respective industry or occupation.

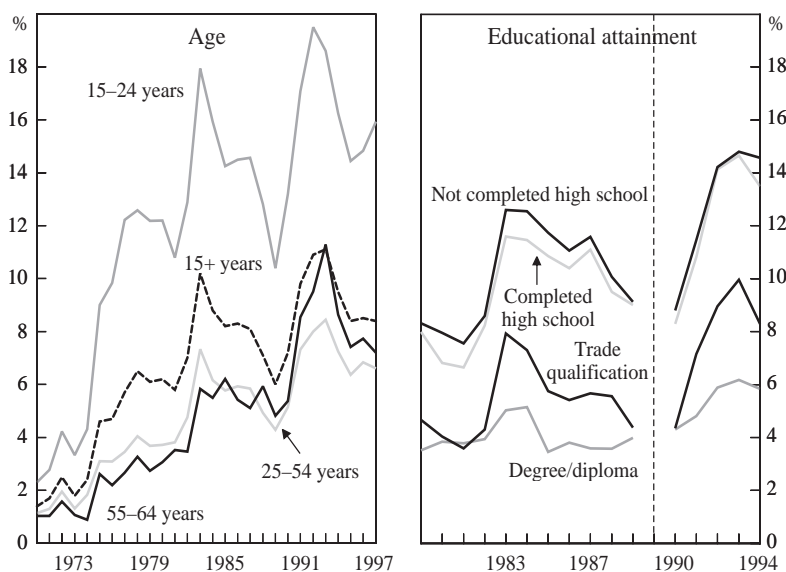
Sources: *Labour Force, Australia*, ABS cat. no. 6203.0, February 1998; and *Labour Force Status and Educational Attainment, Australia*, ABS cat. no. 6235.0, February 1994.

within the group of immigrant labour force participants, unemployment is disproportionately concentrated on more recent arrivals. Across family groups, the shares in total unemployment of sole parents, dependent students and non-family members are above their labour force shares, whilst the reverse is the case for partners in couple families. However, recent research by Miller (1997) does show that amongst couple families, a large proportion of total unemployment in the 1990s is accounted for by families where both husband and wife were unemployed.

4.2 Changes over time

Although at any point in time unemployment is likely to be disproportionately concentrated on particular demographic or skill groups of workers, it is not the case that there are groups of labour force participants who have been immune from increases in unemployment. Figure 9 presents information on rates of unemployment for disaggregated age and education groups. Analysis by age indicates that while unemployment rates for younger participants are above those for older participants throughout the period since 1970, and have displayed greater cyclical sensitivity, all groups have experienced increases in unemployment rates. Moreover, taking out the period prior to 1978 the upward trend in unemployment rates has been quite similar between age groups.

Figure 9: Rate of Unemployment by Age and Education Attainment



Notes: Data on rate of unemployment by educational attainment between 1979 and 1989 are for the civilian population aged 15+ years, and for 1990 to 1994 are for the civilian population aged 15 to 69 years.

Sources: Data by age for pre-1978 – *The Labour Force, Australia, Historical Summary 1966 to 1984*, ABS cat. no. 6204.0, Tables 6 and 32; 1978–95 – *The Labour Force, Australia, 1978–1995*, ABS cat. no. 6204.0, Table 6; post-1995 – *Labour Force, Australia*, ABS cat. no. 6203.0; data by education – *Labour Force Status and Educational Attainment, Australia*, ABS cat. no. 6235.0, 1979–94.

Analysis by level of educational attainment also reveals increases in the rate of unemployment for all groups – although for those persons with a degree or diploma, increases in the rate of unemployment are largely confined to the most recent downturn.

Table 5 reports predicted unemployment probabilities for male and female labour force participants in different age and education categories, and by immigrant status. These probabilities are derived from probit regressions for the determinants of unemployment estimated separately for 1982, 1986, 1990 and 1994/95 using individual-level data on persons aged 25–64 years from the *ABS Income Distribution Survey (IDS)*. Persons aged 15–24 years are excluded to avoid problems associated with large increases in school retention for that age group over the sample period. The ‘base case’ is that of an Australian-born labour force participant with no post-school qualification aged 35–44 years. The findings therefore show, for example, that the probability of unemployment in 1982 for an Australian-born male aged 25–34 with no post-school qualification was 9.1 per cent.

A number of findings emerge from this analysis. First, increases in the probability of unemployment have occurred for both males and females.³ (Aggregate-level data show that the rate of unemployment for females was above that of males prior to 1990:Q3, and thereafter has been below the male rate of unemployment.) Second, consistent with Figure 9, it appears that increases (and decreases) in the probability of unemployment tend to occur simultaneously for labour force participants in all age and education groups. Third, for some groups of immigrants, the probability of unemployment is significantly greater than for Australian-born labour force participants. This is particularly the case for immigrants from Asia/Africa.

4.3 Teenage unemployment

The magnitude of teenage unemployment, and its potential long-term consequences, have meant that it has been the subject of much attention (see for example, Wooden 1998). It has already been shown in Table 4 that teenagers account for a disproportionate share of total unemployment. Table 6 provides some further descriptive information on the nature of teenage unemployment in February 1998 by disaggregating between students (high school or tertiary) and non-students, and full-time and part-time labour force participants. It is evident that unemployment amongst students seeking part-time jobs, and non-students seeking full-time jobs, accounts for most of teenage unemployment. Figure 10 presents the rate of unemployment for these groups of teenagers between 1979 and 1997. Rates of unemployment for students seeking part-time jobs and non-students seeking full-time jobs were similar until 1990, but since that time have diverged sharply. The main explanation for this divergence appears to be a rapid decline in full-time employment of teenagers between 1990 and 1992, primarily in manufacturing, retail trade and finance industries.

3. In 1986, the predicted probability of unemployment for females relative to males is much higher than in 1982 or 1990, and higher than would be suggested by aggregate data. However, the pattern whereby female unemployment probabilities tend to be above those for males in 1982 to 1990, and below those for males in 1994/95, is consistent with aggregate-level data from the *ABS Labour Force Survey*.

**Table 5: Predicted Probability of Unemployment
(Conditional on Labour Force Participation)
Population aged 25 to 64 years**

	Year			
	1982	1986	1990	1994/95
A. Males				
Age				
25–34	0.091 ^(a)	0.080 ^(a)	0.090 ^(a)	0.118 ^(a)
35–44	0.055	0.056	0.067	0.085
45–54	0.038 ^(a)	0.054	0.035 ^(a)	0.085
55–64	0.054	0.070	0.072	0.112 ^(a)
Education				
Degree+	0.018 ^(a)	0.008 ^(a)	0.016 ^(a)	0.023 ^(a)
Diploma	0.021 ^(a)	0.020 ^(a)	0.039 ^(a)	0.046 ^(a)
Trade qualification	0.048	0.031 ^(a)	0.038 ^(a)	0.048 ^(a)
No post-school qualification	0.055	0.056	0.067	0.085
Immigrant status				
Australian-born	0.055	0.056	0.067	0.085
United Kingdom	0.072 ^(a)	0.096 ^(a)	0.090 ^(a)	0.096
Other Europe	0.091 ^(a)	0.090 ^(a)	0.108 ^(a)	0.091
Asia/Africa	0.100 ^(a)	0.209 ^(a)	0.164 ^(a)	0.208 ^(a)
Americas/Oceania	0.090 ^(a)	0.087 ^(a)	0.087 ^(a)	0.133 ^(a)
B. Females				
Age				
25–34	0.081 ^(a)	0.149 ^(a)	0.103 ^(a)	0.096
35–44	0.061	0.096	0.070	0.074
45–54	0.051	0.053 ^(a)	0.055 ^(a)	0.059
55–64	0.021 ^(a)	0.095	0.047 ^(a)	0.102 ^(a)
Education				
Degree+	0.030 ^(a)	0.022 ^(a)	0.027 ^(a)	0.042 ^(a)
Diploma	0.031 ^(a)	0.040 ^(a)	0.047 ^(a)	0.052 ^(a)
Trade qualification	0.061	0.091	0.076	0.072
No post-school qualification	0.061	0.096	0.070	0.074

continued

**Table 5: Predicted Probability of Unemployment
(Conditional on Labour Force Participation) (continued)**
Population aged 25 to 64 years

	Year			
	1982	1986	1990	1994/95
Immigrant status				
Australian-born	0.061	0.096	0.070	0.074
United Kingdom	0.074	0.130	0.102 ^(a)	0.068
Other Europe	0.083	0.124	0.132 ^(a)	0.131 ^(a)
Asia/Africa	0.122 ^(a)	0.191 ^(a)	0.177 ^(a)	0.207 ^(a)
Americas/Oceania	0.079	0.133	0.232 ^(a)	0.095

Notes: Data are for persons aged 25–64 who are in the labour force. Labour force status is defined from the variable 'employment status brief' in 1982, 1990 and 1994/95, and from the variable 'labour force status in main and second job' in 1986. Information on coding of other explanatory variables is available on request from the authors.

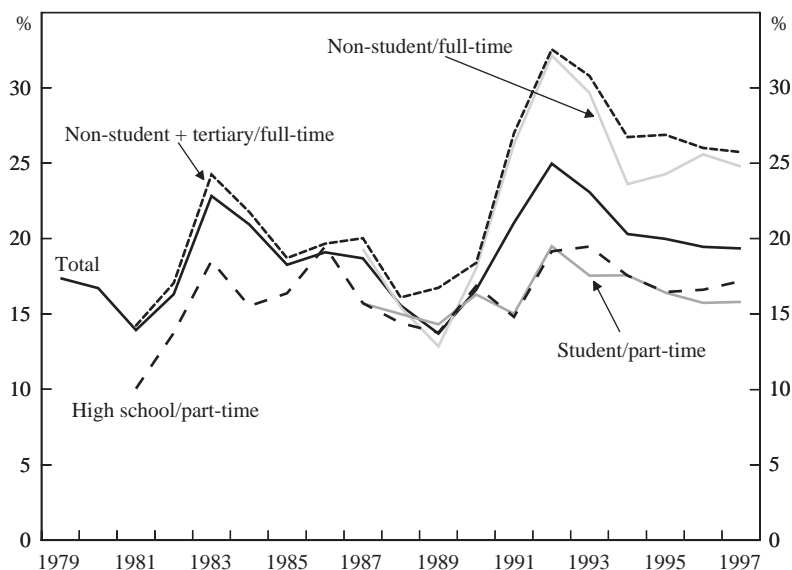
Regressions were estimated separately by year and for males and females. Each regression includes as controls a constant, three dummy variables for age, three dummy variables for education attainment, four dummy variables for country of birth, and six dummy variables for state of residence. The omitted categories (base case) are age 35–44, no post-school qualification, Australian-born and resident of NSW.

(a) Significantly different at the 5 per cent level from the 'base case' probability in the respective sample year for the respective gender group. The standard error of the difference between the predicted probabilities of unemployment in the base case and an alternative case is calculated as $[\varphi(x_1b)x_1 - \varphi(x_0b)x_0] \sqrt{[\varphi(x_1b)x_1 - \varphi(x_0b)x_0]'}$ where φ is the normal probability density function, and V is the variance-covariance matrix from the probit regression equation for unemployment.

Sources: ABS, *Income Distribution Survey* – Unit-record Files, 1982, 1986, 1990 and 1994/95.

Two other points regarding teenage employment are worth noting. First, the composition of teenage unemployment has changed significantly over time. A much larger share of unemployed teenagers are now students compared to the late 1970s. This is explained by growth in the proportion of teenagers in high school or tertiary institutions, and by increased labour force participation of teenagers who are students. From August 1979 to August 1997, the proportion of teenagers in high school increased from 39.4 per cent to 54.3 per cent, and the labour force participation of teenagers at high school rose from 19.9 to 33.0 per cent. As students are more likely than non-students to be seeking part-time jobs, the proportion of unemployed teenagers seeking part-time jobs has also grown. In August 1979, only 13.0 per cent of unemployed teenagers were seeking part-time jobs, whereas in August 1997, this proportion was 43.5 per cent. Second, there has been some controversy about the appropriate measure of the rate of unemployment for teenagers. Some commentators have, for instance, argued that an appropriate measure should exclude students; another example of a suggested measure of the teenage

Figure 10: Rate of Teenage Unemployment
Civilian population aged 15 to 19 years



Notes: Non-student is a person not attending high school or a tertiary institution. Student is a person attending high school or a tertiary institution. Data are annual August observations.

Source: *Labour Force, Australia*, ABS cat. no. 6203.0. Information from each monthly publication (e.g. Table 11 in August 1997).

rate of unemployment is to use unemployed non-students divided by students plus non-student labour force participants. From Table 6 it is obvious that each of these measures would significantly alter the estimated rate of unemployment for teenagers (ABS 1995).

4.4 Regional unemployment

An understanding of regional differentials in unemployment rates is relevant for examining the role of inter-regional labour mobility as an adjustment mechanism in the labour market, and for assessing whether regional factors might constitute a source of hysteresis in unemployment. In Australia understanding the regional dimension involves both inter-state and intra-state comparisons.

Table 6: Rate of Teenage Unemployment
Civilian population aged 15 to 19 years; February 1998

	Rate of unemployment	Percentage of labour force	Contribution to rate of unemployment
Students			
Full-time labour force	34.3	3.7	1.3
Part-time labour force	18.8	45.5	8.6
Non-students			
Full-time labour force	28.1	39.5	11.1
Part-time labour force	7.2	11.3	0.8
Total	21.8	100.0	21.8

Source: *Labour Force, Australia*, ABS cat. no. 6203.0, Table 11, February 1998.

Table 7 presents information on changes in rates of unemployment and on the average rate of unemployment in cyclical phases in each state. One feature which emerges is that state-level labour markets move quite closely together with the national market. Consistent with this conclusion, DeBelle and Vickery (1998) find that the coefficients of determination between state and national unemployment rates are between 0.75 and

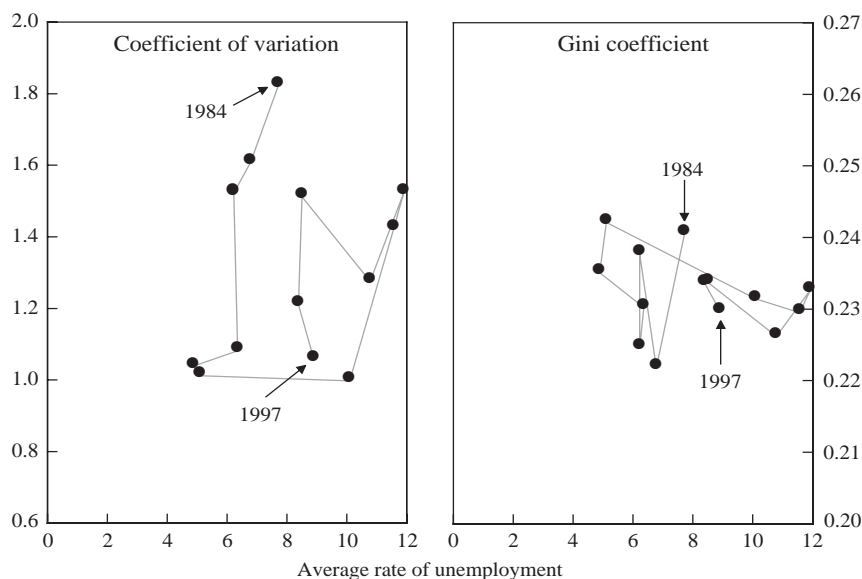
Table 7: Rates of Unemployment by State
Civilian population aged 15 years and over; seasonally adjusted; per cent

	Australia	NSW	Victoria	QLD	SA	WA	Tasmania
1978:Q3 – 1981:Q2							
Change	-0.9	-1.3	-0.4	-1.8	+0.5	-0.4	-1.0
Average	6.1	5.8	5.7	6.5	7.6	6.9	6.2
1981:Q2 – 1983:Q2							
Change	+4.7	+6.0	+3.9	+4.9	+3.5	+3.9	+5.9
Average	7.4	7.3	6.9	7.3	8.8	7.6	8.9
1983:Q2 – 1989:Q4							
Change	-4.5	-5.4	-4.8	-3.7	-3.9	-4.3	-3.7
Average	8.0	8.4	6.7	9.1	8.9	7.9	9.5
1989:Q4 – 1993:Q3							
Change	+5.3	+5.2	+8.0	+4.4	+2.8	+4.1	+4.5
Average	9.3	8.9	9.5	9.5	9.2	9.4	10.6
1993:Q3 – 1998:Q1							
Change	-2.7	-3.1	-4.8	-2.2	-0.3	-2.2	-2.9
Average	9.1	8.6	9.7	9.5	9.6	7.8	10.9

Sources: Data for 1978–1995 – *The Labour Force, Australia, 1978–1995*, ABS cat. no. 6204.0, Table 5; for post-1995 – *Labour Force, Australia*, ABS cat. no. 6203.0, Table 8.

Figure 11: Average Rate of Unemployment and Regional Dispersion in Rates of Unemployment

DEETYA Local Labour Markets – Victoria



Notes: Data are June observations for the 107 DEETYA local labour markets in Victoria as defined in June 1995. Data from 1984–89 have been integrated with 1990–97 using local labour market definitions for the latter period.

Source: Department of Employment, Education, Training and Youth Affairs – *Small Area Labour Markets Australia*, June quarter, various issues 1984–97.

0.9 (using data from 1978 to 1997). The level of the rate of unemployment in each state also generally corresponds quite closely to the national rate – exceptions are Tasmania and South Australia where the rate of unemployment has been consistently above the national rate since 1978.

A much greater degree of dispersion exists between regional rates of unemployment within states in Australia. Decomposing the total variance in rates of unemployment in the 186 Department of Employment, Education and Youth Affairs (DEETYA) regions in Australia in June 1997 reveals that more than 90 per cent of the total variance is explained by intra-state variation in rates of unemployment. Some recent analyses have also found that dispersion in regional rates of unemployment has increased over time (e.g. Gregory and Hunter 1996). Increases in dispersion in regional rates of unemployment could provide one source of hysteresis in unemployment – due for example, to neighbourhood effects on the search effectiveness of unemployed persons. To investigate this issue further, Figure 11 presents information on the relation between dispersion in regional rates of unemployment and the average rate of unemployment for 107 DEETYA local labour markets in Victoria between 1984 and 1997.⁴ There does not appear to be

4. DEETYA small area data from 1984 to 1989 used a different definition of local labour markets than between 1990 and 1997. Hence it is necessary to recalculate unemployment rates for local labour markets for 1984 to 1989 based on the later definition. This is a large task – which is why the analysis is restricted to Victoria. However, analysis for other states using data for the period 1990 to 1997 is consistent with the findings for Victoria.

evidence of any increase in regional dispersion in rates of unemployment beyond that which can be attributed to increases in the average rate of unemployment. This finding is not necessarily inconsistent with earlier research which has found evidence of increasing regional dispersion – because that research has used census data, and the rate of unemployment increased in each inter-censal period from 1976 to 1991. It does however, cast doubt on the role of regional-level factors as a source of hysteresis in unemployment in Australia over the period covered by the DEETYA data.

5. Consequences of Unemployment

Why is unemployment of such concern? From society's viewpoint unemployment is undesirable since it represents a waste of resources; further, prolonged periods of high unemployment are likely to be the source of social problems. In this section a range of social consequences of unemployment in Australia are reviewed.⁵

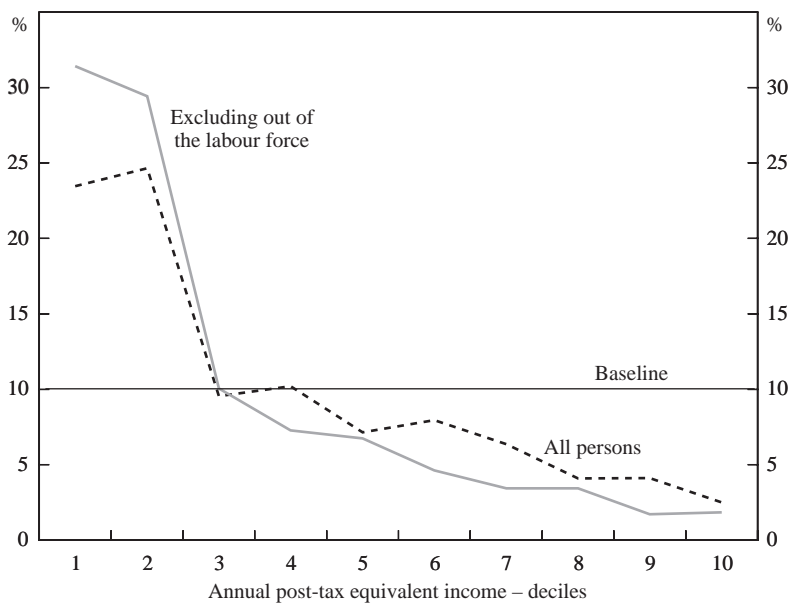
The approach in this section should be seen as 'partial equilibrium'; for example, it will examine the position of unemployed persons in the distribution of income – but will not make any comment on how the distribution of income might be affected by changes to the rate of unemployment. Two other issues which will arise in the section also require some comment. First, where a statistical relation is found to exist between unemployment and some outcome such as an individual's health status, there remains the question of whether there is an underlying causal relation from unemployment to health status. Second, it is of interest to know whether any effect of unemployment on outcomes such as health status operates only through lower income or through other channels as well. Where evidence on these issues exists it will be described below. However, it should be noted that most available evidence for Australia simply establishes a statistical relation between unemployment and outcomes such as health status, and does not address the issues of causality or transmission mechanism.

5.1 The distribution of income

How does unemployment affect a person's level of income? To answer this question, we examine the location of unemployed persons in the distribution of income using data on annual income in 1993/94 from the 1994/95 ABS IDS. Our analysis replicates that undertaken by Richardson (1998) for 1989/90. In the first step, post-tax equivalent total annual cash income for the respective income unit of each person aged over 15 years is estimated. To calculate equivalent income, OECD equivalence scales – which weight an individual as needing 0.59 of a couple's income to achieve the same standard of living, and assume that each extra child in an income unit increases its needs by 0.29 per person – are applied. In the second step, the distribution of income unit-level equivalent post-tax total annual cash income between individuals is derived, and divided into deciles. The third step is to examine the distribution of unemployed persons by decile in the distribution of income.

5. See Junankar and Kapuscinski (1992) for estimates of the output losses associated with periods of high unemployment.

Figure 12: Distribution of Unemployment Persons by Annual Post-tax Equivalent Income Deciles
1993/94



Notes: The pre-tax income variable is total annual 1993–94 income unit income from all sources (INCTOTPU). This is adjusted using the tax variable, income unit tax payable, for financial year 1993–94 (ITAXPU). Adjustments to equivalent income are made using information on income unit type (IUTYPE) and on number of dependents (DEPKIDSU). Labour force status is defined from the variable labour force status in main and second jobs (LFSBCP).

Source: ABS, *Income Distribution Survey – Unit Record File, 1994/95*.

Figure 12 presents the findings from this exercise. It is evident that unemployed persons are disproportionately concentrated in the bottom two deciles of the distribution of income. In fact, over one-half of unemployed persons have incomes which place them in these deciles. This result holds using either a sample which includes all persons or which excludes persons who are out of the labour force. Of course, understanding how unemployment affects a person's cash income is only part of the story. To understand the effect on overall well-being it would also be necessary to take into account factors such as non-cash benefits received by unemployed persons, and to adopt a lifetime perspective taking into account, for example, that the experience of unemployment may be associated with lower earnings for unemployed persons who regain employment.

5.2 Crime

Evidence on the relation between labour market outcomes and criminal activity in Australia is somewhat patchy (Weatherburn 1992). A range of time-series analyses of the effect of the aggregate rate of unemployment on criminal activity have generally found no significant effect (e.g. Withers 1984). However, more recent analyses by

Bodman and Maultby (1996) which examines the relation between robbery and burglary and the rate of unemployment at the state level from 1982 to 1991, and Kapuscinski *et al.* (1998) which examines the relation between homicide and the rate of unemployment in Australia from 1921 to 1987, do find a significant positive relation. Regional-level analyses of the relation between the proportion of proven offenders and the rate of unemployment by local government area in Sydney (Devery 1991), and juvenile delinquency and socioeconomic status by postcode area (Weatherburn and Lind 1998) also suggest a positive relation between unemployment and criminal activity. However, issues of causality, and of the transmission mechanism between unemployment and crime, appear as yet to have received little analysis.⁶

5.3 Health

A variety of evidence exists on the relation between unemployment or low income and health outcomes in Australia (Mathers and Schofield 1998; McLelland and Scotton 1998). Aggregate-level evidence exists which shows a positive relation between the rate of unemployment, and heart disease death and youth suicide (Morrell *et al.* 1998). Individual-level evidence suggests that unemployed persons are likely to use health care services more frequently (Schofield 1996), and self-report lower levels of health (Department of Health, Housing and Community Services 1992, p. 39); and that young unemployed persons have lower levels of psychological health than young employed persons (Morrell *et al.* 1994). Importantly, the Department of Health, Housing and Community Services study includes a control for the influence of income and still finds an effect of labour force status on health; and the Morrell *et al.* (1994) study uses longitudinal data from the *Australian Longitudinal Survey of Youth* and hence is able to establish how a change in employment status for the same person affects health outcomes. Hence, there is some evidence to suggest that unemployment has an adverse causal effect on health outcomes which is only partly due to the effect of lower income.

5.4 Life satisfaction

A number of recent studies have examined the relation between labour force status and 'happiness' (e.g. Clark and Oswald (1994), and Darity and Goldsmith (1996)). Here we use data from the International Social Science Survey Program (ISSSP) for Australia in 1994 to undertake a similar type of exercise. Four questions on life satisfaction are selected from the ISSSP and responses recoded to a zero for 'satisfied' and one for 'dissatisfied'. These responses are then summed to create an Index of Life Satisfaction (ILS) which can range between zero (most satisfied) and four (least satisfied) for each individual. Our sample from the ISSSP is persons aged 18–64.

Figure 13 shows the distribution of the ILS by labour force status for the entire sample. Table 8 reports the mean of the ILS by labour force category and the findings from chi-square tests for whether a significant difference exists between the distribution of responses for persons who are employed and unemployed, and out of the labour force and unemployed.

6. On the latter issue of the transmission mechanism between unemployment and crime, Weatherburn and Lind (1998) present evidence to support the hypothesis that economic distress weakens parental supervision which is in turn responsible for higher rates of juvenile delinquency.

Table 8: Life Satisfaction by Labour Force Status
Persons aged 18 to 64; 1994

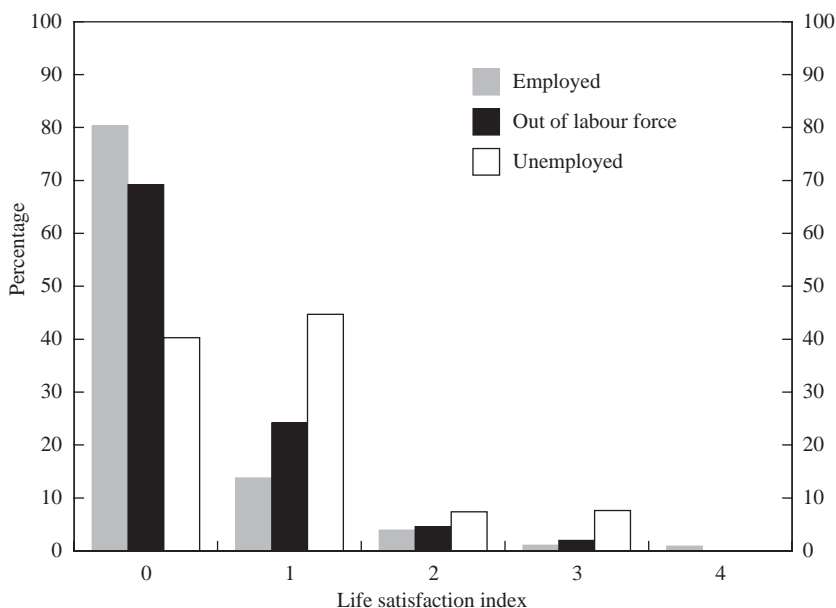
	Mean ^(a)	Observations	χ^2 test ^(b)
A. All			
Employed	0.281	838	66.67**
Out of labour force	0.392	260	21.17**
Unemployed	0.820	67	
B. Gender			
Males			
Employed	0.297	494	29.43**
Out of labour force	0.342	70	7.97*
Unemployed	0.638	47	
Females			
Employed	0.261	340	59.60**
Out of labour force	0.410	190	24.51**
Unemployed	1.250	20	
C. Age			
18–24			
Employed	0.300	50	9.71*
Out of labour force	0.454	33	4.73
Unemployed	0.909	11	
25–54			
Employed	0.287	682	52.32**
Out of labour force	0.475	141	11.22*
Unemployed	0.888	45	
55–64			
Employed	0.227	88	4.68
Out of labour force	0.214	84	5.01
Unemployed	0.400	10	

Notes: (a) The index of life satisfaction is derived from questions on: How do you feel about your life as a whole?; Your standard of living – the things you have, like housing, washer, clothes, stereo, car and so on?; Your income and financial situation?; and Your sense of purpose and meaning in life? Respondents answering 'mostly dissatisfied', 'unhappy' or 'terrible' were coded as one on each question; other (more positive) responses were coded as zero.

(b) χ^2 tests are, respectively, for whether a significant difference exists in the distributions of responses by employed and unemployed persons, and by persons out of the labour force and unemployed persons. Critical values for the χ^2 test (with 4 degrees of freedom) are 13.27 at the 1 per cent level of significance, and 7.77 at the 10 per cent level of significance. * and ** denote significance at the 10 per cent level and 1 per cent level, respectively.

Sources: International Social Science Survey 1994, Kelley *et al.* (1994), Variables p24q1a, p24q1byy, p24q2ac, p24q2bc, p30q2, p30q3b, p30q3c, p30q3d, p40q2aa, p40q2c, p70q1a, p70q1b, p70q1c, p70q1d and p70q1h. Further details available on request from authors.

Figure 13: Life Satisfaction Index and Labour Force Status
Persons aged 18 and over; 1994



Notes and Sources: See Notes and Sources for Table 8.

A number of findings are evident. First, unemployed persons – in aggregate and separately for males and females – report significantly lower life satisfaction than employed persons. The same pattern holds for all age groups except persons aged 55–64 years. Second, unemployed persons report lower levels of life satisfaction than persons out of the labour force – although the difference is not as strong as that between employed and unemployed persons. Third, ordered logit analysis of the determinants of life satisfaction found that – after controlling for age, education, gender, state and weeks unemployed in previous year – an unemployed person had a significantly lower level of life satisfaction than employed persons.⁷

Several caveats, however, must be noted regarding these findings. First, the method of constructing the ILS assumes that inter-personal utility comparisons are possible and imposes particular assumptions about the utility index. Second, it is possible that the relation between unemployment and life satisfaction represents a causal relation from life satisfaction to unemployment or the effect of some other influence on both variables. Third, the regression analysis undertaken was not able to control for income so that the transmission mechanism between unemployment and life satisfaction is unclear.

7. Details of the ordered logit analysis and results are available from the authors on request. Previous regression analysis of the determinants of happiness – undertaken by Travers and Richardson (1993, pp. 119–131) using the Australian Standard of Living survey – did not find a significant relation between unemployment and happiness. An important difference between our study and that of Travers and Richardson is the inclusion of income as an explanatory variable for happiness in the latter study.

6. Conclusions

- Unemployment has increased dramatically in Australia since the mid 1970s. Estimates suggest that the natural rate of unemployment has grown from about 2 per cent to 7 per cent over this period. Cyclical changes have involved sharp increases in the rate of unemployment, whereas reductions in the rate of unemployment have taken a much longer time to occur.
- The incidence of unemployment varies between demographic and skill groups in the labour force. Young and less-educated labour force participants, recent immigrants, and persons whose last job was in blue-collar type occupations account for disproportionately high shares of total unemployment. However, all groups have experienced increases in rates of unemployment over the period since the mid 1970s.
- Cyclical phases where increases in the rate of unemployment have occurred have been primarily associated with decreases in the male full-time employment/population rate. During the main phase where the rate of unemployment decreased, the employment/population and labour force participation rates for females increased strongly. Industry-level factors – declining employment in manufacturing and agriculture and increasing employment in finance, trade and the government sector – are behind these changes in male and female employment/population rates.
- The current period of expansion in the 1990s has had much slower growth in female employment and labour force participation than the 1980s expansion. On the demand side, this appears to be mainly due to a set of factors which have caused slower growth in female-dominated industries. On the supply side, it is possible that increasing competition for part-time jobs from male labour force participants, reductions in average mortgage repayments, and changes in government benefits for child care and parenting allowances have played some role.
- In the period since the early 1980s, there does not appear to be strong evidence for a role of hysteresis-type influences on the rate of unemployment operating through lower average search effectiveness of the unemployed or from regional factors.
- Data on labour market flows suggest that there has been an increase in flows into and out of unemployment for males in the 1990s expansion compared with a similar period during the 1980s. Such a shift does not appear to have occurred for females.
- Unemployed persons are concentrated disproportionately at the bottom of the distribution of income. There is also some evidence to suggest that there is a causal relation between unemployment and poor health outcomes, and a little evidence of a relation between criminal activity and unemployment. Unemployed persons appear to have significantly lower levels of ‘life satisfaction’ than other persons.

References

- Australian Bureau of Statistics (1995), 'Measuring Teenage Unemployment', *Labour Force Australia*, cat. no. 6203.0, May, pp. 1–8.
- Bodman, P. (1995), 'Estimating Frictional Unemployment for Australia and its States Using a Stochastic Frontier Approach', University of Queensland Department of Economics Discussion Paper No. 169.
- Bodman, P. and C. Maultby (1996), 'Crime, Punishment and Deterrence in Australia: A Further Empirical Investigation', University of Queensland Department of Economics Discussion Paper No. 196.
- Clark, A. and A. Oswald (1994), 'Unhappiness and Unemployment', *Economic Journal*, 104(424), pp. 648–659.
- Connolly, G. and K. Spence (1996), 'The Role of Consumer Loan Affordability and Other Factors Influencing Family Decisions in Determining the Female Full-time Participation Rate in the Australian Labour Force', paper presented at the 25th Conference of Economists, Australian National University, Canberra.
- Crosby, M. and N. Olekalns (1998), 'Inflation, Unemployment and the NAIRU in Australia', *Australian Economic Review*, forthcoming.
- Darity, W. and A. Goldsmith (1996), 'Social Psychology, Unemployment and Macroeconomics', *Journal of Economic Perspectives*, 10(1), pp. 121–140.
- Debelle, G. and T. Swann (1998), 'Stylised Facts of the Australian Labour Market', Reserve Bank of Australia Research Discussion Paper No. 9804.
- Debelle, G. and J. Vickery (1997), 'Is the Phillips Curve a Curve? Some Evidence and Implications for Australia', Reserve Bank of Australia Research Discussion Paper No. 9706.
- Debelle, G. and J. Vickery (1998), 'Labour Market Adjustment: Evidence on Interstate Labour Mobility', Reserve Bank of Australia Research Discussion Paper No. 9801.
- Department of Health, Housing and Community Services (1992), 'Enough to Make You Sick', National Health Strategy Research Paper No. 1.
- Devery, C. (1991), *Disadvantage and Crime in New South Wales*, NSW Bureau of Crime Statistics and Research, Sydney.
- Dixon, R. (1998), 'The Gross Flows Data: The Labour Force Survey and the Size of the Matched Sample', mimeo, University of Melbourne.
- Dorrance, G. and H. Hughes (1996), 'Divided Nation: Employment and Unemployment in Australia', Melbourne Institute of Applied Economic and Social Research, University of Melbourne, Working Paper No. 8/96.
- Economic Planning and Advisory Commission (1996), *Future Labour Market Issues for Australia*, Economic Planning and Advisory Commission Paper No. 12, AGPS, Canberra.
- Fahrer, J. and A. Heath (1992), 'The Evolution of Employment and Unemployment in Australia', Reserve Bank of Australia Research Discussion Paper No. 9215.
- Fahrer, J. and A. Pease (1993), 'The Unemployment/Vacancy Relationship in Australia', *Australian Economic Review*, 26(4), pp. 43–57.
- Freebairn, J. (1997), 'Unemployment', in *Changing Labour Markets: Prospects for Productivity Growth*, Productivity Commission, AGPS, Canberra, pp. 121–145.
- Friedman, M. (1968), 'The Role of Monetary Policy', *American Economic Review*, 58(1), pp. 1–21.

- Goodridge, S., D. Harding and P. Lloyd (1995), 'The Long-term Growth in Unemployment', Melbourne Institute of Applied Economic and Social Research, University of Melbourne, Working Paper No. 2/95.
- Gregory, R. (1991), 'Jobs and Gender: A Lego Approach to the Australian Labour Market', *Economic Record*, 67(supplement), pp. 20–40.
- Gregory, R. and B. Hunter (1996), 'Spatial Trends in Income and Employment in Australian Cities', Report to the Department of Transport and Regional Development.
- Groenewold, N. and A. Hagger (1998a), 'Natural-rate Estimates as a Policy Tool in Australia', University of Tasmania Centre for Regional Economic Analysis Discussion Paper No. RS–14.
- Groenewold, N. and A. Hagger (1998b), 'The Natural Unemployment Rate in Australia Since the Seventies', *Economic Record*, 74(224), pp. 24–35.
- Junankar, P. and C. Kapuscinski (1991), 'The Incidence of Long-term Unemployment in Australia', *Australian Bulletin of Labour*, 17(4), pp. 325–352.
- Junankar, P. and C. Kapuscinski (1992), *The Costs of Unemployment in Australia*, Economic Planning Advisory Council Background Paper No. 24, AGPS, Canberra.
- Kapuscinski, C., J. Braithwaite and B. Chapman (1998), 'Unemployment and Crime: Towards Resolving the Paradox', mimeo, Australian National University.
- Kawasaki, K., P. Hoeller and P. Poret (1990), 'Modelling Wages and Prices for the Smaller OECD Countries', OECD Department of Economics and Statistics Working Paper No. 86.
- Kelley, J., C. Bean, M. Evans and K. Zagorski (1994), *International Social Science Survey Program 1994 – User's Guide and Data File*, Social Science Data Archives, Australian National University, Canberra.
- Layard, R., S. Nickell and R. Jackman (1991), *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford University Press, Oxford.
- Mathers, C. and D. Schofield (1998), 'The Health Consequences of Unemployment: The Evidence', *Medical Journal of Australia*, 168(4), pp.178–182.
- McLelland, A. and R. Scotton (1998), 'Poverty and Health', in R. Fincher and J. Nieuwenhuysen (eds), *Australian Poverty: Then and Now*, University of Melbourne Press, Melbourne, pp. 185–202.
- Miller, P. (1997), 'The Burden of Unemployment on Family Units: An Overview', *Australian Economic Review*, 30(1), pp. 16–30.
- Morrell, S., R. Taylor and C. Kerr (1998), 'Unemployment and Young People's Health', *Medical Journal of Australia*, 168(5), pp. 236–240.
- Morrell, S., R. Taylor, S. Quine *et al.* (1994), 'A Cohort Study of Unemployment as a Cause of Psychological Disturbance in Australian Youth', *Social Sciences and Medicine*, 38(11), pp. 1553–1564.
- Ooi, H. and N. Groenewold (1992), 'The Causes of Unemployment in Australia', *Australian Economic Papers*, 31(1), pp. 77–93.
- Powell, A. and C. Murphy (1995), *Inside a Modern Macroeconomic Model – A Guide to the Murphy Model*, Springer-Verlag, Berlin.
- Richardson, S. (1998), 'Who Gets Minimum Wages?', Australian National University Centre for Economic Policy Research Discussion Paper No. 386.
- Schofield, D. (1996), 'The Impact of Employment and Hours of Work on Health Status and Health Service Use', University of Canberra National Centre for Social and Economic Modelling Discussion Paper No. 11.

- Taplin, B., P. Jilek, L. Antioch, A. Johnson, P. Parameswaran and C. Louis (1993), 'Documentation of the Macroeconomic (TRYM) Model of the Australian Economy', TRYM Paper No. 2, Commonwealth Treasury.
- Travers, P. and S. Richardson (1993), *Living Decently: Material Well-being in Australia*, Oxford University Press, Melbourne.
- Trivedi, P. and G. Baker (1985), 'Equilibrium Unemployment in Australia: Concepts and Measurement', *Economic Record*, 61(174), pp. 629–643.
- Watts, M. and W. Mitchell (1991), 'Alleged Instability of the Okun's Law Relationship in Australia: An Empirical Analysis', *Applied Economics*, 23(12), pp. 1829–1838.
- Weatherburn, D. (1992), 'Economic Adversity and Crime', Trends and Issues No. 40, Australian Institute of Criminology.
- Weatherburn, D. and B. Lind (1998), 'The Developmental Antecedents of Crime-prone Neighbourhoods', paper presented at NSW Child Protection Council State Conference.
- Withers, G. (1984), 'Crime, Punishment and Deterrence in Australia: An Empirical Investigation', *Economic Record*, 60(2), pp. 176–185.
- Wooden, M. (1996), 'Hidden Unemployment and Underemployment: Their Nature and Possible Impact on Future Labour Force Participation and Unemployment', National Institute of Labour Studies Working Paper No. 140.
- Wooden, M. (1998), 'The Labour Market for Young Australians', in *Australia's Youth: Reality and Risk*, Dusseldorp Skills Forum, Sydney, pp. 31–50.

Discussion

1. Peter Kenyon

'One of the objectives in obtaining the necessary and sufficient conditions for rational choice under majority decision is to motivate purposive research on actual patterns of preferences.'
A.K. Sen (1970, p. 171)

I have no real problem with Jeff and Steven's paper. It is an important survey of the dimensions of Australia's unemployment problem. When read in conjunction with Jeff's complementary 1997 survey (Borland 1997), a complete picture of the dimensions of unemployment in this country and the policy options for dealing with it emerges. I particularly like the fact that, at last, the social costs of unemployment, such as its effects on health, crime rates and so on, are being addressed in an economics survey. Isn't it amazing to see how long it has taken for an economist to address these important dimensions of unemployment; dimensions which have, for the most part, not been much addressed in the economics literature?

As the paper is a survey of the dimensions of unemployment, there is little to argue with. It essentially sets the scene for the rest of the discussion that is the business of this conference. So, I will use my time to talk about unemployment policy. I wish to discuss two questions: what determines a policy response and how does this change over time?

But before addressing these questions, I want to contrast two policy issues: unemployment and microeconomic reform. I want to look at the welfare costs and benefits of not getting unemployment down to something like full employment with the welfare benefits that may flow from microeconomic reform.

We have been saying that unemployment is a 'serious problem' for a long time. But it doesn't mean that a lot gets done about it. It is serious – more so than just about anything else I can think of as an economic policy imperative.

How big a problem is it? We can quickly approximate the loss of GDP due to *total* unemployment by a simple expression (we will deal with unemployment in excess of full-employment unemployment shortly):

$$\text{Loss due to unemployment} = (GDP/E) * U$$

where E = total employment and U = the total number of unemployed.

That is, the total dollar loss is the average product per worker multiplied by the number of unemployed workers (assuming for the moment that the average product of unemployed workers is the same as that of employed workers). Expressed as a proportion of GDP, this becomes simply:

$$\text{Loss due to unemployment} = U/E$$

Which, after some manipulation, becomes:

$$\text{Loss due to unemployment} = ur/(1-ur)$$

where ur is the unemployment rate.

However, we need to take into account two factors; first, the unemployment which would occur even at full employment and, second, we have to make allowances for differences in the average productivity of unemployed workers when compared with employed workers. Both of these adjustments require judgments to be made. Conceptually, however, the formula that captures these effects is easy to write. First, let ur' be the unemployment rate in excess of the full-employment unemployment rate, so $ur' = ur - ur(fe)$ where $ur(fe)$ is the unemployment rate at full employment.

From Borland and Kennedy's paper we know that the unemployed tend to be less-educated, younger workers. Their previous job (if they had one) was typically as a labourer or tradesperson in either the manufacturing, construction or the hospitality sectors. Recent immigrants are also more than proportionately represented among their number. Consequently, the average productivity of the typical unemployed worker is likely to be less than that of the average employed worker. So, let π ($0 < \pi < 1$) be the adjustment factor by which the average productivity of the average employed worker needs to be adjusted to obtain the average productivity of the average unemployed worker. Therefore:

$$\text{Loss due to unemployment in excess of full employment} = \pi * ur' / (1 - ur')$$

Readers may make their own judgments as to what π is in reality. I shall let π take values of 0.5, 0.75 and 1.0, so as to give a representative range of values.

What is the unemployment rate at full employment? This is virtually impossible to know. Borland and Kennedy discuss various attempts at measuring the so-called 'natural rate'. The first point to make is that they observe that the confidence intervals around such estimates are typically very large. The second observation from their and other papers at this conference is that it would appear that the 'natural rate' has increased from 2 per cent in the 1970s to over 6 per cent by the early 1990s. Why has the 'natural rate' drifted upwards? Explanations include hysteresis, whereby the 'natural rate' follows the actual rate upwards (and presumably downwards) due to such factors as skill atrophy among the unemployed, state dependence and scarring, structural change brought about by globalisation and/or technological change, demographic changes and so on. The third observation is that none of this can be directly applied to the counterfactual of what would have been the unemployment rate had we had continuous full employment since the early 1970s. We simply do not know what the full-employment unemployment rate was during the years since 1970.

Nevertheless, an estimate needs to be made. I am going to follow the writers of the 1993 Green Paper *Restoring Full Employment* (Committee on Employment Opportunities 1993) and assume that the current full-employment unemployment rate is 5 per cent. For simplicity, I will assume that the full-employment unemployment rate has grown continuously since 1972, when it was 2 per cent. Table 1 shows the loss due to unemployment in excess of full employment under these assumptions since 1972. As a further check, I also include Mitchell and Watts' (1997) estimates expressed as a percentage of GDP. Their estimates are derived from calculating the number of potential workers available for work above a constant 2 per cent unemployment rate and calculating a 'GDP bonus' if each of these workers were employed. Their estimates are considerably greater than mine.

Table 1: Estimates of the Welfare Loss Due to Unemployment
Per cent

Year	Unemployment rate	Full-employment unemployment rate	Unemployment above full-employment rate	GDP loss			Mitchell and Watts
				$\pi = 0.5$	$\pi = 0.75$	$\pi = 1.0$	
	(1)	(2)	(1) – (2)				
1972	2.5	2.0	0.5	0.3	0.5	0.6	3.3
1973	1.8	2.1	–	–	–	–	1.3
1974	2.4	2.1	0.3	0.2	0.3	0.4	2.7
1975	4.6	2.2	2.4	1.2	1.8	2.4	9.7
1976	4.7	2.3	2.4	1.2	1.8	2.4	8.3
1977	5.7	2.4	3.3	1.7	2.6	3.4	10.1
1978	6.2	2.5	3.7	1.9	2.9	3.8	11.2
1979	5.9	2.6	3.3	1.7	2.6	3.4	9.5
1980	5.9	2.7	3.2	1.7	2.5	3.3	8.5
1981	5.6	2.8	2.8	1.5	2.2	2.9	7.1
1982	6.7	2.9	3.8	2.0	3.0	4.0	8.9
1983	9.9	3.0	6.9	3.7	5.6	7.4	13.2
1984	8.5	3.1	5.4	2.9	4.3	5.7	10.9
1985	7.9	3.2	4.7	2.5	3.7	4.9	9.1
1986	8.0	3.3	4.7	2.5	3.7	4.9	8.3
1987	7.8	3.4	4.4	2.3	3.5	4.6	7.8
1988	6.8	3.6	3.2	1.7	2.5	3.3	5.9
1989	5.7	3.7	2.0	1.0	1.5	2.0	4.5
1990	7.0	3.8	3.2	1.7	2.5	3.3	5.3
1991	9.5	4.0	5.5	2.9	4.4	5.8	7.8
1992	10.5	4.1	6.4	3.4	5.1	6.8	9.1
1993	10.7	4.3	6.4	3.4	5.1	6.8	9.2
1994	9.2	4.4	4.8	2.5	3.8	5.0	7.9
1995	8.1	4.6	3.5	1.8	2.7	3.6	6.4
1996	8.5	4.7	3.8	2.0	3.0	4.0	6.3
1997	8.4	4.9	3.5	1.8	2.7	3.6	–
1998	8.0	5.0	3.0	1.6	2.3	3.1	–

Sources: ABS and author's calculations; Mitchell and Watts (1997).

The numbers are striking in their magnitude. Even under the most pessimistic (and almost certainly unrealistically low) estimates of the productivity of unemployed workers, the welfare losses due to unemployment are enormous. Australia *at a minimum* has lost well over 1.5 per cent of GDP per year for the past twenty years because it has not implemented policies which would have resulted in full employment. Much more likely is a welfare loss which averaged over 3 per cent of GDP every year for over 20 years. Australia has essentially given away one whole year's worth of its real GDP over the past two decades or so because it has not been willing to implement policies which would have generated full employment.¹

Now I would like to contrast these welfare losses with the welfare gains that are alleged to flow from 'microeconomic reform'. It would not be an exaggeration to suggest the microeconomic reform agenda has come to dominate economic policy in this country.

The recent obvious heavy involvement of the Commonwealth Government in the dispute following the replacement of Maritime Union of Australia members with non-union labour on the Australian waterfront by the Patricks Stevedoring company is but one (of many) examples of the priority which is currently being placed on the microeconomic reform agenda. The examples are myriad – the (partial?) sale of Telstra, the almost daily reports of privatisation of virtually all of the Federal Government's Department of Administrative Services functions (the government car fleet, asset services, construction services, architecture and interior design functions and so on), the corporatisation, and in many cases, the privatisation of state electricity, gas and water authorities, the privatisation of many of the capital cities' public transport services, inquiries into just about every state statutory marketing authority, and so on, indicate that the major focus of government (federal and states) economic policy is the 'microeconomic reform agenda'. It almost goes without saying that unemployment has virtually disappeared as a *major* focus of economic policy, let alone the primary focus.

Microeconomic reform can mean many things. However, following the Industry Commission's brief to analyse the effects of 'Hilmer and related reforms' on economic growth and the fiscal position of the federal and state governments (which resulted in the Industry Commission's 1995 Report), microeconomic reform has been interpreted very broadly as those reforms which focus on competition policy and which are derived from the Hilmer Report (Hilmer, Rayner and Taperell 1993). These 'Hilmer and related reforms' comprise reform of Telstra, Australia Post, the Federal Airports Corporation, the Civil Aviation Authority, rail, road and port authorities, state electricity, gas and water authorities, the competitive tendering for the provision of public services, deregulation of the building industry and the move to self-regulation of many other industries.

1. Unlike most commentators, I believe that we do have a solution to unemployment (Kenyon 1997). It is not in any way an original solution. Keynes wrote extensively about it in the 1930s and Keynesian policies seemed to work for three decades in the post World War 2 era. One might speculate on the welfare loss due to the macroeconomic intellectual vacuum in economics that has resulted from the demise of Keynesian economics as an operational stabilisation policy package. The reason why the problem is difficult is that the solution is a political decision about fairness and equity as much as it is an economic decision about economic efficiency.

The estimates of the welfare gains that would allegedly flow from the implementation of this microeconomic reform agenda range from about 5.5 per cent of GDP (Industry Commission 1995) to, at most, about one per cent of GDP (Quiggin 1997). Quiggin subjects the assumptions and calculations of the IC estimates to close scrutiny. His much lower estimate of the gains from the reform agenda results from his finding that most of the IC estimates of productivity gains that would come from reform are over-optimistic due to the use of inappropriate benchmarks and inappropriate assumptions about productivity growth, and therefore represent upper bounds rather than most likely outcomes. Further, he observes that many of the workers displaced from employment by the reform agenda will not be entirely absorbed elsewhere in the economy in equivalent jobs, but at least some of them will be permanently displaced from employment and others will almost certainly move into jobs which require fewer skills, both of which imply a semi-permanent shift in the effective supply of labour (Quiggin 1997). We should not lose sight of the fact that much of the reform agenda is about reducing employment in the public sector.

In summary, it is apparent that the gains in terms of additional GDP from microeconomic reform are *at most* comparable with the losses in GDP that have resulted from 25 years of less than full employment and are probably considerably less in magnitude, yet microeconomic reform dominates the policy agenda.

So the question is, why is it that microeconomic reform has come to dominate the policy attention of governments and unemployment has slipped very much into the background? Indeed, not only is unemployment not at the forefront of policy concerns, expenditure on active labour market programs to shift the unemployed, particularly the long-term unemployed, into employment has been savagely slashed.²

This question gives rise to several further questions. Whose preferences does this shift in policy focus represent? Have these preferences changed over time? If so, why? How are community preferences about the role of government ascertained by government and its agencies and how are these translated into policy priorities?

We know very little about whose preferences affect unemployment policy (or any policy, for that matter). This is a blind spot for the economics profession as far as I can see. We have some notion that policy preferences are revealed through the political process. We also understand that political parties spend a lot of time and effort (and money) surveying public opinion in various ways – marginal seats, various demographic groups and so on. But, surely it is naive to believe that there is a one-to-one correspondence between public preferences about such matters as the quantity and type of public goods and services required, the direction of macroeconomic policy concerning unemployment (which is a form of public good) and the public policy which results.

Even a passing acquaintance with public-choice theory (even if as only revealed through re-runs of *Yes Minister/Prime Minister*) tell us that the general public's preferences are only very inadequately revealed through the ballot box.

2. In the 1996–97 Budget, expenditure on labour market programs was reduced by \$575 million and by further cuts of \$956 million in 1997–98, with still further cuts of \$130 million and \$175 million scheduled for 1998–99 and 1999–00 (see *Budget Statements 1996–97*, Budget Paper No. 1, Table 4).

A few years ago Michael Pusey addressed this issue (Pusey 1991). His answer? Economists with a predisposition for economic liberalism or economic rationalism, as it is known in this country.³ Following a tradition in political sociology that dates at least from Weber and which received its most influential articulation in this country in the work of Sol Encel (Encel 1970), Pusey argues that the top echelons of the Commonwealth public service not only work closely with ministers in the implementation of policy, but are the brokers of interests and the articulators of national ideals and goals and, as such, contribute greatly to the formulation of policy. This process works in parallel with, but also transcends, the formal democratic process in a way which is captured so brilliantly in the BBC television model of Sir Humphrey and Jim Hacker.

In addition, Pusey argues that these influential public servants, particularly those concentrated in the key economic bureaucracies such as the Treasury, Prime Minister and Cabinet and Finance, are drawn from similar socioeconomic backgrounds (no prizes for guessing where!), are predominantly trained in economics and as a result, are deeply steeped in the ideology of liberal economic thought/economic rationalism. It is this latter attribute that results from the largely neoclassical economics education that they have received, which differentiates the current top echelons of the Commonwealth bureaucracy from their predecessors, such as H.C. Coombs who espoused a far more catholic set of economic principles, including very healthy doses of Keynesianism.⁴

Like Marx's caricature of Nassau Senior, this analysis was seen to be altogether too simplistic by the economics profession. (See, for example, Dick Blandy's trenchant review in the *Australian Quarterly* (Blandy 1992)). Nevertheless, Pusey's work did prick a nerve in the Australian economics profession.

In all honesty, I don't think we know precisely (or even imprecisely) how policy preferences are formed and behave over time, especially in the realms where preferences *do* matter – the demand for public goods, the degree of macroeconomic intervention required to better satisfy the need for economic certainty of the average person, the need for economic regulation to protect the average person from the exercise of monopoly economic power. But one thing is for sure, economists have not been very interested in finding out!⁵ I make several observations:

- We don't ask people about policy preferences (and even if we did, we probably wouldn't believe the answers, would we?).
- We don't pay much attention to political scientists/sociologists when they worry about policy preferences and whose preferences are paramount.

3. For a discussion of the revival of economic liberalism across the OECD, see Henderson (1995).

4. For a very detailed analysis of the transition in the 'Treasury Line' from eclectic Keynesianism to a more neoclassical bent, see Whitwell (1986). Incidentally, it was Coombs who, I believe, engineered the purchase of the site for the building in which this conference is being held. Presumably this reflected, in part, *his* concept of public goods.

5. Of course, in the sphere of private goods that are allocated by and large by competitive markets, there is a tradition in economics which essentially ignores preference formation. And for good reason – preferences are revealed by behavioural responses to changing relative prices and incomes. Of course, for the greater part of publicly produced goods and services, there is no adequate preference revelation mechanism. I submit that this is a fundamental weakness in economists' assessment of the demand for government-produced goods and services and in many areas of the setting of priorities for public economic policy.

- We rarely study policy formation except in a rudimentary way (usually using public-choice theory or game theory).

Do preferences for what we want governments to do change over time? This could be crucial. (We *can* get pathological policy responses where people become immune to monstrous acts by governments, as for example in Nazi Germany in the 1930s.) Have we become immune to unemployment?⁶ Once Australian governments would either lose office or come very close to it for very small increases in unemployment (for example, Menzies in 1961, McMahon in 1972, Whitlam in 1975 and Fraser in 1983). Not any more.

It is my belief that we need to understand *much* more about people's attitudes towards the role of government in economic activity, how these attitudes do (and don't) influence policy and whether they change over time. In order to do this, as a first step, we need to know what are people's preferences about the role of government. To use what is now a hopelessly old-fashioned concept, just what is the desired mix between public and private activity in the 'Mixed Economy?'.

However to answer these questions, I believe that we have to stray a long way from the economist's usual tool kit, so I end with an epistemological plea. Economists, I believe, have to broaden their tool kit. I am rapidly coming to the conviction that to understand the nature of community's preferences about the role of government, we need to explore qualitative research methods, using focus groups, semi-structured interviews and the like. It is only by using these methods that complex attitudes, opinions and the strength of opinion can be ascertained. A person's attitude towards the role of the state in his or her life, his or her attitudes towards fairness and equity, his or her attitudes towards private versus public expenditure, taxation and the like, cannot simply be inferred from the type of data sets which economists typically work with, using the methods usually directed at these data sets. Additionally, I believe that it is necessary to go beyond the use of sample surveys. These simply are not rich enough to explore the depth of beliefs, the subtleties lying behind them and so on, not to mention the practical difficulties of (usually) high non-response rates, non-response bias and the like.⁷

The use of qualitative research methods is a radical jump in economic methodology, but not a new one, nor one which I am alone in suggesting. Indeed, a far more impressive economist than myself has cogently argued for the use of this methodology in respect of understanding more about unemployment and labour markets (see Bewley 1996).

So, what are the issues which I believe ought to be addressed if we are to understand whose preferences are dominating economic policy formation? It is my hypothesis that the general public is much more sympathetic to a traditional Keynesian response to unemployment, that the shift in policy to 'microeconomic reform' does not reflect the attitudes of the general public towards the desired role of government, that the preference for the 'Mixed Economy' is not some artefact of the past.

6. Adrian Pagan commented to me during the conference that one possibility is that we have become exhausted by the issue of unemployment. It is simply too hard to deal with, and so policy priorities have moved to areas where policy can be more effective. But whose preferences have dictated this shift?

7. See the Appendix to Mackay (1997) for a clear argument in favour of qualitative research methods for social science research of the type suggested here.

I would like, therefore, to explore community attitudes towards the following issues:

- the provision of traditional government infrastructures such as roads, ports, airports, energy and water utilities and the like;
- the role of government in the provision of essential services, for example, in police, law and order and the like;
- the role of government in the provision of health care and the mix between public and private provision;
- the role of government in the provision of educational services at primary, secondary and tertiary levels and the mix between public and private schools and universities;
- the role of government in the provision of the arts and cultural services;
- the role of government in planning, zoning and regulating;
- issues of the privatisation of public goods and services (electricity, gas, water, public transport *etc.*);
- the mix between the public and private sector in banking and other business enterprises where government has often played a role; and
- the taxation system and the tax mix and possible alternatives (such as a GST).

I would like to know about the match between different opinions and socioeconomic circumstances. I would like to know whose preferences affect policy-makers (both elected and non-elected). More ambitiously, perhaps, I would like to know whether preferences in these matters have changed over time, and if so, how.

This is an ambitious research program, but one which I think is essential. To repeat the obvious point that I commenced with: current policy priorities are directed at achieving welfare gains that are, in all probability, only a fraction of what could be achieved if the priorities of policy-makers were, once again, primarily directed at reducing unemployment. As a famous aphorism states, it takes a lot of Harberger triangles to fit an Okun gap.⁸ Surely it is incumbent upon the economics profession to find out a little more why policy priorities have become so oblivious of relative costs and benefits. Whose interests are being served by this obliviousness?

References

- Bewley, T. (1996), 'A Depressed Labor Market as Explained by Participants', *American Economic Review*, 85(2), pp. 250–254.
- Blandy, R. (1992), 'Multiple Schizophrenia: Economic Rationalism and its Critics: A Review Article', *Australian Quarterly*, 64(1), pp. 101–106.
- Borland, J. (1997), 'Unemployment in Australia – Prospects and Policies: An Overview', *Australian Economic Review*, 30(4), pp. 391–404.
- Committee on Employment Opportunities (1993), *Restoring Full Employment: A Discussion Paper*, AGPS, Canberra.
- Encel, S. (1970), *Equality and Authority*, Cheshire, Melbourne.

8. This wonderful piece of wisdom has been attributed to James Tobin. I thank Bill Mitchell for reminding me of it. But alas, I have been unable to track down the source!

- Henderson, D. (1995), 'The Revival of Economic Liberalism: Australia in an International Perspective', *Australian Economic Review*, 28(1), pp. 59–85.
- Hilmer, F., M. Rayner and G. Taperell (1993), *National Competition Policy: Report by the Independent Committee of Inquiry*, AGPS, Canberra.
- Industry Commission (1995), *The Growth and Revenue Implications of Hilmer and Related Reforms*, AGPS, Canberra.
- Kenyon, P. (1997), 'Infrastructure Spending and Unemployment: Government Responsibility for Growth and Jobs', *Australian Economic Review*, 30(4), pp. 421–432.
- Mackay, H. (1997), *Generations*, Pan Macmillan, Sydney.
- Mitchell, W. and M. Watts (1997), 'The Path to Full Employment', *Australian Economic Review*, 30(4), pp. 436–444.
- Pusey, M. (1991), *Economic Rationalism in Canberra: A Nation Building State Changes Its Mind*, Cambridge University Press, Cambridge, England.
- Quiggin, J. (1997), 'Estimating the Benefits of Hilmer and Related Reforms', *Australian Economic Review*, 30(3), pp. 256–272.
- Sen, A.K. (1970), *Collective Choice and Social Welfare*, Holden-Day, San Francisco.
- Whitwell, G. (1986), *The Treasury Line*, Allen and Unwin, Sydney.

2. General Discussion

The general discussion was centred on two main issues:

- the apparently greater attention paid by public policy-makers to microeconomic reform than to the reduction of unemployment; and
- whether hysteresis exists in the unemployment rate.

It was argued that policy-makers have been more concerned about microeconomic reform than addressing unemployment. Why has micro reform had greater prominence in public policy debate? The welfare gains of microeconomic reform, expressed in terms of per cent per annum contributions to economic growth, are estimated to be between 1 per cent and 5 per cent. In contrast, GDP growth lost per year through unemployment is likely to be considerably higher. Some argued that this raises important questions about whose preferences influence the policy process and why. Others suggested that the public might have become immune to policy failure with respect to reducing unemployment, so that the persistence of high unemployment rates becomes tolerated. This, in turn, influences public choice (or acceptance) of microeconomic reform policies for which, at the level of an enterprise or industry, some unambiguous measure of success can usually be identified.

The efficacy of particular policies for the reduction of unemployment will, however, depend on whether there is hysteresis in unemployment. Here, there was much debate about whether the efficiency of labour markets had deteriorated in a structural sense. In their paper, Borland and Kennedy argued that there was no clear evidence of hysteresis in the period since the early 1980s, either in terms of a shift in the ratio of long-term unemployed to total unemployment or a tendency for regional unemployment rates to

increase with the aggregate unemployment rate. However, this was questioned by a number of participants. Some appealed to estimates of the upward drift in the natural unemployment rate. Others appealed to estimates of the Beveridge curve; even simple Beveridge curves have shifted outward, as have sophisticated versions which map the increase in the unemployment rate for an equilibrium rate of vacancies. Some participants countered that while these shifts can be observed, it is not clear that they are statistically significant for any period since the 1970s.

Given the possibility of hysteresis in unemployment, some argued that the profession needs to offer a clearer exposition of the determinants of the NAIRU, rather than simply attributing it to a one-off increase in the level of real wages that occurred in the 1970s. Indeed, with this lack of exposition by the profession, it is unsurprising that politicians fail to commit to a target for unemployment. Such lack of commitment, in turn, conditions the public's preferences and their influence on the policy process.

Finally, it was noted that Borland and Kennedy's paper was arguably the first review article conducted by an economist that paid attention to the social costs of unemployment. This was generally applauded. However, some participants noted that solutions to unemployment, particularly those involving further increases in wage dispersion, also have social costs. Thus, in contemplating solutions to unemployment, one needs to consider both the social costs of unemployment and the social implications of any solution to it.

Microeconomics of the Australian Labour Market

John Freebairn*

1. Introduction

The Australian labour market is in a constant state of adjustment to external and internal shocks. Changes in aggregate demand, tastes and preferences, technology, institutions and government policies, and world trade conditions are examples of secular, cyclical and random forces for change. They induce changes in decisions of households to offer labour and acquire skills, and in decisions of firms to hire labour. Price, quantity and quality signalling mechanisms are involved in directing and co-ordinating labour market responses to the shocks. This paper reviews the literature on the underlying demand and supply functions, and the adjustment mechanisms for the Australian labour market in aggregate, and for components such as occupations, industries, skill levels, gender, age, regions and hours of work. In particular, it focuses on insights provided about unemployment and its composition.

Labour markets the world over, not just Australia, are more a fix-price or customer market than a flex-price or auction market. Sticky average wages and sticky relative wages across occupations, age *etc.* reflect tradition and history, long-term investment and repeat-contract relationships, endogeneity of effort, and the complex and often implicit nature of employer-employee agreements. Changes in unemployment take a part of the adjustment response to external and internal shocks to the labour market. Over the past thirty years, aggregate unemployment has varied from less than 2 per cent to over 11 per cent, and would be higher if underemployment and disguised unemployment were included. The composition of unemployment is much higher among the unskilled and new workforce entrants, and it varies across occupations, industries, regions and so forth. Understanding the underlying microeconomic causes of unemployment provides an important information resource for contemplating and assessing policy options to reduce unemployment.

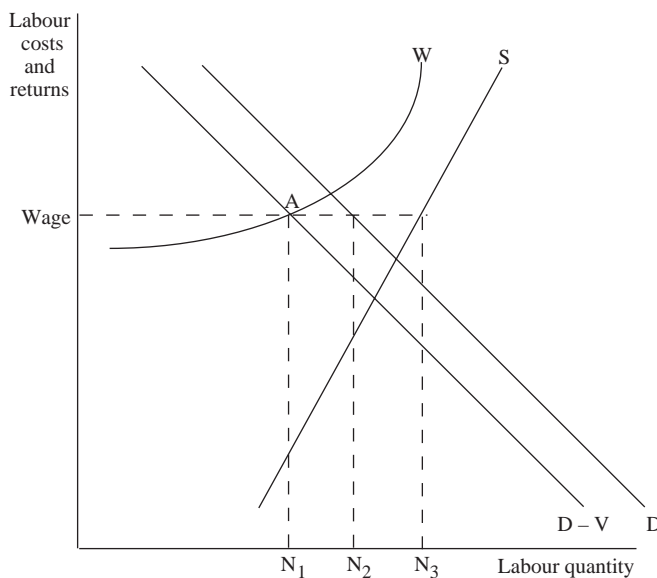
Section 2 provides an overview of a sticky-wage model for components of the labour market and for the economy. Microeconomic foundations of the wage-setting, labour demand and labour supply functions are described in Sections 3, 4 and 5 respectively, along with a collation of, and assessment of, available estimates for Australia of key elasticities and shift parameters. Section 6 discusses intra-labour market reallocation mechanisms in response to shocks to the labour market. A final section draws out some implications of the paper for the aggregate level of unemployment and its composition.

* I am grateful for the comments of Guy Debelle, Robert Dixon and Chris Worswick, but absolve them of any errors and misinterpretations.

2. Overview

Figure 1 provides a general framework for modelling the determination of quantity and price outcomes in the Australian labour market. It can be considered for the market as an aggregate, as in Stacey and Downes (1995), or for particular components in terms of an industry, occupation, region, skill level, age, gender, part-time or full-time, and so forth. Quantity outcomes include employment, unemployment and vacancies in terms of numbers of people and hours, and price outcomes include employer labour costs, employee disposable returns and wages. The figure enables organisation of arguments and of estimates in terms of the market-clearing mechanisms, and in terms of elasticities and variables shifting the labour demand, labour supply and wage offer curves.

Figure 1: The Labour Market



Conventional labour supply and demand curves for a particular industry, gender, skill group *etc.* provide basic building blocks of a microeconomic model of the labour market. S is labour supply reflecting workforce participation and hours decisions, and the choice of a particular industry, occupation *etc.* Labour demand is given by D reflecting employers' willingness-to-hire decisions. Since not all jobs are filled immediately because of frictional and structural adjustments, there is a certain level of vacancies V , and measured employment is recorded with reference to the $D - V$ curve.

The wage offer curve W captures the sticky-price characteristic of labour markets. For an aggregate labour market it might be based on a Phillips curve, a bargaining model, or an efficiency wage model for example, and typically it would rise with tighter labour

market outcomes. For a particular segment of the labour market, the wage offer curve for an industry, occupation, gender *etc.* also reflects notions of comparative wages and fairness. Institutional, political and social factors may be major explanatory forces. A key issue to be explored at the disaggregated labour market level is the elasticity of the wage offer curve with respect to the balance of labour supply and demand for particular occupations, ages *etc.*

Labour markets, like other markets, ultimately have to adjust to shifts in the supply and demand curves via a combination of price flexibility, quantity adjustments in terms of changes in unemployment or vacancies, or by quality changes. To illustrate, in Figure 1, for a given D and S , a high sticky wage generates a wage outcome at $Wage$, employment at N_1 , vacancies of N_1N_2 and unemployment of N_1N_3 . A very much lower wage curve would have vacancies and frictional unemployment only. Given the heterogeneity of labour in terms of formal skills, experience, age, and so forth, labour markets may also adjust by raising standards or the quality of employees when unemployment is large, and reducing them when vacancies are large relative to unemployment.

The sticky-wage model illustrated in Figure 1 cautions the interpretation of recorded employment and wages for the identification of the labour demand and supply curves. Where there is substantial involuntary unemployment, as has been the case in aggregate, and for most disaggregated components of the Australian labour market since the mid 1970s, only the demand curve is identified, and strictly only the $D-V$ curve. If the wage offer curve is below the supply and demand intersection point, as might have been the case in the 1950s and 1960s, the supply curve is identified but not the demand curve. These observations are important to the interpretation of reported econometric estimates of labour supply and demand functions.

While the partial equilibrium model of Figure 1 for a particular component of the labour market provides a useful framework for considering policy options, it is necessary to be careful with the choice of *ceteris paribus* assumptions. This is especially true with respect to the wage offer curve. In most, but not all, cases, shifts in the wage offer curve for a particular industry, occupation, skill group, and so forth through comparative wage mechanisms, also will affect the curve for another industry *etc.* Again, lower labour costs, production costs and then prices for one industry are likely to also mean lower labour costs and prices for other industries. Here, changes in comparative cost and price effects, rather than first-round absolute effects, become the point of analysis. Similarly, changes in the level and composition of aggregate demand, technology, tastes and other exogenous shocks will affect all segments of the labour market. That is, analyses of policy options towards the labour market ultimately have to consider the aggregate or macroeconomic labour market.

There are several important different price terms on the vertical axis of Figure 1. Employee labour supply responds to real returns or effective purchasing capacity, while employer demand responds to real labour costs, neither of which equals wages. Labour costs include superannuation, workers compensation, payroll tax, fringe benefits and leave allowances, and arguably complementary labour hiring, training and firing costs. The labour on-costs of superannuation, payroll tax and workers compensation, on average represent more than 12 per cent of wages, they have become more important

over time, and their relative importance varies by industry, and by firm size (ABS cat. no. 6348.0). Employees are concerned about effective personal real disposable income. This includes not only wages, but also as argued by Covick (1996) a component of superannuation which is a form of deferred pay, workers compensation as a form of insurance – but for many less than a dollar, per dollar of employer on-costs – and leave allowances which provide worker utility. Income taxes and the withdrawal of means-tested social security benefits reduce disposable income, and indirect taxes reduce effective purchasing power. These tax wedges between wages paid by employees and private purchasing power gained by employees are large and highly variable according to income level, gender and family circumstances, and they have varied over time. It might be argued that general taxation revenue, income taxes, expenditure taxes and payroll taxes, fund government goods and services of value to employees. However, individual employees presumably place well below a dollar valuation on them for each labour-cost dollar siphoned off their wages as taxation. Then, wages are likely to be a poor proxy for employer costs and for employee returns due to variations over time and across individuals.

By contrast to the real labour costs of interest to employers and measures of the real effective purchasing power of interest to employees, the wage offer curves generally are set in nominal terms. However, almost always, expected inflation is an important explanatory variable, and in many aggregate labour market studies the expected price variable has a coefficient close to or equal to unity, in which case expressing the wage offer curve in terms of real wages becomes a close approximation.

3. Wage Offer Curve

The wage offer curve of Figure 1 captures the key sticky-price property of labour markets, both the inflexibility of average wages and the inflexibility of relative wages for different occupations, industries, regions, skill levels, gender, ages, hours of work, and so forth. This section explores the determinants of average wage rates and of the structure of relative wage rates in Australia. Particular attention is given to the influence of an excess or shortage of labour demand and labour supply on the average level and structure of wages.

Clearly the flex-price textbook model in which wages automatically and quickly adjust to equate labour demand and supply in each and every component of the labour market is not a useful description of the Australian labour market. Persistent unemployment for many years, differences in unemployment and vacancy rates according to age, skill level, occupation *etc.*, and cyclical variations in the aggregate level and composition of unemployment are inconsistent with a flex-price model. On the other hand, there is some variation of relative wages, but wage flexibility is small when compared with quantity changes in the composition of the workforce and employment.

Institutional arrangements, including Australia's third-party system of arbitration tribunals, have an important bearing on wage outcomes. With a few notable exceptions, such as the wage freeze of 1982–83 and the early phases of the Accord, the tribunals set minimum wages only. While as many as 30 per cent of the workforce may be paid minimum awards, over-award payments are important components of many wage

agreements. Tribunal decisions are driven by factors other than, or in addition to, labour supply and demand imbalances. For example, the 1907 Harvester case and recent Living Wage cases illustrate the key role of perceptions of a fair wage on equity criteria applied to minimum-wage setting. Settling industrial disputes is another criterion specified in the various government Acts and Regulations. But also, the tribunals are provided with considerable information on the state of the economy and labour market conditions in the submissions by advocates for employers and employees and by governments. Tribunal decisions often contain extensive reference to assessed current and anticipated labour market circumstances. That is, arbitration tribunal wage decisions are influenced by labour market conditions and also by other criteria.

Different models explaining average wages are explored in more detail in other papers, however a brief summary provides key insights useful for better understanding wage offer curves for different categories of labour. At least three model types, and associated econometric studies, to explain aggregate wage outcomes in Australia have been reported: a disequilibrium market model, Phillips curve models, and bargaining models. The underlying causal mechanisms and list of explanatory variables in the wage offer function vary with each model. However, each has a common property that some measure of labour demand and supply imbalance pushes the wage offer in the direction of labour market balance, but with the adjustment being slow and partial. That is, the wage offer curve for the aggregate labour market version of Figure 1 is upward-sloping.

A disequilibrium labour market model, for example Lewis and Kirby (1988), has an equilibrium wage determined by the intersection of labour demand and supply (with these functions driven by variables described in Sections 4 and 5), and implicitly with some allowance for frictional and structural employment. Each period, the wage adjusts only partially to the discrepancy between the previous period's wage and the equilibrium wage. Partial adjustment reflects a combination of inertia and negotiation costs, continuing contracts, and the implicit contract model carrying a preference for wage stability. Institutional changes are allowed to influence the adjustment rate, and Lewis and Kirby find the 1975–81 indexation period significantly speeded up the adjustment rate. The estimated model has satisfactory economic and statistical properties. It implies that wages slowly adjust to net changes in the excess demand (or supply) of labour.

The most popular model to explain Australian aggregate wages has been some version of the augmented price expectations Phillips curve model. Recent examples are Murphy (1992) and Stacey and Downes (1995). Increases in nominal wages are expressed as a function of expected consumer prices – often with a pre-specified coefficient of unity – labour productivity growth, and a measure of labour market slack. In early models the inverse of the unemployment rate was used, giving a wage offer curve as in Figure 1 which initially is relatively flat and then increases in slope becoming asymptotic to the labour supply curve. Since the 1970s, the unemployment measure often has been purged of the long-term unemployed, or replaced by overtime hours, so as to better reflect labour demand and supply imbalances by 'insiders' as opposed to 'outsiders'. To capture hysteresis effects, a variable for the change in the unemployment rate is included. Inclusion of these modifications for the measures of labour demand and supply imbalances have been necessary to enable the Phillips curve models to have explanatory success for the 1980s and 1990s data. The addition of variables for

institutional changes, including greater centralisation of the industrial relation system, particularly the Accord period of the mid 1980s and less often the indexation period of the second part of the 1970s, is found to reduce wage increases, but not always by a statistically significant amount.¹

A third group of potential models behind the wage offer curve is a bargaining model between employers, employees, and possibly also industrial tribunals and governments. The underlying model and list of explanatory variables is somewhat *ad hoc*, and statistical assessment of fit is given much weight. Pissarides (1991) provides a good example. Invariably some measure of labour market pressure based on the unemployment level has a negative effect on bargained wages. Other explanatory variables include expected prices, consumer prices for employees and producer prices for employers. Relative to the Phillips curve model, the bargaining model includes variables for the opportunity return if not employed, and in particular, the level and availability of unemployment benefits and other social security support, and government taxes and charges which impose a wedge between employer labour costs and employee take-home pay. These policy variables, along with changes in the industrial relations system, are found to significantly shift the wage offer curve.

Shifting from the aggregate or average wage to individual wages, personal wages vary widely in Australia, as they do in other countries, and with similar patterns and for similar reasons. Hourly wages of those in the top decile are about three times of those in the bottom decile, and the wage distribution is approximately log normal (Norris 1986). Using ABS Income and Housing Survey data for individuals, about a half of the variation of individual wage rates can be explained by differences in formal education, age as a proxy for experience and on-the-job acquired skills, occupation, industry, region, country of origin, gender, marital status, part-time or full-time, and size of firm. Recent studies include Preston (1997) and Suruga (1998). The latter finds similar results for Australia and other countries. Differences in human capital, both in the form of formal qualifications and on-the-job training, are a major determinant of wage rates. However, in the case of formal education, there is some debate on the relative importance of enhanced productivity versus screening as the underlying causal force. The importance of industry, region and firm-size variables gives some support for the efficiency wage, compensating differentials, and exploitable monopolistic explanations of wage differences. Significant gender and country-of-birth effects on personal wages are consistent with labour market discrimination. When a firm-size variable is included among the list of explanatory variables, union membership is not a significant variable, probably because award agreements apply to non-members as well as union members and because firm size and union membership are correlated (Miller and Mulvey 1996). Impressive and comprehensive as these cross-section model estimates of the reasons for differences in wages are, about a half of the differences are unexplained, and apparently similar employees undertaking apparently similar tasks in different firms earn wage rates varying by tens of percentage points.

1. An interesting question arises for the near future as the Australian industrial relations system moves more toward enterprise bargaining and to individual contracts. Calmfors and Driffill (1988) suggest superior wage-inflation outcomes for either extreme of a highly centralised or highly decentralised industrial relations system when compared with a mixed system.

Time-series data on relative wage rates by industries, occupations, regions, ages and skill levels provide another perspective. Data for Australia shows considerable stability over time, but with some variation (Brown *et al.* 1980; Norris 1986; Withers, Pitman and Whittingham 1986; Coelli, Fahrer and Lindsay 1994; Preston 1997). Further, Australian rankings are similar to those of other countries, although the Australian wage structure is more compressed, particularly at the bottom end, relative to that of the UK and US (Norris 1986). Spearman rank correlation coefficients of wage rates by industry or by occupation for different points in time fall in the 0.7 to 0.9 interval, well above zero but less than unity. With some exceptions noted below, relative wage patterns over time in Australia, as in other countries, are stable in the sense that most changes over a year or over a decade fall within a narrow band of less than 5 per cent.

However, there are some instances of large changes in wage relativities. The premium for formal education fell by over 10 per cent during the 1970s, but since then has stabilised (Borland 1996). And relative starting salaries for graduates of different disciplines vary from year to year (Graduate Careers Council of Australia, *Graduate Starting Salaries* newsletter). Equal pay decisions between 1969–74 led to a 20 per cent increase in the relative pay of females to males. Earnings of juniors relative to adults rose in the early 1970s, and then declined to previous ratios. In recent years executive salaries, and those of famous athletes and artists, have grown much faster than average earnings. Sticky relative wages with a few outlying mavericks of flexibility seems a more appropriate description of relative wages in Australia, rather than a rigid relative wage structure.

The effect of arbitration tribunal decisions, including award wages, on the distribution of wages in Australia raises interesting questions. At times it is clear that the tribunals have raised lower wage rates above what they otherwise would have been. For example, the Living Wage decisions of 1997 and 1998 clearly raised minimum wages much more than wages higher in the distribution. However, these increases might reflect the restoration of long-established social norms of relative wages, or alternatively they might provide incentives to flow-on wage increases at higher levels. The stability of patterns of relative wages over time, and in comparison with other countries, suggests both the catch-up and flow-on effects operate.

There are numerous forces for stability of relative wages over time. Social and political notions of equity and fairness are strong in all countries and come under the term of comparative wage justice in Australia and pattern bargaining in other countries. Implicit contracts and internal labour markets imply relative wage stability with well respected and understood career ladders. Centralised wage-setting industrial relations systems, unions, and especially large craft and/or industry unions, and Australia's system of industrial tribunals are often thought to contribute to stability of relative wages. Yet, the same patterns of relative wages are found in countries with diverse industrial relations systems, and the system in Australia has varied over time.

Of course, a flexible wage system can generate relative wage stability under special circumstances. It is the shifts of both the demand for and supply of labour for particular industries, occupations, skills *etc.* which are important. For example, the very large outward shifts of the female labour supply curve (largely due to preference changes) have been matched by a very large shift in the demand for females (including that due to

industry composition changes). Similarly, both the demand for and supply of skilled workers have shifted outwards in recent decades, and there have been inward shifts of the demand for and supply of traditional blue collar tradesmen. However, the probability that shifts of supply and demand curves would balance to achieve relative wage stability at high levels of disaggregation and for such a long time, must be remote. Another explanation is that one or both of the demand and supply curves for labour by industry, occupation, region, skill, time of day *etc.* is highly elastic. As argued in Section 4 this seems not to be the case for demand, but there may be some support for highly elastic supply curves, at least over the longer term.

To the extent that there are changes in the pattern of relative wages over time, there is mixed evidence, although growing supporting evidence, that the direction of change is consistent with demand and supply imbalances by occupation, industry, region, skill level and age. Keating (1983) employs a structural model of labour demand and supply by industry and finds statistically weak support for the hypothesis that relative wages respond positively to shifts of demand relative to supply. Applying causality tests, Withers, Pitman and Whittingham (1986) find independence between relative wage changes and relative changes in unemployment and vacancies by industries and occupations, not only for Australia but also for Britain, Sweden and the US. Yet, other studies for the US using different methodologies, report strong support for the hypothesis that relative wages respond to changes in excess demand (for example Topel (1993) for the general case, and Katz and Murphy (1992) for the case of skilled and unskilled workers). The wage curves estimated for Australia by Blanchflower and Oswald (1994), and by Kennedy and Borland (1997) show a significant negative effect of regional unemployment on individual wages after correcting for human capital, industry, gender *etc.* effects, and in the case of Kennedy and Borland also for local land prices. Based on seven detailed case studies of particular occupations, Blandy and Richardson (1982) conclude that wage rates adjust in a supply- and demand-equilibrating direction, but with lags and in small quantities.

Overall, notions of fairness and equity between people at any time and across time for an individual result in sticky relative wage patterns across occupations, industries, regions, ages, gender, skill level, and time of work. However, shifts in supply and demand for particular categories of labour influence relative wages in the direction of market clearance, but the relative wage response is slow and in most cases small. Institutional and policy changes have on occasions influenced relative wages. Thus, the wage curve in Figure 1 for a particular category of labour is largely positioned by the economy wage average, it has some positive elasticity, and it can lie above or below the wage that clears demand and supply.

4. Labour Demand

This section focuses on the elasticity of demand for labour and shifts of the demand curve due to changes in output, other input costs and technology for particular categories of labour classified by occupation, industry, region, gender, age, skill level, and so forth, and also for aggregate labour. Hamermesh (1993) provides an extensive review, with an emphasis on US studies, while Lewis and Seltzer (1996) provide a more specific and recent review of Australian contributions.

Labour demand typically is modelled as a firm decision, and usually from a neoclassical perspective. Under a right to manage rule,² firms take wages and other input costs as given, and with knowledge of their product demand (represented by the price for perfect competition and the demand curve where there is market power), firms choose employment to maximise returns, or at least to minimise production costs for a given output. Extrapolating the firm model to an industry level, and especially to an aggregate economy level, requires careful consideration of realistic price and general equilibrium constraints. In particular, as observed in the previous section, wage changes for one part of the labour market in most cases are matched to a large extent by changes in wages for all other types of labour.

Lower labour costs – not just wages but also on-costs of superannuation, workers compensation and payroll tax, and hiring, monitoring and firing costs – are expected to increase employment through at least three mechanisms: factor-mix substitution per unit of production to reduce costs; product-mix substitution to reflect changes in comparative advantage; and lower production costs through to lower prices and sales increases.

In the short run, the firm labour demand curve is given by its marginal revenue product curve, and in the long run, there are greater opportunities to substitute labour for capital, energy and material inputs. The elasticity of factor substitution is the key production function or technology factor determining the elasticity of labour demand. Most econometric estimates of production, cost and profit functions find evidence of significant elasticities of substitution between labour and capital, with many being close to unity. Where time lags are allowed in the specification – and this is not often the case with production and cost functions – significant adjustment lags exceeding two years are found. In practice there are price-change recognition lags, then lags to make and implement decisions to change production methods, and there are adjustment costs, and much capital, in particular, has a productive life of several years. Then, cost minimisation by firms, industries and the economy leads to substitution of labour for capital if labour costs fall, but this response takes some time. Factor substitutability varies with firms, industries and different types of labour implying different labour demand elasticities for different industries and categories of labour.

In most textbook models of labour demand, at least by firm and by industry, lower wages have an output-expanding effect. That is, lower wages reduce production costs, and the more so, the more important are labour costs in total costs. Competition leads to these cost reductions reducing product prices and at the lower price more output is sold, and hence more employment is required. This effect is larger the more elastic is product demand. If wages fall only for a particular industry, and remain constant for others, the wage-driven output effect on employment may be important. However, the reality of the Australian labour market, as in other countries, is that wage changes, up or down, generally flow across the economy to all industries.

Consider then the extreme, but still close to reality, case where wages move proportionately across the economy. Here, the product-substitution effect comes into

2. There are some labour models in which wages and employment are jointly determined by firms, including the monopsony model and some union-bargaining models. However the practical relevance of these model situations to Australia seems limited.

play.³ Lower wages will reduce costs, and in turn prices, more for labour-intensive goods and services than for labour-extensive products. In turn, the mix of products produced and consumed will shift in favour of labour-intensive goods and services, and the more so, the more elastic the substitutability of final demand. These substitutions will increase aggregate employment and change its composition. Output and employment in capital-intensive industries, and aggregate employment in occupations and skills used relatively intensively in these industries facing a comparative disadvantage may actually fall. Conversely, lower labour costs lead to expansion of output and employment in labour-intensive industries. Clearly, the product-mix substitution responses will involve time and adjustment lags leading to a more elastic labour demand response over the longer term than the short term.

The indirect effects of labour costs on aggregate economic activity and then on aggregate labour demand are unclear. From a supply-side perspective, with floating exchange rates, it is likely that lower labour costs across the economy, *per se*, will not alter the absolute competitiveness of the economy since any initial gains will be eroded by a currency appreciation. From a demand-side perspective, wage changes can redistribute income. Most estimates of the aggregate labour demand elasticity are less than unity (Table 1 and Hamermesh 1993) meaning that lower wages also reduce aggregate wage income. But, at the same time, capital income rises, and some of this will be spent. But some may be saved. Higher domestic savings, via the balance of payments equation, means a lower draw on foreign capital inflow and an inducement for the currency to depreciate to expand net exports to restore an equilibrium. Then, given the reality of very sticky relative wage patterns, wage reductions are unlikely themselves to have much effect on the level of aggregate economic activity. That is, the main driving forces behind employment responses to wage changes are factor-substitution effects and product-mix substitution effects, and both will involve lagged responses.

A potentially interesting issue is whether structural changes since about 1980 in the Australian economy have altered the elasticity of demand for labour. Under the Australian Settlement, until about 1980, product markets were heavily insulated from competition by tariffs, quotas and other government industry policies, and extensive government ownership and operation of business enterprises. Pressure for employers to respond to higher labour costs by economising on labour were dulled. Cost-padding by monopolistic industries was widespread, and offsetting government assistance was often sought and received. Changes in the 1980s and 1990s have brought more competitive product markets, and arguably also a more competitive labour market. The economy is closer to the competitive model on which the foregoing labour demand analysis is based. It therefore seems reasonable to hypothesise that labour demand elasticities have increased in later years and that the lags have shortened as part of the response to a tougher and more vigorous competitive economy.

Output changes have significant and large effects on employment of different categories of labour and of all labour. Long-run elasticities at the firm, industry, economy, occupation, skill level, gender *etc.* depend on economies of scale. With most industries exhibiting linear technology, a unitary elasticity of employment with respect

3. These effects seem not to be considered in the extensive survey by Hamermesh (1993).

to output follows; and for increasing (decreasing) returns, the elasticity would be less (greater) than unity.

The short-run response of employment to outcome changes is muted when compared with the long run. For all types of labour, there are adjustment lags associated with recognition of output changes and the time required to implement employment changes. These lags explain why employment shows up as a lagging indicator. Second, because of the importance of fixed costs associated with the hiring, training and firing of labour, employers smooth out cyclical fluctuations of employment relative to output and sales cycles. This smoothing effect is more important for more highly skilled and specialised labour than for lower skilled labour because fixed costs are relatively more important for the former. For similar reasons, overtime hours, casual employment, and the use of contract labour is pro-cyclical. Then, the link between output and employment involves lagged responses and it varies across different types of labour.

The effects of technological change, and of productivity growth generally, on the composition of employment demand are many and require consideration of second-round effects in a general equilibrium context. Over recent decades, technological change has had a labour-saving bias (see for example Bureau of Industry Economics (1986) for manufacturing), and it has tended to favour the use of skilled relative to unskilled labour (Aungles *et al.* 1993). To the extent that the bias of technological change is an endogenous response to the relative importance of different cost components (Dixon and McCombie 1991), it is reasonable to expect past patterns to continue into the future. For a given level of firm, industry and employment output, technological changes of the type experienced tautologically mean lower aggregate employment and a change in the employment composition away from unskilled towards more skilled employees. However, this first-round or impact effect of technological change on employment is only the first of a longer sequence of effects.

Productivity growth has important second-round effects on prices, incomes and in turn on the level of employment and its composition. Most industry-level productivity growth is passed on as lower prices (Lowe 1995). The lower prices lead to expanded sales for the industry and for other closely related industries providing inputs and further processing outputs. In due course, employment in these industries increases. For given nominal incomes, lower prices following productivity change mean higher real incomes. Expenditure of the higher income increases demand and output, with products with higher income elasticities gaining more, and again employment rises to provide the extra production. Alternatively, that portion of productivity benefits passed on as higher wages or as higher returns to capital, against fixed output prices, directly expands real income and in turn further employment increases. The second-round flow-on effects of productivity growth generate additional employment overall via increases in aggregate real income and expenditure, and also they have employment-composition effects. The products with high income elasticities are favoured, as are the types of labour used intensively by the industries experiencing the productivity improvements.

Institutional changes in the industrial relations system seem unlikely to independently affect labour demand over and above indirect effects on labour costs and on productivity. Regulatory changes affecting the conditions of hiring, worker conditions and firing directly change labour costs for different types of employees – for example, full-time

versus part-time. The type of industrial relations system is often argued to have an influence on relationships between employers and employees as it affects the adoption of new technology, work practices and management practices that drive the pace of productivity growth.

Econometric estimates casting light on labour demand functions can take different forms. They include estimates of production, cost and profit functions from which demand parameters can be derived, and direct estimates of labour demand functions. For Australia there are a number of production function studies which provide estimates of the key elasticities of factor substitution. Most of the direct labour demand functions reported for particular industries and for the economy are of the form:

$$D = a_0 + a_1 A(L)W + a_2 B(L)R + a_3 C(L)Q + a_4 T + \varepsilon \quad (1)$$

where D is employment, variously measured as persons or hours worked, W is a measure of real labour costs, variously measured as weekly earnings and unit labour costs, R is a measure of alternative real input costs, Q is a measure of output – usually industry or economy GDP as relevant – T is a time trend to measure technology, and $A(L)$, $B(L)$ and $C(L)$ are lag functions. In practice most studies have imposed a more restricted Koyck lagged adjustment process rather than the flexible forms suggested in Equation (1).

Several studies have used a model of the form in Equation (1) to estimate demand for labour by industry using data for the 1960s, 1970s and early 1980s. Symons (1985) estimates the manufacturing elasticity of labour demand at -0.21 in the short run (quarter) and -0.91 for the long run, and also finds complementarity of labour with materials. A number of studies of labour demand in the agricultural sector are collated in Evans and Lewis (1986), with a new study by Lewis (1987), with estimates of the demand elasticity between -0.2 and -0.5 in the short run, and -0.5 and -1.3 in the long run. Phipps (1983) estimates demand equations for eight broad industry groups using annual data. Not all industry demand elasticities are estimated to be significantly different from zero, the largest significant estimates are around -0.5, and Phipps emphasises that elasticities vary according to industry. Given that output is included as an explanatory variable, and a predetermined one at that, the elasticity response captured by these industry studies reflects factor-substitution effects.

In the industry labour-demand studies, output and technology variables are found to be important. In most cases, a long-run output elasticity of unity cannot be rejected. A significant negative coefficient on time is consistent with labour-saving technology, and the estimated coefficient varies across industries.

Estimates of an aggregate or economy demand for labour function of the type in Equation (1) make useful comparisons with the foregoing industry-demand studies, and in particular they provide some evidence of changes in labour costs inducing changes in the mix of goods and services with different labour intensities being produced. Table 1 summarises some details and results of studies by Lewis and Kirby (1988), Russell and Tease (1991), Pissarides (1991) and Stacey and Downes (1995). They differ in terms of the underlying analytical model, the sample period, and the estimation technique, yet they reach similar findings about the main determinants of aggregate labour demand and about elasticities.

Table 1: Estimates of Aggregate Labour Demand Function, Australia

Authors	Type of model	Data and estimator	Explanatory variables	
			Labour cost elasticities	Other variables
Lewis and Kirby (1988)	Disequilibrium demand, supply and partial adjustment	1967(3)–1987(1) FIML	SR = -0.07 LR = -0.78	Real GDP, trend (productivity), industrial relations
Russell and Tease (1991)	Single equation, partial adjustment	1969(3)–1987(4) OLS	SR = -0.11 LR = -0.61	Real GDP, trend (technological change)
Pissarides (1991)	Labour demand, supply and wages	1966(3)–1986(2) IV	SR = -0.23 LR = -0.79	Cyclical effects (competitiveness, fiscal stance, monetary stance), capital stock, real interest rate
Stacey and Downes (1995)	Neoclassical firm investment, employment and pricing	1971(1)–1995(1) ECM	SR = -0.11 LR = -0.84	Real output, labour productivity

Note: SR denotes short run, LR denotes long run.

In terms of the underlying model of aggregate labour demand, Russell and Tease use a single equation, Lewis and Kirby have a disequilibrium model of labour demand and supply with partial adjustment of both wages and employment to equilibrium levels, Pissarides has a three equation model to explain labour demand, labour supply and wages, while Stacey and Downes use a representative-firm neoclassical model to explain investment, employment and prices. The estimable labour demand equation is some specific form of Equation (1), with Pissarides using a number of macroeconomic policy settings rather than GDP. Lewis and Kirby, and Stacey and Downes allow for endogeneity of wages in their estimation, while the others treat wages as a predetermined variable. Stacey and Downes use an error-correction model to avoid possible problems of spurious regression.⁴ All studies use quarterly data, but with different sample periods.

Labour costs are estimated to have a significant negative effect on aggregate labour demand. There are lags of two years or more for the full response. Estimates of the long-run elasticity of demand, which is a constant-output demand elasticity because real GDP, or the macroeconomic determinants of real GDP, appear as predetermined

4. There is some uncertainty about the time-series properties of the variable entering a time-series demand equation of the form of (1). Different sample periods and tests give mixed results as to whether some or all of the variables are I(0) or I(1), and in the latter case whether the variables are cointegrated. See, for example, Lewis and MacDonald (1993).

variables in the estimated demand equations, vary from -0.6 to -0.8.⁵ The aggregate labour demand elasticity estimates of Table 1 appear high when considered in comparison with most of the constant-industry-output demand elasticities discussed above and against the labour for capital substitution elasticity of unity or less found in most production function studies. One way of reconciling these differences is that the aggregate demand elasticity estimate includes product-mix substitution effects as well as factor-mix substitution effects. Then, across the economy, labour cost increases, as generally occurs (Section 3), not only induce substitution of capital for labour in producing any particular good or service, but also induce substitution of capital and other factor-intensive goods and services for labour-intensive products.

The four studies in Table 1 estimate that output has both trend and cyclical effects on aggregate labour demand. While the long-run point estimates of the output elasticity are less than unity, in most cases they are not significantly less than unity. For all the studies, output changes have a lagged effect on aggregate employment, consistent with fixed costs and with adjustment lags.

Technological change, in all cases represented by a simple time trend, has a negative effect on employment of around 1 per cent per year. Since output is a predetermined variable in the estimated labour demand functions reported in Table 1, they do not directly allow for the second-round effects of productivity growth to higher incomes and more employment.

Consider next the demand for different categories of labour, for example by gender, skill level, age or hours. Changes in relative labour costs, again not just wages but also on-costs, for one type of labour relative to others, in theory, have substitution and scale effects. A rise in the relative price of labour type i , say females, relative to labour type j , males, would lead to substitution of males for females to minimise costs. This substitution effect would be larger, the larger the elasticity of substitution of labour types i and j . There also would be a scale effect associated with an overall increase in labour costs leading to some substitution of capital for labour. The substitution and scale effects reinforce each other for the particular type of labour for which relative labour costs rise (or fall), and they work in opposite directions for other labour types. For those other labour types the net employment effect is ambiguous. There may be additional scale effects associated with changes in relative costs of particular categories of labour altering the mix of industry output. A rise in relative labour costs of labour type i will erode the comparative advantage of industries which use labour type i relatively intensively, in comparison with other industries which use relatively little of labour type i .

Unfortunately not a lot is known about the magnitude of elasticities of substitution between labour categorised by gender, age and skill level. Hamermesh (1993) finds some important areas of consensus, but many mixed results on magnitudes. Intra-labour, or labour type i for labour type j , substitutability should be considered as part of a production or cost function system with capital, and not as a system separable from capital. For skilled labour, substitutability with capital is low and in some cases complementarity is estimated, whereas high levels of substitutability between capital and low-skilled labour

5. Interestingly, the lower demand estimate of Russell and Tease takes a higher value of -1.04 when their equation is re-estimated with data to 1997:Q4.

are estimated. Similarly, substitutability of capital is greater for production workers when compared with professionals and managers. A range of estimates, often with large standard errors, have been reported for the elasticity of substitution between high-skilled and low-skilled labour. Overall, Hamermesh concludes that the own-wage elasticity for low-skilled workers is greater than the elasticity for high-skilled workers as a consequence of the different substitution elasticities. It is likely that the Hamermesh assessment, which is based mostly on US studies, would apply to Australia, but that type of analysis has yet to be undertaken.

Estimates of elasticities of substitution for different categories of labour in Australia are few. Gregory and Duncan (1981) find a low value of 0.3 between males and females, with much of the response due to industry-composition changes rather than because of male for female substitution in providing a particular product. Lewis (1985) estimates high elasticities of substitution (up to 4) between youth and adult workers, but also notes the data were not entirely satisfactory and the estimates had large standard errors.

A related area of recent research on the demand for particular types of labour has been the study of the effects of higher minimum wages on employment of the low skilled in particular, and of other employment. Card and Krueger (1995) analysed a number of natural experiments in which increases in US minimum wages were implemented with different timings in different states of the US. Using a difference in differences approach to attempt to remove the effects of other demand forces, they find the minimum wages increases had a negligible adverse effect, and in some cases a positive effect, on employment of the low skilled. This negligible own-wage elasticity effect contradicted conventional expectations and elasticity estimates obtained from time-series studies.

Not surprisingly, the Card and Krueger studies, and related assessments for the UK generated controversy. Symposia in the *Industrial and Labor Relations Review* (July 1995), *Economic Journal* (May 1996) and the *Australian Economic Review* (June 1997) give some flavour of the debate. Several areas of criticism have been levelled against the negligible to positive employment response of employment to higher minimum wages. Welch (1995) is critical of the Card and Krueger data in terms of the use of telephone interviews, broad questions, and some properties of the data. Hamermesh (1995) doubts the natural experiment, arguing that since the move to higher wages was promulgated some years before, a part of the adjustment already was implemented. The before and after wage change interval of seven months suggests only short-term responses, not long-term responses, involving capital for labour substitution are captured. Also, industry-mix effects are not captured. Finally, the absence of a convincing theoretical rationale for a positive demand elasticity is a concern; a monopsony model based on informational imperfections and a model with a shock increase to efficiency have been advanced but not well supported.

For Australia there have been two sets of natural experiments which also suggest a low elasticity of demand for particular types of labour. The 20 per cent increase in relative wages for females in the early 1970s had no discernible effect on the gender composition of employment and unemployment (Gregory and Duncan 1981). Even though structural shifts in labour supply and demand by gender also were at play, these trend effects were also in play in the 1960s before, and in the late 1970s after, the policy-induced push for wage equality across the sexes. A second set of experiments concerns the large wage

subsidies (up to 60 per cent of wages) for the long-term unemployed as part of the 1994 *Working Nation* policies. Certainly many long-term unemployed did enter these programs, consistent with a downward-sloping demand curve, and there was some reduction in employment of others (Chapman 1997). The temporary nature of the subsidies and their targeting to the more disadvantaged employees, real or perceived, as well as usual concerns about *ceteris paribus*, makes it difficult to draw implications about the magnitude of elasticities.

Overall, there is a dearth of convincing and robust estimates of the own- and cross-prices elasticities of demand for Australian labour disaggregated by gender, age, skill level and occupation.

5. Labour Supply

This section considers the elasticity of supply and key shift variables of the labour supply function S in Figure 1 for different ages, gender, skill levels, occupation, industries, and types of work. The review articles by Kenyon and Wooden (1996), and Borland (1997) cover the issues and Australian empirical studies in detail. Labour supply represents the outcome of decisions affecting participation in the workforce, hours of work, investment in human capital and effort level.

The individual and family work versus leisure choice model provides the underlying model of participation and hours of work decisions as a function of returns, income and demographic variables. Simpler static models focus on a single period, and others take a life-cycle perspective. Killingsworth (1983) and Woodland (1984) provide reviews. Labour returns, which involve not just market wages but also losses due to taxation and means-tested social security benefits which vary widely in their effects across people and also have varied over time, have an ambiguous net effect on labour supply because of income and substitution effects pushing in opposite directions. Alternative sources of income, including household wealth, spouse income, access to social security benefits and superannuation, and the costs of looking after children, have a negative effect on labour supply.

Almost as an empirical observation (see more below), the encouraged/discouraged worker effect has been found to be a major determinant of labour supply, at least over the economic cycle and particularly of the decisions to participate or not by married women, youth and older workers. Lower unemployment, or increases in the employment to population ratio, are associated with higher participation rates, *ceteris paribus*. In a sense they imply a higher probability of actually obtaining a job. In principle, this effect could be embraced in the work versus leisure model by using expected wages on entry, that is, the market wage times the probability of gaining a job, but the empirical task in measuring the probability is a formidable one.

Tastes, attitudes and social preferences clearly have had very large trend effects on labour supply decisions in Australia. These effects have been especially important for the rising participation rate of married females in the 1960s, 1970s and 1980s. Changes in preferences, in part, lie behind the shifts in the supply of labour by both sexes and by younger and older ages for part-time work and work outside the nine to five, Monday to Friday time interval.

A number of econometric studies using cross-section and time-series data support the descriptive and explanatory usefulness of the work versus leisure choice model of workforce participation and hours of work decisions, and they provide insights on the labour supply elasticity for different demographic groups. However, considerable caution is required in interpreting the results of published studies using cross-section data, including those of Apps, Killingsworth and Rees (1996), Lambert (1991), Miller and Volker (1983), Ross (1986), Ross and Saunders (1993) and Woodland (1987). In the Australian context, post 1970, involuntary unemployment has been extensive for most disaggregated categories of labour, as well as for the aggregate, so that measured employment used in cross-section studies lies inside the labour supply curve (A in Figure 1). Time-series studies using the workforce (employment plus unemployment) are less affected by the identification problem. Data limitations mean that most cross-section studies have not included variables for discouraged worker effects, or they have included a crude proxy for aggregate unemployment which is the same for individuals and families in different circumstances. To the extent that the omitted discouraged worker effect variable and the included wage variable are positively correlated,⁶ reported cross-section study estimates of the labour supply elasticities are biased upwards. None of the reported cross-section or time-series studies fully allows for both taxation and means-tested social security benefits in measuring the net returns from work. For those using the market wage as a proxy variable for incentives to work, it is a poor proxy because tax and social security differ widely over time and across different individual and family circumstances.

Even granted the foregoing concerns with reported econometric studies of Australian labour supply, some results seem fairly robust and consistent with studies of other countries. The elasticity of labour supply is relatively low, and in many cases not significantly different from zero, for males and for women with full-time, high-paying jobs (Apps, Killingsworth and Rees 1996; Borland 1995). For older males, low education levels (which proxies for low wage and job opportunities, and maybe also tastes) and the availability of alternative income, whether it be private income, including superannuation, or access to social security benefits, both contribute to lower participation (Woodland 1987). For married women, the elasticity of labour supply, representing both participation and hours of work decisions, is significantly positive, but with a wide range of estimates driven by different models, data and estimation procedures and in some studies with values exceeding unity (Apps, Killingsworth and Rees 1996; Lambert 1991; Miller and Volker 1983; Ross 1986). However, because of specification problems noted above, these estimates are likely to be biased. Female participation in these studies is found also to vary with other family income, with education, with the number of young children, and with region and country of birth.

In a number of time-series studies (Borland 1995; Dixon 1996; Dowrick 1988; Stricker and Sheehan 1981) significant discouraged worker effects are found for both sexes and all age groups whereby changes in the unemployment rate, or of the unemployment to population ratio, shift the labour supply curve. Most studies assume

6. ABS data on wage rates and unemployment for occupations and level of formal education imply a strong inverse relationship between the wage rate and the unemployment rate. Topel (1993) reports a strong inverse relationship for the US.

symmetry of response with estimates that an increase in employment of one job induces about 0.4 people into the workforce. Dixon finds evidence of an asymmetric response of about 0.75 for increases in jobs and 0.3 for decreases in jobs. Borland finds that most flows out of the workforce come from unemployment rather than employment. Gregory (1991) asserts that much of the increase in female employment, and to a lesser extent male employment, comes from new entrants rather than from unemployed persons. In terms of overall explanatory power, the encouraged worker effect, or shifts in the labour supply curve, are found to be more important than the wage effects, or movements along the curve, in explaining variations of labour supplied.

Changes in labour quality stem from formal education, mostly for job entrants, and on-the-job training of employees. The human capital model captures the investment processes involved. The model predicts that education and training, and hence a more skilled workforce, increase with the premium of wages for skilled people relative to those unskilled, lower opportunity costs of foregone work and lower tuition fees. Numerous Australian studies have estimated real rates of return of around 10 per cent for secondary and tertiary education (Blandy and Goldsworthy 1975; Chapman 1977; McNabb and Richardson 1989; Miller 1982). Further, the inverse relationship between years of education and unemployment, perhaps more accentuated in the 1980s and 1990s, both increases the gross return from education and reduces the opportunity cost of study. Because of supply constraints on government-provided tertiary education, the supply curve of educated labour is not identified, and this factor lies behind the disappointing econometric results found by McCormack (1992).

No studies have been found on labour supply by occupation, industry and region, and this is not surprising because of data limitations. For occupations and industries, unemployment data refers only to those who last had a job in a particular industry or occupation, but not for those who want to enter or want to change, and thus the workforce by industry or occupation is measured poorly. The stickiness of relative wage patterns described in the previous section provides little information with which to estimate labour supply to industry i (or occupations or regions) as a function of returns in i and other industries (or occupation or region). The prevalence of changes in recruitment and promotion standards further complicates the estimation of labour supply by industry, occupation and region. It would be surprising if the elasticities of labour supply by industries and occupations were not high.

Considerable circumstantial and anecdotal evidence indicates that labour supply by occupation, industry and region shifts with employment prospects. The dominance of the encouraged/discouraged worker effect noted above for workforce participation and hours decisions would seem even easier to follow when choosing between industries, occupations and firms. Students in choosing areas of study regularly ask 'what type of job can I expect?' and they are avid consumers of data on unemployment rates and job advertisements by discipline area in making their choice of area of study.

6. Intra-labour Market Reallocation

In any year and over time there are large reallocations of labour between industries, occupations, regions, gender, age and skills, part-time and full-time, and by hours of

work (see ABS data and for a summary, EPAC (1996)). There have been large secular changes, there are cyclical changes, and in some cases seasonal changes in the composition of employment. The changes across industries *etc.* are lubricated by even larger gross flows between different labour states. In any month, gross flows between employment, unemployment and not in the labour force are between 100 000 persons and 150 000 in each direction (ABS cat. no. 6203.0). For those with a job, in any one year between 20 per cent and 25 per cent changes their job, and for those who change, 40 per cent move to another industry, 30 per cent to another occupation, and 15 per cent move interstate or overseas (ABS cat. no. 6209.0). This section evaluates the co-ordinating mechanisms used in the Australian labour market to allocate and reallocate workers to different jobs in response to changes in aggregate income, buyer preferences, technology, trade, worker preferences and other shocks.

Three mechanisms, or a combination, may be used to co-ordinate the allocation of jobs to industries, occupations, regions, gender, age, skill level, time of day, part-time and full-time. These are price, quantity and quality adjustments. Necessarily, supply and demand imbalances have to be accommodated in some way. All three seem to play a role in altering the composition of Australian employment and in co-ordinating reallocations driven by external shocks.

In flexible-price markets, price changes are the co-ordinating mechanism to drive reallocations in response to changes in demand and supply. For different categories of labour, whether they be by occupation, age, gender, location, part-time versus full-time *etc.*, relative wages would rise for those categories where demand expands relative to supply or where vacancies as a measure of excess demand rises, and relative wages would fall for these categories where supply expands relative to demand or where unemployment as a measure of excess supply rises. The required relative wage change will be greater the more inelastic the demand and supply curves for each category of labour. The evidence canvassed in Section 3 is that relative wages are sticky in Australia, as in other countries, and most, but not all, evidence is consistent with the hypothesis that relative wages move slightly and slowly in the directions suggested by changes in excess demand. That is, changes in relative wages contribute to the intra-labour market co-ordination task.

However, unemployment, and quite wide variations in unemployment by category of labour, means relative wage changes are less than those of a flexible-price market. ABS data indicates differences in unemployment rates by age and skill level, by occupation and industry, by region and by gender. These differences in many cases are long-term phenomena, for example higher unemployment among youth and the low skilled. There are some cyclical patterns, for example, more volatility for the young and for particular occupations. On other comparisons, there are swaps over time, for example, lower unemployment rates for males as compared with females were reversed in the 1980s.

Quantitative signals usually play a key allocative role in fix-price markets, and this seems to be the case for the composition of employment and the workforce, especially on the supply side. Industries, occupations, skill levels, hours of work categories *etc.* with high and rising employment and/or with high vacancies and low unemployment draw potential employees towards them and away from labour categories with low and declining employment and/or with low vacancies and high unemployment. In formal

model terms, the labour supply curve for different components of the labour market shifts with measures of employment growth and the length of vacancy and unemployment queues.

Labour force participation rates for youth, married women, and older (aged 55 and over) workers are especially sensitive to quantitative signals (Borland 1995; Dixon 1994; Dowrick 1988; Woodland 1987, for example). The case studies in Blandy and Richardson (1982) provide evidence for particular occupations. There is much anecdotal evidence that decisions of children and their families on secondary and tertiary education, including about the period of study and area of study, are influenced as much by perceived relative chances of gaining a job as by the relative wages for jobs gained. Given the compelling evidence of the significant and large influence of quantitative signals to workforce participation decisions, and the anecdotal evidence for education and occupation choice decisions, it seems very likely that quantitative signals are important in co-ordinating labour market reallocations by occupation, industry, region, skill level and hours of work.

Changes in labour-quality decisions to induce reallocations of the workforce can operate along several dimensions. These include variations in the required skills, background and experience of staff to be recruited, loosening or tightening the criteria and their application for promotion, and changes in other work conditions. With internal labour markets, the principal response of employers to expanding (falling) labour demand is not to increase (reduce) wages but to increase (reduce) recruitments and accelerate (delay) some promotions. Access to 'good' jobs with career ladders, opportunities for on-the-job training and some security of tenure, and for jobs generally have to be rationed in some way, and the rationing task rises with the overall pool of unemployed. With wages held nearly fixed, other rationing criteria have to be used. One option is to ration by skill level as judged by formal education and work experience. In these circumstances, credential creep is one symptom of the use of qualitative job rationing. These circumstances also provide opportunities for employers to discriminate at little cost by, say, gender, socioeconomic status or race.

There is both hard and anecdotal evidence of the use of quality adjustments affecting employment and unemployment levels in Australia. Clearly the skill composition of the employed workforce has increased, and those with low skills are disproportionately represented among the unemployed. Aungles *et al.* (1993) attribute part of the increase in skills of those employed to changes in industry composition, part to changes in the occupational mix in each industry, and part to higher skills within each occupation. The industry mix and occupational mix effects probably can be explained largely by product-demand changes and by technology. While some of the higher skill mix within occupations may be attributed to technological change, much of it might be attributed to credential creep.

Disproportionately high unemployment rates among those with less formal education, and for migrants from a non-English speaking background, and the lower employment probabilities for the long-term unemployed, have at least two potential explanations. One is the screening idea and the use of qualitative allocation methods described above. The second possible explanation is the low marginal productivity of these potential employees, absolutely and relative to others, against Australia's relatively high minimum

wages. While I am unaware of attempts to evaluate the relative importance of the two options, and in fact, it is unclear how such an assessment could be conducted, it would be a surprise if there was not some role for each explanation.

Whether the high levels of unemployment among those with low skills, real or perceived, are due primarily to low productivity relative to labour costs, or to credential creep or discrimination, has important policy implications. If the latter explanations are dominant, faster economic growth will be effective in soaking up the unemployed as artificially inflated credential standards are lowered. By contrast, if low productivity relative to labour costs is the principal causal force, policy options will have to consider a combination of lowering labour costs and increasing the productivity of the unemployed as well as raising aggregate real output.

7. Conclusion

Conventional microeconomic foundations of household decisions on labour supply and of firm decisions on labour demand are useful in analysing the composition of employment and unemployment by industry, occupation, region, gender, age, skill level, hours of work and so forth. Sticky but not rigid relative wages mean that quantity adjustments, mostly unemployment but sometimes vacancies, and quality adjustments in skill and experience levels used in hiring and promotion are important labour market responses to changes in demand and supply. Price, quantity and quality changes are involved in co-ordinating labour market adjustments to changing circumstances.

The limited number of econometric estimates of direct and cross-price elasticities of demand and supply for different categories of labour generally confirm the directions of effects predicted by microeconomic theories. However, different studies report a wide range of elasticity magnitudes and often with large standard errors. Measures of output and technological change have significant effects on demand. Output and factor price changes influence demand with lags necessary to effect changes in factor input mixes and changes in product mixes. The extent of credential creep and discrimination in rationing jobs in the face of unemployment queues and sticky wages is an area ripe for further study. The chances of finding a job as signalled by unemployment and vacancy rates, and probably also by required skills, influence workforce participation decisions, and these quantity and quality signals affect the choice of occupation, industry, education, time of work. The magnitudes of effects of quantity and quality signals on labour supply responses by labour market segment require more work.

Unemployment by industry, occupation, region, gender, skill, age and so forth reflects slow demand growth relative to supply growth and labour costs held above the equilibrating level. In addition, new entrants to the workforce, including youth and migrants, take much of the brunt of trend and cyclical changes in demand and supply. Also, credential creep in the face of overall unemployment helps concentrate unemployment among those with low skills, including the young, migrants from non-English speaking backgrounds, older retrenched people with limited formal education, and the longer-term unemployed.

References

- Apps, P., M. Killingsworth and R. Rees (1996), 'On the Specification of Labour Supply and Household Production Models', Australian National University Working Papers in Economics and Econometrics No. 300.
- Aungles, P., L. Deardon, T. Karmel and C. Ryan (1993), 'Through a Rear-view Mirror Darkly: Occupational Change, 1971–1986', *Australian Bulletin of Labour*, 19(2), pp. 97–113.
- Blanchflower, D. and A. Oswald (1994), *The Wage Curve*, MIT Press, Cambridge, Massachusetts.
- Blandy, R. and A. Goldsworthy (1975), 'Private Returns to Education in South Australia', in J. Niland and J. Isaac (eds), *Australian Labour Economics: Readings*, Sun Books, Melbourne, pp. 191–205.
- Blandy, R. and S. Richardson (1982), *How Labour Markets Work*, Longman Cheshire, Melbourne.
- Borland, J. (1995), 'Male Labour Market Participation in Australia', *Journal of Industrial Relations*, 37(4), pp. 587–609.
- Borland, J. (1996), 'Education and the Structure of Earnings in Australia', *Economic Record*, 72(219), pp. 370–380.
- Borland, J. (1997), 'Changes in the Supply of Labour in Australia', in *Changing Labour Markets*, Productivity Commission, AGPS, Melbourne, pp. 19–44.
- Brown, W., J. Hayles, B. Hughes and L. Rowe (1980), 'Occupational Pay Structures Under Different Wage Fixing Arrangements: A Comparison of Intra-occupational Pay Dispersion in Australia, Great Britain and the United States', *British Journal of Industrial Relations*, 18(3), pp. 217–230.
- Bureau of Industry Economics (1986), *Manufacturing Industry Growth: Causes, Effects and Implications*, AGPS, Canberra.
- Calmfors, L. and J. Driffill (1988), 'Centralisation of Wage Bargaining and Macroeconomic Performance', *Economic Policy*, 6, pp. 13–61.
- Card, D. and A. Krueger (1995), *Myth and Measurement: The Economics of the Minimum Wage*, Princeton University Press, Princeton, New Jersey.
- Chapman, B. (1977), 'The Rate of Return to University Education for Males in the Australian Public Service', *Journal of Industrial Relations*, 19(2), pp. 146–157.
- Chapman, B. (1997), 'Labour Market Programs', in *Changing Labour Markets*, Productivity Commission, AGPS, Melbourne, pp. 177–189.
- Coelli, M., J. Fahrner and H. Lindsay (1994), 'Wage Dispersion and Labour Market Institutions: A Cross Country Study', Reserve Bank of Australia Research Discussion Paper No. 9404.
- Covick, O. (1996), 'Regulation and Labour Market Flexibility', in *Changing Labour Markets*, Productivity Commission, AGPS, Melbourne, pp. 197–217.
- Dixon, R. (1996), 'Apparent Asymmetries in the Relationship Between the Participation Rate and the Employment Rate in Australia', University of Melbourne, Department of Economics Research Paper No. 522.
- Dixon, R. and J. McCombie (1991), 'Biased Technological Change in Australian Manufacturing', in C. Hamilton (ed.), *The Economic Dynamics of Australian Industry*, Allen and Unwin, Sydney, pp. 63–78.
- Dowrick, S. (1988), 'Labour Supply Trends and Prospects for Australian Unemployment in the Medium Term', Australian National University Centre for Economic Policy Research Discussion Paper No. 188.

- Economic Planning Advisory Commission (1996), *Future Labour Market Issues for Australia*, Economic Planning Advisory Commission Paper No. 12, AGPS, Canberra.
- Evans, S. and P. Lewis (1986), 'Demand, Supply and Adjustment of Farm Labour in Australia', *Australian Economic Papers*, 25(47), pp. 236–246.
- Gregory, R. (1991), 'Jobs and Gender: A Lego Approach to the Australian Labour Market', *Economic Record*, 67(supplement), pp. 20–40.
- Gregory, R. and R. Duncan (1981), 'Segmented Labour Market Theories and the Australian Experience of Equal Pay for Women', *Journal of Post-Keynesian Economics*, 3(3), pp. 403–429.
- Hamermesh, D. (1993), *Labor Demand*, Princeton University Press, Princeton, New Jersey.
- Hamermesh, D. (1995), 'Comment', *Industrial and Labor Relations Review*, 48(4), pp. 835–838.
- Katz, L. and K. Murphy (1992), 'Changes in Relative Wages, 1963–1987: Supply and Demand Factors', *Quarterly Journal of Economics*, 107(1), pp. 35–78.
- Keating, M. (1983), 'Relative Wages and the Changing Industrial Distribution of Employment in Australia', *Economic Record*, 59(167), pp. 384–397.
- Kennedy, S. and J. Borland (1997), 'A Wage Curve for Australia?', Australian National University Centre for Economic Policy Research Discussion Paper No. 372.
- Kenyon, P. and M. Wooden (1996), 'Labour Supply', in K. Norris and M. Wooden (eds), *The Changing Australian Labour Market*, Economic Planning Advisory Commission Paper No. 11, AGPS, Canberra, pp. 15–38.
- Killingsworth, M. (1983), *Labor Supply*, Cambridge University Press, Cambridge, England.
- Lambert, S. (1991), 'An Analysis of the Labour Supply Behaviour of Female Sole Parents in Australia', PhD thesis, Murdoch University.
- Lewis, P. (1985), 'Substitution Between Youth and Adult Workers in Australia', *Australian Economic Papers*, 24(44), pp. 115–126.
- Lewis, P. (1987), 'Short Run Factor Substitution in the Sheep and Beef Industries', *Australian Journal of Agricultural Economics*, 31(3), pp. 266–272.
- Lewis, P. and M. Kirby (1988), 'A New Approach to Modelling the Effects of Income Policies', *Economics Letters*, 28(1), pp. 81–85.
- Lewis, P. and G. MacDonald (1993), 'Testing for Equilibrium in the Australian Wage Equation', *Economic Record*, 69(206), pp. 295–304.
- Lewis, P. and A. Seltzer (1996), 'Labour Demand', in K. Norris and M. Wooden (eds), *The Changing Australian Labour Market*, Economic Planning Advisory Commission Paper No. 11, AGPS, Canberra, pp. 39–52.
- Lowe, P. (1995), 'Labour Productivity Growth and Relative Wages: 1978–1994', in P. Anderson, J. Dwyer and D. Gruen (eds), *Productivity and Growth*, Reserve Bank of Australia, Sydney, pp. 93–134.
- McCormack, D. (1992), 'An Analytical Examination of Youth Labour and Education', *Labour Economics and Productivity*, 4(1), pp. 19–44.
- McNabb, R. and S. Richardson (1989), 'Earnings, Education and Experience: Is Australia Different?', *Australian Economic Papers*, 28(52), pp. 57–75.
- Miller, P. (1982), 'The Rate of Return to Education: Evidence from the 1976 Census', *Australian Economic Review*, 15(3), pp. 23–32.
- Miller, P. and C. Mulvey (1996), 'Unions, Firm Size and Wages', *Economic Record*, 72(217), pp. 138–153.

- Miller, P. and P. Volker (1983), 'A Cross-section Analysis of the Labour Force Participation of Married Women in Australia', *Economic Record*, 56(164), pp. 28–42.
- Murphy, C. (1992), *Access Economics Murphy Model*, Access Economics Pty Ltd, Canberra.
- Norris, K. (1986), 'The Wages Structure: Does Arbitration Make Any Difference?', in J. Niland (ed.), *Wage Fixation in Australia*, Allen and Unwin, Sydney, pp. 183–201.
- Norris, K. (1996), *The Economics of Australian Labour Markets*, Longman Cheshire, Melbourne.
- Phipps, A. (1983), 'Australian Unemployment: Some Evidence from Industry Labour Demand Functions', *Australian Economic Papers*, 22(41), pp. 333–344.
- Pissarides, C. (1991), 'Real Wages and Unemployment in Australia', *Economica*, 58(229), pp. 35–55.
- Preston, A. (1997), 'Where are We Now with Human Capital Theory?', *Economic Record*, 73(220), pp. 51–78.
- Ross, R. (1986), 'Analysis of the 1980 Sydney Survey of Work Patterns of Married Women', *Economic Record*, 62(178), pp. 325–337.
- Ross, R. and P. Saunders (1993), 'The Labour Supply Behaviour of Sole Mothers and Married Mothers in Australia', *Australian Economic Papers*, 32(60), pp. 116–133.
- Russell, B. and W. Tease (1991), 'Employment, Output and Real Wages', *Economic Record*, 67(196), pp. 34–45.
- Stacey, G. and P. Downes (1995), 'Wage Determination and the Labour Market in the Treasury Macroeconomics (TRYM) Model', paper presented at the 24th Conference of Economists, Adelaide.
- Stricker, P. and P. Sheehan (1981), *Hidden Unemployment: The Australian Experience*, Melbourne Institute of Applied Economic and Social Research, Melbourne.
- Suruga, T. (1998), 'Australia: Wage Differentials', in T. Tachibanaki (ed.), *Wage Differentials: An International Comparison*, MacMillan, London, pp. 173–209.
- Symons, J. (1985), 'Employment and the Real Wage in Australia', in P. Volker (ed.), *The Structure and Duration of Unemployment in Australia*, Bureau of Labour Market Research Monograph Series No. 6, AGPS, Canberra, pp. 77–88.
- Topel, R. (1993), 'What Have We Learned from Empirical Studies of Unemployment and Turnover?', *American Economic Review*, 83(2), pp. 100–115.
- Welch, F. (1995), 'Comment', *Industrial and Labor Relations Review*, 48(4), pp. 842–849.
- Withers, G., D. Pitman and B. Whittingham (1986), 'Wage Adjustment and Labour Market Systems: A Cross-country Analysis', *Economic Record*, 62(179), pp. 415–426.
- Woodland, A. (1984), 'Microeconomic Modelling of Labour Force Participation in Labour Supply: A Theoretical Overview', in A. Kaspura (ed.), *Labour Force Participation in Australia*, Bureau of Labour Market Research Monograph Series No. 1, AGPS, Canberra, pp. 95–118.
- Woodland, A. (1987), 'Determinants of the Labour Force Status of the Aged', *Economic Record*, 63(181), pp. 97–114.

Discussion

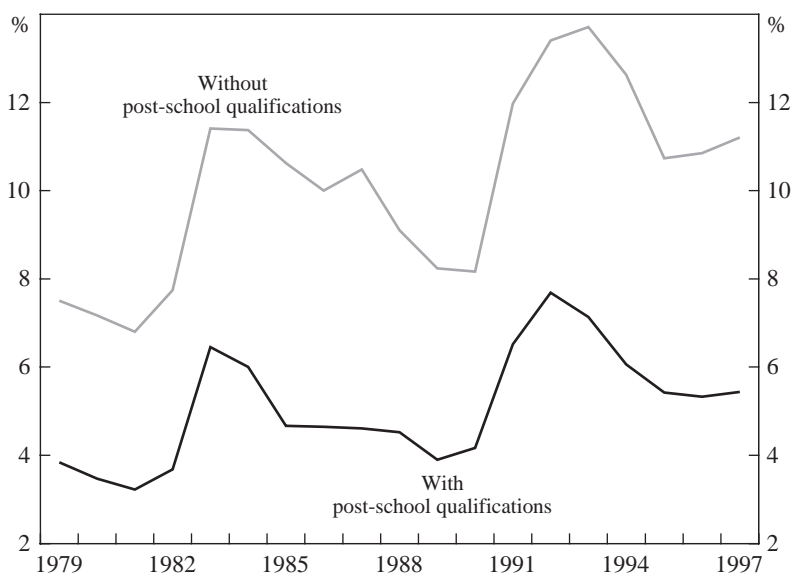
1. Philip Lowe

I would like to start off with a question. It is a question that John's paper hints at, but one that never quite gets asked directly. The question is motivated by John's observation that while the distribution of wages has widened in Australia, it is still more compressed than in some other countries with lower unemployment rates. My question is the following: to what extent is the persistently high unemployment rate in Australia attributable to too high an aggregate real wage, and to what extent is it due to a lack of relative wage flexibility?

Figure 1 helps make the question a little more concrete. It shows the unemployment rates for workers with post-school qualifications and for those without post-school qualifications. Three observations can be made. First, both unemployment rates are high. Second, the unemployment rate for workers without post-school qualifications (largely, unskilled workers) is much higher than for those with post-school qualifications. Third, this difference between the two rates has tended to increase through time.

The concrete question is to what extent are the high unemployment rates of both categories of labour, but particularly the high unemployment rate of unskilled workers, attributable to too high an *aggregate* real wage, and to what extent are they attributable to too high a *relative* wage for unskilled workers (on average, those without post-school

Figure 1: Unemployment Rates by Level of Education



Source: ABS cat. no. 6203.0.

qualifications earn around two-thirds of their more highly educated workmates). Putting this another way, if it were possible to reduce the average wage, but keep wage relativities constant, would we fix the unemployment problem for unskilled workers? Or is the solution, an adjustment in relative wages, and if it is, why hasn't it happened?

I don't think that anybody can be confident that they really know the answers to these questions, so what I would like to do is to use John's paper to try to throw some light on the question. In particular, I would like to pick up on four points which the paper makes which I think are relevant:

- while relative wages tend not to move much, they do at least help in the adjustment process;
- not a lot is known about the wage elasticities for different types of labour;
- quantity signals play an important part in resolving disequilibrium in the labour market; and
- credential creep is a common phenomenon when unemployment is high.

I will say a few words about each of these points.

John makes the point that relative wages tend to be stable through time, but that they do change to help correct disequilibrium. In general, the changes occur only slowly, sometimes very slowly. However, the examples that John gives point to an asymmetry: if there is a shortage of a particular type of labour – say world-class leg-spin bowlers or visionary chief executives – relative wages can adjust very quickly and by large amounts, but if there is excess supply of some type of labour – say unskilled workers – the adjustment tends to be slower and less dramatic. Reading behind the lines, John mainly attributes this slow adjustment in Australia to social and political factors. These factors are reflected in our institutions and in policy approaches that are acceptable to the electorate. I think it is difficult to argue with the proposition that a different endowment of these social and political factors would significantly change the microeconomics of the labour market, and could make a major contribution to reducing unemployment. The experience of the United States suggests a possible path, but it is one that many people feel uncomfortable with.

The second relevant point that John makes is that we know relatively little about the wage elasticities for different types of labour. However, we do know a few stylised facts. Amongst these are the following:

- it is difficult to substitute unskilled labour for skilled labour;
- capital and skilled labour are not good substitutes, and in some cases may well be complements; and
- unskilled labour and capital are reasonably good substitutes.

These 'facts' suggest that the primary effect of reducing the relative wage of unskilled workers would be to lead to a substitution away from capital and towards unskilled labour. Unfortunately we have no robust estimates of exactly how strong this effect is, and what the lags are likely to be, and some people might even argue that my stylised facts would better be termed 'stylised assertions'. This makes the debate very difficult, for nobody can confidently say how much the wage distribution would need to widen to significantly reduce the unemployment rate for unskilled workers. As a result, one sees

guesstimates all over the place, and I suspect this makes it harder for the issue to be debated productively.

The third point is that quantitative signals play a key allocative role. A way of restating this point is that supply-side adjustments are important. For example, if the unemployment rate for unskilled workers is high, some of the unskilled workers will turn themselves into skilled workers, and workers entering the workforce for the first time will be more likely to seek post-school qualifications than would otherwise have been the case. In some sense this quantitative signal has been having the right effect for the past two decades, as young people respond to the high unemployment rates of unskilled workers by staying at school longer and enrolling in tertiary education. Another example is the migration of labour from regions or states with relatively poor employment prospects (say Victoria in the early 1990s) to those with brighter prospects (e.g. Queensland).

These supply-side adjustments are important in limiting the divergence of unemployment rates across states and between skilled and unskilled workers. But the adjustments can be painfully slow, as evidenced by the persistently high unemployment rate for unskilled workers, and the persistently high unemployment rate for Tasmanians. Despite the slow adjustments, the fact that relative wages also change only slowly means that quantity adjustments play a vital role in the adjustment process. You can see this clearly in the employment data by state. When unemployment in a state is higher than the national average, there is very little adjustment in the state's relative wage, with most of the adjustment occurring through internal migration (DeBelle and Vickery 1998). In general, if these supply-side adjustments were quicker, a lack of relative wage flexibility may not be too costly, and the real issue affecting unemployment would then be the *average* real wage, and not the distribution of wages.

The fourth point is the existence of 'credential creep' when unemployment is high. This effect might mean that a decline in the aggregate real wage is the primary solution to the absolutely and relatively high unemployment rate of unskilled workers. An important question is: could the unemployment rate for unskilled workers be disproportionately high, even though *relative* wages are consistent with full employment? I think the answer is probably yes. If the aggregate wage is too high, some firms are likely to choose skilled workers to do unskilled jobs – so that when unemployment is high one needs a PhD to get a lecturing job at a university, but when unemployment is low, a Masters degree is sufficient. As a result of this credential creep, unskilled workers end up being disproportionately unemployed. The solution is not to lower their relative wage, but instead to lower the aggregate wage.

So where do John's four points leave us? As usual, there is no clear answer. My reading of John's paper is that the evidence suggests that a fall in the relative cost of unskilled labour would increase the number of unskilled workers employed. But so too would a fall in the aggregate real wage, even if the wage relativities remain unchanged. Further, it is a plausible, although admittedly untested proposition, that aggregate wage restraint is more effective than allowing the wage distribution to widen further.

If this proposition is true, how do we achieve the necessary aggregate wage restraint. One solution is an incomes policy – such as the Accord. However, rather than focus on the merits and costs of this approach, I would like to think about another possibility; that is, does allowing greater flexibility of relative wages generate aggregate real wage

restraint. In my comments earlier, I have talked about the two things as being alternatives, but as John reminds us a few times in his paper, everything is connected to everything, so perhaps they are complements, rather than substitutes.

I think it is a reasonable proposition that allowing the bottom end of the real-wage distribution to fall puts pressure back on the rest of the distribution, leading to greater aggregate restraint. Certainly, over recent years, those countries with high and/or growing wage inequality have tended to experience restrained growth in aggregate labour costs. If those at the lower end of the wage distribution are experiencing negative or low real wage growth, this is likely to put some pressure on the wages just above them in the distribution, and in turn increase the pressure on the wages above them and so on. Obviously one cannot push this argument too far: wage restraint for cleaners is unlikely to lead through a cascading of competitive effects to wage restraints for chief executives. Nevertheless, arguably, one of the benefits of easing the social and political constraints on the dispersion of wages, is to deliver aggregate wage outcomes which ensure that on average, more of those who want to have jobs actually have them. Again, this proposition is untested, but I think is worthy of exploration. There may be other alternatives as well.

Finally, I would like to end where I should probably have started. That is to congratulate John on an enjoyable and comprehensive paper. John's analysis gives us a useful framework for thinking about the microeconomics of the Australian labour market. But at the same time it reminds us of that fact that we know relatively little about the strength and speed of the underlying adjustment mechanisms that most of us believe are out there operating in the marketplace. As usual, more work is needed!

References

Debelle, G. and J. Vickery (1998), 'Labour Market Adjustment: Evidence on Interstate Labour Mobility', Reserve Bank of Australia Research Discussion Paper No. 9801.

2. General Discussion

Discussion of this paper focused on two issues:

- the interaction of education and the supply of skilled labour with the degree of wage dispersion; and
- the evidence on the effects of changes in the minimum wage on employment.

Participants noted that both the supply and the demand for skilled or educated labour is important in determining the returns paid to skill and education. In Australia, there is not much evidence of an increase in the education premium because the increase in demand has been generally matched by an increase in supply. However, in the US and the UK, the widening in wage dispersion in the 1980s and 1990s was in part due to an increase in the return to skill. This was the result of a deceleration in the supply of educated labour over that period, following the large increase in supply in the 1970s – in part a function of demographics.

Some participants noted that despite the rise in the education premium in the US and the UK, a large part of the increase in wage dispersion has been caused by a rise in within-group inequality. That is, the dispersion of wages has also increased considerably within the group of (say) educated workers. To date, it has been hard to discern what has been driving the widening in within-group inequality. This poses problems in determining the appropriate policy response.

One participant noted that, given the relatively high return to additional years of schooling, it was difficult to ascertain why unemployment should be so much higher in Australia today – when the workforce had on average two years of extra schooling – than it was in the 1960s. The rise in education should have translated into a decrease in real unit labour costs which should have boosted employment. This may indicate that the education level of the workforce may not be a critical cause of unemployment (at least for a workforce with the education level of that in Australia).

The controversial findings of Card and Krueger on the impact of changes in the minimum wage on employment generated much discussion. One participant argued that their much-cited results based on the fast food outlets in New Jersey and Pennsylvania were not that persuasive. However, the other evidence that Card and Krueger presented using time-series evidence was more robust and suggested that rises in the minimum wage had modest negative effects on employment. Another participant noted that this conclusion was supported by the results of a panel study across a number of OECD countries.

The discussion also highlighted that it is important to remember that the minimum wage research does not necessarily estimate aggregate labour demand elasticities. The research is only focusing on a wage change that affects a small section of the labour force. In determining an aggregate labour demand elasticity, it is necessary to consider the impact of minimum wage changes on the average wage in the economy. Therefore, one needs to assess how changes in the minimum wage are likely to flow through to other wage rates in the economy.

Finally, some participants questioned the relevance of the evidence from the US on the effect of changes in the minimum wage for Australia, given the different set of labour market institutions in the two countries, given that the minimum wage is much lower in the wage distribution in the US, and given that Australia does not have a single minimum wage but rather a myriad of minima.

Unemployment and Income Distribution

Ann Harding and Sue Richardson*

1. Introduction

Unemployment is widely regarded as the foremost economic problem currently facing the Australian economy. Among its many evils, high unemployment – especially long-term unemployment – has become a major source of poverty. The unemployed have now replaced the aged as the predominant group in poverty in Australia (King 1997). It also contributes to the rising levels of anxiety about the increasing risks faced by employed people of involuntary loss of their jobs.¹ Psychologists have concluded that the pain of unemployment arises from two sources: ‘lack of money and lack of structure and purpose in life’ (Feather 1997, p. 39). Detailed interviews with unemployed people have ‘revealed again and again the limiting effects of loss of income and shortage of money on many aspects of family life and the negative effects of relative poverty on psychological well-being ... In the absence of financial strain, the negative effects of unemployment were halved’ (Feather 1997, p. 40).²

The persistence of high levels of unemployment in Australia and in many European countries has been attributed to ‘structural rigidities that reduce employment opportunities for low-skill workers’ (OECD 1996, p. 22). ‘Structural rigidities’ include minimum wage laws, which are claimed to prevent the wage structure from responding to declines in the relative demand for low-skill workers. Advocates of this view draw attention to the fact that a number of countries which have had relative success in reducing unemployment also operate relatively unregulated labour markets and have experienced substantial rises in inequality in the distribution of earnings, partly because of falls in pay at the bottom. The United States, Canada, the United Kingdom and New Zealand are given as examples.³ The experience of these countries is contrasted with those of many in the European Union, which have avoided the rising inequality but also have high and persistent unemployment. Australia has experienced rising inequality, but not as much as in the first group of countries and its wage structure is still relatively compressed. It

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1. See Richardson (1998) for evidence of both the rising risk and the rising feelings of insecurity in the employed workforce.
2. Recent work by Theodossiou (1998) concludes that the psychological health of unemployed people is significantly worse than that of low-paid workers, with middle-aged people and women less psychologically damaged by unemployment than younger and older age groups and men.
3. Gregory (1996) has shown that low-wage jobs grew proportionately as fast in Australia as in the US, despite the fact that in Australia, the minimum levels of wages were higher both relatively and absolutely than in the US. Hancock (1998) quotes data that show that there is no correlation between the degree of dispersion in the wage structure and the employment to population ratio among OECD countries.

has also experienced high and persistent unemployment, but below that of many of the European countries.

A summary view of the issues may be expressed as follows. Unemployment is, for most, a psychologically distressing state. Much, though not all, of the distress comes from the low income which it entails. The unemployed are much poorer than are low-wage workers. Unemployment is persisting because wages are prevented from falling to levels that would substantially increase demand for low-skill workers. Australia should therefore respond to its high unemployment by reducing minimum wages and other conditions on the employment of low-skill workers.

While the authors do not necessarily share this view of the world, it provides the background against which this paper has been framed. Section 2 of the paper recounts briefly what is known about the changes in income and earnings inequality in Australia over recent decades. The focus then moves to an analysis of the incomes and poverty rates of the unemployed, based on the 1994/95 income survey data produced by the Australian Bureau of Statistics. Section 3 describes key characteristics of this data and the methodology. Section 4 paints a picture of the incomes and other characteristics of the unemployed and contrasts this with the characteristics of wage and salary earners. Section 5 examines the poverty rates of the unemployed and other groups within the Australian population. Section 6 contrasts the incomes of unemployed individuals and families with those of their peers within the labour force and with those of the population more generally. Section 7 compares the incomes of the unemployed with the incomes of low-wage workers. Section 8 concludes and also speculates about whether a wage cut for low-wage workers would appear likely to reduce overall inequality and the extent of low incomes.

2. Earnings and Income Distribution Trends

A substantial number of studies have found an increase in the inequality of the distribution of earnings in Australia during the past two decades or so. For example, Borland and Wilkins (1996) concluded that earnings dispersion had increased for male and female full-time employees between 1975 and 1994, and that real earnings had fallen for male employees with earnings below the 30th percentile during the same period. In more recent work, Borland and Kennedy (1998) have again found an increase in earnings inequality for full-time employees between 1982 and 1994. Interestingly, they conclude that rates of return to education appear to have fallen, and that the growth in inequality has been due to increases in earnings inequality *within* groups of workers with the same educational attainment and potential years of labour market experience.

Harding (1997) also found a rise in earnings inequality between 1982 and 1994, with declines in the real earnings of both male and female full-time employees with earnings below 50 per cent of the full-time median wage – but very sharp real increases for those with earnings above 1½ times the median wage. Other studies have also pointed to growing earnings inequality (Gregory 1993; King *et al.* 1992).

How does the rate of growth in earnings inequality in Australia compare with that of other industrialised countries? A range of studies have suggested that the growth in earnings inequality has been much sharper in the US and the UK but has been lower in

Sweden, Finland, France and Germany. The Australian experience appears to match with a group of countries (including Canada, Israel and the Netherlands) where increases in earnings dispersion have been significant, but not as substantial as in the UK and the US (Gottschalk and Joyce 1997; Borland and Wilkins 1996).

Has growing inequality in the distribution of earnings among individuals also translated into growing inequality in the distribution of income among families? Although earnings are important – because they are the key component of the average family's income – most analysts of income inequality look at trends in the distribution of *disposable* income, which is the amount of income families have left to spend after paying income tax. A number of studies of income distribution trends in the 1980s in Australia concluded that the distribution of disposable income among families had become more unequal (Saunders 1993; Harding 1996; EPAC 1995). However, a more recent study spanning a longer time period indicated that there had been no change in the degree of inequality of disposable income between 1982 and 1994, according to aggregate measures of inequality (Harding 1997). This apparent stability in overall inequality, however, disguised real income increases for those families at the top and bottom of the income distribution – and real income losses for the middle 40 per cent of Australians.

A recent international study of 15 countries during the 1980s and the early 1990s, concluded that the increase in disposable-income inequality had been relatively high in Australia in comparison with other countries (Gottschalk and Smeeding 1997, p. 27). This study concluded that the percentage increase in the Gini coefficient for Australia had only been exceeded by that for the UK, Sweden and Denmark. However, data for Australia were only available until 1989 and, as suggested above, it is possible that this trend may not have continued during the 1990s. As in Australia, a number of international studies have also pointed to the 'disappearing middle class' (Burkhauser *et al.* 1996, although see also Wolfson 1997).

3. Data and Methodology

The data used for this study came from the 1994/95 *Survey of Income and Housing Costs* (SIHC) confidentialised unit-record file, issued by the Australian Bureau of Statistics. The survey contained individual records for almost 14 000 adults aged 15 or more, belonging to 8 675 income units living in private dwellings. It should be appreciated that this is not a large sample size, and that relatively large sampling error is associated with estimates for small population subgroups. All records are weighted by the ABS, so that the results can be grossed up to arrive at estimates for the whole population.

The SIHC was conducted continuously throughout 1994/95, and the estimates for current weekly income can thus refer to any month during this financial year. The period-income estimates refer to annual income during the 1993/94 financial year. To maintain comparability with earlier studies of low-wage workers undertaken by the authors, negative income-unit incomes were reset to zero and income units with zero annual incomes were excluded entirely. Income units regarded by the ABS as being out of scope for period-income analysis were also excluded.

The measure of gross weekly cash income is defined as regular and recurring cash receipts before the deduction of tax or any other items. It includes wages and salaries, investment income, and government cash transfers such as unemployment payments. Receipts excluded from income because they were not regular and recurring included income-in-kind, inheritances and capital gains and losses. Income tax was imputed by the ABS.

A decision has to be made about how widely income is assumed to be shared between individuals. The income unit used in this study is the ABS income unit, which is a restricted family grouping which assumes that income is shared between partners in couple families and between parents and dependent children. Dependent children are defined as children aged less than 15 years or full-time students aged 15–24 years and still living at home. An unemployed 17-year-old son still living in the parental home is therefore defined as a separate income unit. The four types of income units are thus single-person units, couples with or without dependent children, and sole-parent income units. Because ‘income unit’ is an unwieldy term, the term ‘family’ is used throughout the rest of this paper instead of ‘ABS income unit’.

When comparing the living standards of the unemployed with those of the rest of the population, it is important to take account of differences in family size and composition. Thus, most people would not assume that a single wage and salary earner with an income of \$300 a week experiences the same standard of living as an unemployed couple with six children with a family income of \$300. One standard method is to use equivalence scales, which estimate how much more (or less) income families with various characteristics require to achieve the same standard of living as a ‘benchmark’ family. In this study, the OECD equivalence scales were applied to the after-income-tax incomes of income units, in order to better assess the relative living standards of the unemployed. The scales used attribute a value of 1.0 to the reference person in the income unit, 0.7 to the second person, and 0.5 to third and subsequent persons. Thus, an income unit consisting of a couple with two dependent children was assumed to need 2.7 times as much income as a single person in order to achieve the same standard of living. This equivalence scale can be criticised on the grounds that it takes no account of the differential costs facing those in different labour-market or housing-tenure states. It has the advantage, however, of being relatively transparent.

Section 5 examines the poverty rates of the unemployed. Poverty was defined as a situation where the income of the income unit fell below half equivalent median current disposable income. (Disposable income means after the payment of income tax.) Two ‘poverty’ measures were constructed, based on the median incomes of the entire population, and of only those living in income units with a member in the labour force. It should be appreciated that this is an entirely arbitrary definition of poverty (although it is one that has been used in a number of international studies). In the Australian context, this measure should arguably be regarded as a measure of inequality rather than of poverty, and the term ‘poverty’ is used mainly as a shorthand method of saying ‘income below half equivalent median current disposable income’.

In Section 6, the income distribution for unemployed and other persons is analysed. In order to allocate every person in the population to a decile of income, each individual was assumed to enjoy a standard of living measured by the equivalent disposable income

of the income unit to which they belonged. When constructing the deciles, children were included: the bottom decile thus consists of the 10 per cent of the population with the lowest equivalent incomes, rather than the 10 per cent of persons aged 15 or more with the lowest incomes (in other words, allocation to deciles was based on ‘person weighting’).

Unemployed persons were basically defined as persons aged 15 or more who were not employed during the reference week and had actively looked for full- or part-time work at any time in the four weeks up to the end of the reference week, or who were waiting to be called back to a job from which they had been stood down without pay for less than four weeks up to the end of the reference week, for reasons other than bad weather or plant breakdown. This definition is the same as that used in the ABS *Labour Force Survey* series. In this study, long-term unemployed are categorised as those who have been unemployed continuously for 39 weeks or more.

4. Incomes and Other Characteristics of the Unemployed

There has been extensive analysis of the characteristics of the unemployed. For example, as shown in the Appendix, the unemployed tend to be younger, migrants and less well educated (see also ABS 1993). The Appendix enables us to see the family relationships of unemployed people and to compare these with wage earners. About one third of unemployed men are husbands with dependent children and this is reasonably similar to the proportion of this group among wage earners. Wives with dependent children, in contrast, are somewhat under-represented among the unemployed. It may well be that women with dependent children who cannot find a job simply withdraw from the workforce and are numbered among the hidden unemployed. Children living at home are prominent among the unemployed – both those who are full-time students and the larger number who are not.⁴

Table 1 provides related and additional information on the unemployed which is derived from the *Survey of Income and Housing* unit-record data for 1994–95. The advantage of this data set is that it enables us to examine not just the characteristics, but also the income – both personal and family – of unemployed workers, and to compare their situation with others, such as workers.

Table 1 provides information on all unemployed workers, on those who have been unemployed for 39 weeks or more (described as long-term unemployed), and on all wage and salary earners. The data are disaggregated by gender. We caution readers, however, that the sample size becomes unreliably small when we disaggregate the long-term unemployed in particular. The absolute number of men and women within the ABS sample in each of the employment categories is shown in the second row. The estimated number they represent for the whole population is shown in the first row. For example, we estimate that there were 107 000 long-term unemployed women in 1994/95, and this estimate is based on 108 observations from the unit-record data set.

4. Those who met the definition of unemployment outlined in Section 3 were counted by the ABS as unemployed, even if they were engaged in full-time study.

Table 1: Income and Other Characteristics of Unemployed and Wage and Salary Earners
1994/95

	Unemployed			Long-term unemployed			All wage and salary workers		
	Female	Male	All	Female	Male	All	Female	Male	All
Number weighted ('000)	298	437	735	107	214	321	2 879	3 795	6 674
Number of unweighted observations in sample survey	300	430	730	108	195	303	2 923	3 700	6 623
Principal source of current family income (per cent):									
No income	4 ^(a)	5 ^(a)	4	1 ^(a)	2 ^(a)	2 ^(a)	0	0	0
Wage and salary	31	14	21	15 ^(a)	10	12	93	97	95
Own business	2	2 ^(a)	2	1 ^(a)	1 ^(a)	1 ^(a)	4	1	2
Government cash benefits	58	73	67	78	84	82	3	1	2
Other	5 ^(a)	6	5	5 ^(a)	3 ^(a)	3 ^(a)	1 ^(a)	1	1
Principal source of period (annual) family income (per cent):									
No income	0 ^(a)	2 ^(a)	1 ^(a)	0 ^(a)	1 ^(a)	1 ^(a)	0 ^(a)	0 ^(a)	0 ^(a)
Wage and salary	49	39	43	23	19	20	90	93	92
Own business	4 ^(a)	2 ^(a)	3	1 ^(a)	0	0	4	2	3
Government cash benefits	45	53	50	73	77	75	4	4	4
Other	2 ^(a)	4 ^(a)	3	3 ^(a)	3 ^(a)	3 ^(a)	1	1	1
Average personal income from govt cash benefits	\$91	\$121	\$109	\$123	\$149	\$141	\$11	\$8	\$10
Average gross personal income	\$96	\$139	\$122	\$129	\$161	\$150	\$461	\$672	\$581
Average family income from govt cash benefits	\$129	\$175	\$156	\$163	\$207	\$192	\$22	\$21	\$21
Average gross family income	\$472	\$304	\$372	\$384	\$298	\$326	\$941	\$903	\$920
Average equivalent disposable family income	\$314	\$256	\$279	\$298	\$264	\$276	\$684	\$674	\$678
Proportion of all persons receiving unemployment allowances UA (per cent)	40	67	56	63	80	74	—	—	—
Proportion of married persons receiving UA (per cent)	22	71	52	40	80	69	—	—	—
Average UA received by all unemployed	\$53	\$99	\$81	\$87	\$120	\$110	—	—	—
Average UA for only those receiving UA	\$135	\$148	\$144	\$139	\$151	\$148	—	—	—

(a) Denotes less than 20 000 weighted observations, or a sampling error greater than approximately 2.5 per cent.

One of the most striking – but not unexpected – results in Table 1 is that the unemployed have much lower personal and family incomes than their wage and salary earner peers. For example, the average *personal* income of the unemployed of \$122 a week is about one-fifth of the average \$581 received by wage and salary earners. Interestingly, the personal current incomes of the long-term unemployed are higher than the personal incomes of all unemployed (\$150 versus \$122 a week). In part this reflects the waiting periods associated with the receipt of unemployment allowances from the government. While three-quarters of the long-term unemployed receive unemployment allowances, only just over half of all the unemployed do so (Table 1).

There is less disparity between the gross incomes of the *families* in which the unemployed and wage and salary earners live, with wage and salary families enjoying incomes about 2.5 times greater than those of families with an unemployed member. Gross family income, however, tells us little about relative living standards, largely because it takes no account of the number of people each family has to feed and house. ‘Equivalent disposable family income’ moves us closer towards a comparable measure of living standards, and indicates that the average equivalent income of wage and salary families of \$678 is about 2.4 times higher than the average income of unemployed families.

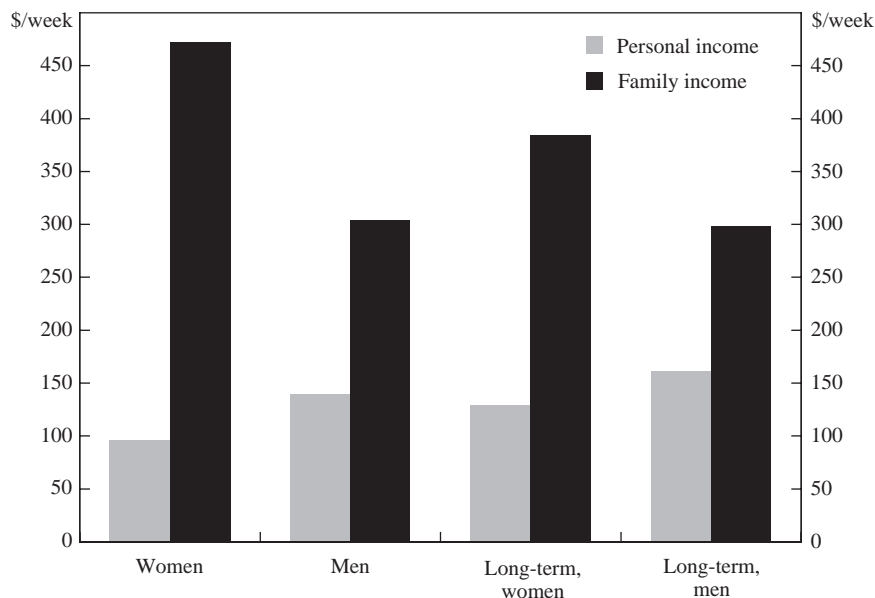
Among unemployed individuals, there are marked differences in both personal and family incomes by gender. The *personal* incomes of unemployed men are about 45 per cent higher than those of unemployed women, presumably because a greater proportion of unemployed women live in families where their husband earns an income – thereby rendering them ineligible for unemployment assistance, which is means-tested on a family basis. On the other hand, the *family* incomes of unemployed women are about 50 per cent higher than those of unemployed men, again reflecting the increased probability of a second income earner in the family for women (Figure 1).

These differences in personal and family income by gender are both less marked for the long-term unemployed, as a result of long-term unemployed women being less likely to live in a family where the husband earns a reasonable income. As Table 1 indicates, being married makes little difference to the probability of receiving unemployment assistance for men: for example, 80 per cent of both married and all long-term unemployed men receive some unemployment assistance from the government. In contrast, being married has a substantial negative impact on the likelihood of unemployed women receiving unemployment allowance – but this impact is much less for long-term unemployed women.

Table 1 shows that the sources of income for the family in which unemployed people live are quite different from the sources of income for employees. Not surprisingly, wages and salaries are the overwhelming source of current family income for employees. Income from self-employment, from government cash benefits and from all other sources (e.g. interest and dividends) together are the main source of current weekly income for just 5 per cent of the families which have a wage earner: the other 95 per cent rely primarily on wages. In contrast, only about 21 per cent of the unemployed and 12 per cent of the long-term unemployed live in families which rely principally on wage and salary income. Instead, they mostly rely on government cash welfare benefits – the more so if they are long-term unemployed (Figure 2). Four out of five of the long-term

Figure 1: Average Personal and Gross Family Incomes of Unemployed and Long-term Unemployed Persons

By gender; 1994/95

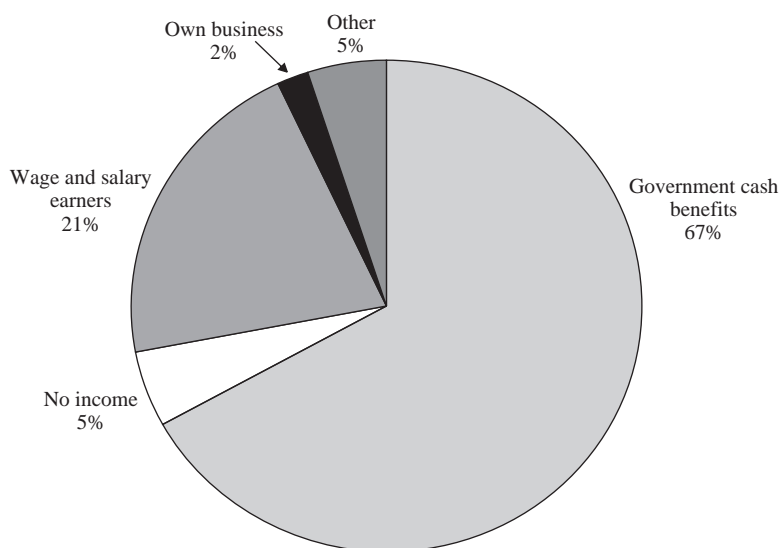


unemployed lived in families which had government benefits as their principal source of income in the survey week. This contrasts starkly with the overwhelming reliance of employees on wages and salaries.

There is no inevitability about these figures. A person who is classified as employed may be working only a few hours a week and live in a family in which they and other members draw social welfare payments or are self-employed. The earned wage may then contribute only a small fraction of the family income.⁵ And a person who is unemployed may live in a family in which other members have full-time jobs, and hence the family's main source of income is from the wages earned. What the figures tell us is that the preceding relations are not common. People who are employed, even part-time, overwhelmingly live in families which support themselves from their own earnings. People who are unemployed do not. Unemployed and employed people are not much to be found in the same family. This separation of employed and unemployed families is, however, more true for men than it is for women. One-third of unemployed women live in families where wages are the principal source of current income, whereas for men this situation is only half as common.

5. For example, in a married couple family a person earning minimum wages would have to work almost 20 hours a week to contribute an amount which is more than half their combined unemployment benefit – i.e. to have wages as their principal source of income.

Figure 2: Principal Current Family Income Source of Unemployed Persons 1994/95



In interpreting this, recall that a young person, over age 15 and living at home but not a full-time student, is classified as a separate family. Thus they are not counted as sharing in their parents' income. Non-student children living at home comprise 21 per cent of all the unemployed and 15 per cent of adults (aged 21 or more) who are unemployed. They are thus a large enough group to affect the overall image one gets of the unemployed family and may be living quite adequately on their parents' incomes. However, even when the analysis is confined to unemployed people aged 21 or more, the picture of principal source of family income for unemployed families shows little difference – with a slightly higher proportion nominating government cash benefits as the principal source of family income (71 per cent), and a slightly lower proportion nominating wages and salaries (17 per cent).

The distinction between employed and unemployed families becomes less sharp if we examine annual rather than weekly income. Those who were employed at the time of the survey still rely overwhelmingly on their earnings for their annual income in the preceding financial year. But 43 per cent of people who were unemployed at the time of the survey lived in families which had wages and salaries as their principal source of income over the preceding year. Not surprisingly, this figure is halved for the long-term unemployed. It is not clear how to interpret this more encouraging figure. On the one hand, it may mean that people who are now unemployed were, for much of the year, earning a wage. On the other hand, it may mean that during the year, other members of the family had a wage and now do not.

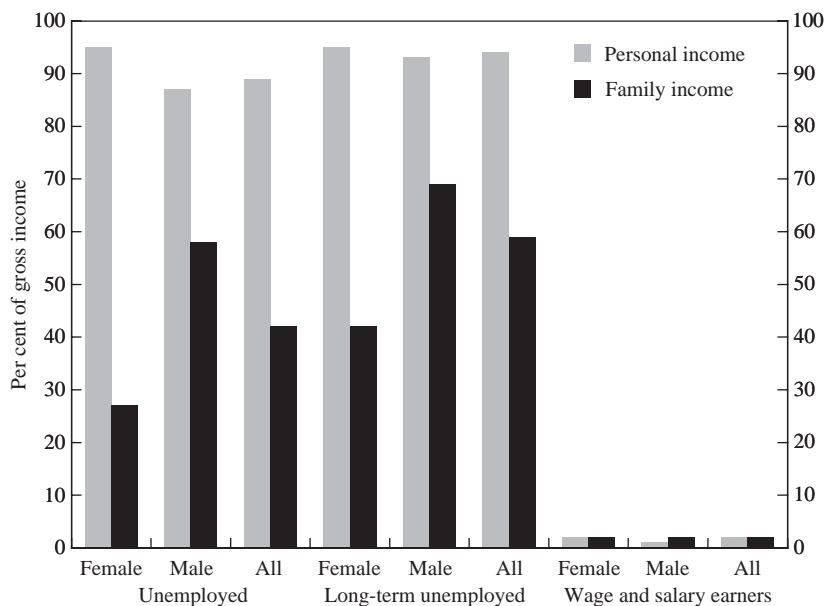
Men are more likely than women to have their own employment status reflected in the principal source of income for the family. Thus 73 per cent of men who are unemployed

live in income units which rely on government cash benefits, whereas this figure for unemployed women was 58 per cent. This is despite the fact that unemployed men are more likely to be married than are unemployed women: a woman has a greater likelihood of being a single parent and thus the only income earner for her income unit (Appendix).

Not only are government cash benefits the principal source of income for the majority of families in which there is an unemployed person, but these benefits provide almost all of the personal income of unemployed people (Table 1 and Figure 3). Indeed, for the long-term unemployed they provide 94 per cent of their personal income. And this is despite the fact that only about half of unemployed people and three-quarters of the long-term unemployed actually receive an unemployment allowance.⁶ In striking contrast, government cash benefits provide on average only 2 per cent of the current personal income of people who have jobs. The welfare system is very tightly targeted and its beneficiaries are mostly those – individuals and families – who do not earn an income for themselves.

The figure for the average contribution of cash welfare payments to the incomes of employed families conceals the fact that for some such families these payments are indeed quite important. In their submission to the 1998 ‘Safety Net Review’ before the

Figure 3: Government Cash Benefits as a Proportion of Personal and Family Income
1994/95



6. Unemployed families with children usually receive family payments, in addition to any unemployment allowances.

Australian Industrial Relations Commission, the Joint Governments show that for people who live in employed families, cash welfare payments are equal to 20 per cent of the private income of people in the bottom quintile of the income distribution. This drops to 5 per cent for the second quintile and to virtually zero for the remaining families (Joint Governments 1998, p. 185, Table 11.1). Again, the cash benefits received are tightly targeted to those at the bottom. But this does suggest that the difference between unemployed and *low income* employed families in their sources of income may not be as great as they appear to be when we look only at the average situation of all employed people.

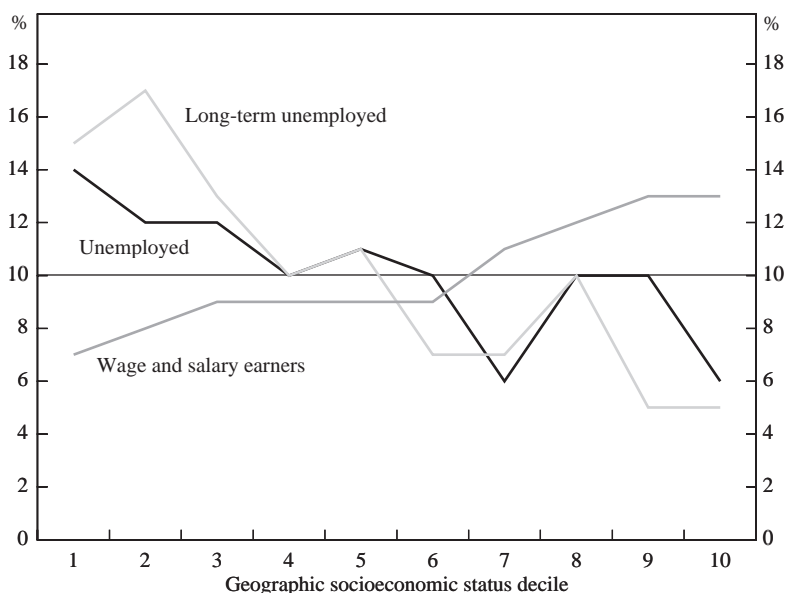
In addition, it should be emphasised that this analysis has only taken account of the *cash* benefits received by unemployed families from the government. Families also receive significant *non-cash* benefits from government, principally via their usage of publicly funded health, education and housing services. The above report, for example, also showed that the bottom quintile of wage and salary earner households received an estimated \$252 a week in health, education and housing non-cash benefits – about 2.7 times as much as the \$93 received by the top quintile of households (Joint Governments 1998, p.187). While these figures did not deal with unemployed households, the results are suggestive (see also Johnson *et al.* 1995; Harding 1995a).

Whereas government cash benefits provide about the same proportion of own income for unemployed men and women (around 89 per cent for all, and 94 per cent for long-term unemployed), there is a substantial gender difference when we look at the contribution of these benefits to the income of the whole family. For unemployed women, government cash benefits contribute less than 30 per cent of the income of the family in which they live. For unemployed men the figure is 58 per cent. Although the percentages are higher, the gender pattern is similar for the long-term unemployed. This again implies that women are more likely than men to have another person in the income unit who is earning an income.

The data also enable us to observe the socioeconomic status of the geographic area in which workers and the unemployed live. Gregory and Hunter (1995) have shown that there has been a large increase in the geographic concentration of advantage and disadvantage, so we would expect unemployed workers, especially the long-term unemployed, to be heavily concentrated in the bottom deciles of the ranking of areas by socioeconomic status. Figure 4 shows the distribution of all wage earners, of all unemployed workers, and of long-term unemployed workers by SEIFA decile – a geographic measure of socioeconomic status constructed by the ABS.⁷ It shows that there is a concentration of unemployed workers in the lower SES deciles, and that this is more severe for the long-term unemployed than for all unemployed. If you are long-term unemployed, the chance that you live in an area which ranks in the lowest two

7. SEIFA deciles are computed by the ABS and included in the data set as a variable which may be associated with each individual. They are based on indicators of income, education, rented dwellings, lack of fluency in English, and high unemployment for residents of geographic areas. Decile 1 represents the 10 per cent of geographic areas which have the lowest average socioeconomic status of residents. The data are reported only for NSW, QLD, Victoria and WA, as sample numbers are too small in the other regions to preserve confidentiality. About 15 per cent of the sample is thus excluded.

Figure 4: SEIFA Decile of Unemployed and Wage and Salary Earners
1994/95



deciles is more than twice that of an employed person. The chance that you live in one of the top two decile areas is less than half that of an employed person. But still, 16 per cent of the unemployed (10 per cent of the long-term unemployed) live in the top 20 per cent of areas. This compares with 26 per cent of employees.

We may conclude that the unemployed are not a random sample of the workforce, but neither are they remarkably different from it. While young people are noticeably over-represented among the unemployed, unemployment – and especially long-term unemployment – can strike at any age. One-third of the unemployed and 44 per cent of the long-term unemployed are aged 35–54, and the age distribution of unemployment is remarkably similar for men and women.

The unemployed are more different in their education and ethnicity. They are much more likely than the workforce at large to have no post-school qualifications and to be immigrants. They are also less likely to be married (even if we confine the comparison to those over the age of 21). Whereas almost two-thirds of all employees are married, less than one-half of the unemployed are.

But the most distinctive thing about the unemployed is their source of income. Even though only 70 per cent of men and less than half of women who are unemployed receive unemployment allowances, government cash benefits provide most of their personal income and often the majority of the total income of the families in which they reside. The dominance of social welfare payments is even greater for the long-term unemployed. The contrast with those who have jobs – including part-time jobs – is striking. For both

individuals who have jobs and their families, government cash payments are a tiny part of their overall income.

5. Unemployment and Poverty

From the evidence of the previous section we can be confident that, on average, unemployed people have low incomes. Because of the means-tested character of the Australian social welfare system, it is inevitable that people who rely upon it mostly have relatively low incomes (even if it is possible for their asset position to be moderately comfortable). Table 2 displays a summary set of information, which examines the extent to which unemployed people and their families are in poverty. As noted earlier, we have selected a totally arbitrary measure of poverty – half the equivalent median current disposable income of families – and enquire whether unemployed people are disproportionately found to have incomes below this level. This question has a number of dimensions.

Income is, in all cases, expressed as the current equivalent disposable income of income units, adjusted by the OECD equivalence scale. We compute two income distributions: one contains the whole population; the other contains only people who live in income units which have at least one person in the labour force, termed the labour-force distribution, for convenience. Unemployed people, as well as the self-employed and employees, are included as part of the labour force. The rationale for looking separately at the distribution of income among the labour force is that we would expect that people who seek to, and indeed do, support themselves with paid work would generally have a higher income than people who rely predominantly on social welfare payments. A high proportion of income units which are out of the labour force do indeed rely on social welfare payments for their income – sole parents, the aged and invalids for example. We wish on the one hand to compare the situation of the unemployed with their peers – those who are in the labour force. We wish also to assess their fortunes in relation to the whole population, including the other groups who rely on social welfare payments. The two distributions have different median incomes: the median for those in the labour force being higher than the median for all people in the population (\$494 and \$426 a week respectively). An unemployed family is defined as one which contains an unemployed person aged 15 or over.

Table 2 shows the percentage of various population groups that are in poverty. It shows that only 8 per cent of adults aged 15 or more are in poverty when the entire-population poverty line is used. And that 12 per cent are in poverty when the higher poverty line for those in the labour force is used. It is also clear that unemployed persons live in families with higher poverty rates. Just under 28 per cent of all unemployed persons live in families that are in poverty using the population poverty line, rising to 45 per cent using the labour-force poverty line. Given that there is only \$34 a week difference between these two poverty lines, this dramatic increase in recorded poverty underlines the extreme sensitivity of such head-count measures of poverty to small changes in the poverty line. This is caused by the bunching of large numbers of social security recipients around these particular poverty lines. This bunching effect also appears to underlie the changes in the poverty rate for the long-term unemployed, which increases from 20 to 42 per cent as the poverty line increases from the general population

poverty line to the labour-force poverty line. The poverty rate among families that declare at least \$1 of wage and salary income is only 2 per cent using the population poverty line. This doubles to 4 per cent using the labour-force poverty line.

Children are particularly at risk. Three out of every ten children living in a family with an unemployed member are in poverty, compared with only one out of every ten children in Australia. When the higher labour-force poverty line is used, fully one-half of children living in unemployed families are in poverty. Recall that one-third of unemployed men are fathers with dependent children. Poverty rates are, however, very low among children living in families with some wage and salary income. Using the population poverty line, poverty rates for such children are only 3 per cent. In other words, dependent children living in families with at least one unemployed member have nine times as much risk of being in poverty as those living in families with some wage and salary income.

Table 2: Poverty Rates for Various Groups using Two Poverty Lines
Per cent; 1994/95

	Entire-population poverty line	Labour-force poverty line
Persons aged 15+:		
Unemployed	28	45
Long-term unemployed	20	42
Wage and salary earners	2	4
All	8	12
Dependent children in:		
Unemployed families	27	50
Long-term unemployed families	27	50
Wage and salary families	3	6
All families	12	19

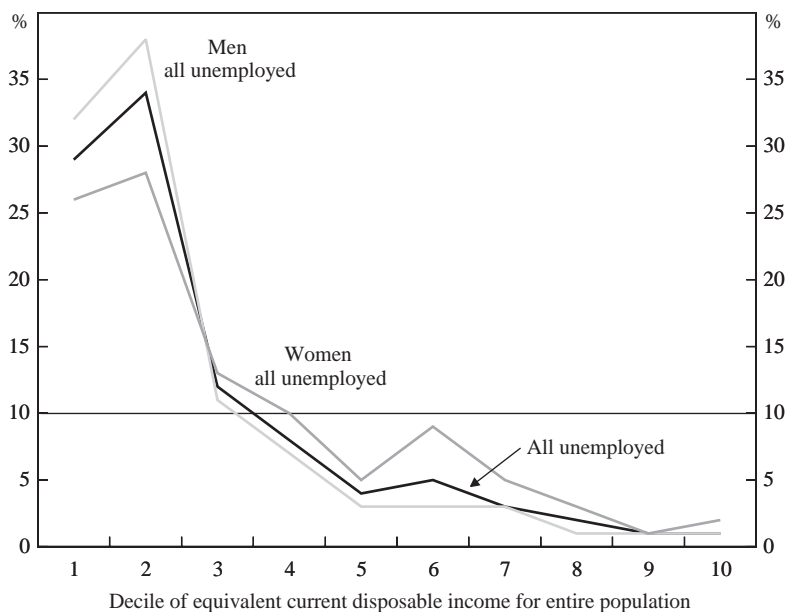
6. The Unemployed and Income Distribution

In this section we explore the question of where the unemployed, grouped in a variety of ways, lie in the overall distribution of income. Income is again defined as the equivalent disposable income of the family and this income is attributed to each person within the income unit (including children under age 16). Again two different overall income distributions are used. In one, the whole population is ranked from lowest equivalent income to highest. In the other, only people who live in income units which contain a person who is in the labour force are included.

Figure 5 shows where unemployed people are to be found in the overall distribution of income for the entire population. Deciles of the income distribution are measured on the horizontal axis, ranked from lowest to highest. On the vertical axis is measured the proportion of the relevant group which has an income located in each decile. If everyone

had the same income, 10 per cent of each group would be found in each decile. A line marking this equal distribution is included in the figure for reference. As Figure 5 shows, the unemployed are heavily concentrated in the bottom third of the overall income distribution. Just over two-thirds of male unemployed and over half of female unemployed are in the bottom two deciles (see also Table 3). As suggested earlier, unemployed men are clustered at the bottom of the distribution to a greater extent than unemployed women.

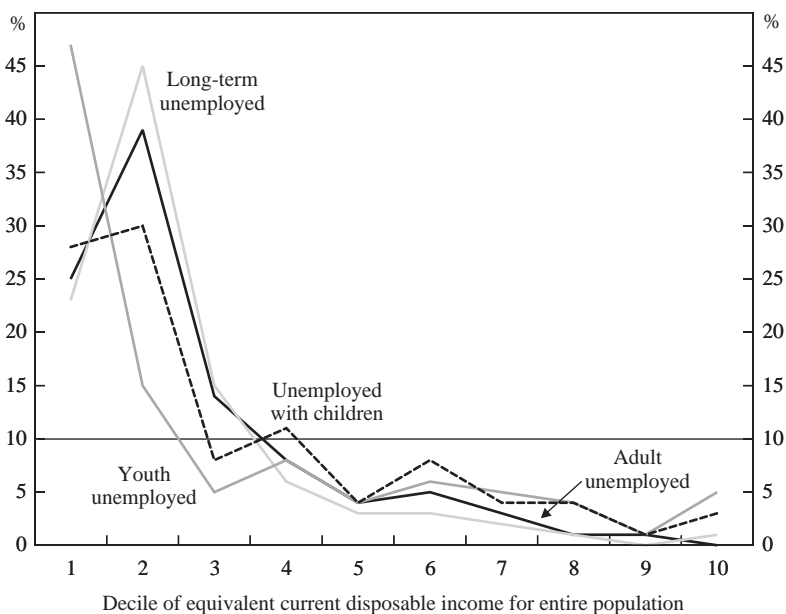
Figure 5: Distribution of Unemployed People by Decile of Equivalent Current Disposable Income
By gender; 1994/95



Does the picture vary by age or for those with dependent children? The circumstances of the long-term unemployed are shown in Figure 6. In drawing conclusions from this information it is important to recall that, in the sample with which we deal, there were only 303 people in this category. Further division into deciles reduces the number of respondents in the higher deciles to a handful. Our interest, however, is principally in whether the long-term unemployed look different from other unemployed people in the extent to which they are concentrated at the bottom of the income distribution. The precise proportion in each decile above the fifth is not of much concern. Relative to all unemployed and to adult unemployed, the long-term unemployed are more densely clustered in the second decile, and a little less densely clustered in the first decile. But the differences are small and if the information were displayed as quintiles rather than

Figure 6: Distribution of Unemployed People by Decile of Equivalent Current Disposable Income

By age, presence of children and length of time unemployed; 1994/95



deciles, would not be noticeable. The overall conclusion must be that the income situation of the long-term unemployed is little different from that of unemployed people in general.

This may be interpreted as an outcome of the way that 'unemployment insurance' operates in the Australian social welfare system. The level of benefit to which a long-term unemployed person is entitled is the same as that due to any unemployed person in the same family and private income circumstances. Thus, the big difference in income is associated with movement between employment and unemployment, rather than with the duration of unemployment. Indeed, the short-term unemployed may for a time have lower incomes than equally situated long-term unemployed, as they wait to become eligible for benefits and as they use up initial cash reserves which bar them from eligibility. Recall that only 56 per cent of all unemployed receive an unemployment benefit whereas 74 per cent of long-term unemployed do.

The broad equality of circumstances of the long-term unemployed and the short-term unemployed can be attributed to the fact that Australia does not have an unemployment insurance scheme which provides benefits for some defined period which are related to previous earnings. Rather, benefits are determined, whatever the duration of unemployment, by an assessment of current income, assets and dependents. As the Appendix shows, the family circumstances of the long-term unemployed are not strikingly different from those of all unemployed workers.

Figure 6 also looks at the unemployed disaggregated into yet further groups. The new groups are youth – aged 15–20 – and those with dependent children. Most of the difference between the series is found in the first three deciles, although for both youth and those with children, 20 per cent are found in the top half of the income distribution whereas only half this number of all the adult unemployed are.⁸

Almost half of all unemployed youth are in the bottom decile of the distribution of equivalent disposable income unit income, for all people. This suggests intense disadvantage. But it may not be all it seems. Recall that a person living with his or her parents who is over age 15 and not a full-time student is classified as an independent income unit. The provision of board and even cash gifts by parents does not count as part of the income of the young person. Twenty per cent of both all unemployed and the long-term unemployed are living at home with their parents. We do not know the amount of support they receive, but it almost certainly includes housing and most probably includes rather more than that.

The unemployed with dependent children are, like all the other groups, heavily concentrated at the bottom of the income distribution, but not quite so severely as the long-term, all, and all adult unemployed. Although it is not evident in the figure, this is because unemployed women with dependent children are much more evenly spread across the income distribution than are any other group that we looked at. About two-fifths are still in the bottom quintile, but almost one-third are in the top half of the income distribution (Table 3). The comparable figures for men with dependent children are 71 per cent and 11 per cent.

Table 3: Proportion of Unemployed People in the Top and Bottom Quintiles of the Income Distribution

	For labour force			For all people		
	Bottom quintile	Top quintile	Top half	Bottom quintile	Top quintile	Top half
All unemployed	71	2	8	63	2	12
Males	78	2	6	70	2	9
Females	63	2	10	54	2	19
Adults (21 yrs+)	74	1	6	64	1	10
Youth (<21 yrs)	65	6	15	62	6	21
Long-term	78	1	7	68	1	7
With children	64	4	12	58	4	20
Men	75	3	7	71	3	11
Women	50	5	17	41	5	29

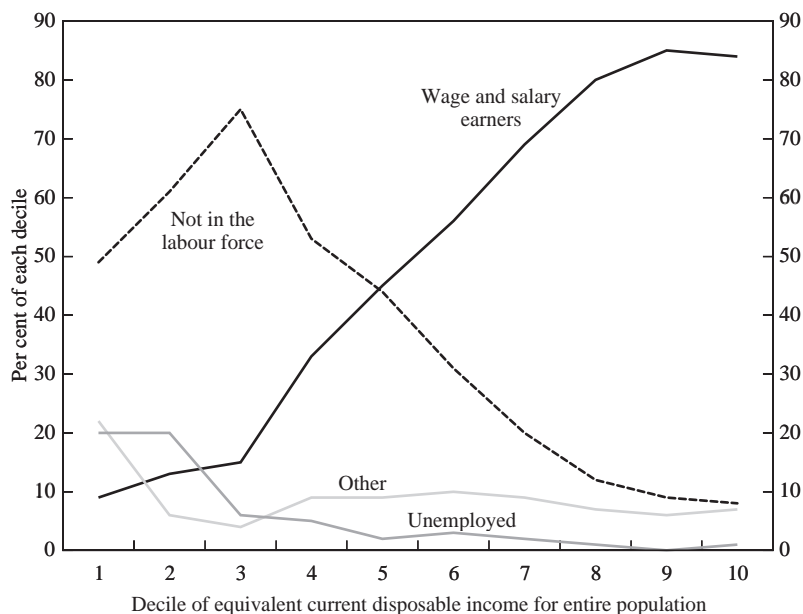
8. In the case of youth, this is partly attributable to unemployed 15–24 year olds being counted as part of their parents' income unit if they are also full-time students. Thus, some such parents obviously have high incomes.

All of these graphs have examined the income distribution of the unemployed relative to that of the entire population, with one-tenth of the population being found in each of the deciles considered above. The percentage of variously defined unemployed groups to be found in the bottom and top quintile, and the top half of the distributions for all people and for people who live in families with a member in the labour force are to be found in Table 3. Not surprisingly, if deciles are constructed for only those families with a member in the labour force, the unemployed appear to be even more heavily concentrated at the bottom of the income distribution.

An alternative way of looking at these issues is to examine the unemployed as a proportion of those in each decile. Figure 7 shows that the unemployed make up about one-fifth of all of those persons aged 15 or more who are in the bottom decile of equivalent family income for the entire population. Wage and salary earners with very low family incomes make up another 10 per cent of all those in the bottom decile. Persons who are not in the labour force are the most important group at the very bottom of the income distribution, contributing half of the bottom decile. And those who fall into the 'Other' category (principally the self-employed) make up the final 20 per cent.

As one would expect, as family income increases, a rapidly rising proportion of people aged 15 and over are wage and salary earners. About 85 per cent of persons in the top decile of family income are wage and salary earners, while less than 1 per cent are unemployed people married to a high income spouse (or living with high income parents). Figure 7 again underlines that the unemployed people are concentrated at the lower tail of the income spectrum.

Figure 7: Proportion of Persons Aged 15 or More with Specified Labour Force Status, by Decile of Family Equivalent Current Disposable Income
1994/95



The clear conclusion from this section is thus that unemployed people are overwhelmingly found at the bottom of the income distribution. It does not matter which group you look at or which income measure is used. Among the modest differences detected, the principal one is that this relative income disadvantage is particularly pronounced for adult men, with and without dependent children.

7. Low-wage Workers and the Unemployed

There is considerable interest in the question of whether low-wage workers are relatively badly off in terms of their personal and family incomes and how they compare on this dimension with unemployed workers. The interest arises in part from the idea that it may be possible to reduce the wages of the low paid and in so doing, generate extra employment for people who are currently unemployed – or reduce the flow of new additions to the unemployment pool. This possible trade-off has been confronted in a very direct way by the Australian Industrial Relations Commission, in its so-called ‘living wage’ cases. These were conducted in 1997 and 1998 and were directed to setting award rates of pay for people who had not participated in enterprise or other bargains. In its submission to the 1998 ‘living wage’ case, the Joint Governments (1998) said:

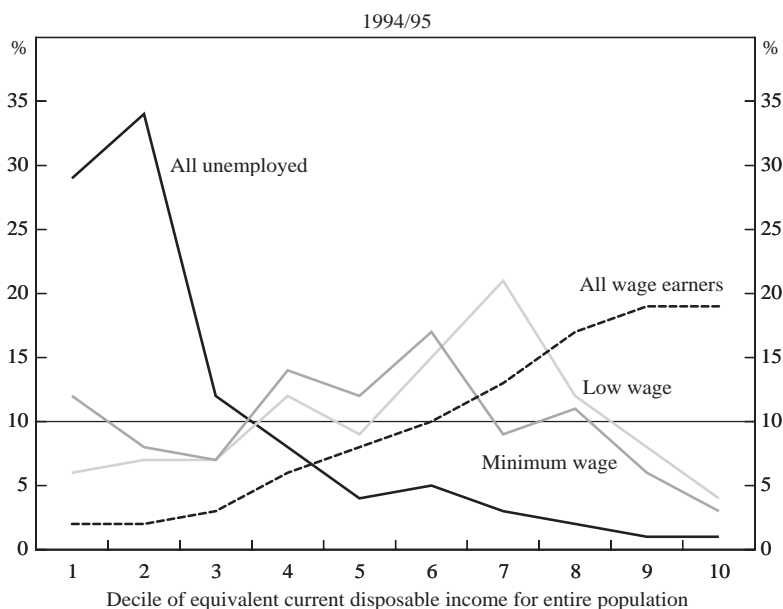
‘...Large real increases in award rates are likely to have an adverse effect on employment. This obviously does not serve the needs of the low paid. No one should ever lose sight of the fact that the majority of people in poverty are not employed. Anyone who is serious about reducing inequality and poverty should primarily devote their attention to measures which will reduce unemployment’ (p. 178).

Figure 8 traces the income distribution for the unemployed, low- and minimum-wage workers, and all wage and salary earners. Low-wage workers are defined as adults earning less than \$10 an hour and juniors earning less than \$6 an hour, while minimum-wage earners are defined as adults earning less than \$8.50 an hour. The income distribution is for the whole population. The general picture is similar if the distribution for those in the labour force is used. It is clear that unemployed people are more heavily concentrated in the bottom deciles, and are more rarely found in the upper deciles than are minimum-wage earners. Unemployed workers are substantially over-represented in the first three deciles, as was shown previously. In contrast, minimum-wage earners are over-represented in the middle deciles, four to six. This occurs for two reasons. The first is that the minimum wage used in this paper – in effect the then prevailing Federal minimum – is enough to put a full-time worker who has no or few dependents in these middle deciles. The second is that minimum-wage workers often live in families in which there is more than one income earner. Multiple-income earners are much more common among low-wage families than among unemployed ones.

The majority of low-wage earners are found further up the income distribution than minimum-wage earners, with about half being concentrated in deciles six to eight. Once again, wage earners generally are better off than low-wage earners, with about three-quarters of all wage earners receiving a family income which places them in the top four deciles of the income distribution.

We conclude from this section that the evidence strongly supports the view that the unemployed are indeed financially very disadvantaged. They comprise a high proportion of people in the lowest deciles of the income distribution and are heavily concentrated

Figure 8: Distribution of Unemployed People, Low, Minimum and All Wage Earners, by Decile of Equivalent Current Disposable Income
1994/95



in these deciles. These conclusions apply with less force to women than to men, but apply to them nonetheless. Every way that we have looked at it, unemployed workers are much lower in the income distribution than are most low-wage workers – although there are some low-wage workers who are in the lowest deciles and these should not be forgotten.

8. Conclusion

As in other English-speaking countries, the distribution of earned income in Australia has become more unequal in the past decade. Wages and salaries and income from interest, dividends and rent are, separately and together, now less evenly spread across the population than they were (Harding 1997). One reason is a rise in the dispersion of pay, with jobs which pay a lot and jobs which pay a little, growing relative to jobs with middle-level rates of pay. A second reason is the growth in unemployment, including long-term unemployment. It is likely that a third reason is the continuing trend towards people living in smaller and smaller families, including single parent families (Harding 1995b). In theory, this last development should not affect inequality in our income measure because the equivalence scale is intended to capture the economies of shared living arrangements. But it is a crude and simple scale and undoubtedly does injustice to the many ways that sharing accommodation, recreation, transport and so on reduces the per person cost of living.

It is also worth noting that the degree of inequality is exaggerated in our data because young people living at home, who are not full-time students, are treated as if they depend fully on their own income, which clearly they do not. For young men in particular, there are many such people among the low-wage and unemployed groups. The simple fact that these young adults live at home with their parents suggests strongly that for many of them, it is cheaper to do so than to live separately; yet treating them as independent income units implies that they live separately.

The detailed examination of the unemployed presented above enables us to draw a picture of this disadvantaged group. The young are over-represented, but all age groups contribute significantly to the unemployment pool. Migrants, the relatively uneducated and single people are prominent. Many are young people still living – probably reluctantly – at home, a majority of whom are not full-time students. Less than half of all young unemployed receive unemployment allowances (42 per cent), although this rises to 69 per cent of the long-term young unemployed. For the unemployed generally, the comparable figures are 56 and 74 per cent. Yet government cash benefits provide 90 per cent of the personal income of the unemployed and, for adults, a significant proportion of family income. This is in striking contrast to the families which have a wage earner: for them, government cash benefits on average provide just 2 per cent of their income.

The major contribution of this paper is to examine, and display, the income situation of the unemployed. It has been known for some time that the personal incomes of the unemployed are quite low. This is no surprise, since they have little income other than that provided by a modest and tightly targeted social welfare system. What is new is the evidence that not only are the personal incomes of the unemployed low, but so also are the disposable incomes of the families in which they live. Overwhelmingly, unemployed people do not live in families in which there is significant wage or other private income for other family members. They and their families rely heavily on the social welfare system for their income. Since the social welfare system in Australia is of the safety-net kind, providing just enough to enable recipients to make ends meet, it is inevitable that unemployed people and their families have low incomes.

It also follows that they have lower incomes than do families which, by virtue of their wage income, are excluded from eligibility for social welfare assistance. In order to maintain some financial reward to employment as opposed to unemployment, it is necessary to set the level of benefits received by most unemployed people below the sums that could be earned at a low wage by a person working more than a few hours per week. And this has been done, even if imperfectly. It is striking that among workers, a tiny proportion of their income, on average, comes from government cash benefits. This does not deny that for some employed families, government assistance for children is significant. But on average it is not. People who rely upon wages and salaries have higher incomes than people who rely upon social welfare payments. This is the intention of the design of the social welfare system, and it works.

Unemployed workers and their families have two to three times the average person's chance of having a very low income. They are also clustered heavily at the bottom of the distribution of equivalent disposable family income: about two-thirds are in the bottom two deciles of the overall distribution. They comprise a large proportion of people in the

workforce who have very low incomes. They are substantially worse off in these respects than are people who earn low wages.

It is undoubtedly true, then, that unemployed people mostly have lower equivalent family incomes than do wage earners, even low-wage earners. It follows that a redistribution from low-wage earners to unemployed people would make the overall distribution of income more equal. But it does not necessarily follow that a cut in the wages of the low paid is thereby egalitarian.

First, if one simply wants to increase the incomes of the unemployed and their families, a 'tax' on low-wage workers is a much less equitable way to finance this than is a tax on all wage and salary earners.

Second, a cut in the wages of the low paid is helpful to the unemployed only if it causes a substantial increase in the number of low-wage jobs and of all jobs. The evidence on the likely response of employment to a cut in low wages is scarce in Australia. But at the very least, the overseas evidence must cause some pessimism that the employment response would be large. If it is small, then all low-wage workers would be worse off as a result of a cut in their wages, while some previously unemployed workers would be better off and most would not be affected.

Third, an increase in the number of low-wage jobs does not mean a commensurate fall in the numbers of people who are unemployed. Many such jobs would go to people who previously were out of the labour force.

Fourth, a cut in the level of low wages would exacerbate the already severe problem of high effective marginal tax rates for people on the borders between the social welfare system and paid employment (Beer and Harding 1997). The differences between paid work and unemployment assistance would diminish. It is likely that this would produce pressure to lower the level of social welfare benefits, both in order to maintain an incentive to work and in order to maintain the socially preferred position that people who have paid work generally have higher incomes than people who are reliant on social welfare. Since the level of social welfare payments for all forms of social assistance – to single parents, full-time students and the aged for example – are set at a common level, a cut in the level of benefits for unemployed people could bring pressure to cut the levels of all related benefits. (An alternative solution might be to *increase* the earnings of those in low-paid employment, via earnings credits or wages top-ups, rather than *decreasing* the payments of those on benefits.)

Overall, therefore, the impact on income inequality of cuts in real wages is unclear. While some proportion of the unemployed might gain jobs, existing low-wage earners could expect their earnings to decline. It is also not clear what the consequent effects might be upon the social security system.⁹

9. These issues were more comprehensively examined in work by us and other authors at the conference 'Fairly Efficient? Equity and Productivity in the Australian Labour Market' held at the ANU, 16–17 June 1998.

Appendix

Selected Characteristics of the Unemployed and of Wage and Salary Earners Per cent

	Unemployed			Long-term unemployed			All wage and salary workers		
	Female	Male	All	Female	Male	All	Female	Male	All
Number weighted ('000)	298	437	735	107	214	321	2 879	3 795	6 674
Number of unweighted observations in sample survey	300	430	730	108	195	303	2 923	3 700	6 623
Age:									
15–20	28	20	23	17 ^(a)	14	15	11	9	10
21–24	11	13	12	10 ^(a)	12	11	12	10	11
25–34	22	25	24	25	21	23	25	26	26
35–54	34	33	33	43	41	41	47	46	46
55–64	5 ^(a)	9	7	6 ^(a)	12	10	5	8	7
Total	100	100	100	100	100	100	100	100	100
Education qualifications:									
Degree	7 ^(a)	6	6	9 ^(a)	5 ^(a)	6	15	15	15
Undergrad diploma	3 ^(a)	2 ^(a)	2 ^(a)	0 ^(a)	1 ^(a)	1 ^(a)	6	2	4
Associate diploma	3 ^(a)	4 ^(a)	4	4 ^(a)	3 ^(a)	3 ^(a)	5	8	6
Skilled vocational	10	17	14	7 ^(a)	13	11	11	25	19
Basic vocational	6 ^(a)	3 ^(a)	5	5 ^(a)	3 ^(a)	3 ^(a)	7	2	4
No qualifications	63	64	64	74	72	73	53	46	49
At school	8	4 ^(a)	6	1 ^(a)	3 ^(a)	2 ^(a)	3	2	2
Total	100	100	100	100	100	100	100	100	100
Marital status:									
Married	39	44	42	39	52	48	61	62	62
Never married	45	47	46	31	38	36	31	32	31
Separated, widowed etc.	16	9	12	30	10	16	8	6	7
Total	100	100	100	100	100	100	100	100	100
Year of arrival (for migrants only):									
Before 1976	27	46	39	24	47	39	53	57	56
1976–80	9	12	11	12	13	11	11	10	10
1981–85	32	13	21	23	18	20	12	10	11
1986–90	14	19	17	20	12	15	17	17	17
1991–94	18	10	12	21	10	15	7	6	6
Total	100	100	100	100	100	100	100	100	100

continued

Selected Characteristics of the Unemployed and of Wage and Salary Earners (*continued*)
Per cent

	Unemployed			Long-term unemployed			All wage and salary workers		
	Female	Male	All	Female	Male	All	Female	Male	All
Family relationship:									
Husband and dependent children	–	30	18	–	32	22	–	37	21
Wife and dependent children	20	–	10	25	–	8	34	–	15
Other husband	–	14	8	–	19	12	–	24	14
Other wife	15	–	6	14 ^(a)	–	5 ^(a)	27	–	12
Lone parent and dependent children	9	2 ^(a)	5	7 ^(a)	3 ^(a)	5 ^(a)	4	1	2
Full-time student child aged 15–24	13	8	10	2 ^(a)	3 ^(a)	2 ^(a)	5	3	4
Other child aged 15+	18	22	21	19	19	19	12	14	13
Unrelated group	6 ^(a)	8	7	6 ^(a)	7 ^(a)	7	7	9	8
Live alone	8	14	11	11 ^(a)	15	14	8	9	9
Other	7	3 ^(a)	5	15 ^(a)	3 ^(a)	7	3	2	2
Total	100	100	100	100	100	100	100	100	100
Length of time unemployed:									
1 to < 39 weeks	64	51	56						
39 to < 52 weeks	5	7	6						
52 to < 104 weeks	12	14	13						
104 weeks+	19	28	24						

(a) Denotes less than 20 000 weighted observations, or a sampling error greater than approximately 25 per cent.

References

- Australian Bureau of Statistics (ABS) (1993), 'Australia's Long-term Unemployed: A Statistical Profile', ABS cat. no. 6255.0.
- Beer, G. and A. Harding (1997), 'Effective Tax Rates', *Income Distribution Report*, National Centre for Social and Economic Modelling, University of Canberra, No. 7.
- Borland, J. and S. Kennedy (1998), 'Earnings Inequality in Australia in the 1980s and the 1990s', mimeo, Australian National University, February.
- Borland, J. and R. Wilkins (1996), 'Earnings Inequality in Australia', *Economic Record*, 72(216), pp. 7–23.
- Burkhauser, R., A. Crews, M. Daly and S. Jenkins (1996), 'Where in the World is the Middle Class? A Cross-national Comparison of the Vanishing Middle Class Using Kernel Density Estimates', University of Essex, ESRC Research Centre on Micro-social Change Working Paper No. 96-8.
- Economic Planning Advisory Commission (EPAC) (1995), *Income Distribution in Australia: Recent Trends and Research*, AGPS, Canberra.
- Feather, N. (1997), 'Economic Deprivation and the Psychological Impact of Unemployment', *Australian Psychologist*, 32(1), pp. 37–45.
- Gottschalk, P. and M. Joyce (1997), 'Cross-national Differences in the Rise of Earnings Inequality – Market and Non-market Factors', Luxembourg Income Study Working Paper No. 160.
- Gottschalk, P. and T. Smeeding (1997), 'Empirical Evidence on Income Inequality in Industrialised Countries', Luxembourg Income Study Working Paper No. 154.
- Gregory, R. (1993), 'Aspects of Australian and US Living Standards: The Disappointing Decades 1970–1990', *Economic Record*, 69(204), pp. 61–76.
- Gregory, R. (1996), 'Wage Deregulation, Low Paid Workers and Full Employment', in P. Sheehan, B. Grewal and M. Kumnick (eds), *Dialogues on Australia's Future*, Centre for Strategic Economic Studies, Victoria University, Melbourne, pp. 81–102.
- Gregory, R. and B. Hunter (1995), 'The Macro-economy and the Growth of Ghettos and Urban Poverty in Australia', Australian National University Centre for Economic Policy Research Discussion Paper No. 325.
- Hancock, K. (1998), 'The Needs of the Low Paid', in *Wealth, Work and Well-being*, Academy of the Social Sciences in Australia, Canberra, Occasional Paper No. 1, pp. 1–26.
- Harding, A. (1995a), 'The Social Wage and Income Distribution: the Impact of Health, Education and Housing Outlays in 1994', *Australian Economic Review*, 28(3), pp. 71–86.
- Harding, A. (1995b), 'The Impact of Family, Demographic and Labour Force Change Upon Income Inequality in Australia, 1982–93', *Australian Journal of Social Research*, 1(1), pp. 47–70.
- Harding, A. (1996), 'Recent Trends in Income Inequality in Australia', in P. Sheehan, B. Grewal and M. Kumnick (eds), *Dialogues on Australia's Future*, Centre for Strategic Economic Studies, Victoria University, Melbourne, pp. 283–306.
- Harding, A. (1997), 'The Suffering Middle: Trends in Income Inequality in Australia 1982 to 1993/94', *Australian Economic Review*, 30(4), pp. 341–358.
- Johnson, D., I. Manning and O. Hellwig (1995), *Trends in the Distribution of Cash and Non-cash Benefits – An Overview*, Report to the Department of the Prime Minister and Cabinet, AGPS, Canberra.
- Joint Governments (1998), 'Safety Net Review – Wages', Department of Workplace Relations and Small Business, Canberra.

- King, A. (1997), 'The Changing Face of Australian Poverty: A Comparison of 1996 Estimates and the 1972–73 Finding from the Commission of Inquiry', National Centre for Social and Economic Modelling Discussion Paper No. 23.
- King, J., S. Rimmer and R. Rimmer (1992), 'The Law of the Shrinking Middle: Inequality of Earnings in Australia 1975–1989', *Scottish Journal of Political Economy*, 39(4), pp. 391–412.
- OECD (1996), *Employment Outlook*, OECD, Paris.
- Richardson, S. (1998), 'Who Gets Minimum Wages?', Australian National University Centre for Economic Policy Research Discussion Paper No. 386.
- Saunders, P. (1993), 'Economic Adjustment and Distributional Change: Income Inequality in Australia in the Eighties', Social Policy Research Centre Discussion Paper No. 47.
- Theodossiou, I. (1998), 'The Effects of Low-pay and Unemployment on Psychological Well-being: A Logistic Regression Approach', *Journal of Health Economics*, 17(1), pp. 85–104.
- Wolfson, M. (1997), 'Divergent Inequalities – Theory and Empirical Results', *Review of Income and Wealth*, 43(4), pp. 401–422.

Discussion

1. Claudia Goldin

The central point of this informative paper is that the unemployed in Australia are disadvantaged in several ways. They are, first of all, out of a job – a circumstance that often makes for a dispirited and even depressed condition. Second – and this is what much of the paper concerns – the unemployed are poor. Not only are they poor, but they are considerably poorer than are the working poor – those working at the minimum wage. (Frankly, I would be rather nervous about any benefits system that made the unemployed *better off*, on average, than those working at the minimum wage.)

Although there is no doubt that the unemployed are disadvantaged, the question I must first raise is whether the authors measure the income of the unemployed appropriately. The measure they use is the reported *weekly earnings of the family during the week in which the household member in question experiences unemployment*. Such a measure vastly overstates the difference in economic well-being between those experiencing unemployment and those who do not. The reason is because the income measure applies only to the week during which unemployment is experienced. Most families smooth consumption over intervals as brief as a week. Many of the currently unemployed will be employed at some point during the year and some of those currently unemployed will experience a spell of unemployment at another time. By measuring income for only the week during which unemployment is experienced, the difference in economic well-being between families with an unemployed member and those without, will be greatly magnified. Note that the odd result in the paper that the long-term unemployed fare better economically than do the short-term unemployed is most probably a consequence of this method of measuring income. A better measure of economic well-being would be to use annual or quarterly income (were it available) for the family.

The paper spurred me to consider differences between the Australian and US systems of unemployment compensation, and the importance of the incentives and disincentives that governments often inadvertently create. Is the relationship between unemployment and income influenced by the rules of the Unemployment Benefits system (UB)? That is, if the Australian UB rules were different, would the relationship between unemployment and income be less strong?

There are many reasons why the rules of the UB system affect who, in the Australian household survey, reports being unemployed. Those that are of the most quantitative importance and are likely to affect the income distribution concern:

- the long-term unemployed;
- married women; and
- youths living at home with their parents.

In contrast to the Australian UB system, consider the rules of the US Unemployment Insurance system. In most American states – UI is a state system, although set up by the 1935 (national) Social Security Act – unemployment insurance benefits run out at 26 weeks. The long-term unemployed often take a lower-paying job after their benefits

run out. Some, however, stop searching for a job and drop out of the labour force. Because the definition of unemployment in the United States requires that real action be taken by the agent – one must be actively searching for work – some of the long-term unemployed are simply not considered unemployed. If they stop searching, they are not in the labour force. In contrast, in Australia where the long-term unemployed are on the UB rolls, they remain in the labour force and unemployed. I am not claiming that one system is better than the other. I am simply pointing to the effect the rules of the system have on who is considered unemployed. The difference in the two systems influences who becomes re-employed and also who remains in the labour force and is considered unemployed.

Consider, as well, the fate of married women who are unemployed. Here the Australian system is *less* kind than is the American system. In the United States, where the system is one of insurance, rather than benefits, and is not means-tested by income or assets, an unemployed woman whose husband has a job – even if he is a stockbroker – may still be eligible for UI benefits, if she worked in the covered sector for a long enough period of time. But in Australia, where UB is means-tested, the unemployed married woman with a working husband may not be eligible for UB. And, if she does not receive UB, she may be less likely to consider herself unemployed in the household survey. Therefore, in Australia only the more indigent married women would receive UB and, thus, they would be more likely to consider themselves unemployed. Once again, the rules of the Australian system guarantee that the unemployed will be drawn disproportionately from the lower tail of the *family* income distribution.

The third case concerns unemployed youth living with relatives, generally at home with their parents. In the US, the youth living at home is no more likely to be eligible for UI than is the youth not living at home. Qualification would depend on the length of time the youth had been employed, whether the sector was covered, and the general accessibility of the UI office in the youth's city or town. More important for the issue at hand, is that a youth in the United States is no more or less likely to be considered unemployed than is his twin who is unemployed but married to an employed stockbroker. In Australia, the unemployed youth living at home with parents is *more* likely to be covered than is an unemployed youth who is married to an employed youth. By considering the youth living at home to be a separate household, we have added to the number of households living at, near, or below the poverty line and containing an unemployed household member.

The simple point is that in all three cases, Australian unemployment is increased at the lower end of the income distribution in comparison to the United States because of the different set of rules governing unemployment benefits. That is not to say that unemployment in the United States is evenly parcelled out across the income distribution. On the contrary. In the United States, as well, the unemployed are disproportionately the less educated and the less well off. That is to be expected, of course, because the unemployed have characteristics that led them to be laid off or terminated from a job *and* because their incomes suffer mechanically from not having a job.

What is the remedy for the poor economic position of the unemployed? UI and UB were initially designed to ease the transition from being out of work to locating new employment, providing sustenance during the period of search. Training programs alter the composition of the unemployed by changing their characteristics. If we believe that

all low-wage workers and the unemployed are identical in their underlying characteristics and that the unemployed are, each period, simply a random draw from the lower skilled, then a high minimum wage would redistribute income from one (random) portion of the low skilled to another. The remedy might then be wage subsidies, if the polity remains committed to a high minimum wage. Alternatively, one could greatly reduce the minimum wage, shorten unemployment benefits, let the labour market adjust, and institute an earned-income tax credit.

In summary, although I have questioned the use of the weekly income variable as a measure of the economic well-being of the unemployed, this paper has provided a welcome introduction to the subject of unemployment and inequality in Australia, and it raised, in my mind, differences in how the United States and Australia treat, and thus define, their unemployed populations.

2. General Discussion

While the basic features of the *wage* distribution are known, prior to Harding and Richardson's paper, little was known about the position of those earning low or minimum wages, or the unemployed, in the distribution of household *income*. Given the new information presented in this session about these issues, the discussion centred on:

- how reducing minimum wages would affect income distribution; and
- what type of credits to low-wage earners should be used to achieve the desired distribution of income.

Participants were not surprised with the finding that the unemployed are concentrated in the bottom of the income distribution. More surprising, however, was the finding that minimum-wage earners are placed in the middle of the household income distribution, with low-wage earners placed somewhat higher.

A number of participants noted that the results of the paper imply that reducing the minimum wage would not necessarily have adverse effects on income dispersion. For those participants arguing that substantial changes to wage relativities are important to solve unemployment, this was viewed as a reassuring result; for others it was viewed with some scepticism and further analysis of the data was recommended. In particular, some suggested that the results may be sensitive to the use of weekly earnings data – in which current weekly income (transfers) relates to the week in which they are employed (unemployed). Annual earnings data were considered to better capture accrued income. Others noted that the analysis of the household income distribution does not give insights into how many new jobs might be created in the event of a wage cut, nor where they might be concentrated.

Given concern about the growing dispersion of wages and income, an important question is whether some type of superior distribution mechanism can be found. Some participants argued that tax credits for the low paid are superior, since they can be well targeted, and create an incentive to exit unemployment. But the incentive to exit unemployment makes it a different distribution mechanism to the existing system of

family payments. Consequently, there was debate over whether income supplements should only be earned. Some argued that an exclusive focus on tax credits creates a 'deserving poor' who work, and an 'undeserving poor' who do not. All agreed however, that for those who do not work, it matters that targeted assistance has often been associated with very high effective marginal tax rates during the subsequent transition to employment, with consequent adverse implications for income dispersion and the incentives to work.

One participant also noted that there are political economy issues in the choice of distribution tool. In the absence of clear evidence about the effectiveness of tax credits paid to workers versus employers, the final choice may be influenced by the impact of a given scheme on the budget. Will it appear as a spending program or as a tax cut, given that tax cuts are typically more saleable politically?

Finally, there was discussion about the need for the Harding and Richardson paper to be complemented by a study on income mobility. For how long are people poor and why? Do low-income people move up the income distribution through time? The answers to these questions are important in considering policies to address growing wage and income dispersion.

Industrial Relations Reform and Labour Market Outcomes: A Comparison of Australia, New Zealand and the United Kingdom

Mark Wooden and Judith Sloan

1. Introduction

The 1980s and 1990s have seen important changes in many countries' labour market institutions, particularly those that impinge on the determination of wages and working conditions. Nowhere has such change been more dramatic than in the three countries at the centre of discussion in this paper – Australia, New Zealand and the United Kingdom. Decentralisation of collective bargaining structures in the UK, for example, accelerated in the 1980s under the Thatcher administration. Moreover, the shift away from industry-level bargaining was accompanied by legislation designed to significantly weaken the power of trade unions. In New Zealand the decentralisation process has been even more radical. While the reform process can be traced back to the 1970s, the most significant changes occurred in one hit following the passing of the Employment Contracts Act in 1991. Under this legislation, the system of industry and occupation awards was dismantled, compulsory union membership and union preference outlawed, and scope for non-collective bargaining introduced. The process of industrial relations reform in Australia, on the other hand, has been very different. Indeed, the reform process began not with decentralisation of industrial relations structures, but with a return to a highly centralised form of wage determination, with variations in wages and conditions dependent on national wage case decisions, which in turn were directly linked to prices. Despite this, from the late 1980s on, most Australian governments pursued a reform agenda which was similar in thrust to that being pursued in both New Zealand and the UK. Unlike New Zealand and the UK, however, the reform process, at least within the federal arena, was undertaken within the ambit of the Accord process, and hence had the seal of approval of the trade union movement.

The objectives of this paper are twofold. First, to describe in more detail the process of industrial relations change that has taken place in each of these three countries during the past two decades. Second, and perhaps of greater importance, to examine whether or not these changes have had any significant impact on labour market outcomes.

2. The New Zealand Experience

The history of regulation of industrial relations in New Zealand has many similarities to the regulation of industrial relations in Australia. Both countries operated systems of compulsory arbitration for many years, with the principal statute in New Zealand being

the *Industrial Conciliation and Arbitration Act 1894*. The core features of these systems have been described by Brooks (1995, p. 32) in the following way:

[They are] based on a philosophy of massive state intervention in and regulation of employer-employee relations in the public interest; while there is no compulsion to participate in the system but once participating the parties are subject to a range of coercive measures and sanctions; trade unions are actively encouraged to participate in the system, they are protected within the system and their legal status is equated to that of a trading corporation; the system attempts to equalise bargaining power between the parties; there is direct and, often, immediate access to permanent industrial tribunals; the predominant activity of the permanent industrial tribunals is not the prevention of strikes but the making of an award in settlement of an industrial dispute; the concept of an 'industrial dispute' has nothing to do with strikes or stoppages but is a highly legalistic concept...'

The *Industrial Conciliation and Arbitration Act 1894* lasted nearly one hundred years. Over time, there were some modifications, particularly in relation to the right to strike and whether unionism and arbitration should be compulsory or voluntary. Additionally, a raft of supporting legislation emerged in respect of holidays, minimum wages and leave entitlements (Rasmussen *et al.* 1995).

The effects of the New Zealand system of compulsory arbitration have been outlined by Rasmussen *et al.* (1995, pp. 1–2) and include the following: legalism; adversarial relations between parties; many weak unions flowing from the union registration provisions; blanket coverage of wages and conditions across industries and occupations; restriction of bargaining to narrowly defined 'industrial issues'; specialist tribunals; and issues related to the individual employment contract being dealt with under common law. These effects have many parallels with the Australian experience of compulsory arbitration.

While the *Employment Contracts Act 1991* (ECA) is generally seen as the key turning point in respect of the regulation of industrial relations in New Zealand, there had been a number of important developments in the two decades or so prior to the enactment of the ECA (Blandy and Baker 1987; Rasmussen *et al.* 1995). As Boxall (1990) has noted, the period from the mid 1960s to the early 1990s was characterised by a shift towards decentralisation and direct bargaining, although there were instances of attempted centralisation within the period. Indeed, the *Industrial Relations Act 1973* was an attempt to control 'second-tier agreements' (over-award bargaining in Australia), an attempt which ultimately failed. Boston (1984) argued that direct state intervention in particular disputes, coupled with wage and price controls, ultimately undermined public support for the system of compulsory arbitration. By the same token, the *Industrial Relations Act 1973* introduced the distinction between interest and rights disputes, a distinction common in jurisdictions in which direct bargaining is predominant (Boxall 1990).

New Zealand's Labour Government of 1984 to 1990 introduced a number of pieces of legislation affecting industrial relations. The *Industrial Relations Amendment Act 1984* abolished compulsory arbitration, the *Industrial Relations Amendment Act 1985* re-instituted compulsory unionism, subject to regular ballots of workers. Of more significance was the *Labour Relations Act 1987* which incorporated a number of important reforms to the arbitration system, while strengthening some of its controls. In particular, direct bargaining was encouraged on the initiative of unions, with responsibility for the enforcement of agreements devolved to the parties themselves. Unions could opt

for coverage of workers by either an award or registered agreement, with return to the parent award being subject to the consent of the employer. The one exception to this rule was the case of composite bargaining where a reduction in the number of bargaining units could be demonstrated. In effect, the statute sought to encourage the rationalisation of bargaining structures, which had been based on the highly fragmented, craft configuration of New Zealand trade unions. Registered unions were also required to have a minimum membership of 1 000, which led to a number of amalgamations between unions (Boxall 1990).

What was the effect of the *Labour Relations Act 1987* on the incidence and pattern of bargaining? Boxall (1990, p. 533) stated that 'by the end of 1989, it was becoming apparent that the evidence on the extent of bargaining reform ... had to be seen as equivocal. There was evidence of conservatism ... but there were also signs of valuable change in the direction of composite bargaining'.

While the ECA is generally seen as a 'big bang' reform, arguably the statute represented the culmination of a process of change, characterised by a shift towards bargaining and a diminution in the role of third parties. This said, the ECA ushered in a number of very significant changes, including the complete abolition of the award system and the removal of registration and regulation of trade unions. Indeed, as Kasper (1996) has noted, the word 'union' does not appear in the ECA. The ECA is divided into five parts. Part I deals with freedom of association; Part II deals with freedom to bargain; Part III deals with the treatment of 'personal grievances' (dismissal, discrimination, harassment and duress); Part IV deals with rights and obligations under employment contracts; and Part V provides for the right to strike and lock-out during the negotiation of (enterprise) contracts. The Act also provides for the Employment Court and Employment Tribunal. In terms of its immediate impact, the three key changes introduced by the ECA were: the abolition of the award system; the absence of legal rights for trade unions; and the bias against multi-employer negotiations arising from the illegality of industrial action undertaken in pursuit of multi-employer agreements (Kasper 1996).

Rasmussen *et al.* (1995, p. 4) have described the ECA in the following way:

'[It] introduced substantial deregulation of the New Zealand bargaining structure. It rejected many of the principles associated with the arbitration model. It abolished the award system, union rights, and promoted an enterprise-bargaining model in both private and public sectors'.

By the same token, the ECA fell short of a full deregulation model based solely on common law, as advocated by such authors as Brook (1990). In particular, the ECA provided for a strong role for legal precedence; personal grievance procedures for all employees, including in relation to unfair dismissal; and the preclusion of the ability to opt out of statutory minima (Bray and Neilson 1996; Rasmussen *et al.* 1995).

What have been the effects of the ECA? The most common forms of employment contract to emerge after the ECA were single-employer collective agreements and individual agreements (Harbridge and Moulder 1992; Rasmussen *et al.* 1995; Kasper 1996). On the most recent evidence (Hector and Hobby 1998), this remains the case, with 34 per cent of employees covered by single-employer contracts, 49 per cent by individual employment contracts and 11 per cent by multi-employer awards (see also Department of Labour 1998). Of the collective agreements negotiated, unions have acted as bargaining agents of workers in the vast majority of cases. Rasmussen *et al.* (1995, p. 11)

conclude that ‘the ECA has accelerated and facilitated the change process by making bargaining structures, processes and outcomes more flexible’, but note that some of the major examples of workplace reform pre-date the ECA.

In Table 1, information on the coverage of individual and collective employment contracts for four separate periods after the enactment of the ECA is presented. Immediately after the ECA’s enactment, a relatively high proportion of employees remained covered by multi-employer contracts. This proportion dwindled very rapidly, however, with small proportions of employees covered by multi-employer contracts. By the same token, collective contracts continued to cover a fair proportion of workers, with over one-third covered by single-employer collective contracts on the latest figures. Between May 1991 and August 1992, there was a very significant increase in the coverage of employees by individual contracts, with nearly half of employees on individual contracts on the latest figures. Overall, the figures in Table 1 point to a marked decentralisation in agreement-making in New Zealand following the ECA becoming law and the near-extinction of multi-employer contracts.

Table 1: Coverage of Individual and Collective Employment Contracts (IEC and CEC)
Per cent

	IEC	Multi-employer (and awards)	Single employer	Combined IEC/CEC	Total CEC
May 1991	28	59	13	–	72
August 1992	52	8	35	5	48
August 1993	40	9	37	8	54
August 1996	49	11	34	4	49

Notes: These figures are taken from the three surveys of Labour Market Adjustment commissioned by the Department of Labour. It should be noted that the use of different bases, and the low response rate of the 1997 survey, may mean that the figures are not exactly comparable.

Source: Hector and Hobby (1998, p. 314).

In Table 2, data are presented on employee representation by sector and contract type in 1996. Not surprisingly, union representation is much more common for collective contracts than for individual contracts. In 42 per cent of private collective contracts and 61 per cent of government collective contracts, employees were represented by unions. Hector and Hobby (1998, p. 317) note some interesting changes over time, however. The percentage of employees represented by unions fell from 90 per cent in the public sector in 1993 to 61 per cent in 1996, and from 67 per cent in the private sector in 1993 to 42 per cent in 1996. While there has been a small move to employees representing themselves, the larger move has been towards representation by other agents such as groups of employees, lawyers, industrial relations consultants or combined representation.

Table 2: Employee Representation by Sector and Contract Type
Per cent; 1996

	Negotiation outcome			
	Private IEC	Private CEC	Govt IEC	Govt CEC
Employees represented self	71	18	58	3
Union representation	1	42	3	61
Other/combined employee representation	11	24	26	34
Don't know/no representative/ no negotiation	10	5	6	1
Missing information	6	11	7	2

Source: Hector and Hobby (1998, p. 316).

Apart from the decentralisation of bargaining associated with the ECA, the number of unions has fallen as some unions went out of existence while others merged. The extent of union coverage has dropped noticeably – from an estimated 55 per cent in 1986, to 37 per cent in 1992 and to 25 per cent in 1996 (Table 5). The number of working days lost per worker in industrial disputes rose slightly between 1991 and 1992 but has fallen since (Figure 2). Gardner (1995, p. 55) has described the reaction of the New Zealand trade union movement to its changed circumstances in the following way: ‘Occupied with establishing the ground rules for union movement at the enterprise level and unlikely to face the labour market circumstances that will allow much change to their current position’.

While the impact of the ECA on bargaining was clearly deregulatory with no clear presumption in favour of collectivism, the effects of other parts of the ECA have been less clear-cut. Indeed, the opening up of personal grievance mechanisms to all employees, plus the establishment of the Employment Court and the Employment Tribunal, have led to a number of trenchant criticisms of these parts of the Act (Baird 1996; Robertson 1996; Epstein 1997; Kerr 1997). Indeed, it has been argued that the non-prescriptive or ‘enabling’ nature of much of the ECA has been responsible for Court-determined rules based on legal precedents (Anderson 1996; Rasmussen and Deeks 1997). This has led, in turn, to some winding back of aspects of the statute – in relation to bargaining rights of trade unions, for instance – and to a surge in applications for remedies against unfair dismissal.

Rasmussen and Deeks (1997, p. 294) have summarised the outcomes of the ECA in the following way:

‘These include the rapid acceleration of the move to individual employment contract, marked by the growth of individual employment contracts (IECs) and the reduction in collective employment contracts (CECs); the reduced role for unions in bargaining, particularly in the private sector; the decline in union membership and in union density; and the greater use of legal remedies in employment disputes and grievance resolution’.

3. The United Kingdom Experience

While the regulation of industrial relations in the United Kingdom was never based on a model of compulsory arbitration, the degree of specific government involvement in this area has been substantial over the years. The intervention took a number of forms including: providing trade unions with immunity under tort for industrial action; requiring government contractors to comply with working conditions as determined by collective bargaining (*Fair Wage Resolution Act 1949*); obliging firms to pay wages not less favourable than those fixed by collective bargaining with industries (*Employment Protection Act 1975*); and establishing minimum wages through Wages Councils.

A marked change of direction occurred in 1980 with the election of the Conservative Thatcher Government. A series of reforms occurred (in 1980, 1982, 1984, 1986, 1988, 1989, 1993 and 1995) which Gregory (1997) has grouped under three headings: provisions affecting industrial action; unions at the workplace; and the internal organisation of unions. The key statutes were the *Employment Act 1980*, the *Employment Act 1982*, the *Employment Act 1988*, the *Employment Act 1990* and the *Trade Union Act 1984*. In 1983, the *Fair Wage Resolution Act 1949* was rescinded and in 1980, the *Employment Protection Act 1975* was removed. The Wages Councils were abolished in 1993 (Brown and Wadhvani 1990; Gregory 1997).

Elgar and Simpson (1992) outline the importance of the removal of trade unions' immunity in terms of the scope for affected parties to seek damages to compensate for commercial loss caused by industrial action. 'The potential importance of this goes beyond the very small number of claims actually made against trade unions in the decade after the law was changed' (Elgar and Simpson 1992, p. 11). Other regulatory changes included: a narrower definition of industrial action; the requirement for secret ballots before industrial action is taken; a seven-day notice period of industrial action; and the proscription of secondary action, including picketing. The net effect of these changes, according to Gregory (1997), has been to substantially raise the costs and risks to unions of undertaking industrial action.

As far as trade unions at the workplace are concerned, statutory changes effectively outlawed pre- and post-entry closed shop arrangements; required periodic authorisation of deduction of union dues by workers, and removed the unions' access to the Advisory, Conciliation and Arbitration Service (ACAS) which, in turn, had provided assistance to unions to secure recognition by reluctant employers. Again, according to Gregory (1997, p. 3), the impact of these changes was to 'increase the costs to the union of maintaining its membership and collecting union membership subscriptions'. Other changes affected the election of union officials and the requirement for secret ballots of members under specified procedures. A postal ballot was required every five years to elect union officials and a ballot of members every ten years was required if unions wished to use funds for political purposes. Members were able to pursue complaints against their union and unions could not discipline members for refusal to participate in industrial action (Brown and Wadhvani 1990).

In terms of the associated industrial relations outcomes in the United Kingdom, the two most significant were, first, the decentralisation of bargaining (although signs of decentralisation were apparent in the 1970s) and, secondly, the decline in the power of the trade unions. During the course of the 1980s and into the 1990s, there was a dramatic decline in the number of multi-employer agreements, replaced by either single-employer

or plant contracts (Millward and Stevens 1986; Millward *et al.* 1992; Metcalf 1994). As Metcalf (1994, p. 5) stated in 1994:

‘[Twenty] years ago over 9 out of 10 workers in Great Britain had their pay determined either by collective bargaining (77%) or by minimum wages set by Wages Councils (15%). The fraction covered by these arrangements has halved since 1975’.

Metcalf also noted that the United Kingdom experienced the most precipitous decline in the coverage of collective bargaining of all OECD countries.

The coverage of collective bargaining in the United Kingdom, as elsewhere, varies by firm size, with larger firms more likely to be covered. According to figures in the *OECD Employment Outlook* of 1994, the largest fall in collective bargaining coverage between 1985 and 1990 occurred among small firms (between 25 and 99 employees), from 53 per cent to 35 per cent. At the other end of the spectrum, collective-bargaining coverage among the largest firms (with 1 000 or more employees) fell from 89 per cent in 1985 to 77 per cent in 1990. In Table 3, we present figures on the dominant level of bargaining in 1984 and 1990. The figures clearly demonstrate the decline in multi-employer bargaining as well as the rise in the incidence of no collective bargaining. Gregory (1997) also notes that, in addition to the shift towards single-employer bargaining, the scope of bargaining has narrowed, with more issues unilaterally determined by employers. An example proffered of the latter is regulation of recruitment and staffing levels.

Table 3: Most Important Level of Collective Bargaining, United Kingdom

Percentage of British workers employed in plants with 25 or more employees

	Manuals		Non-manuals	
	1984	1990	1984	1990
Private manufacturing				
Multi-employer	24	19	8	6
Single-employer, multi-plant	19	15	19	17
Plant	35	34	31	24
No collective bargaining ^(a)	22	32	42	53
Private services				
Multi-employer	26	13	16	6
Single-employer, multi-plant	17	22	18	28
Plant	8	6	6	2
No collective bargaining ^(a)	49	59	60	64
Public sector				
Multi-employer	74	72	87	76
Single-employer, multi-plant	20	17	11	12
Plant	2	1	1	0
No collective bargaining ^(a)	2	1	1	0

Note: (a) Includes ‘Other answer’.

Source: Metcalf (1994).

What was the impact of the changed industrial relations regulations for trade union density and activity? Table 5 presents figures on changes in unionisation rates in the three countries, Australia, New Zealand and the United Kingdom, which reveal remarkably similar patterns of decline. However, taking the United Kingdom alone, unionisation fell from 53 per cent in 1982 to 31 per cent in 1996. In absolute terms, union membership in the UK peaked at some 13.5 million in 1979, falling to around 8.5 million in 1997, with private sector unionisation standing at 23 per cent (Gregory 1997). Metcalf (1994) outlines five factors which he maintains are responsible for the decline in unionisation in the UK: changes in the structure and composition of the labour force and employment; macroeconomic conditions unfavourable to unions; regulatory changes hostile to collectivism and unionism; employer militancy, particularly the reluctance to grant recognition to unions in new establishments; and the strategy and tactics of the unions themselves. This holistic explanation contrasts with the conclusion of Freeman and Pelletier (1990), using time-series data, that an index of 'favourableness of industrial relations laws to unionism' is by far the most important explanation of union density.

Metcalf (1994) notes that there is no strong history in the UK, certainly compared with other EU countries, of regulation of enterprise numerical flexibility or working-time flexibility. While there are some laws governing mass redundancies (notice periods and minimum payouts), these laws are generally much weaker than in most EU countries. Metcalf (1994), however, points to the inclusion of rules governing employment separation in many collective agreements – hence, the decline of the coverage of collective agreements is relevant in this context. In addition, in 1985, the minimum qualifying period to claim unfair dismissal increased from one to two years, having risen from 26 weeks in 1979.

4. The Australian Experience¹

The recent Australian experience differs markedly from that of the UK and New Zealand in at least three important ways. First, during the 1980s wage-determination structures initially became more centralised, not less. Second, the shift to more-decentralised structures that eventually took place occurred within the Accord policy framework, and hence with the co-operation of the trade union movement. Third, progress towards an enterprise- and individual-based system of bargaining has been much slower, with many of the traditional features of Australian industrial relations (notably the awards system) remaining intact.

4.1 Decentralisation of bargaining structures

Unlike the UK and New Zealand, the 1980s did not see a headlong rush towards decentralisation of bargaining structures. Indeed, with the introduction of the Accord between the ACTU and the Australian Labor Party as federal government policy in 1983, Australia returned to a highly centralised system. A key element of the Accord was the reliance on national wage adjustment of industry and occupation awards as the primary mechanism for wage determination. In its initial guise at least, the Accord required that

1. Much of this section is drawn from Hawke and Wooden (1997).

trade unions exercise wage restraint and not seek additional wage increases outside of those provided by national wage case decisions. In return, the Accord provided the 'guarantee' that real wages would be maintained (though this would require the co-operation of the Conciliation and Arbitration Commission). Union members would also benefit more generally from increases in the 'social wage', as a result of the introduction of, and improvement in, a range of health and social welfare measures, and from the higher rates of economic growth that were presumed to flow as a consequence of improved co-operation between labour and capital and the exercise of real wage restraint.

Whether the Accord can be judged an economic success has been the matter of debate, though the consensus appears to be that the Accord was certainly successful in restraining real wage growth below what it would otherwise have been and thereby promoting employment growth, at least during the period 1983 to 1989 (see, for example, Chapman and Gruen 1990). Despite this apparent success, the nature of the Accord was to change markedly. As Dabscheck (1995, p. 143) has observed, the Accord Mark I 'championed centralisation' as the solution to Australia's industrial, economic and social problems, yet it was not long before the Accord partners were advocating more decentralised wages principles which ultimately were to lead to the emergence of a hybrid industrial relations system, with the traditional systems of awards reduced to benchmarks around which other wages and other conditions could be negotiated on an enterprise, workplace or even individual basis.

At one level, it can be argued that the recentralisation of wages and employment conditions under Accord Mark I was always doomed to fail in the longer term. It was, for example, incompatible with other government initiatives designed to increase the competitiveness of product markets and capital markets (such as reductions in tariffs, the floating of the dollar, the abolition of foreign exchange controls and general deregulation of the financial sector). The rise in competitive pressures was further heightened by the increased globalisation of world markets (resulting from, for example, advances in technology and the greater importance of global corporations). It thus was not long before the Accord partners were forced to acknowledge that the real-wage maintenance guarantee could not be sustained in the face of a deteriorating external position, leading to the 1986 National Wage Case decision being discounted for the price effects of currency depreciation.

Even more significant changes in the way the Conciliation and Arbitration Commission defined the operating principles for the federal wages system, however, were to follow in 1987 and 1988. Specifically, the focus shifted away from preserving real wages to encouraging productivity (which presumably would enable reductions in relative unit labour costs without the need for real wage reductions). Accord Mark III, for example, implemented by the Commission in March 1987, introduced a two-tier wages system where, under the Second Tier, wage increases (of up to four per cent) could result from direct negotiations between unions and employers at the enterprise level. While this process was highly regulated, with all increases requiring the endorsement of the Commission, and arguably delivered little in the way of sustainable productivity improvements (Frenkel and Shaw 1989; Reilly 1989), it represented an important break from the highly centralised wage determination practices of the recent past.

In 1988, with the prodding of both the ACTU and the Federal Government, the Commission backed away from this initial experiment with enterprise bargaining and returned to a system revolving around industry awards. Nevertheless, the intent was still to tie wages in some way to productivity and efficiency. Thus, at the August 1988 National Wage Case, the Structural Efficiency Principle (SEP), often referred to as award restructuring, was introduced. Under this principle, wage increases were to be contingent on the negotiation of award variations that would contribute to improving the competitiveness and efficiency of the industry. Again, the evidence suggests that this process was not particularly effective in achieving productivity gains. Almost by design, the SEP was implemented slowly and not widely adopted. Survey results reported in Sloan and Wooden (1990), for example, indicated a general failure of firms to implement the industry-agreed changes. Similarly, Still and Mortimer (1993) reported results which were broadly supportive of these findings, leading them to conclude that award restructuring had a minimal effect at the enterprise level.

The failure of both the Second Tier and the SEP to assuage macroeconomic pressures, together with rising pressure from business groups such as the Business Council of Australia (see, for example, BCA Industrial Relations Study Commission 1989; Hilmer *et al.* 1993), encouraged parties within the system to develop new approaches. Chief among these was the possibility of a more decentralised system which provided greater opportunities for employers and workers to negotiate directly over wages at the enterprise and workplace level. Increasingly, it was being recognised that delivering sustained and genuine productivity increases would require linking wages to the circumstances of individual enterprises, and by 1991 even the ACTU had embraced the concept of enterprise bargaining. The Commission, on the other hand, was far less supportive, initially rejecting the enterprise bargaining principle and then working to obstruct its implementation (by not approving enterprise agreements). Ultimately, it was the actions of the Commission which led first to amendments to the *Industrial Relations Act 1988* (in July 1992), which reduced the ability of the Commission to become involved in the enterprise bargaining process, and then to the enactment of the *Industrial Relations Reform Act* in 1993. A key feature of the Act was the introduction of Enterprise Flexibility Agreements which, unlike the already existing Certified Agreements, could be negotiated at workplaces which had few, if any, union members.

Finally, and most recently, industrial relations reform has been provided with renewed vigour through the Federal Coalition Government's *Workplace Relations Act 1996*. The main development under this Act was that, for the first time, individual agreements (known as Australian Workplace Agreements or AWAs) could be struck directly between employers and workers (and without the intervention of unions if so desired) and would be recognised as legally binding before the Commission.

State Governments, unlike the Federal Government, are not subject to constitutional limitations in the area of industrial relations. This (comparative) degree of freedom in matters relating to industrial relations has meant each State has developed its own system of operation. It is, perhaps, for this reason that major legislative reforms to industrial relations systems have tended to occur in State jurisdictions well ahead of the federal system. In the Queensland system, formal individual-level agreements were introduced in 1987, while in New South Wales, the introduction of the *Industrial Relations Act* in

1991 represented the first comprehensive reform of industrial relations processes and practices. This greater freedom, however, has also contributed to greater flux and volatility within the State systems, with the legislative reforms of one government often being overturned by its successor. The NSW reforms, for example, were largely replaced by legislation introduced by the newly elected Labor Government in 1996. That said, the direction of long-term change in all systems, irrespective of the philosophical persuasion of governments, appears to be uniformly towards greater emphasis on enterprise- and workplace-level arrangements.

The clearest evidence of the rising importance of decentralised bargaining structures is provided by the growing number of workers covered by enterprise agreements. Within the federal system, the number of registered agreements has steadily grown since 1991 when formalised collective agreements first became possible. Between October 1991 and October 1997, around 15 000 federal agreements had been formalised by the Australian Industrial Relations Commission, with the number of employees estimated to be covered by these agreements reaching 1.74 million by late 1996, or 64 per cent of employees within the coverage of the federal awards system (Figure 1). Figure 1, however, also suggests that growth in coverage may be slowing. Indeed, in the twelve-month period to the September quarter of 1997, the number of employees covered by federal ‘wage’ agreements actually declined, falling by 191 700. It thus might seem reasonable to conclude that under the *Workplace Relations Act 1996*, the trend towards enterprise-based bargaining has slowed and possibly even reversed. There are, however, a number of reasons for suspecting that such a conclusion is likely to be very wide of the mark.

Figure 1: Employee Coverage of Federal Enterprise Agreements



Note: ‘Wage agreements’ are those agreements where a quantifiable wage increase is observed.

Sources: DWRSB, *Wage Trends in Enterprise Bargaining, September Quarter 1997*, and unpublished data.

First, the trend in the *number* of agreements ratified is still clearly upwards, especially in the private sector. Growth in the number of ratified agreements, together with declining employee coverage, must mean that many agreements are expiring and are not being renewed. This, however, does not in itself imply a fall in the level of interest in enterprise-based agreements. Instead, it may be that at many workplaces there is no need to renegotiate new agreements. Expiry of an agreement will typically not mean that wages and conditions revert to that specified in awards. Rather, the conditions that applied during the term of an agreement will continue to be applied. Given both satisfaction with the operation of the previous agreement and the absence of wages pressures (which can be expected given the low levels of price inflation), there may be no need for any of the parties to continue to formalise their ongoing relationship. The process of bargaining at many Australian firms, and especially those without well-developed human resource management functions or a well-organised union presence, may therefore be one of intermittent formalisation. That is, agreements are renewed on a needs basis and driven largely by the need for change and/or to deliver wage increases.

Second, part of the decline in employee coverage of agreements may reflect downsizing within the public sector. At the end of the September quarter 1996, 579 900 public sector employees were covered by certified wage agreements. One year on, employee coverage in the public sector had declined to 339 200 employees.

Third, at least some of the decline in the number of employees covered by formal collective agreements may reflect a shift towards individual agreements.

Fourth, the decline in coverage of 'wage agreements' may reflect growth in the number of agreements where it is difficult to quantify the associated wage increase.

This upward trend in the coverage of employees by enterprise agreements has also been apparent within the State systems, though the spread of formal enterprise agreements has developed more slowly within the State jurisdictions. As reported in Table 4, data for September 1996 indicate rates of coverage (of award-based employees) varying from just six per cent in Tasmania up to 39 per cent in Queensland (Joint Governments 1997, p. 91). In total, the coverage of award-based employees by enterprise agreements throughout Australia would appear to be close to 50 per cent.

Overall, the shift towards enterprise-based bargaining arrangements would appear, at least on the surface, to be impressive. Enterprise agreements, however, can vary enormously in terms of what they deliver. For the majority of employees covered by enterprise agreements, the agreement still has to be read in conjunction with awards (Buchanan *et al.* 1997, p. 101). Indeed, it has been argued that in some sectors, not only do agreements not wholly replace the award, but those agreements often only touch upon a narrow range of work conditions. Growth in the incidence of enterprise agreements, therefore, does not necessarily convey any useful insights into their significance.

With respect to individual-based agreements, less is known. Australian Workplace Agreements (AWAs) only became operational on 12 March 1997 and hence, it is too early to pass judgment on their likely impact. Nevertheless, the evidence to date is suggestive of a modest uptake, with 15 750 AWAs (covering 765 employers) having been received by the Office of the Employment Advocate by 28 February 1998. Of these, around 7 500 had been approved. AWAs, however, do appear to be growing quite

**Table 4: Employees Covered by Formal Enterprise Agreements
by Jurisdiction
September 1996**

Jurisdiction	Estimated no. of employees covered (Thousands)	Per cent of award-based employees covered
Federal	1 740	64
States:		
NSW	360	31
Victoria	n.a.	n.a.
Queensland	265	39
South Australia	82	33
Western Australia	86	29
Tasmania	4	6
Total (excl. Victoria)	2 537	49

Source: Joint Governments (1997, pp. 89–91).

rapidly, with approximately half of the total number of applications being received in the three-month period between December 1997 and February 1998.

Moreover, there are good reasons to expect the rate of AWA lodgement to be slow. First, the process for having an AWA approved may still be perceived by many employers as complex and cumbersome. Indeed, it is possible that the availability of AWAs may stimulate parties to reach individual agreements which are then not formalised. Certainly, the incentives for employers to formalise agreements negotiated with individual employees do not appear to be great, especially given a labour market where, because of the presence of large-scale unemployment, management is typically in a much stronger bargaining position than are employees. Second, union opposition to non-collective forms of bargaining will almost certainly reduce interest in, and hamper attempts to introduce, AWAs in many enterprises, and especially those with a well-organised union presence. Third, some enterprises which may desire individual-based agreements will be locked-in to collective agreements reached under the previous Act.

Progress is likely to have been more rapid in some of the States, especially in Western Australia where legislation facilitating individual employment agreements or contracts dates back to 1993. According to Mulvey (1997, p. 236), around 80 000 employees and almost 2 300 employers in Western Australia had signed the new workplace agreements by the end of 1996. This figure, however, included both collective and individual agreements. Excluding collective agreements would reduce coverage to about 66 000 employees, still an impressive figure given there were only about 300 000 employees represented within the WA system at the time.

Overall, the incidence of individual agreements within the formal systems remains relatively uncommon. While the industrial relations climate for pursuing the implementation of such arrangements is clearly much more favourable today than just

a few years ago, it is not easy to see why many employers currently operating with informal arrangements with individual workers would seek to formalise those arrangements, especially given that within the federal system, individual agreements are subject to external review.

4.2 Changing role of trade unions

There can be little doubt that the shape and structure of trade unions in Australia have changed enormously over the past decade or so. Trade union membership as a proportion of the employee workforce (or union density) has been falling continuously since the early 1980s and, in the most recent figures (August 1997), stood at just 30.3 per cent. As argued by Griffin and Svensen (1996), the explanation for this decline is multi-factorial, though numerous commentators (e.g. Berry and Kitchener 1989; Peetz 1990) have emphasised the importance of structural factors, such as changes in the industrial composition of employment, the growth of part-time and casual employment, and the relative decline of public sector employment. Other likely contributing explanations include the decline in the incidence of compulsory unionism (Peetz 1996), changes in management strategy (Peetz 1997), which in turn may be the result of changes in product markets (Bodman 1998), and even changing union strategy.²

Whatever the explanation, it would appear that unlike the UK and New Zealand, very little of the blame for the decline in trade union membership can be directly attributed to changes in legislation. Potentially, the area where legislation might have had most impact relates to union preference and compulsory union membership. Opinion poll data reported by Rawson (1992) and Peetz (1996), for example, indicate that compulsory union membership is on the wane, with the proportion of union members in 'closed shops' apparently declining from about 67 per cent in 1978 to between 33 and 36 per cent by 1996. Indeed, Drago and Wooden (1998) have calculated that the decline in the incidence of compulsory unionism has had the effect of reducing the overall unionisation rate since 1976 by almost five percentage points. It is, however, difficult to relate these changes to changes in legislation. In the federal arena, for example, union preference has only recently been outlawed (following the enactment of the *Workplace Relations Act 1996*), and even at the state level, it does not seem to follow that legal proscription has had much impact on actual practice (McGraw and Palmer 1994; Weeks 1995). Indeed, Weeks (1995, p. 92) has argued that legislation has not been a substantial factor influencing union membership, largely because the majority of compulsory union membership arrangements were the result of consensual agreements between employers and unions. Presumably, therefore, the decline in compulsory unionism has been mainly the result of employers withdrawing support for such arrangements.

Legislation, however, has been of much greater importance in facilitating changes in trade union structures. Traditionally, the trade union structure in Australia reflected craft

2. Bodman (1998), for example, reports evidence based on aggregate time-series data which suggests that the union-amalgamation process contributed to the decline in overall trade union membership. Wooden (forthcoming), however, has analysed panel data on changes in union density at Australian workplaces between 1989/90 and 1995 and can find no evidence that amalgamations reduced union membership levels within workplaces.

and occupational distinctions, and hence there were a large number of unions, with the average union having a small number of members spread across a large number of workplaces. From the employer perspective, such arrangements were highly inefficient given it meant that many employers often had to deal with more than one union. More importantly, unions structured on an occupational basis, as distinct from an industry or enterprise basis, are less likely to take into account the circumstances of individual enterprises when bargaining. The union movement also saw significant weaknesses in the traditional union structure, and in the 1980s committed itself to 'the creation of 20 large and efficient union federations' (ACTU 1987). From the perspective of the ACTU, fewer and larger unions were required because of economies of scale in the provision of services and in order to eliminate inter-union conflict and rivalries that were fostered by the traditional craft- and occupational-based system. The intent of the ACTU plan, therefore, was to create a system of super unions organised along broad industry lines.

Compliance with this strategy was assisted by legislative changes within the federal system during the late 1980s and early 1990s which:

- i) effectively removed the requirement that amalgamations could not take place without the approval of 25 per cent of the membership;
- ii) removed the requirement that members of a large union involved in an amalgamation had to be balloted, if membership of that large union was more than four times larger than the other parties to the merger;
- iii) provided the Commission the power to give exclusive coverage to a single union when resolving demarcation disputes;
- iv) increased the minimum size limit required for unions to maintain registration to first 1 000 members and then 10 000 members;³ and
- v) made financial assistance available to unions intending to amalgamate.

The end result of this process has been a marked reduction in the number of active trade unions – from 299 in 1990 to 132 in 1996 – with the large majority of union members in 1996 (88 per cent) represented by just 24 unions.⁴ Thus, while the level of bargaining has been gravitating towards the enterprise level, union structures have actually become more centralised.

5. Summary: The Australian, New Zealand and UK Experiences Compared

In all three countries, there has been a noticeable shift towards enterprise-based bargaining, away from either industry bargaining and/or national arrangements. In the UK, the trend towards decentralisation of pay determination was evident prior to the aggressive labour market reform measures initiated by the Thatcher Conservative Government. However, the trend accelerated during the 1980s and 1990s to the point that industry bargaining, in the private sector at least, is now relatively uncommon. Plant-level

3. The minimum size requirement was subsequently deemed in breach of ILO Conventions and repealed in 1993.

4. See *Trade Union Statistics, Australia*, ABS cat. no. 6323.0, 30 June 1996.

bargaining, by contrast, is relatively common in the UK, with a significant proportion of the workforce not covered by formal agreements. In the cases of New Zealand and Australia, the changing role of the award systems has been a central feature of their shift towards enterprise-based bargaining. The ECA in New Zealand effectively abolished all awards and the trend to individual and collective agreement-making was understandably rapid. Associated with this transformation was the rapid uptake of individual employment agreements, with the penalties for strike action taken in pursuit of multi-employer agreements an important inhibitor of collective agreement-making. In Australia's case, the shift away from national and sectoral bargaining to enterprise-based bargaining has been slower and less pervasive than in the other two countries. For most of the past decade, a mixed arrangement has existed, with national (award-based) pay rises forming part of the overall system of pay determination. In more recent times, there has been some take-up of individual bargaining, but most of the bargaining that does occur remains collective with trade unions as party.

Despite these differences, trends in other industrial relations outcomes, such as trade union membership and industrial disputes, appear to be remarkably similar. In all three countries, trade union density has fallen dramatically. According to the figures reported in Table 5, trade union membership as a proportion of employees has fallen from somewhere close to, or in excess of, 50 per cent at the start of the 1980s in all three countries, to 31 per cent in Australia and the UK, and to 25 per cent in New Zealand, by 1996. Moreover, the data collected for New Zealand will understate the actual level of trade union density given it is measured in terms of full-time-equivalent trade union members.⁵ Consequently, the level of union density in New Zealand is in all likelihood, much closer to the level in Australia and the UK than the figures reported in Table 5 suggest. The New Zealand experience, however, is different from the other two countries in one important respect – virtually all of the decline in trade union membership occurred after the enactment of the ECA; that is, after 1990.

As far as changes in trade union structures are concerned, in all countries there has been a trend towards fewer, larger unions. In all cases, legislation, as well as changes to the external environment, contributed to altering structures, governance and activities of trade unions. In the UK, for instance, the increased costs and difficulties of recruiting and maintaining members produced significant changes to union activities, with attention particularly directed towards securing recognition by employers and providing services to the rank and file. There has also been a marked decline in the overall financial position of the trade union movement in the UK (Metcalf 1994). A similar story applies *a fortiori* to New Zealand, with the demise of a number of unions after the enactment of the ECA and a shift of focus to representing workers at the enterprise level (Gardner 1995). In the case of Australia, the rationalisation of unions was mainly the consequence of a union-initiated strategy, aided briefly by supportive legislation. *Prima facie*, the focus of Australian unions would appear to be less member-centred than is the case in either the UK or New Zealand.

5. Unlike the Australian and UK data, the New Zealand data are based on information provided by unions. The Australian experience suggests that such data tend to overstate union membership relative to data collected from household surveys. This will tend to offset some of the overestimation of union density that results from treating part-time employees as only 0.5 of a union member.

Table 5: Unionisation Rates
Australia, New Zealand and the United Kingdom; per cent

Year	Australia	New Zealand	United Kingdom
1976	50 ^(a)	50	54
1982	48 ^(b)	55 ^(c)	53
1986	46	55	47
1992	35	37	36
1996	31	25	31

Definitions: Australia: Trade union members in main job (from household survey) as a percentage of the number of civilian employees.

New Zealand: 1986–96 – Full-time-equivalent trade union members (as reported by trade unions) as a percentage of the number of civilian employees. 1976–82 – Registered union members in the private sector as a percentage of private sector wage and salary earner employment.

United Kingdom: 1992–96 – Trade union members (from household survey) as a percentage of civilian employees. 1976–86 – Number of trade union members (as reported by trade unions) as a percentage of the number of civilian employees.

- Notes:
- (a) The 1976 publication reports a unionisation rate of 51 per cent, which does not square with the reported number of union members and the reported number of employees.
 - (b) The published figure in the 1982 survey (49.5 per cent) included as union members, employees who were members of the union in their second job but not their main job. The number of union members has been adjusted downwards (by 61 600) to account for this.
 - (c) 1981 data.

Sources: Australia: *Trade Union Members Survey, Australia*, ABS cat. no. 6325.0, various issues.

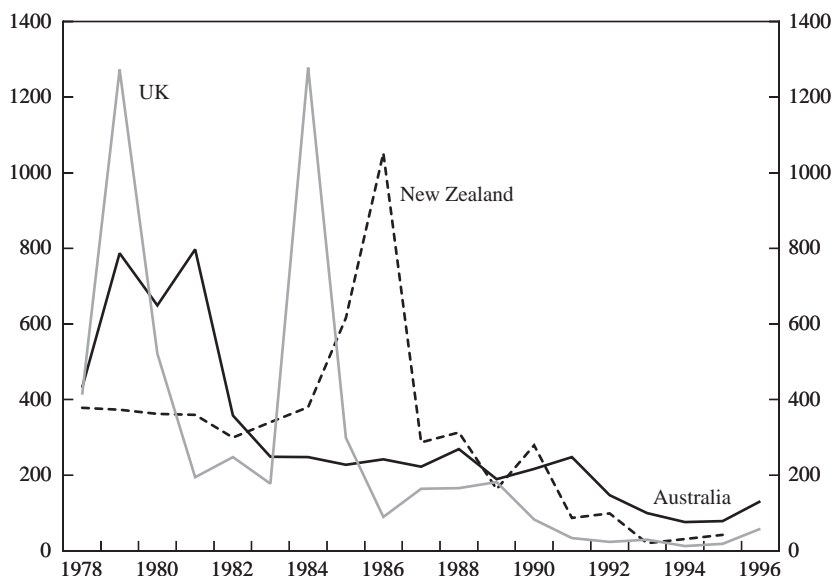
New Zealand: Union membership data for 1986, 1992 and 1996 come from Crawford, Harbridge and Hince (1997). Employee data come from OECD, *Labour Force Statistics*, various issues. Data for earlier years come from OECD (1991, Chapter 4).

United Kingdom: Data for 1992 and 1996 come from Cully and Woodland (1997). Data for earlier years are from Waddington (1992).

The trend in industrial disputation in all three countries over the course of the 1980s and 1990s has also been quite similar. Much has been made of the effect of the Accord in promoting a marked improvement in levels of industrial disputation in Australia (e.g. Beggs and Chapman 1987; Morris and Wilson 1995), yet Figure 2 demonstrates that significant sustained reductions in industrial action also occurred in both New Zealand and the UK during the 1980s and 1990s. Indeed, if the impact of the UK coalminers strike in 1984 is ignored, the UK experience would closely mirror that of the Australian experience. In other words, the aggressively anti-union stance adopted in the UK and the corporatist approach adopted in Australia appear to have resulted in very similar outcomes when measured in terms of long-run disputation levels.⁶

6. Extending the data period back to the early 1970s does not alter this conclusion with respect to the comparison between Australia and the UK.

Figure 2: Industrial Disputes – Australia, New Zealand and the UK
Working days lost per thousand employees



Notes: Both Australian and New Zealand data exclude disputes where total time lost is less than 10 person days. Prior to 1988, public sector disputes were excluded from the New Zealand data. The data for the UK exclude disputes involving fewer than 10 workers or lasting less than one day unless a total of 100 working days or more are lost.

Sources: Australia: *Labour Statistics, Australia*, ABS cat. no. 6101.0, various issues; New Zealand: Office for National Statistics, *Labour Market Trends*, various issues; UK: Department of Employment, *Employment Gazette*, various issues.

6. Decentralisation and the Consequences for Labour Market Outcomes

6.1 Theory

The shift towards more decentralised bargaining structures is typically justified on the grounds that it is conducive to superior macroeconomic outcomes. As explained in OECD (1997, pp. 64–65), the principal argument here revolves around differences in elasticity of demand in the product market. With the exception of monopoly firms, the elasticity of demand for the output of an individual firm will typically be greater than that for an aggregation of firms (e.g. an industry). The simple reason for this is that there are more substitutes for the output of an individual firm than for the output of an industry. As a result, the trade-off between wages and employment will be much larger at the enterprise level than at the industry level. Consequently, enterprise-level bargaining is much more likely to be employment sensitive than is industry-level bargaining.

On the other hand, wage bargains may be associated with negative externalities which will not be internalised by bargaining agents when bargaining structures are highly decentralised. The types of externalities are summarised in OECD (1997, p. 65), and include the impact of higher wages for one group of workers on consumer prices, on input prices in other sectors, on government expenditure (given higher wages generate some additional unemployment), and on the morale of other workers not covered by the bargain, and the generation of inflationary pressures from 'leap-frogging' pay claims. With decentralised structures, bargaining agents will have little incentive to take into account such negative externalities given those that benefit represent only a small fraction of those harmed. In contrast, with highly centralised bargaining structures, the distinction between those who benefit and those who are harmed is less obvious, and hence bargaining agents will be more inclined to internalise the wider economic consequences of their bargaining behaviour.

On theoretical grounds, therefore, it is difficult to determine *a priori* whether decentralised wage systems will produce superior economic outcomes to more centralised systems. In a very influential article, however, Calmfors and Driffill (1988) argued that the net result of the interaction of these competitive effects and externality effects is a hump-shaped relationship between the degree of centralisation and real wages/unemployment, with the best-performing economies being those with either highly decentralised systems or highly centralised systems. This hypothesis has a lot of intuitive appeal. In a highly decentralised system, with bargaining occurring on a firm-by-firm basis with unions either non-existent or structured on an enterprise basis, wage outcomes are likely to be so fragmented that the sum total of negative externalities will be quite small. On the other hand, where bargaining takes place at the national level and involves a small number of large encompassing groups, the incentive for the bargaining agents to redistribute income towards themselves without taking into account the social cost will be quite small.

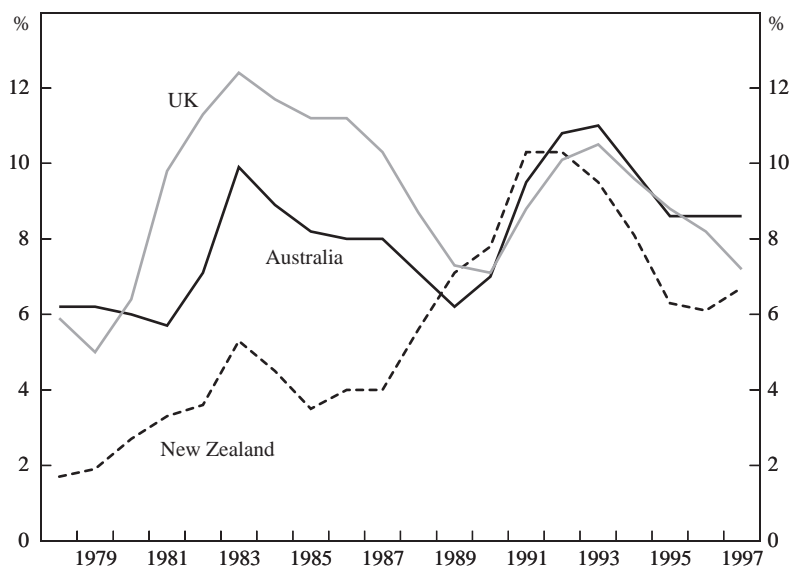
6.2 Labour market outcomes in Australia, New Zealand and the UK

At the start of the 1980s, Australia, New Zealand and the UK can all be described as occupying positions close to the top of the Calmfors-Driffill hump. This was particularly true of Australia and New Zealand which combined centralist elements, such as an industry-based awards system, with an occupational-based trade union structure and relatively poor levels of employer co-ordination. The Accord in Australia, therefore, can, at least initially, be viewed as an attempt to move Australia down the hump to the right (increased centralisation). From the late 1980s, however, policy direction reversed, and Australia has presumably moved back up the hump and down the other side. The Calmfors-Driffill hypothesis does not, therefore, generate an unambiguous prediction about the net impact of industrial relations change on macroeconomic performance in Australia over the course of the 1980s and 1990s. The New Zealand and UK economies, however, have clearly moved down the hump to the left (reduced centralisation) and hence, the Calmfors-Driffill hypothesis does suggest that the overall economic performance of both economies should have improved, though in the case of New Zealand such effects should be largely confined to the post-ECA period.

Identifying the economic consequences of changes in institutional arrangements within the labour market, however, is no simple matter, especially at the economy-wide level. As Dawkins (1997) has observed, linking changes in institutional arrangements to other changes is complicated by at least three factors. First, at the same time as changes in the institutional arrangements are taking place, other changes that may impact on outcomes will also be taking place. As a consequence, it will be difficult to isolate the contribution to economic performance from changing institutional arrangements. Second, institutional arrangements within the labour market may not be independent of economic performance; that is, rather than a cause of economic performance, change in institutional arrangements may be a response to the economic environment. Third, the process of labour market deregulation (and re-regulation) is itself a complex process which may affect different variables in different ways.

This problem in identifying the counterfactual is highlighted in Figure 3, which charts the course of the aggregate unemployment rate for Australia, New Zealand and the UK since 1978. This figure reveals that despite differences across the countries in the pace and scope of labour market reform, there is a common pattern in movements in unemployment rates across the three countries, highlighting the importance of international business cycles for variations in economic activity. Important differences, however, are still evident. Most obviously, and consistent with the Calmfors-Driffill hypothesis, during the 1980s the unemployment rate improved in both Australia (which was becoming more centralised) and in the UK (which was becoming more decentralised). On the other hand, in New Zealand, where industrial relations structures had not yet greatly changed, employment stagnated and the unemployment rate worsened well ahead of the downturn in the international business cycle that became apparent towards the end of 1990.

Figure 3: Unemployment Rates



Notes: Except for New Zealand data prior to 1986, all figures are based on standardised US concepts. The data for New Zealand from 1986 on are not strictly comparable with that for earlier years.

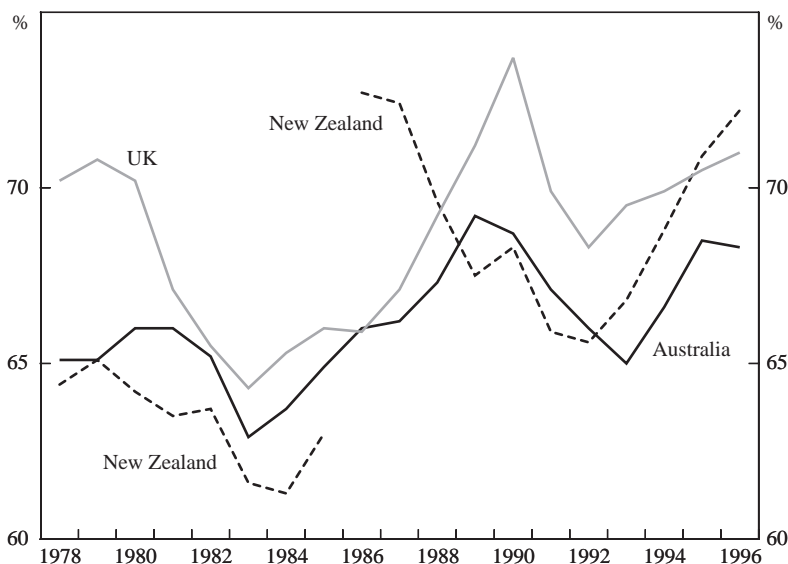
Sources: OECD, *Main Economic Indicators*, February 1998; OECD, *Economic Outlook*, various issues.

The timing of this downturn suggests that the changes introduced as part of the 1987 Labour Relations Act might in some way be implicated in the rise in unemployment in New Zealand. This, however, seems highly unlikely given the argument advanced earlier that the effective impact of this legislation was quite limited, with most unions preferring to keep their members on awards. More likely explanations lie in other features of the economic reform process, including privatisation of public sector monopolies and restrictive monetary policy, and large increases in the minimum wage in 1985 and 1987.⁷

The international business cycle bottomed in 1991 and hence it is hardly surprising that the unemployment rate improved in all three countries in the years that followed. Nevertheless, it is of some interest that the improvement appears to have been most rapid in New Zealand, following the introduction of the ECA, and least marked in Australia, where the decentralisation process has been relatively modest. That said, there are signs in recent data that unemployment in New Zealand is now rising again.

Overall, the unemployment data presented in Figure 3 are consistent with a Calmfors-Driffill interpretation, but prevent definitive conclusions from being drawn. Data on employment-population (EP) ratios, on the other hand, do not lend themselves to a Calmfors-Driffill interpretation. As shown in Figure 4, there is no evidence at all of a sustained rise in the EP ratio in the UK or New Zealand. Only in Australia is the EP ratio in 1996 notably higher than in 1978.

Figure 4: Employment/Population Ratios^(a)



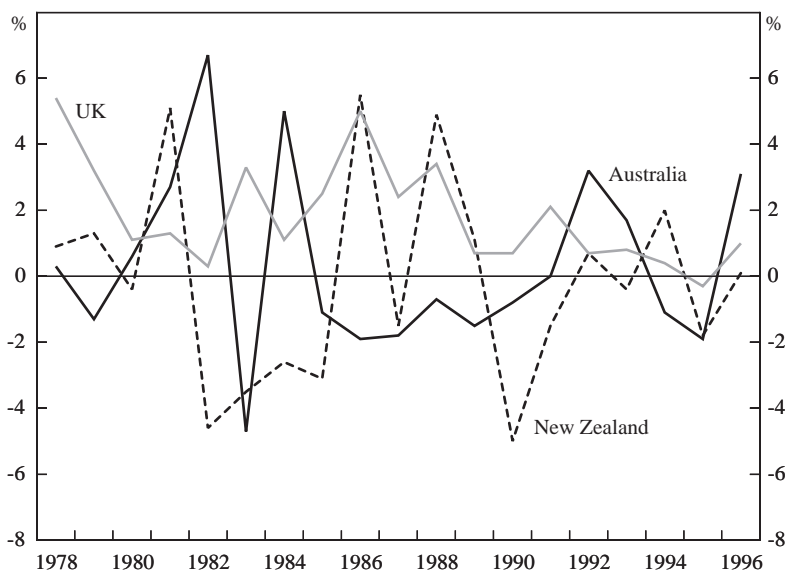
Note: (a) The population used here is aged 15 to 64 years.

Sources: OECD, *Employment Outlook*, July 1997; OECD, *Labour Force Statistics 1973–1993*.

7. The size and direction of the employment impacts of minimum wage increases in New Zealand are not uncontentious (*cf.* Chapple 1997; Maloney 1995).

Data on growth in real earnings (Figure 5) also do not appear to be consistent with the Calmfors-Driffill hypothesis. Only the subsidence of real wages growth in Australia during the early years of the Accord is clearly consistent with the hypothesis. There appears to be a general reduction in the level of volatility in real earnings growth in recent years in all three countries, but this is a feature common to many other industrial nations.

Figure 5: Growth in Real Compensation per Employee



Sources: OECD, *Economic Outlook*, various issues.

Unlike other outcomes, earnings dispersion is expected to be associated with the degree of centralisation of bargaining structures in a linear fashion. That is, decentralised bargaining structures are expected to be associated with a greater diversity in wage outcomes across enterprises and across individual workers, thus leading to greater earnings inequality. The data reported in Table 6 appear to be broadly consistent with this hypothesis. The degree of earnings dispersion was very similar in each of the three countries at the start of the 1980s. Over the next two decades or so, the degree of earnings dispersion increased. Moreover, the extent of the increase in dispersion is broadly in line with the extent to which the different countries have decentralised bargaining structures, with the gap between the highest paid and the lowest paid widening most in the UK and least in Australia.

Decentralised bargaining structures are also typically argued to be conducive to more flexible employment arrangements. One possible manifestation of such flexibility is part-time employment. As documented in Table 7, the prevalence of part-time employment has increased in all three countries. The rate of growth of part-time employment, however, appears to have been greatest in Australia where the progress towards decentralised bargaining structures has been slowest. Moreover, growth, at least in the case of Australia and New Zealand, has been greatest during periods of relatively high

Table 6: Trends in Earnings Dispersion, Full-time Employees
Australia, New Zealand and the UK; ratio of earnings in the 90th percentile to the 10th percentile (D9/D1)

	1980	1984	1988	1992	1995	Annual percentage change
Australia						
Males	2.72	2.73	2.89	2.92	2.94	0.52
Females	2.54	2.70	2.64	2.56	2.53	-0.003
Total	2.84	2.89	2.89	2.82	2.92	0.19
New Zealand						
Males		2.72	2.85	3.13	3.17 ^(a)	1.54
Females		2.42	2.51	2.71	2.62 ^(a)	0.80
Total		2.89	2.92	3.08	3.04 ^(a)	0.51
United Kingdom						
Males	2.51	2.77	3.03	3.20	3.31	1.86
Females	2.34	2.51	2.81	3.00	3.06	1.80
Total	2.79	3.04	3.24	3.31	3.38	1.29

Note: (a) 1994 data.

Source: OECD, *Employment Outlook*, July 1996.

Table 7: Part-time Employment as a Percentage of Total Employment
Australia, New Zealand and the UK

	1973	1979	1983	1990	1994	1996
Australia						
Males	3.7	5.2	6.2	8.0	10.9	11.7
Females	28.2	35.2	36.4	40.1	42.6	42.6
Total	11.9	15.9	17.5	21.3	24.4	25.0
New Zealand						
Males	4.6	4.9	5.0	8.4	9.7	10.4
Females	24.6	29.1	31.4	35.0	36.6	37.3
Total	11.2	13.9	15.3	20.0	21.6	22.4
United Kingdom						
Males	2.3	1.9	3.3	5.2	7.1	5.6
Females	39.1	39.0	42.4	42.6	44.3	42.7
Total	16.0	16.4	19.4	21.3	23.8	22.1

Notes: Definitions of part-time:

Australia: Usually worked less than 35 hours a week and did so in the survey week.

New Zealand: 1986–90 – Actually worked less than 30 hours in survey reference (unless worked zero hours, in which case, determined by usual hours). 1973–90 and 1990–96 – Usually worked less than 30 hours per week.

UK: Based on respondent's classification.

Sources: van Bastelaer, Lemaitre and Marianna (1997); OECD, *Employment Outlook*, July 1997.

levels of centralisation. Overall, there are good reasons to suspect that the factors driving growth in part-time employment have very little to do with the changing industrial relations arrangements. Finally, it should be noted that the data provided in Table 7 do not permit direct comparisons of the level of part-time employment across the three countries since part-time employment is defined differently in each.

6.3 Wider international comparisons

Given the difficulty identifying the counterfactual from time-series data, many researchers have resorted to comparisons between countries with varying institutional arrangements. Indeed, such comparisons are used by Calmfors and Driffill (1988) to support their hypothesis and have spawned a number of similar studies. Most studies that have used a measure of centralisation have found at least some support for the hypothesis (e.g. Bleaney 1996; Freeman 1988; Golden 1993; Heitger 1987; Rowthorn 1992; Scarpetta 1996). On the other hand, some researchers have argued that it is not the level at which bargaining takes place, but the extent to which bargaining is co-ordinated. These researchers typically find a linear relationship between performance measures and the degree of co-ordination (e.g. Soskice 1990; Layard, Jackman and Nickell 1991; Bean 1994). Finally, in what is arguably the most extensive evaluation of the Calmfors-Driffill hypothesis to date, the OECD (1997, Chapter 3) could find no robust evidence for either a U-shaped relation between the structure of collective bargaining and employment, or a hump-shaped relation with unemployment.

Is this the final word? A critical determinant of the results obtained is how countries are ranked, or assigned to clusters, according to the degree of centralisation of bargaining, and there is clearly a good deal of subjectivity associated with this process. Examples of this are the OECD's treatment of New Zealand and Australia. The OECD assigned New Zealand to the decentralised category for all three of the periods considered in its analysis – 1980, 1990 and 1994 – and assigned Australia to the centralised category in 1980 and 1990, and to the decentralised category in 1994. The OECD study thus has Australia and New Zealand poles apart in 1980, when the reality is that the systems were very similar. Both operated with compulsory arbitration systems, with wages and conditions largely determined by industry and occupation awards, but with some informal over-award bargaining over and above this. In our view, at the start of the 1980s, Australia and New Zealand were the classic intermediate economies. The OECD classification also implies a radical change in Australian industrial relations structures in the early 1990s. Again, and as argued earlier, while a shift towards less centralised structures has been occurring, it is still very misleading to describe Australia as having embraced an enterprise-based bargaining structure. The reality is that the awards system is still vitally important, with enterprise agreements often mere supplements to awards. More importantly, around half of all employees on awards are still not covered by enterprise agreements.

Perhaps of even greater significance for the results, the OECD classifies two of the best-performing economies, Switzerland and Japan, as intermediate economies on the basis of their apparent high level of co-ordination of wage bargaining, even though Calmfors and Driffill treat these as decentralised economies. The treatment of Switzerland is understandable given the predominance of industry-level bargaining. However, it is

difficult to see how Japan can be classified as an intermediate economy. It is one of the few developed economies (along with the US and Canada) where enterprise- and plant-level bargaining have been predominant over a sustained period of time, trade unions are relatively weak, and the level of coverage of collective bargaining is very low (at about 21 per cent of the workforce according to the OECD (1997)). It is this latter factor which is of crucial importance. While the evidence suggests that the bargaining process in Japan (*Shunto*) does deliver highly uniform settlement rates (Sako 1997), the wages of most workers are presumably determined by other mechanisms.

Using the data reported by the OECD (1997, p. 71), a measure of bargaining structure has been constructed that uses indices of both centralisation and co-ordination, but where the latter is adjusted for the extent of coverage of collective bargaining. The results are reported in Table 8. As is common practice, the sum of the scores on these two indices have been used to rank countries. These rankings are then used as an aid to dividing countries into three clusters: centralised, intermediate and decentralised economies. We have classified five countries as centralised and five as decentralised, with the remaining nine countries assigned to the intermediate category. The centralised cluster includes all four countries where national-level bargaining remains of large importance, as well as Germany, where sector-level bargaining is complemented by highly co-ordinated wage rounds and rates of coverage of collective agreements of in excess of 90 per cent. At the other extreme, the decentralised cluster includes only those countries where, by 1994, multi-employer bargaining was not the norm.

Following Calmfors and Driffill (1988), various measures of macroeconomic performance are then averaged across the countries within each cluster. Table 9 reports the results of this exercise using the unemployment rate, the employment to population ratio, the Okun index (the unemployment rate and the rate of price inflation summed), and a measure of earnings dispersion. The figures reported in this table do appear to be consistent with the Calmfors-Driffill hypothesis, with the intermediate economies performing worst on all measures, except earnings dispersion. Also, the data presented in Table 9 suggest that labour markets in decentralised economies are more successful in generating employment than those in centralised economies, but as expected, this greater employment has been associated with higher levels of earnings dispersion. That said, there are a number outliers in the data, and hence the figures reported in Table 9 can only be described as providing weak support for the Calmfors-Driffill hypothesis. A number of the intermediate economies (especially Switzerland, but also Denmark and the Netherlands), for example, appear to have been quite successful in generating relatively good employment outcomes.

Finally, and again following the OECD (1997), we examine whether changes over time in bargaining structures are associated with changes in macroeconomic indicators. The OECD examined the period 1980 to 1990 and claimed to find that, if anything, countries that moved to more decentralised arrangements had performed worse. The analysis undertaken by the OECD, however, does not provide a test of the Calmfors-Driffill hypothesis because it did not account for an economy's initial starting position on the hump. The OECD identified six countries as moving towards less centralised arrangements during the 1980s: Denmark, Finland, New Zealand, Spain, Sweden and the UK. According to the OECD's own centralisation rankings, four of these countries – Denmark, Finland, Spain and Sweden – possessed relatively highly centralised bargaining

**Table 8: Measures of Centralisation and Co-ordination of
Wage Bargaining**
OECD countries; 1994

	Centralisation index	Adjusted co-ordination index	Total index
Centralised economies			
Austria	2.5	2.9	5.4
Finland	2.5	2.4	4.9
Belgium	2.5	2.3	4.8
Germany	2	2.8	4.8
Norway	2.5	1.9	4.4
Intermediate economies			
Italy	2	2.1	4.1
France	2	1.9	3.9
Sweden	2	1.8	3.8
Denmark	2	1.7	3.7
Spain	2	1.6	3.6
Netherlands	2	1.6	3.6
Portugal	2	1.4	3.4
Switzerland	2	1.3	3.3
Australia	1.5	1.2	2.7
Decentralised economies			
United Kingdom	1.5	0.5	2.0
Japan	1	0.6	1.6
Canada	1	0.4	1.4
New Zealand	1	0.3	1.3
United States	1	0.2	1.2

Sources: The centralisation index is taken from OECD (1997, Table 3.3, p. 71). The adjusted co-ordination index is calculated as $C \times B$ where C is the OECD's co-ordination index and B is the bargaining coverage percentage (as reported in OECD 1997, Table 3.3, p. 71).

structures in 1980. In these cases, the Calmfors-Driffill hypothesis leads us to expect that any shift towards less centralised arrangements would, at least initially, be associated with a deterioration in macroeconomic performance.

Here we examine the period 1986 to 1996. In contrast to the OECD, we distinguish between economies moving down the hump and those moving up the hump. Drawing largely on the discussion provided in OECD (1994, 1997), the economies identified as moving down the hump are New Zealand, the UK, the US and Norway, with Norway being the only country of the group moving down the hump towards greater centralisation. The economies identified as movers up the hump are Finland, France, Italy, Portugal and Sweden, with Finland and Sweden moving up the hump from a highly centralised position, while the other three economies have moved up the hump from the other

Table 9: Indicators of Labour Market Performance
OECD countries

	Unemployment rate (Per cent)		Employment/ population ratio ^(a) (Per cent)		Okun index ^(b)		Earnings dispersion (D9/D1)
	1996	1986–96 Average	1996	1986–96 Average	1996	1986–96 Average	1996 ^(c)
Centralised economies							
Austria	4.4	5.2	68.1	66.3	6.3	7.9	3.66
Finland	15.7	10.2	62.1	68.0	16.3	13.6	2.53
Belgium	9.8	11.2	56.6	56.2	11.9	11.0	2.25
Germany ^(d)	9.0	7.3	64.0	64.9	10.5	9.4	2.32
Norway	4.9	4.6	75.7	74.7	6.2	8.7	1.98
<i>Average</i>	8.8	7.7	65.3	66.0	10.2	10.1	2.55
Intermediate economies							
Italy	12.0	10.3	51.3	53.8	15.8	15.5	2.80
France	12.4	10.6	58.8	59.2	14.4	13.2	3.28
Sweden	10.0	4.5	69.8	76.3	10.8	9.5	2.13
Denmark	6.0	9.8	74.2	75.9	8.1	12.7	2.17
Netherlands	6.3	6.9	66.4	62.4 ^(e)	8.4	8.7	2.59
Spain	22.2	19.8	47.1	47.2	25.9	31.5	n.a.
Portugal	7.3	6.0	67.4	67.4	10.4	14.7	4.05
Switzerland	3.5	2.2	79.3	n.a.	4.3	4.9	2.65
Australia	8.6	8.5	68.8	67.6	11.2	13.5	2.87
<i>Average</i>	9.8	8.7	64.8	63.7	12.1	13.8	2.82
Decentralised economies							
Japan	3.4	2.6	74.6	72.8	3.5	3.7	3.02
United Kingdom	8.2	8.5	68.7	68.3	10.6	13.0	3.31
New Zealand	6.1	7.2	71.1	68.9	8.4	12.6	3.04
Canada	9.7	9.5	67.6	68.3	11.3	12.7	4.20
United States	5.4	6.2	73.6	72.2	8.3	9.7	4.35
<i>Average</i>	6.6	6.8	71.1	70.1	8.4	10.3	3.58

Notes: (a) Total employment divided by total population aged 15 to 64 years, as reported in OECD, *Labour Force Statistics, 1973–1996*.

(b) Sum of the unemployment rate and the consumer price inflation rate.

(c) Data for Belgium, Germany, Italy, Portugal and Sweden are from 1993, for Denmark from 1990, and for Norway from 1991.

(d) Up to and including 1992, data for Germany only apply to West Germany.

(e) Averaged over period 1987–97.

Sources: OECD, *Employment Outlook*, June 1997; OECD, *Employment Outlook*, July 1996; OECD, *Labour Force Statistics, 1976–1996*; OECD, *Economic Outlook*, June 1997.

direction. With the exception of Australia and Denmark, the remaining economies are assumed to have had more or less stable bargaining structures over the period considered.⁸ Industrial relations structures in Australia and Denmark, on the other hand, have clearly been changing. Nevertheless, since both of these economies were arguably positioned to the right of the hump during the mid 1980s, and were moving toward the other side of the hump (i.e. towards less centralised arrangements), it is impossible to predict the net impact on macroeconomic performance indicators.

As demonstrated in Table 10, the experience during the period 1986–96 is highly consistent with the Calmfors-Driffill hypothesis. The economies identified as moving away from the intermediate position with respect to bargaining structure performed better, on average, on all indicators, than the economies moving towards the intermediate position. The ‘movers up the hump’ typically experienced rising rates of unemployment, falling rates of employment and very little change in the Okun index. In contrast, the ‘movers down the hump’ experienced little change in unemployment and employment rates, but did experience a subsidence in inflationary pressures (as indicated by improving scores on the Okun index). Together, these indicators suggest a reduction in the NAIRU. The movers down the hump also fared better than the so-called stable economies on both unemployment and the Okun index. The stable economies, however, have fared just as well with respect to jobs generation.⁹

7. Conclusions

This paper has two objectives: first, to describe and analyse the processes of industrial relations change in Australia, the UK and New Zealand; and, secondly, to trace the impact of industrial relations change on labour market outcomes. There are many similarities, both historic and current, between the three English-speaking countries in terms of labour market institutions and traditions. All three countries had moderate levels of unionisation and laws which favoured collectivism of the employment relationship and accorded special privileges to trade unions as representatives of workers. The process of transformation of industrial relations institutions was initiated first in the UK, with the election of the Thatcher Conservative Government. Over the next decade and a half, there was a steady stream of statute-based and other changes affecting industrial relations. There was no single ‘big bang’, although the changes taken together involve an almost complete change to the regulation of the labour market. By making the recruitment and the retention of trade unions’ members more difficult and expensive, and by raising the costs of certain types of industrial action, the new laws paved the way for a transformation of British industrial relations. The key features of this transformation have been: the decentralisation of pay determination; the growth of plant and individual bargaining; the decline in the number of union members and union density; and the decline in industrial action.

8. The OECD (1997) identified Spain as having moved to more decentralised arrangements during the 1980s. These changes, however, appear to have been concentrated in the first half of that decade.

9. Note, however, that the marked improvement in the employment to population ratio in the Netherlands (one of the ‘stable’ economies) is almost certainly a function of policies which have fostered rapid growth in part-time employment levels.

Table 10: Change in Economic Performance
OECD countries

Country	Unemployment rate		Employment/ population ratio ^(a)		Okun index ^(b)	
	1990–96	1986–96	1990–96	1986–96	1990–96	1986–96
<i>Movers down the hump</i>						
New Zealand	-1.7	+2.1	+3.6	-1.6	-5.4	-8.8
Norway	-0.4	+2.9	+1.8	-2.0	-3.1	-3.0
United Kingdom	+1.1	-3.0	-2.9	+2.9	-4.0	-5.8
United States	-0.1	-1.5	+0.4	+4.1	-2.7	-0.5
Average	-0.3	+0.1	+0.7	+0.9	-3.8	-4.5
<i>Movers up the hump</i>						
Finland	+12.2	+10.4	-12.0	-11.4	+6.7	+8.1
France	+3.4	+2.0	-1.8	0.0	+2.1	+1.3
Italy	+2.9	+1.5	-4.4	-2.6	-0.6	-0.8
Portugal	+2.7	-1.1	-4.6	+3.7	-7.6	-9.8
Sweden	+8.2	+7.2	-11.1	-9.3	-1.4	+3.8
Average	+5.9	+4.0	-6.8	-3.9	-0.3	+0.5
<i>Stable</i>						
Austria	+1.5	+1.7	+2.6	+3.9	+0.1	+1.9
Belgium	+3.1	-1.4	-0.6	+2.0	+1.3	-0.6
Canada	+1.6	+0.2	-2.4	-0.2	-1.6	-2.4
Germany ^(d)	+4.2	+2.6	-0.8	-6.0	+3.0	+4.2
Japan	+1.3	+0.6	+2.0	+4.2	-1.7	+0.1
Netherlands	+0.1	-3.6	+4.7	+8.4 ^(e)	-1.6	-1.6
Spain	+6.0	+1.4	-2.8	+2.3	+3.3	-3.7
Switzerland	+4.2	+4.0	n.a.	n.a.	-0.4	+5.0
Average	+2.8	+0.7	+0.4	+2.1	+0.3	+0.4
<i>Indeterminate</i> <i>(movers across the hump)</i>						
Australia	+1.6	+0.6	-0.6	+3.1	-3.0	-5.9
Denmark	-1.7	+1.0	-3.0	-3.8	-1.3	-0.6
<i>All countries</i>	+2.6	+1.6	-1.8	-0.1	-0.9	-1.0

Notes and sources: See Table 9.

While the change process in New Zealand is often seen to fall into the ‘big bang’ category – with the enactment of the Employment Contracts Act in 1991 – in point of fact, there had been a series of changes made to industrial relations institutions in the years leading up to the ECA. These changes included the abolition of compulsory unionism; the establishment of certification elections to determine union representation (a form of contestable unionism); a distinction between interest and rights disputes; and a form of ‘opt out’ bargaining. The ECA certainly accelerated the process of change, with the award system being abolished and trade unions losing all legal privileges. (The term ‘trade union’ does not appear in the ECA.) In the absence of a presumption of collectivism, individual employment contracts have grown rapidly, with single-employer collective agreements common in some sectors. In this latter case, trade unions most commonly represent workers. In addition to the decentralisation of bargaining, the ECA has also been associated with a decline in the number of trade unions, a decline in the number of union members and a decline in union density, the latter trend not being apparent prior to the ECA. Industrial action increased somewhat immediately after the enactment of the ECA but has fallen to historically low levels since then.

The case of Australia is somewhat different. For most of the past fifteen years, the elected Federal Government was favourably disposed to the trade union movement and disinclined to introduce hostile legislation. Nonetheless, the process of change occurred, including a lengthy experiment with corporatism and incomes policy. A managed experiment of enterprise-based bargaining was undertaken in conjunction with limited implementation of national pay rises for the low paid. The end result has been a degree of decentralisation of pay determination, especially covering larger, unionised enterprises. By the same token, a significant proportion of the workforce remain covered mainly by the award system. More recent legislative changes have included provision for individual bargaining, an option which is being taken up in a small number of cases. However, the mechanics of the system of compulsory arbitration remain in place – in contrast to the situation in New Zealand.

Despite these differences between the UK (slow-track, but now relatively deregulated), New Zealand (faster-track, also relatively deregulated) and Australia (slow-track, partially deregulated), any differences in the labour market outcomes of the three countries defy definitive conclusions. It is certainly true, for instance, that unemployment in New Zealand fell significantly after the enactment of the ECA (and is still significantly lower than in Australia); however, the overall rate of unemployment is higher than had been the case for most of the 1980s. Similarly, the employment to population ratio in New Zealand recovered after 1991, but only to levels apparent in the mid 1980s. In the case of the UK, unemployment remained stubbornly high through most of the 1980s and has declined to relatively low levels only recently. Similarly, the employment to population ratio has only recovered to levels apparent in the late 1970s. While the labour market outcomes in Australia have been inferior to those in the UK and New Zealand in recent years, the overall differences between the three countries have not been dramatic.

Of course, there are a number of explanations for this rather meek conclusion, including the multi-factorial explanation of labour market outcomes and the unknown length of lags between institutional change and observed outcomes. What this paper does to add interest to the findings is to broaden the comparisons to include other OECD countries, and to consider a variant on the Calmfors-Driffill hypothesis. This variant involves consideration of countries' base positions on the hump (measured along a centralised–decentralised spectrum) and the direction of change along the hump. Considering those countries which have moved down the hump in the direction of decentralisation for the period 1986 to 1996, those countries moving away from the intermediate position in respect of bargaining position performed better, on average, on all indicators. While the 'movers down the hump' (UK, US and New Zealand) experienced little change in unemployment and employment rates, they experienced a noticeable subsidence of inflationary pressures, suggesting a reduction in their NAIRUs.

References

- Anderson, G. (1996), 'Collective Bargaining and the Law: New Zealand's Employment Contracts Act Five Years On', *Australian Journal of Labour Law*, 9(2), pp. 103–134.
- Australian Council of Trade Unions [ACTU] (1987), *Future Strategies for the Trade Union Movement*, Doc. D229/87, ACTU, Melbourne.
- Baird, C. (1996), *The Employment Contracts Act and Unjustifiable Dismissal: The Economics of an Unjust Employment Tax*, New Zealand Business Roundtable and New Zealand Employers' Federation, Wellington.
- Bean, C. (1994), 'European Unemployment: A Retrospective', *European Economic Review*, 38(3/4), pp. 523–534.
- Beggs, J. and B. Chapman (1987), 'An Empirical Analysis of Australian Strike Activity', *Economic Record*, 63(180), pp. 46–60.
- Berry, P. and G. Kitchener (1989), *Can Unions Survive?*, Building Workers' Industrial Union (ACT Branch), Dickson, ACT.
- Blandy, R. and M. Baker (1987), *Industry Assistance Reform and the Labour Market: the New Zealand Experience*, National Institute of Labour Studies, Adelaide.
- Bleaney, M. (1996), 'Central Bank Independence, Wage Bargaining Structure, and Macroeconomic Performance in OECD Countries', *Oxford Economic Papers*, 48(1), pp. 20–38.
- Bodman, P. (1998), 'Trade Union Amalgamations, Openness and the Decline in Australian Trade Union Membership', *Australian Bulletin of Labour*, 24(1), pp. 18–45.
- Boston, J. (1984), *Incomes Policies in New Zealand*, Victoria University Press, Wellington.
- Boxall, P. (1990), 'Towards the Wagner Framework: Change in New Zealand Industrial Relations', *Journal of Industrial Relations*, 32(4), pp. 523–543.
- Bray, M. and D. Neilson (1996), 'Industrial Relations Reform and the Relative Autonomy of the State', in F. Castles, R. Gerritsen and J. Vowles (eds), *The Great Experiment: Labour Parties and Public Policy Transformation in Australia and New Zealand*, Allen and Unwin, Sydney, pp. 68–87.
- Brook, P. (1990), *Freedom at Work: The Case for Reforming Labour Law in New Zealand*, Oxford University Press, Auckland.
- Brooks, B. (1995), '100 Years of Compulsory Conciliation and Arbitration in Australia and New Zealand', *International Journal of Comparative Labour Law and Industrial Relations*, Spring, pp. 31–41.
- Brown, W. and S. Wadhvani (1990), 'The Economic Effects of Industrial Relations Legislation since 1979', *National Institute Economic Review*, 131, pp. 57–70.
- Buchanan, J., K. van Barneveld, T. O'Loughlin and B. Pragnell (1997), 'Wages Policy and Wage Determination in 1996', *Journal of Industrial Relations*, 39(1), pp. 96–119.
- Business Council of Australia Industrial Relations Study Commission (1989), *Enterprise-based Bargaining Units: A Better Way of Working*, BCA, Melbourne.
- Calmfors, L. and J. Driffill (1988), 'Bargaining Structure, Corporatism and Macroeconomic Performance', *Economic Policy*, 6, pp. 14–61.
- Chapman, B. and F. Gruen (1990), 'An Analysis of the Australian Consensual Incomes Policy: The Prices and Incomes Accord', in C. de Neubourg (ed.), *The Art of Full Employment*, Elsevier/North Holland, Amsterdam, pp. 475–504.
- Chapple, S. (1997), 'Do Minimum Wages Have an Adverse Impact on Employment?', *Labour Market Bulletin*, 2, pp. 25–50.

- Committee of Review into Australian Industrial Relations Law and Systems (Chairman: K. Hancock) (1985), *Australian Industrial Relations Law and Systems: Report of the Committee*, (3 volumes), AGPS, Canberra.
- Crawford, A., R. Harbridge and K. Hince (1997), 'Unions and Union Membership in New Zealand: Annual Review for 1996', *New Zealand Journal of Industrial Relations*, 22(2), pp. 209–216.
- Cully, M. and S. Woodland (1997), 'Trade Union Membership and Recognition', *Labour Market Trends*, 105(6), pp. 231–239.
- Dabscheck, B. (1994), 'The Arbitration System since 1967', in S. Bell and B. Head (eds), *State, Economy and Public Policy in Australia*, Oxford University Press, Melbourne, pp. 142–168.
- Dawkins, P. (1997), The Economic Effects of Deregulation and Decentralisation of Wage Determination, paper presented to the Conference in Honour of Professor Emeritus Joe Isaac, 'Economics and Industrial Relations: Reappraising the Relationship', Australian National University, 4–5 December.
- Department of Labour (1998), *Contract: The Report on Current Industrial Relations in New Zealand*, Industrial Relations Service, Wellington, 24.
- Drago, R. and M. Wooden (1998), 'The Changing Role of Trade Unions in Australian Industrial Relations', The Transformation of Australian Industrial Relations Project, Discussion Paper Series No. 3, National Institute of Labour Studies, Adelaide, forthcoming.
- Elgar, J. and R. Simpson (1992), 'The Impact of the Law on Industrial Disputes in the 1980s', Centre for Economic Performance Discussion Paper No. 104.
- Epstein, R. (1997), 'Employment Law: Courts and Contracts', *California Western International Law Journal*, 28(1), pp. 27–44.
- Freeman, R. (1988), 'Labour Market Institutions and Economic Performance', *Economic Policy*, 6, pp. 63–80.
- Freeman, R. and J. Pelletier (1990), 'The Impact of Industrial Relations Legislation on British Union Density', *British Journal of Industrial Relations*, 28(2), pp. 141–164.
- Frenkel, S. and M. Shaw (1989), 'No Tears for the Second Tier', *Australian Bulletin of Labour*, 15(3), pp. 90–111.
- Gardner, M. (1995), 'Labour Movements and Industrial Restructuring in Australia, New Zealand and the United States', in K. Wever and L. Turner (eds), *The Comparative Political Economy of Industrial Relations*, Industrial Relations Research Association, Madison, Wisconsin, pp. 33–69.
- Golden, M. (1993), 'The Dynamics of Trade Unionism and National Economic Performance', *American Political Science Review*, 87(2), pp. 439–454.
- Gregory, M. (1997), 'Labour Market Deregulation: The UK Experience', Australian National University Centre for Economic Policy Research Discussion Paper No. 376.
- Griffin, G. and S. Svensen (1996), 'The Decline of Australian Union Density – A Survey of the Literature', *Journal of Industrial Relations*, 38(4), pp. 505–547.
- Harbridge, R. and J. Moulder (1992), 'Collective Bargaining and the Employment Contracts Act 1991: One Year On', Industrial Relations Centre, Victoria University of Wellington, May.
- Hawke, A. and M. Wooden (1997), 'The Changing Face of Australian Industrial Relations', The Transformation of Australian Industrial Relations Project, Discussion Paper Series No. 1, National Institute of Labour Studies, Adelaide.
- Hector, J. and M. Hobby (1998), 'Labour Market Adjustment Under the Employment Contracts Act: 1996', *New Zealand Journal of Industrial Relations*, 22(3)/23(1), pp. 311–327.

- Heitger, B. (1987), 'Corporatism, Technological Gaps and Growth in OECD Countries', *Weltwirtschaftliches Archiv*, 123(3), pp. 463–473.
- Hilmer, F., M. Angwin, J. Layt, G. Dudley, P. Barratt and P. McLaughlin (1993), *Working Relations: A Fresh Start for Australian Enterprises*, The Business Library, Melbourne.
- Joint Governments (1997), 'Safety Net Review – Wages', Department of Workplace Relations and Small Business, Canberra.
- Kasper, W. (1996), *Free to Work: The Liberalisation of New Zealand's Labour Markets*, Centre for Independent Studies Policy Monograph No. 32, Sydney.
- Kerr, R. (1997), 'The New Zealand Employment Contracts Act: Its Enactment, Performance, and Implications', *California Western International Law Journal*, 28(1), pp. 89–102.
- Layard, R., S. Nickell and R. Jackman (1991), *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford University Press, Oxford.
- Maloney, T. (1995), 'Does the Adult Minimum Wage Affect Employment and Unemployment in New Zealand', *New Zealand Economic Papers*, 29(1), pp. 1–19.
- McGraw, P. and I. Palmer (1994), 'Human Resource Managers and the Closed Shop: Individuals and Organizations in NSW', *Journal of Industrial Relations*, 36(4), pp. 519–529.
- Metcalf, D. (1994), 'Deregulation of the British Labour Market 1979–94', paper prepared for the International Labour Organisation World Employment Report, Geneva.
- Millward, N. and M. Stevens (1986), *British Workplace Industrial Relations 1980–1984*, Gower, Aldershot.
- Millward, N., M. Stevens, D. Smart and W. Hawes (1992), *Workplace Industrial Relations in Transition*, Gower, Aldershot.
- Morris, A. and K. Wilson (1995), 'Corporatism and Australian Strike Activity', *Australian Bulletin of Labour*, 21(2), pp. 153–173.
- Mulvey, C. (1997), 'Industrial Relations', in *Changing Labour Markets: Prospects for Productivity Growth – Workshop Proceedings*, Industry Commission, Melbourne.
- OECD (1991), *Employment Outlook, July*, OECD, Paris.
- OECD (1994), *Employment Outlook, July*, OECD, Paris.
- OECD (1997), *Employment Outlook, July*, OECD, Paris.
- Peeetz, D. (1990), 'Declining Union Density', *Journal of Industrial Relations*, 32(4), pp. 197–223.
- Peeetz, D. (1996), 'The Accord and the Paradigm Shift in Union Membership', paper presented at the End of the Accord Conference, Victoria University of Technology, Melbourne, 26–27 November.
- Peeetz, D. (1997), 'De-unionisation and Unionisation: The Impact of Workplace Change, HRM Strategies and Workplace Unionism', *Labour and Industry*, 8(1), pp. 21–36.
- Rasmussen, E., P. Boxall, N. Haworth, S. Hughes, M. Powell, T. Maloney and M. Wilson (1995), 'Industrial Relations and Labour Market Reforms in New Zealand', paper prepared for PECC-HRD Task Force Meeting, Taipei, June.
- Rasmussen, E. and J. Deeks (1997), 'Contested Outcomes: Assessing the Impacts of the Employment Contracts Act', *California Western International Law Journal*, 28(1), pp. 275–296.
- Rawson, D. (1992), 'Has Unionism a Future?', in M. Crosby and M. Easson (eds), *What Should Unions Do?*, Pluto Press, Leichhardt, pp. 2–15.
- Reilly, S. (1989), 'An Analysis of the Factors Influencing the Second Tier and its Evolution', *Australian Bulletin of Labour*, 15(2), pp. 200–222.

- Robertson, B. (1996), *The Status and Jurisdiction of the New Zealand Employment Court*, New Zealand Business Roundtable and New Zealand Employers' Federation, Wellington.
- Rowthorn, R. (1992), 'Corporatism and Labour Market Performance', in J. Pekkarinen, M. Pohjola and R. Rowthorn (eds), *Social Corporatism: A Superior Economic System?*, Clarendon Press, Oxford, pp. 82–131.
- Sako, M. (1997), 'Wage Bargaining in Japan: Why Employers and Unions Value Industry-level Co-ordination', Centre for Economic Performance Discussion Paper No. 334.
- Scarpetta, S. (1996), 'Assessing the Role of Labour Market Policies and Institutional Settings on Unemployment: A Cross-country Study', *OECD Economic Studies*, 26, pp. 43–98.
- Sloan, J. and M. Wooden (1990), 'The Structural Efficiency Principle in Action – Management Views', *Australian Bulletin of Labour*, 16(3), pp. 199–223.
- Soskice, D. (1990), 'Wage Determination: The Changing Role of Institutions in Advanced Industrialized Countries', *Oxford Review of Economic Policy*, 6(4), pp. 36–61.
- Still, L. and D. Mortimer (1993), 'The Effectiveness of Award Restructuring and the Training Levy in Providing a More Educated Workforce: A Comparative Study', *International Journal of Employment Studies*, 1(1), pp. 77–102.
- van Bastelaer, A., G. Lemaitre and P. Marianna (1997), 'The Definition of Part-time Work for the Purpose of International Comparisons', Labour Market and Social Policy Occasional Papers No. 22, OECD, Paris.
- Waddington, J. (1992), 'Trade Union Membership in Britain, 1980–1987: Unemployment and Restructuring', *British Journal of Industrial Relations*, 30(2), pp. 287–324.
- Weeks, P. (1995), *Trade Union Security Law*, The Federation Press, Annandale, NSW.
- Wooden, M. (forthcoming), 'Union Amalgamations and the Decline in Union Density', *Journal of Industrial Relations*.

Discussion

1. John Quiggin

The central conclusion of this paper is that despite seemingly significant differences in the approach to labour market policy in Australia, the United Kingdom and New Zealand, labour market outcomes in the three countries have been very similar. It is concluded that 'while the labour market outcomes in Australia have been inferior to those in the United Kingdom and New Zealand in recent years, the overall differences have not been dramatic'. A subsidiary theme is a re-examination of the Calmfors-Driffill hypothesis, that either highly centralised or highly decentralised systems of wage bargaining yield better outcomes than systems with an intermediate degree of centralisation.

On the first point, having described the Employment Contracts Act in 1994 as 'the dog that didn't bark in the night', I can only agree. If employment rather than unemployment is the main variable of concern, even the relatively modest conclusion about Australia's weaker performance is hard to sustain. Employment growth has been stronger in Australia than in either the United Kingdom or New Zealand, and this remains true even when demographic factors are taken into account. The difference in performance on unemployment is more than accounted for by differences in the behaviour of labour force participation rates.

Welfare benefits and the supply side

Changes in labour market institutions can be expected to work more through the demand side of the labour market than the supply side. To the extent that we are concerned with supply-side phenomena like labour force participation rates, we must look elsewhere.

In considering the supply side, it is necessary to examine the alternatives to labour force participation, of which the most important include full-time education, early retirement, reliance on the earnings of other family members and reliance on social security benefits. I would like to focus on the last of these. I begin with the observation that whereas the receipt of unemployment benefits is conditional on an active search for work, most other benefits are subject to conditions that discourage the recipient from searching for work. Most obviously, invalid pensions are granted on the grounds that the recipient is incapacitated for work.

In the period under study, both the United Kingdom and New Zealand adopted policies that made unemployment benefits less attractive than other forms of social security. The New Zealand reforms of 1991 included cuts of around 20 per cent in the value of unemployment benefits, while cuts in other benefits were smaller. Similar differentials emerged in the United Kingdom under the Thatcher Government.

The result in both the United Kingdom and New Zealand was that withdrawal from the labour force became a more attractive option. By contrast, in Australia the value of unemployment benefits kept pace with that of other benefits. Although the number of recipients of these benefits, particularly invalidity and sickness benefits, was clearly

responsive to labour market conditions, the incentive to shift from unemployment to other benefits was weaker than in the United Kingdom and New Zealand. In addition, policy fluctuated between tacit acceptance of the fact that those at the back of the unemployment queue might as well be given a benefit that did not require a pointless search for work and attempts, particularly in periods of employment growth, to weed out recipients of invalidity and other benefits who were not truly eligible.

After a long period in which the growth in the number of recipients of benefits other than unemployment was tolerated, if not actively encouraged, both the United Kingdom and New Zealand Governments have recently moved to push recipients of these benefits back into the labour force. The idea of 'welfare to work' is a central theme of the Blair Government. The New Zealand Government has reduced the value of a range of benefits, bringing them closer to parity with the unemployment benefit.

The United States experience

Although the main focus of the paper is on Australia, New Zealand and the United Kingdom, it is hard to avoid looking at the United States. The United States is the only developed economy with extensive experience of a decentralised labour market combined with minimal availability of welfare benefits for the unemployed. US experience supports the prediction that this combination of policies should encourage high rates of labour force participation. The effects on household income of declining real wages for men have also encouraged high rates of labour force participation for married women.

In examining any economic choice, however, it is necessary to consider the best available alternative. In the absence of welfare benefits, the alternatives to employment at low wages include crime and begging, both of which are more prevalent in the United States than in most developed countries. Having closed off the option of welfare benefits, it may be possible to make the option of crime less attractive or less feasible through high rates of imprisonment and this approach is now being explored in the United States. Although crime rates have fallen in line with the economic recovery of the 1990s, the prison population has grown steadily, and is now approaching two million.

The economic feasibility of reliance on prison as the 'employer of last resort' has yet to be determined. Considered as a labour market program, imprisonment is very expensive (about \$40 000 per place on most estimates). The critical question is whether, when deterrent effects are taken into account, a high rate of imprisonment is cost-effective in promoting acceptance of employment at low wages as an alternative to crime.

The combination of minimal welfare support and high imprisonment as a response to crime has only been fully implemented during the United States expansion of the 1990s. It remains to be seen how these policies will work in the event of a serious economic downturn, or if, as advocates of the 'new paradigm' have claimed, the combination of these policies and the microcomputer ensures that no such downturn will take place again. As far as Australia, the United Kingdom and New Zealand are concerned, the critical question is whether it is possible to adopt the labour market and social welfare institutions of the United States without also importing its social institutions.

The Calmfors-Driffill hypothesis

I turn now to the relationship between the experience of the countries under study and the Calmfors-Driffill hypothesis. I want to begin by arguing that a definite empirical test of this hypothesis is virtually impossible. The problems of ranking countries such as Japan are discussed by Wooden and Sloan. But even if an unambiguous ranking of countries from most to least decentralised were available, it would still be very hard to test the hypothesis of a hump-shaped relationship. Consider the simplest possible test in which the observations are divided into three groups and the hypothesis to be tested is that the mean value of some outcome variable is lower for the middle group than for the other two. The test will not, in general, be robust to changes in the arbitrary selection of the boundaries between the middle and the extreme groups. A closely related problem arises in a regression context where a quadratic relationship between the performance variable and a measure of centralisation is estimated. Since the centralisation measure is merely ordinal, it is determined only up to a monotonic transformation. If the relationship to be estimated were linear, an inappropriate choice of transformation would imply misspecification of the functional form but would be unlikely to change the sign of the estimated coefficient. By contrast, if a quadratic relationship is being estimated, it is quite likely that a monotonic transformation could result in a change of sign in the second-order term.

The difficulties of empirically testing the Calmfors-Driffill hypothesis do not detract from the intuitive appeal of the argument that the consequences of wage bargaining will be internalised when wages are set within enterprises or for the economy as a whole, rather than when they are set on an industry-by-industry or occupation-by-occupation basis. However, it is not clear this argument is best formalised by arraying countries on a linear scale supposed to measure decentralisation or deregulation.

Moreover, decentralisation and deregulation are not the same thing. A requirement for unions to undertake secret ballots before striking or a ban on secondary boycotts may promote decentralisation, but they involve more regulation rather than less. Similarly the effects of government intervention are likely to vary depending on whether government attempts to support unions, to support employers or to act as a neutral arbiter.

Effects on welfare

Wooden and Sloan do not have very much to say about the welfare effects of the reforms under consideration. In this context, it is important to distinguish two different arguments in favour of labour market reform. The first is that a combination of union monopoly power and government intervention, such as minimum wages and the provision of welfare benefits, has raised real wages above the market-clearing level and thereby caused high levels of unemployment. Assuming workers are rational, higher wages raise their welfare sufficiently to offset the risk of unemployment, at least for 'insiders'. In this situation, the argument for labour market reform is the standard argument against monopoly, that the benefits to consumers (in this case, both employers and the ultimate consumers of goods and services) from the removal of the monopoly will outweigh the costs to producers.

The second argument is that in a regulated and centralised labour market, employees and employers are denied the option of making mutually beneficial agreements to depart from awards or industry-level bargains. In this situation, labour market reform will generate a Pareto improvement except for the losses to those employed in the operation of the centralised system, such as union officials, members of industrial courts and so on.

The arguments presented above about the central role of the social welfare system suggest that the issue is primarily one of monopoly power and income distribution rather than the collection of \$50 bills lying on the pavement. If so, labour market reform is likely to remain controversial.

2. General Discussion

The discussion centred on three issues:

- the impact of product market deregulation on labour market outcomes;
- the relevance of the Calmfors-Driffill hump; and
- the transferability of institutional structures across countries.

Some participants argued that product market deregulation is likely to have a significant impact on labour market outcomes. Furthermore, in some countries where product market deregulation has preceded labour market deregulation, it appears that the product market deregulation in itself has induced changes in the labour market, which labour market reforms have then subsequently codified. Thus it was difficult to attribute labour market outcomes to particular labour market reforms. Some participants therefore concluded that varying degrees of product market deregulation across countries may have had as great an impact as the differences in labour market reforms.

Participants were divided on the relevance of the Calmfors-Driffill hump. Some participants argued that while it is problematic to pinpoint the position of a country on the hump, useful insights can be gained from examining the effect of changes over time in a country's relative position on the hump. These insights suggested that a move away from the top of the hump, either towards greater centralisation or greater decentralisation, tends to generate improved labour market outcomes. Other participants argued that there is no clear direction of change in labour market institutions in countries such as Australia. For example, in the past decade, Australia has moved both towards increased centralisation and then towards increased decentralisation. It would be difficult, given the lags involved, to identify the impact of these shifts on labour market outcomes.

Some participants argued that labour market institutions play a number of different roles in different countries. Institutions are designed to achieve complex, and not necessarily economic, outcomes. Thus it may be too narrow to assess the efficacy of institutions solely in terms of their impact on labour market outcomes. Furthermore, attempting to codify institutions in a simple index is fraught with difficulty. Given these issues, one should be careful about the appropriateness of one country's institutional structure for another country.

Prospects for Output and Employment Growth with Steady Inflation

Mardi Dungey and John Pitchford*

1. Introduction

Monetary policy affects both real variables, such as employment, unemployment and output, and nominal variables, such as nominal interest and inflation rates. For close to a decade, the principal focus of monetary policy has been on inflation. During a recession, or when one appears imminent, the state of real variables such as GDP growth has been a paramount consideration, but at other times, inflation control has been the major objective. We argue that this concentration on inflation has not been misplaced, indeed we suggest that it should be more detailed than it has been. Nevertheless, we see a critical role for monetary policy in reducing unemployment that has not been explicit in some standard approaches to inflation. While we spend a considerable time looking at inflation issues, the objective in doing so is to substantiate the point that adequate management of inflation will leave more scope for real growth and hence for lowering unemployment.

Despite the difficulty of quantifying the costs of moderate inflation, its control is important because in certain circumstances, low inflation can lead to accelerating prices and so to high inflation which does have high costs. Further, bringing inflation down once it has begun to rise has often involved a recession that has been costly in terms of foregone output and lasting unemployment, so that it is better not to have let it rise in the first place.

Macroeconomic policy can reduce unemployment both by ameliorating recessions, and by achieving growth at a rate consistent with steady inflation. The investigation of the latter concept is central to this paper and it will be called the steady inflation rate of growth or SIRG.¹ The conventional method of analysing inflation has been to examine how the divergence between actual and expected inflation is related to unemployment. The resulting estimate of the NAIRU, or non-accelerating inflation rate of unemployment, would then provide macroeconomic policy with the aim of ultimately achieving that unemployment rate so as to establish equilibrium with steady inflation. However, there is strong evidence that the NAIRU has been highly variable in many countries, with the possible exception of the United States.² For the NAIRU to be a reliable concept for guiding macro policy the determinants of how it shifts would need to be well established empirically and the results, particularly for Australia, do not bear this out. Moreover, the

* We would like to thank Jeff Borland, Guy Debelle, Bruce Chapman and Lou Will for helpful discussions and comments on the paper.

1. We were tempted to use the term NAIRG, but chose not to perpetuate an improper use of the concept of acceleration.
2. Even in the US there are doubts about the stability and value of the NAIRU concept (Symposium on the natural rate of unemployment in the *Journal of Economic Perspectives*, Winter, 1997).

NAIRU is a labour market concept relating expected real wage movements to labour market disequilibrium, whereas inflation refers to prices in goods markets.

Hence we have chosen to work with explanations of the rate of price change which link it directly to the state of excess demand in product markets. The consequent empirical results, both for Australia and other countries, lead us to regard the SIRG as a way of characterising the inflation process that is superior to that embodied in the NAIRU. Also, it gives a direct estimate of the growth rate consistent with steady inflation. In combination with estimates of labour demand and supply elasticities, the SIRG facilitates discussion of scenarios of output, wages, employment and unemployment consistent with the objective of steady inflation.

Section 2 of the paper provides a brief outline of the model that underlies our analysis. Section 3 deals with the theoretical and empirical analysis of the connection between inflation and growth, and hence with estimates of the SIRG. We also make the point that movements in the inflation rate attributable to real exchange rate fluctuations need to be investigated separately from inflation arising from domestic excess demand. Our conclusion is that monetary policy should also make this distinction.

There is no guarantee that the growth rate compatible with steady inflation will also ensure that unemployment can fall. The answer to this question partly depends on knowledge of particular labour demand and supply elasticities, and on knowing how conditions in the labour market and wage-setting institutions affect real wages and employment. But to know this is to know how the labour-market side of the Phillips curve/NAIRU system works. Instead, in Sections 4 and 5 we follow the conventional approach and use our own and others' estimates of labour market elasticities to provide scenarios of how various growth rates, including the SIRG, and real wage movements could affect unemployment. In Section 5 we argue that deriving the impact of growth on unemployment requires consideration of short-run, as well as long-run, employment elasticities. The policy conclusions of the paper are set out in Section 5 where the implications of our approach to, and estimates of, the sources of inflation are used to derive principles for monetary management and to look further at unemployment prospects. Some concluding comments are given in Section 6.

2. A Macroeconomic Model of Unemployment and Inflation

The view of the economy behind our paper is the constrained equilibrium class of models, such as those developed by Barro and Grossman (1976), Muellbauer and Portes (1978) and Malinvaud (1977). These systems deal systematically with disequilibrium in labour and product markets. That is, when there is excess demand for goods, actual output is constrained to equal supply, and when excess supply prevails, it equals demand. Prices for domestically produced goods adjust to excess demand and supply, and to expectations of inflation. If the practice is followed of using last period inflation as an estimate of expected inflation, it is readily seen that excess demand causes inflation to rise. Similar structures are assumed for the labour market, with the expected real wage adjusting to disequilibrium.

Thus we focus on conditions in the markets for goods and services as the generator of inflation for those goods produced domestically that are not in close competition with imports or exports. Goods consumed domestically consist of such goods plus some traded goods, mainly imports in Australia's case, so that the consumer price inflation rate will depend on both the state of the goods market (excess demand), and the rate of inflation of import prices. Notice that a real wage adjustment equation, with features in common with the standard approach to inflation, will still exist. It will determine real wage movements and hence be one factor in the determination of unemployment.

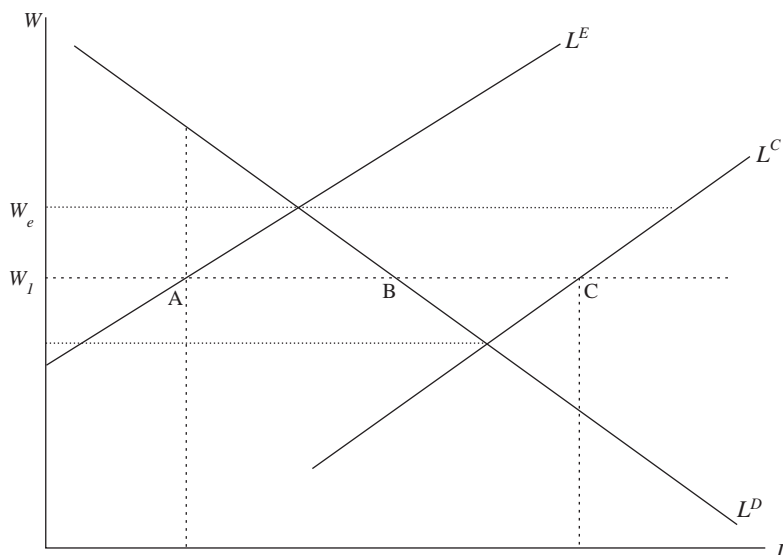
Aggregate demand for domestic output is taken to be of the IS form, depending on real income at home and abroad, fiscal variables, the real interest rate, the real exchange rate and the terms of trade. However, unlike the usual IS approach, the goods market will not clear except in equilibrium. Money demand and supply are of the standard LM form, with the central bank setting the nominal interest rate in accordance with its objectives.

The supply of output, depending on inputs of productive factors and technology, will equal aggregate demand only in equilibrium. In disequilibrium, actual output will be adjusted toward the short side of the market both by accumulating (or running down) stocks and by adapting the intensity with which inputs are used. Thus firms can vary hours of work of factors above or below normal levels which define potential output. The gap between actual and potential output is one measure of excess demand that drives domestic goods price inflation. The foreign currency prices of most of Australia's traded goods will be determined in world markets, so their domestic currency prices will also reflect exchange rate movements.

The demand for labour hours L^D is given by its marginal product, and can be expressed in a form in which it depends on the level of output, the hourly real wage paid and the rate of labour-augmenting technical change. Because of problems associated with hysteresis, labour supply is not a straightforward concept. For some purposes it is the supply of those working plus those seeking work, as measured by the labour force statistics. This is denoted by L^C in Figure 1. Some of those seeking work are so lacking (or perceived to be lacking by employers) in required work skills that they have either lost (because of their unemployment history) or never acquired, that their supply for these and other reasons does not put downward pressure on the real wage.³ They are not part of 'effective labour supply' which is given by L^E .⁴ Hence, while we observe points on L^C and L^D , L^E can only be estimated indirectly out of equilibrium. When the labour market is in equilibrium at the wage that equates L^D and L^C , the difference between L^E and L^C measures the natural rate of unemployment.

With the wage W_1 there is effective excess demand for labour of AB which will cause wages to rise despite the existence of unemployment as measured by $BC = L^C - L^D$. Changes in output and population, as well as technical change and the history of unemployment will shift the functions in Figure 1. Together with changes in real wages,

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3. Other reasons include wage-fixing systems that have little or no relation to market forces, poverty traps and other institutional factors affecting the reservation wage of the unemployed.
 4. This curve would have horizontal sections where there are minimum wages, which would show up both at low wage levels and higher levels if market forces are prevented from affecting real wages. To the extent that they apply to subsectors of the workforce, they would appear as a lower slope of L^E .

Figure 1: The Labour Market

these shifts will determine the path of employment and unemployment. A rightward movement in labour demand is one of the factors which might help create favourable labour market conditions that will result in some transfer of labour into the effective labour supply. Rising real wages can have a similar effect if they create a gap between reservation earnings, such as unemployment benefits, and wages sufficient to induce movement into the effective workforce. Real wages will normally adjust to eventually create labour market equilibrium, as represented by equality between L^D and L^E . However, unexpected price movements and non-market wage-setting will cause real wages to move away from equilibrium levels.

Notice that the model is basically symmetrical in its treatment of the goods and labour markets. Actual supplies are constrained by the short side of each market and disequilibrium in each market drives the relevant relative 'price' adjustment. There is no need for a mark-up pricing relationship, the definitional association between prices and the costs of factor inputs determining *ex post* profits as a residual. Inflation is generated in the product markets.

3. Inflation, Growth and Import Prices

The prices of domestically produced goods P and of imports M enter into the index of prices of local consumption with constant geometric weights a and $(1-a)$.⁵ Lower case is used to represent the proportional rate of change in a variable, so that the inflation rate π of the index is:

$$\pi = ap + (1 - a)m \quad (1)$$

5. In principle, prices of exports should enter these equations. However, for Australia, the proportion of exports that directly enter the price index is small. Also, empirical results do not justify their inclusion.

Domestic goods prices are supposed to adjust to excess demand x according to

$$p - p^e = p - p_{-1} = \psi(x), \quad \psi' > 0, \quad \psi(0) = 0 \quad (2)$$

The expected price change p^e is taken to be determined by the change in the previous period.⁶ Combining Equations (1) and (2):

$$\pi - \pi_{-1} = \Delta\pi = a\psi(x) + (1-a)\Delta m \quad (3)$$

We estimate the price equation in the form in Equation (3).⁷

Two issues must be faced before this can be done. The first arises because Australia floated in 1983:Q4 and previously had pegged or heavily managed its exchange rate. Secondly, excess demand in the goods market is not directly observable, though there are a number of measures that are used to approximate it. Consider the exchange rate question. Pegging to a single currency or a basket means that fluctuations in those prices determined on world markets are liable to be transmitted to the local economy in a fairly direct manner. Further, it will be difficult to prevent foreign monetary expansion resulting in domestic monetary expansion, except by the process of raising interest rates and reducing activity to such an extent that financial capital inflow is discouraged. By contrast, with a floating rate, domestic monetary policy can be independent of foreign monetary conditions. It could be that the exchange rate system may approximate the theoretical notion of 'exchange rate insulation' and ensure that domestic inflation is independent of an average of movements in the foreign-currency prices of traded goods.⁸ Hence, it is preferable to examine the generation of inflation either for a pegged or a floating rate system, but not across both.⁹ For these reasons we have concentrated our empirical analysis on the period of floating from 1983:Q4.

There are a number of observable variables that could proxy for excess demand in the product market, the gap between actual and potential output being one of the more popular. Potential output is also not directly measured and is often taken to be some average of output levels. One difficulty about this is to know over what period and phase of cycles to take the average, though different approaches could be accepted or rejected on the basis of their empirical performance. Instead we have chosen to work with the rate of economic growth as the excess-demand proxy.¹⁰ Apart from the empirical results this yields, there are some good theoretical reasons for this choice. We have also estimated

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6. There is no survey information available for Australia on the expectations of those who set prices.
 7. Strictly, the m in Equations (1) and (3) are different variables, the first being the import component of the CPI (for which there is no adequate data) and the second, the import price deflator from the National Accounts.
 8. It is, of course, not possible to insulate against *relative* price movements of goods whose prices are determined on world markets. See Pitchford (1993) and the references therein.
 9. An alternative would be to incorporate into the equation(s) those variables, such as the behaviour of reserves, which distinguish a pegged from a floating system.
 10. Snooks (1998) and in earlier works argues that inflation is a necessary concomitant of growth. He investigates this in a very long-run historical context and with recent data for various OECD countries. Apart from the generation of inflation by growth, our approach differs from his in that we also allow for the effect of prices of imports and for expectational effects that feed back on inflation.

an inflation equation using an output gap approach. The results, although similar, were not superior to those with growth as the proxy.

The most compelling reason for relating inflation to real growth is that the growth of the labour force and capital stock, in conjunction with technical change, will at any time determine an underlying growth rate of 'potential' output. In the absence of large exogenous shocks and cycles, this growth rate would probably remain relatively constant. If the supply potential from this growth were matched by demand growth at the same rate, there would not be pressure for prices to rise. When the growth of demand exceeds that of supply, price signals will be required so that the intensity of use of factors can be increased.¹¹

There are arithmetical relationships between the growth rate of actual and potential output and the divergence of output from some average level. To see this, define the growth rate g and excess demand x as:

$$g = \frac{y - y_{-1}}{y_{-1}}, \quad x = \frac{y - \tilde{y}}{\tilde{y}} \quad (4)$$

where \tilde{y} is potential and y actual output. Then:

$$\frac{y}{y_{-1}} = \left(\frac{y}{\tilde{y}}\right) \left(\frac{\tilde{y}_{-1}}{y_{-1}}\right) \left(\frac{\tilde{y}}{\tilde{y}_{-1}}\right), \text{ so that} \quad (5)$$

$$1 + g = \frac{1 + x}{1 + x_{-1}}(1 + \tilde{g}) \quad \text{or} \quad 1 + x = \frac{1 + g}{1 + \tilde{g}}(1 + x_{-1}) \quad (6)$$

The growth rate is positively related to this period's excess demand and the growth rate of potential output \tilde{g} and negatively related to last period's excess demand. Further, rewriting Equation (6) for time period -1, and by repeated substitution into Equation (6), taking logs, and using the approximation $\ln(1+z) \cong z$, this relation can be written:

$$x = g - \tilde{g} + T\{\mu(g) - \tilde{g}\} + x_{-T-1} \quad (7)$$

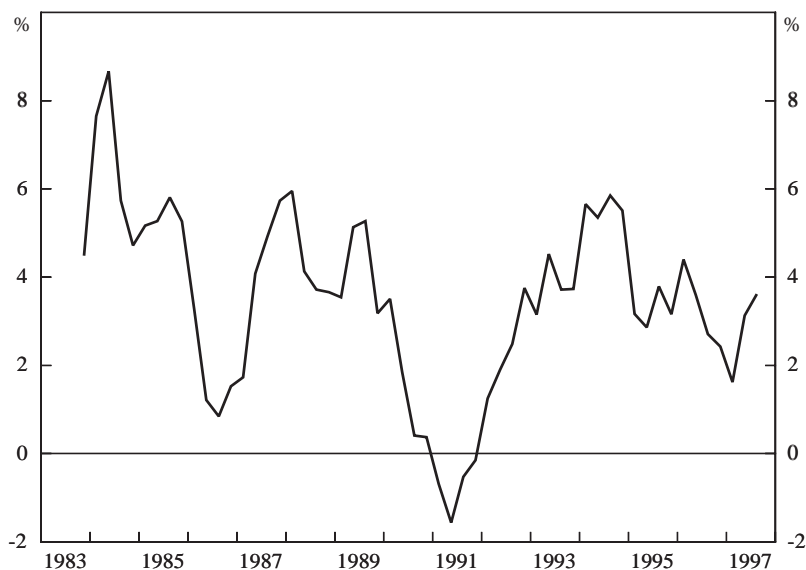
where $\mu(g)$ is the mean of g_{-t} in the interval $[-T, -1]$. If these means are sufficiently close to the growth rate of potential output, g will be a good approximation to excess demand plus a constant.¹² Figure 2 shows the behaviour of g .

Another check can be made of our choice of growth as an excess demand proxy by regressing a measure of the output gap on growth. Some details are given in Appendix C from which it can be seen that the two series are highly correlated.

Growth can also proxy for adjustment costs that are dependent on changes in the level of, and/or growth rate of, output. For instance, suppose the economy is just leaving a recession, but output is still well below levels that would denote a boom. Although the economy is relatively depressed, a high growth rate at this time could nevertheless still

11. From this account of potential output, it could vary over the cycle. However, our procedures estimate an average and we do not attempt to measure its cyclical movement.

12. If potential output were defined as $\mu(g)$ they would differ only by the initial value of x and \tilde{g} .

Figure 2: Annual Real GDP Growth Rate

produce price rises. Despite unemployed resources, adjustment costs could mean that it might be difficult to bring them into production in the short run without price signals.

Equation (8) gives the form of the encompassing equation for our general-to-specific approach. It was estimated by OLS using quarterly data. Using the standard ADF tests we accepted that the inflation rate, growth rate and import price inflation were I(1) in nature. The errors in Equation (8) were indistinguishable from white noise.¹³

$$\Delta\pi_t = c + \sum_{i=1}^h \alpha_i \Delta\pi_{t-i} + \sum_{i=1}^k \beta_i \phi(g_{t-i}) + \sum_{i=1}^j \gamma_i \Delta m_{t-i} + \varepsilon_t \quad (8)$$

Here, π is the annual Treasury underlying consumer price inflation rate, g is the annual percentage growth rate in real GDP(A), ϕ is some function of g , and m is import price inflation. Full data definitions and sources are given in Appendix A. Data on the independent variables are illustrated in Figures 2 and 6.

Lagged values of the dependent variable were included to account for a potentially dynamic adjustment process. Estimation of Equation (8) with $\phi(\cdot)$ as a linear function met all tests except the RESET test of functional form, leading us to consider non-linearities in the relationship. The introduction of an increasing inflationary response to incremental increases in excess-demand pressure produced a preferred form of the equation as per Equation (9) for the post-float period. The variable gs refers to the squared growth rate in real output, with the sign of the growth rate reassigned, so that, for instance, if the

13. There is no evidence of a moving average in the errors induced by the use of quarterly differences of the annual inflation rate.

annual growth rate in one quarter was -2 per cent then gs for that quarter would be -4 per cent. Further details are available in Pitchford and Dungey (1998).

$$\Delta\pi_t = c + \alpha_1\Delta\pi_{t-1} + \sum_{i=1}^3 \beta_i gs_{t-i} + \sum_{i=1}^3 \gamma_i \Delta m_{t-i} + \varepsilon_t \quad (9)$$

In the final analysis we could not reject the hypothesis that the coefficients on the first and second lags of gs were of equal value and opposite sign. After imposing this as a restriction, the change in the inflation rate was related positively and equally to both the change in the 'square' of the growth rate (lagged once) and the 'square' of the growth rate itself (lagged 3 times).¹⁴ The estimated equation is shown in Equation (10), with standard errors given in parentheses. Recursive estimation indicated that these parameter estimates were stable over the estimation period.

$$\begin{aligned} \Delta\pi_t = & -0.279 + 0.360\Delta\pi_{t-1} + 0.015\Delta gs_{t-1} + 0.015gs_{t-3} \\ & (0.064) (0.088) \quad (0.004) \quad (0.003) \\ & + 0.030\Delta m_{t-1} + 0.023\Delta m_{t-2} + 0.030\Delta m_{t-3} \\ & (0.007) \quad (0.008) \quad (0.008) \end{aligned} \quad (10)$$

The lagged value of the inflation rate was significant, suggesting that not all of the adjustment of the domestic inflation rate implied by Equation (8) is completed in each period.¹⁵ The functional form relating growth to inflation change is illustrated in Figure 3 where $\psi(g) = \phi(g) - g^*$ and $\psi(g^*) = 0$.

3.1 The influence of growth on inflation

The models enable an estimate to be made of the growth rate of GDP compatible with steady inflation, or SIRG. If both the index of inflation and the rate of import price inflation are constant, then from Equation (8),

$$gs^* = -c/\beta \quad \beta = \sum_{i=1}^k \beta_i \quad (11)$$

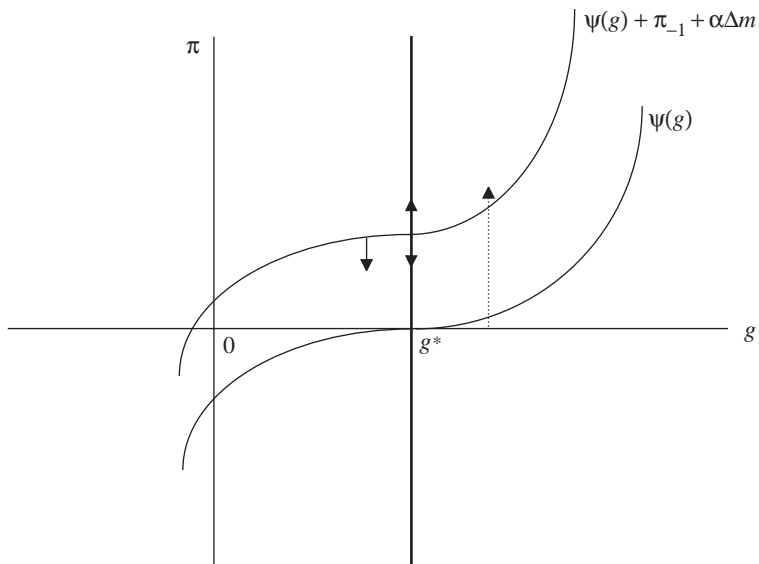
Calculating the SIRG g^* from gs^* , for the data period of the float from December 1983 it is 4.37 per cent per annum.

Figure 3 illustrates how the system works. Suppose, initially, that $\Delta m = 0$. The function $\psi(g)$ represents inflation outcomes when the expected inflation rate is zero. Plotted against the inflation rate, it is positively sloped except at g^* where it intersects the g -axis. If growth is at g^* , the inflation rate can lie anywhere along the vertical axis

14. The restriction that the coefficients on Δgs_{t-1} and gs_{t-3} were equal could not be rejected. This was tested in the original equation with the equivalent test that the coefficients β_i in Equation (9) were equal, thus preserving correct size in the test.

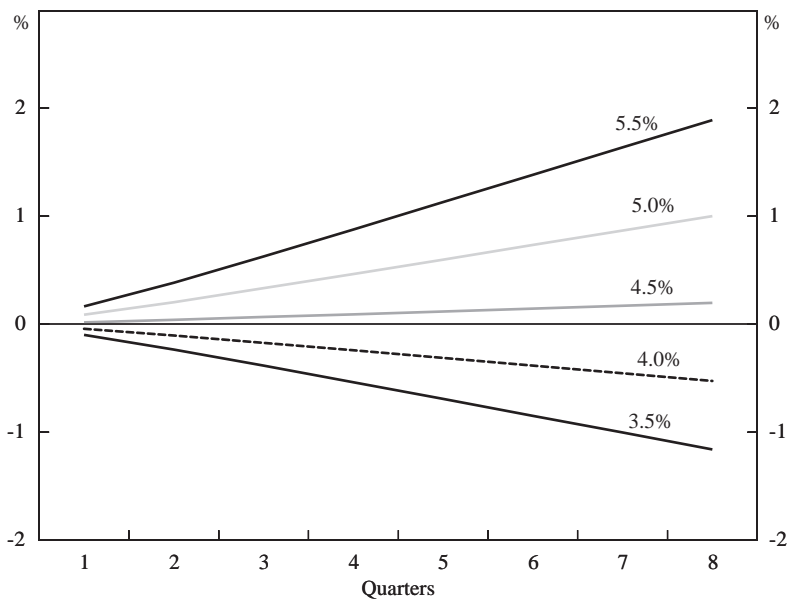
15. It is sometimes claimed that expectational effects are asymmetrical in that, for instance, reducing inflation requires more foregone growth than the extra growth required to raise inflation. Hence we looked for asymmetrical responses of inflation by including the signs of independent variables in the regressions, but the results were insignificant. Another matter examined was whether the stage of the cycle (e.g. time since the trough) might affect the degree of responsiveness to the growth rate, but the results did not support this either.

Figure 3: Inflation Model



through g^* . If g rises above g^* , the inflation rate will rise and this can be reduced by a period of growth below the SIRG. The story is analogous to that often given for the NAIRU, though it will be seen to be different from the standard NAIRU case when non-steady import price inflation is considered in the next section.

Figure 4: Inflation with Steady Annual Growth Rates



To appreciate the magnitude of the effect of growth on inflation implied by the coefficients given in Equation (10), consider the consequences of a sustained rise or fall in g when the system has been at the SIRG for a long period, illustrated in Figure 4. Starting from a steady state with zero inflation, and then setting a steady GDP growth rate of 5.5 per cent per annum will mean that the system will reach about 1 per cent annual inflation after one year, and 2 per cent after two years. By comparison, with a 5 per cent real growth rate, inflation will take twice as long to reach 1 per cent per annum. After two years, with 4 per cent GDP growth, annual deflation of about 0.5 per cent per annum will have been attained. All this assumes that import prices are not contributing to inflation.

3.2 Import prices

Growth and hence employment are affected by policy toward inflation. We have shown that a steady inflation rate for domestic goods can be achieved by setting the growth rate at the SIRG. On the other hand, import prices fluctuate considerably (Figure 6) so that stabilising the overall inflation rate could require large oscillations in growth and hence in unemployment. Here we argue that it is critical to distinguish between, and adopt different policies toward, these two sources of inflation.

According to the 'law of one price', a behavioural relationship, arbitrage will ensure that:

$$HM^* = M \quad (12)$$

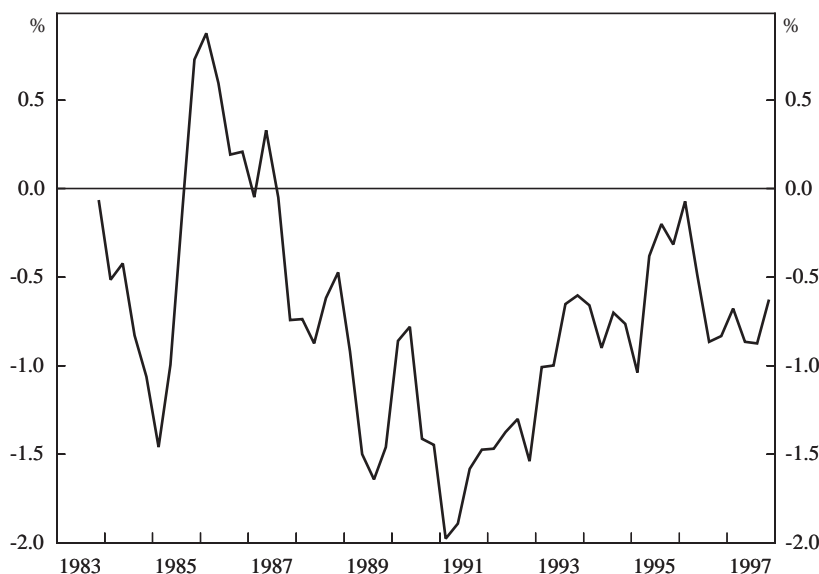
where H is the nominal exchange rate (the reciprocal of the TWI), M^* the foreign currency price of imports, and M the price in domestic currency. For the post-float period, a simple regression of m on h yields a correlation coefficient of 84 per cent and of h on the inflation rate of the price index (π), a correlation coefficient of 6.3 per cent. Domestic-currency import price inflation is closely associated with nominal exchange rate variations. But nominal exchange rate variations are much larger than those in the domestic inflation rate. Hence, there is *a priori* evidence that domestic-currency import prices are more closely related to exchange rate changes than to domestic conditions, and domestic inflation and exchange rate movements are quite dissimilar.¹⁶

Import prices enter into the results in the way predicted by Equation (3) with lags of one, two and three periods. One way of appreciating their influence is to ask what inflation would have been if import prices had contributed to inflation to the same extent as domestic goods prices. This can be determined by substituting π for m in Equation (10) and calculating the consequent inflation from a base date, December 1983. The results are summarised in Figure 5 from which it can be seen that import price inflation held down the overall inflation rate by between one and two percentage points since 1987. Depreciation in the mid 1980s added to inflation, but from about 1987, the contribution of import prices has been steadily negative. Anti-inflation policy has benefited considerably from these import price movements.

If import price inflation rises, the curve $\psi(g)$ rises (Figure 3), but it keeps moving up only if import price inflation continues to increase. It is important to note that this is

16. For the pre-float period (1972–83), the correlation coefficient for the regression of m on h is 16 per cent.

Figure 5: The Difference Between the Actual Inflation Rate and the Rate Without Import Price Effects



different from the case of growth, where if g rises above g^* and stays there, domestic goods inflation will perpetually rise. A period of falling import price inflation will cause the curve to fall.¹⁷

Another way of expressing these issues is in terms of the real exchange rate R . For present purposes its definition must involve the price of imports.¹⁸ Hence:

$$R = M/I, \text{ so } \Delta m - \Delta \pi = \Delta r \quad (13)$$

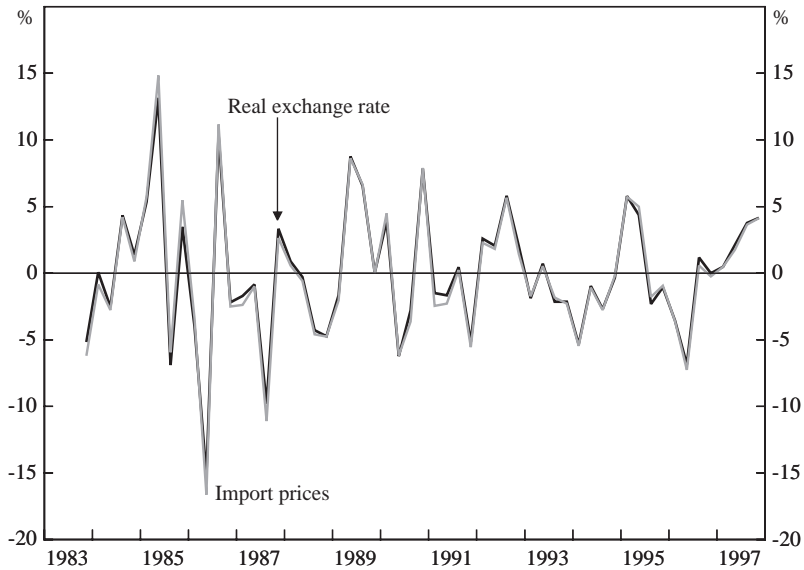
Rearranging Equation (9), the inflation equation can be expressed in terms of past increments in inflation, growth terms and changes in the real exchange rate:

$$\begin{aligned} \Delta \pi_t = & c + [(\alpha_1 - \beta_1)\Delta \pi_{t-1} + \beta_2 \Delta \pi_{t-2} + \beta_3 \Delta \pi_{t-3}] \\ & + [\beta_1 \Delta g s_{t-1} + \beta_3 g s_{t-3}] + \sum_{i=1}^3 \gamma_i \Delta r_{t-i} \end{aligned} \quad (14)$$

Movements in Δr and Δm are illustrated in Figure 6. The difference $\Delta m - \Delta r$ is the change in the inflation rate. Rises follow falls in Δm with cycles lasting about two to three years. It is clear that most of the variation of Δm is accounted for by the variation

17. An exception could be if there was asymmetry in the response of expected inflation between rises and falls in the expected rate. We did not detect such an effect.

18. Those definitions which use some general price level in a foreign country must pick up effects from non-traded good prices and differing tastes and trade structures that would seem to have little significance for domestic import prices.

Figure 6: Δr and Δm 

associated with the real exchange rate. An implication is that steady growth at the SIRG would mean that the overall inflation rate drifts up and down with fluctuations in import price inflation, without causing a rise in domestically generated inflation. In addition, when import inflation is decelerating, growth could exceed the SIRG without causing overall inflation to rise. Notice that this result stems from the generation of import price fluctuations by the movements in the real exchange rate, a real variable. Hence, it holds irrespective of the way in which domestic goods prices are thought to be determined. The policy implications of these issues are considered in Section 5.

4. The Labour Market and Growth

Estimated relationships between labour demand and output growth allow assessment of the potential for employment growth. We review various estimates of the relevant elasticities and consider their implications for employment and wage growth here and in Section 5.3.

The structure of the labour market has changed since the 1960s. Employment has been increasingly part-time, women make up a larger segment of the labour force and working hours have altered. Despite this, employment remains dominated by full-time employees (74 per cent in 1997) and the majority of the unemployed are seeking full-time work (78 per cent in 1997). Consequently, we consider total employment and unemployment to be appropriate measures for macroeconomic analysis.

Labour demand is normally derived using a production function to relate real wages to the marginal product of labour.¹⁹ Consider an aggregate CES production function relating capital (K) and labour (N) in the production of output Y :

$$Y = [\gamma(t)K^{-\beta} + \mu(t)N^{-\beta}]^{-\frac{1}{\alpha}} \quad (15)$$

where β/α is the degree of returns to scale. The elasticity of substitution is found from:

$$w = \frac{\partial Y}{\partial N} = \frac{\beta}{\alpha} \mu N^{-(\beta+1)} Y^{(\alpha+1)} \quad (16)$$

$$r = \frac{\partial Y}{\partial K} = \frac{\beta}{\alpha} \gamma K^{-(\beta+1)} Y^{(\alpha+1)} \quad \text{so that} \quad (17)$$

$$\ln \frac{w}{r} = \ln \frac{\mu}{\gamma} - (\beta+1) \left(\frac{N}{K} \right) \quad (18)$$

It follows that the elasticity of substitution σ is $1/(1+\beta)$.

Equation (18) is a labour demand function relating N to time (through $\mu(t)$), w and Y . Writing it in logarithmic form:

$$\ln N = \sigma \ln(\beta/\alpha) + \sigma \ln \mu(t) + \left(\frac{\alpha+1}{\beta+1} \right) \ln Y - \sigma \ln w \quad (19)$$

which in the constant returns to scale case reduces to:

$$\ln N = \sigma \ln \mu(t) + \ln Y - \sigma \ln w \quad (20)$$

Supposing $\mu(t) = e^{\xi t}$, in the general case:

$$\ln N = \sigma \ln(\beta/\alpha) + \sigma \xi t + \left(\frac{\alpha+1}{\beta+1} \right) \ln Y - \sigma \ln w \quad (21)$$

The (semi-) elasticities with respect to time, output and real wages, respectively, are σ , $(\alpha+1)/(\beta+1)$, and σ . In the constant returns to scale case they are $\sigma\xi$, 1, and σ , and the constant is zero.

Various estimations of this form of labour demand equations have been carried out for Australian data and internationally. There are many disadvantages to such a system, the most striking being the identification problem. However, in the spirit of Hamermesh (1993) we consider that naive labour demand equations of this type have some merit as a benchmark for more sophisticated analysis.²⁰

In Dungey and Pitchford (1998) we estimate a naive labour demand curve in error-correction model (ecm) form for a number of market segments and measures of labour and real wages. Here we report only the results of demand for labour in persons. The use of employed persons, rather than hours, raises the question of potential

19. See, for example, Hamermesh (1993).

20. The economy would have operated on the labour demand curve if the period considered could be characterised as one of excess supply of labour. However, our theoretical analysis implies that this cannot be inferred without knowing the effective supply curve.

substitution between employees and working hours. Firms may choose to pay more for extra hours from existing employees rather than hire more bodies (Hamermesh 1993), and they may choose to hire extra persons on a part-time basis. The Australian labour market has changed over the past two decades, in particular it has become increasingly flexible. One consequence is that additional persons employed may not accurately reflect changes in the hours of labour demanded. In an attempt to account for the changing hours of work, we augment the traditional labour demand equation with an hours-worked variable as per the TRYM model of the Australian economy (Commonwealth Treasury 1996). The form of the estimated equation in Dungey and Pitchford (1998) for all employees over the period 1984:Q4 to 1997:Q1 is:

$$\Delta e_t = \alpha_0 + \alpha_1 t + \alpha_2 e_{t-1} + \alpha_3 q_{t-1} + \delta_1 \Delta y_t + \delta_2 \Delta w_t + \varepsilon_t \quad (22)$$

where e is total employment, t is a trend variable and q is a vector of independent variables comprising real output y , given by GDP(A); real wages w , represented by real earnings; and average weekly hours, hr . ε is a random error term. The variables are in logarithmic form and full data descriptions and sources are contained in Appendix A. Further details regarding the estimation of Equation (22) are contained in Appendix B. The following results were obtained:

$$\begin{aligned} \Delta e_t = & -1.022 - 0.0014t - 0.306e_{t-1} + 0.397y_{t-1} - 0.122w_{t-1} \\ & (0.476) \quad (0.0003) \quad (0.064) \quad (0.072) \quad (0.042) \\ & -0.015hr_{t-1} + 0.251\Delta y_t - 0.138\Delta w_t \\ & (0.098) \quad (0.098) \quad (0.077) \end{aligned} \quad (23)$$

In both our estimates and the existing Australian empirical literature, the form of the long-run relationship in the estimating equations can be characterised as in Equation (24):

$$e_t = \gamma_0 + \gamma_1 t + \gamma_2 y_t + \gamma_3 w_t + \eta z_t \quad (24)$$

where z is a vector of independent variables and η is the corresponding vector of coefficients.

In this section we are interested in the long-run elasticity parameters γ_2 and γ_3 and the technological change parameter γ_1 . Our output elasticity is a little higher and wage elasticity somewhat lower than the findings of earlier researchers, but are consistent with those of Debelle and Vickery (1998). As they note, part of this effect is due to the choice of data and time period.

Estimation of Equation (22) over a longer time period suggests similar wage elasticities, and the standard Chow tests do not indicate breaks in the relationship. However, recursive estimations indicate that the regressions had difficulty in fitting the data in the early 1980s, in a period where employment growth continued despite high wage growth (Gregory 1986; Crosby and Olekalns 1998) suggesting there is a case for distinguishing the recent labour market experience from earlier evidence. Russell and Tease (1991) estimate the long-run wage elasticity at 0.67 for full-time male employees using real unit labour costs as the measure of wages for the period 1969–87.²¹ The

21. Russell and Tease modify the unit labour cost series by using smoothed GDP in its construction. We can obtain similar results to theirs using the unit labour cost data. However, the data needed for a study of employment should be per head of employees, not per unit of output.

TRYM model obtains an elasticity of substitution of 0.78 after making adjustment for the impact of vacancies over the business cycle for 1971 to 1995 (without this adjustment the reported wage elasticity is calculated at -0.32). Table 1 gives the values of γ_i from the TRYM model (Commonwealth Treasury 1996), Russell and Tease (1991) and our estimates.

Under the assumption of no change in the z_t variables, the relationship in Equation (25) enables consideration of consistent scenarios of employment, output and real wages growth using long run elasticities:

$$\Delta e_t = \gamma_1 + \gamma_2 \Delta y_t + \gamma_3 \Delta w_t + \eta \Delta z_t \quad (25)$$

Using the parameters in Table 1, we produce a set of ‘scenario’ charts to illustrate the consequences of long-run elasticities. Consider first the naive estimates from Dungey and Pitchford.

Table 1: Long-run Parameters

Study	Technical change (γ_1)	Output elasticity (γ_2)	Wage elasticity (γ_3)
Dungey and Pitchford	-0.005	1.30	-0.40
TRYM	-0.008	0.91	-0.79
Russell and Tease	-0.0005	0.67	-0.61

Figure 7 shows bands of real wage growth consistent with output and employment growth in the economy. According to the naive parameters, if real output in the economy is growing at 3.5 per cent, then employment growth of between 0.5 per cent and 1 per cent per annum is consistent with real wage growth in the 4–6 per cent band.²² As the real output growth rate increases and the rate of employment growth falls (a move right and down in the graph) the consistent real wage growth rate rises. At higher (lower) output growth and lower (higher) employment growth, the consistent real wage growth rises (falls).

For the parameter estimates from TRYM and taking the case of 3.5 per cent real output growth, falling employment growth is associated with positive real wage growth (Figure 8). For the Russell and Tease estimates, 3.5 per cent output growth is consistent with positive employment growth when real wage growth is less than 4 per cent per annum. The Russell and Tease scenarios (not shown here) indicate higher real wage growth rates consistent with falling employment (through growth below the SIRG) than do the TRYM model scenarios, but lower real wage growth than our estimates.

It should be borne in mind that these elasticities are ‘long run’ constructs so that their use to illustrate short-run scenarios may be inappropriate. In Section 5 we use the adjustment equation from which these elasticities are derived, in conjunction with further assumptions about wage and GDP growth rates, to construct several prospects for unemployment.

22. A consistent real wage growth rate can be calculated more accurately, for example at 5.6 per cent for a 0.5 per cent rise in employment, but is less useful for analytical purposes.

Figure 7: Pitchford and Dungey Growth Scenarios: Growth in Real Output, Employment and Real Earnings
 Real earnings growth is shown in 2 per cent bands

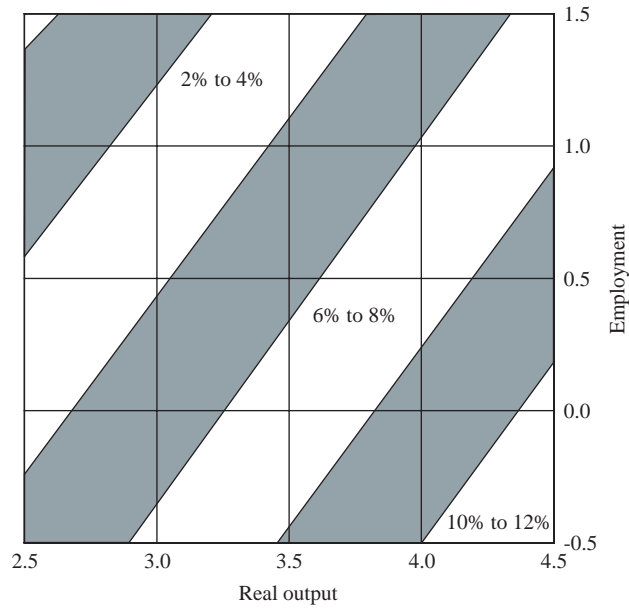
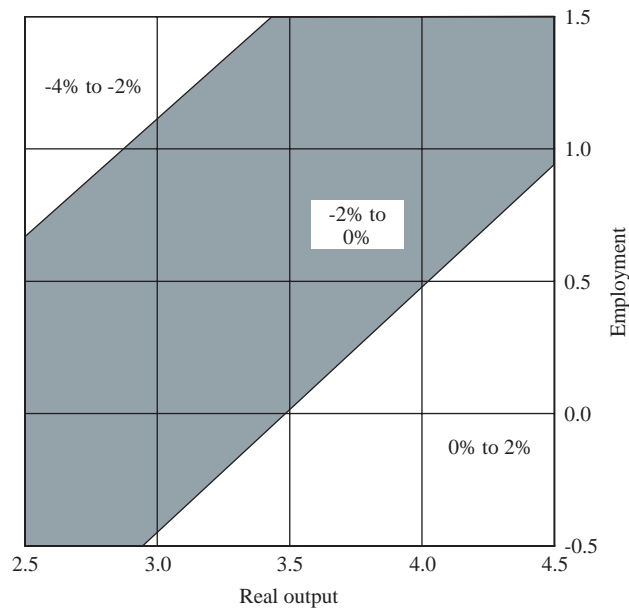


Figure 8: TRYM Growth Scenarios: Growth in Real Output, Employment and Real Earnings
 Real earnings growth is shown in 2 per cent bands



5. Policy Issues

The results in preceding sections suggest ways of achieving higher growth of employment and output consistent with steady inflation. These are discussed under the headings of sources of inflation, the SIRG, and real wages and unemployment.

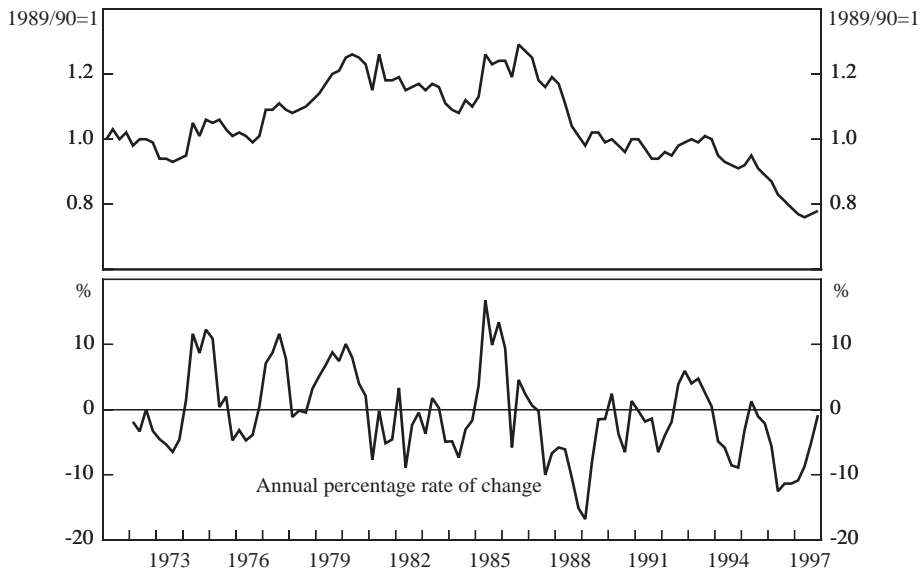
5.1 Sources of inflation

Attempting to manage inflation without reference to its source is likely to lead to considerable fluctuations in growth. In particular, inflation arising from domestic excess demand should be distinguished from inflation due to import price movements as they have been shown to have different types of behaviour, a point also made by Stevens (1992). Thus, if the equilibrium growth rate is exceeded, domestic inflation will start to rise. The options will then be either a period of growth below the SIRG or the prospect of the eventual establishment of a permanently higher inflation rate at the SIRG. On the other hand, while rising inflation of imported goods can cause the overall inflation rate to rise, a subsequent fall in this source of inflation will bring the inflation rate down again, without the necessity for departing from the SIRG. Movements in the real exchange rate (defined as the ratio of the import price deflator to the underlying consumer price index), are the major source of fluctuations in this category of inflation (Figure 9). The factors influencing it include monetary and fiscal disturbances, movements in the IS and LM curves, shifts in currency preferences and changes in the terms of trade.

It can be seen from the rate of change part of Figure 9 that the real exchange rate fluctuates widely and regularly. Also the index shows that there have been long periods of appreciation and depreciation, depreciating in the mid 1980s, appreciating in the late 1980s and through 1984 to 1987. How should policy respond to the effects on inflation of such real exchange rate movements? Earlier we noted the benefit that the recent real appreciation provided for inflation control in the 1990s, but what about depreciation? Suppose the economy is at some target positive inflation rate. Real depreciation means that the prices of imports rise relative to those of domestic goods. In order for monetary policy to maintain inflation at a particular rate, GDP growth would be required to fall. In the face of real exchange rate changes there would seem to be a strong case for maintaining the SIRG while letting inflation fluctuate. From Figure 5, it can be seen that the large depreciation in the mid 1980s significantly increased the inflation rate, but subsequently this was more than offset by the large appreciation through to the end of the decade. Real appreciation continued to reduce the pressure on inflation through to 1997.

If a real depreciation is allowed to raise inflation it could also have an effect on nominal and real wages and so on unemployment. Theoretical analysis does not give unambiguous results about the impact of relative price shifts on real wages, the outcome usually depending on factor intensities in different sectors.²³ Leaving this aside, the reaction of the authorities in the case of the mid 1980s depreciation was to attempt to

23. See Stolper and Samuelson (1941), Meade and Russell (1957) and Pitchford (1963) for analyses of this, the latter papers establishing that almost anything can happen.

Figure 9: Real Exchange Rate

calculate the effects of depreciation on inflation and argue that nominal wages should not be raised by that factor. This seems preferable to reducing real growth. Such policies should be increasingly unnecessary as wages become more market determined.

Although domestic macroeconomic policy can influence the real exchange rate to some extent, it is probably fair to say that very large shifts in interest rates would be needed to offset its changes and that much of its movement due to foreign sources is outside such control. Hence, it would seem undesirable to attempt to control it, unless doing so accorded with some other objective. As a consequence, modest rates of inflation generated by import prices need not give rise to policy responses.

Data on inflation, import prices and GDP are available to policy-makers only after a considerable delay. However, the association between import price inflation and the TWI is sufficiently strong that its quarterly and monthly movements can provide some early indication of the import price component's effect on inflation, which could assist the process of distinguishing the two sources of inflation. This is discussed further in Appendix C.

5.2 The SIRG

Policy toward inflation consists of two parts. The first involves choosing a desired inflation rate, which in Australia takes the form of a target average rate falling in the band of 2–3 per cent per annum. The second is achieving the band, which in a stochastic sense can be thought of as attaining steady inflation at the desired rate. In such an equilibrium, growth would be at the SIRG and inflation could fluctuate with real exchange rate movements.

When the domestic goods component of the inflation rate is rising or falling, some procedure for adjusting interest rates is needed to bring the system to steady inflation. A problem with rules which target only overall inflation is that they do not distinguish between inflation arising from import prices and that originating in domestic goods markets. Following such a rule with respect to the inflation index would lead growth to fluctuate when the real exchange rate fluctuated. Moreover, if there is evidence that suggests the existence of a growth rate consistent with steady inflation in the domestic component, it would seem appropriate to use it. If growth is less (greater) than the SIRG, our analysis suggests that whatever rule operates, growth should be increased (reduced).²⁴ Further, it would be prudent to watch inflation, both from domestic sources and from import prices and to react to their movements. Another consideration is that because of possible shifts through time, the use of the SIRG to guide policy would need to be handled with care. Of course, this also applies to all policy indicators.

A possibility for a period of growth above the SIRG could arise when the contribution of real exchange rate movements to inflation is negative. This could particularly be the case when a program to reduce unemployment is current. It might be feasible at such times to edge growth up without raising the inflation rate. However, it would then be important to bear in mind that the effect of higher growth on inflation may come with a lag of close to six months, allowing for the delay in data availability. The situation would need to be appraised on the basis of the facts available at the time.

It might be thought that a conservative policy approach to inflation would be to keep growth below the SIRG. However, if this were done, and taking the case of a neutral impact from import prices, the inflation rate will fall. If there is a cycle in growth, inflation will fall on average. Low inflation rates pose a problem for monetary policy because the floor to nominal interest rates may not allow real interest rates to be set low enough to help revive the economy from recession. Hence, some target positive average inflation rate over a cycle will not be met unless growth exceeds the SIRG in a boom as well as falling below it in the trough.

5.3 Real wages, growth and unemployment

Employment elasticity estimates can be used to give an answer to the question of the effect of changes in the non-market component of wages on employment.²⁵ Instead of addressing this issue, we use the elasticities from Section 4 to examine various possibilities for reducing unemployment through higher growth. To do this it is necessary to make assumptions about the behaviour of real wages and output. Table 2 provides a way of looking at their association through time. Even the period 1972:Q3 to 1983:Q3, which includes the large real wage increases in the seventies and early eighties, did not result in average real wage growth exceeding that of real GDP.

This experience suggests two potentially interesting cases, that is where wages and GDP grow at similar rates as in the first subperiod, and where wage growth is about half

24. The Taylor rule involves adjustment to both output and inflation, so could be extended to a growth target. It would also need modification so that it distinguished between sources of inflation.

25. This exercise is undertaken by Debelle and Vickery (1998).

that of GDP as in the third column of the table.²⁶ We assume that labour force growth is 1.25 per cent per annum which is near its current average.²⁷ This is probably an optimistic assumption as the participation rate could well rise with falling unemployment and rising wages. Initial values for the variables in the short-run adjustment equation are taken at their 1997:Q4 levels, including an unemployment rate of 8.4 per cent.²⁸ The short-run scenario results are sensitive to the initial values as they involve levels variables.

Table 2: Mean Annual Growth Rates of Real GDP and Real Earnings

Mean growth	1972:Q3 – 1983:Q3	1983:Q3 – 1989:Q3	1992:Q3 – 1997:Q4	1972:Q3 – 1997:Q4
Real GDP	2.7	4.4	3.8	3.17
Real earnings	2.3	-1.0	2.1	1.36

The following scenarios are, of course, meant only to be indicative of possible results and are in no way predictions. After reviewing them we shall look at ways in which changes in our assumptions might affect their outcomes.

In scenario 1 shown in Figure 10, we assume that output growth is raised immediately to the SIRG and held there. In the case in which wage growth is half output growth, by March 2000 unemployment would be down to 7.4 per cent and by December 2002 to 4.9 per cent. Inflation would fall to, and stay around, 1 per cent per annum. By comparison, if output growth is initially raised to 5.5 per cent, but then brought back to 5 per cent after one year and to the SIRG after two years, inflation will rise, but remain in the 2–3 per cent band (Figure 11). Under the optimistic scenario (real wages grow at half the rate of output), the unemployment rate falls to 7.2 per cent after two years and 4.5 per cent after four. Note that the labour force and employment grow at rates that are approximately constant, and that the shape of the curve in these scenarios is driven by the rise in E/L , where the change in the unemployment rate, Δu , is given by $100 * \{E/L\}(\Delta l - \Delta e)$ and Δl is growth in the labour force, L .

The final figure (12) compares unemployment paths using the optimistic wage assumption cases of scenarios 1 and 2, with the outcome arising from the 1998–99 Budget growth assumption. We suppose this implies that growth is 3.5 per cent for the first quarter of 1998 and then 3 per cent until the end of 1999, thereafter reverting to the SIRG. The results are not particularly different in the first year, but leave the economy with half a percentage point more of unemployment, when compared with the high growth case, by the year 2000. A qualification to these outcomes is that the Asian currency crisis has led to a depreciation of the \$A which will ensure that the overall inflation rate will be higher than we have calculated, given our neutral assumption about import prices.

26. The Accord experience in the 1980s is unlikely to be repeated.

27. Other cases are examined in Dungey and Pitchford (1998).

28. These simulations use the employment equation in Appendix B and assume no change in average weekly hours.

Figure 10: Scenario 1 – Growth at SIRG

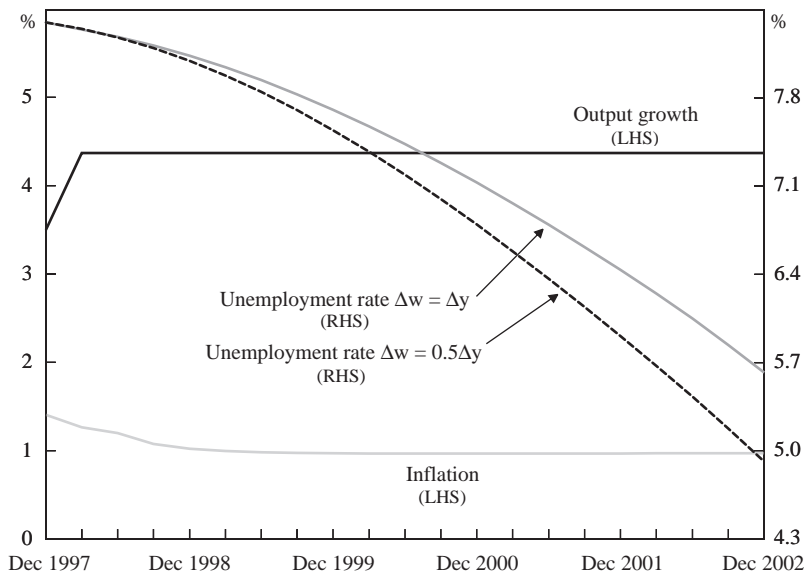
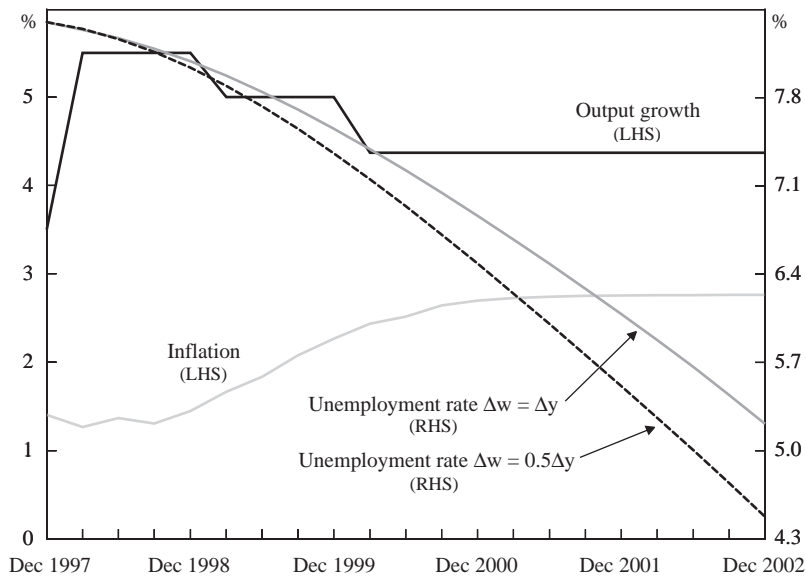


Figure 11: Scenario 2 – Higher Growth

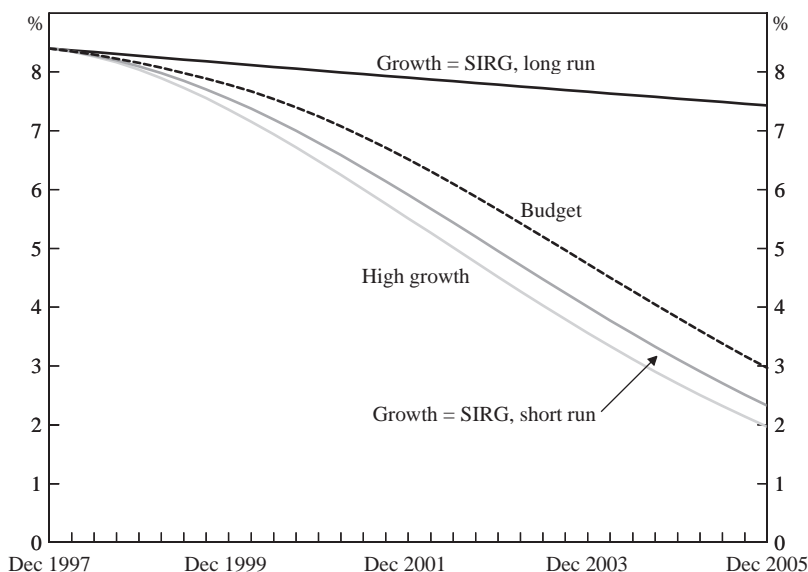


One approach to this type of scenario is to construct them using long-run wage and output elasticities. This can give very different results. Figure 12 includes a case in which the scenario of growth at the SIRG is constructed from only long-run elasticities, rather than the complete adjustment process of Equation (23). It can be seen that this gives a much lower reduction in unemployment. The reason is that the long-run elasticities are very long run, applying to an equilibrium in the distant future where growth of output and wages have ceased. Putting this another way, the long-run elasticities relate to levels of output, whereas the adjustment process in the estimated equation deals with growth. The difference between the results in the two cases comes from the ‘short run’ elasticity that relates the growth in output (Δy) to the change in employment (Δe). The consequence is that the long-run elasticity procedure suggests smaller falls in unemployment than the case which allows for short-run adjustments.

Unemployment falls with growth and declines significantly more rapidly in the optimistic wage scenario. In scenario 2, after four years, unemployment is back near the rate before the 1982–83 recession. It is doubtful that anything like this will be achieved, given the recent slowdown in some of our Asian trading partners. However, even the low growth case, where the Budget estimates assume lower growth because of the Asian situation, still shows worthwhile reductions in unemployment. Our calculations suggest that it would take nine years from the end of the 1990–92 recession to reach 1989 unemployment rates. Perhaps one of the main lessons is to illustrate how drastically recessions affect unemployment, given that it takes so long to reverse their impact on unemployment.

As we have noted, rises in participation could reduce the fall in unemployment. Another offset could come from the additional rises in wages which a period of prolonged

Figure 12: Unemployment Scenarios: $\Delta w=0.5\Delta y$



growth could produce. Further, rising real wages may have a greater negative impact on growth than we have allowed for via the 'scale effect' when the economy is on the supply curve.²⁹ Our assumptions about the relationship between output and wage growth become less likely to hold, the further the system moves from the base date. Nevertheless, our results raise the possibility that higher growth could contribute significantly to reducing unemployment.

Other scenarios which make alternative assumptions about the behaviour of the workforce could well show smaller reductions in unemployment, as it is likely that the participation rate would rise considerably during a long period of growth of output, wages and employment. These responses are one of the least understood facets of the labour market.

6. Concluding Remarks

Low unemployment was the norm for Australia during the thirty years following World War 2. This is too long a period for 'full employment' to be dismissed as a transient or rare event, so it must remain a challenge for economists to find how to recover it. At the macroeconomic level, faster economic growth and less drastic recessions are the main ways of reducing unemployment. This is not a panacea, because higher growth will bring the potential for rising inflation. Our object has been to investigate the concept of a GDP growth rate compatible with steady inflation, and we find an association between growth and domestically generated inflation that is at least as robust empirically as many alternative approaches. This is also supported by approaching the relationship indirectly through a version of the output gap concept and relating growth to the gap. Our figure for the steady inflation rate of growth (SIRG) for the post-float period is 4.37 per cent per annum.

Inflation also arises from fluctuations in import prices and this, as often as not, takes the form of a negative impact. We argue that inflationary pressures from this source should be absorbed by allowing the overall inflation rate to move up or down, rather than by reducing growth below the SIRG. Some of Australia's most severe inflationary episodes, such as the Korean wool-price boom and the oil price shocks, have come from such external sources. The pegged exchange rate system of those times was not well suited to absorbing such shocks, but a floating rate system at least allows an independent monetary policy.

If import price inflation is falling, there will be some scope for growth above the SIRG to help achieve falling unemployment without rising inflation. Further, if as seems very likely, the economy continues to produce growth cycles there will be scope for higher growth than the SIRG in the upswing. If this is not the case, there will be a tendency for the average inflation rate to lie under the target band and even to fall so low that there is difficulty in conducting effective monetary policy in times of recession.

Given the poor state of knowledge about the elasticities of demand for, and particularly supply of, labour, there must be doubt as to the extent to which growth can contribute to reducing unemployment. However, our scenarios suggest that it might be possible to

29. See DeBelle and Vickery (1998) for a discussion of the scale effect.

bring unemployment down to the vicinity of 1989 pre-recession rates over the next four to five years if actual outcomes for growth and wages approximate those of our optimistic assumptions, or even those of some of our less optimistic cases. Historically, periods of high activity and growth such as in World War 2 and during 1945–75 were accompanied by low unemployment. It would be surprising if growth were not the cause of such favourable employment experience.

Macroeconomic measures to promote growth without rising inflation would no doubt have greater effect in more flexible labour markets. Nevertheless, it should not be forgotten that rigidity in labour markets characterised postwar Australia much more than at present. Given that most microeconomic measures to reduce unemployment aim to create structural change, it is likely that they too would work better in an environment of high growth.

Appendix A: Data Definitions

- E: Quarterly total non-farm employment taken from the NIF database on DX [VNEQ.AN_NNE].
- HR: Quarterly total average weekly hours (seasonally adjusted) from the NIF database on DX [VNEQ.AN_NHT].
- M: Quarterly implicit price deflator for imports from the TSS database on DX [NPDQ.AD90IMP#].
- p: Quarterly Treasury underlying Consumer Price Inflation rate taken from the TSS database on DX [RSR.U190C9211001].
- W: Quarterly real earnings index (seasonally adjusted) taken from the RBA database on DX [GLCREISA]. This series is constructed by the RBA taking total earnings from the national accounts to create a weekly earnings figure and then deflating by the relevant consumption index (see the ‘Notes to Tables’ to Table G.5 in the Reserve Bank *Bulletin*).
- X: The exchange rate – defined as the inverse of the trade-weighted index from the RBA database on DX [FXRTWI]. Quarterly data derived as the average of the end-month figures.
- Y: Quarterly Australian real GDP(A) (seasonally adjusted) taken from the ABS TSS database on DX [NPDQ.AK90GDP#A].

Capital letters denote data in levels and lower case denotes logged series.

Appendix B: Estimation Results

B.1 Inflation

$$\begin{aligned} \Delta\pi_t = & -0.279 + 0.360\Delta\pi_{t-1} + 0.015\Delta gs_{t-1} + 0.015gs_{t-3} \\ & (0.064) (0.088) \quad (0.004) \quad (0.003) \\ & + 0.030\Delta m_{t-1} + 0.023\Delta m_{t-2} + 0.030\Delta m_{t-3} \\ & (0.007) \quad (0.008) \quad (0.008) \end{aligned} \tag{B1}$$

LM test for serial correlation 0.968 RESET test 0.766

Normality (Jarque-Bera) 1.424 Heteroskedasticity 0.343

AIC = -12.4 SBC = -19.5 $\bar{R}^2 = 0.68$

Estimation period: 1983:Q4 – 1997:Q4

B.2 Employment

$$\begin{aligned} \Delta e_t = & -1.022 - 0.0014t - 0.306e_{t-1} + 0.397y_{t-1} - 0.122w_{t-1} \\ & (0.476) (0.0003) (0.064) (0.072) (0.042) \\ & -0.015hr_{t-1} + 0.251\Delta y_t - 0.138\Delta w_t \\ & (0.098) (0.098) (0.077) \end{aligned} \quad (B2)$$

LM test for serial correlation 3.938 RESET test 1.830

Normality (Jarque-Bera) 0.465 Heteroskedasticity 0.035

AIC = 195.4 SBC = 187.8 $\bar{R}^2 = 0.55$

Estimation period: 1984:Q4 – 1997:Q1

The series were all found to be I(1) using the standard ADF tests. Details are available from the authors.

Appendix C: Results with Alternative Data

C.1 Output gap and growth

The output gap series is measured as the difference between real output at any given time, and a twelve-period moving average of real output adjusted so that the June 1990 observation is the same as actual GDP. Real output in June 1990 was chosen as a period of potential output, as it was a time intermediate between boom and recession. The correlation coefficient between the two series over the period 1983:Q4 to 1997:Q4 is 85 per cent. More details on the use of the output gap as an alternative to growth in estimating Equation (10) are available in Pitchford and Dungey (1998).

C.2 Import price inflation and the exchange rate

If the changes in the inflation rate of the TWI, denoted Δh , are substituted for the import price component, re-estimating Equation (24) yields:

$$\begin{aligned} \Delta \pi_t = & -0.296 + 0.412\Delta \pi_{t-1} + 0.017\Delta gs_{t-1} + 0.016gs_{t-3} \\ & (0.066)(0.086) (0.004) (0.003) \\ & -0.021\Delta h_{t-1} - 0.016\Delta h_{t-2} - 0.022\Delta h_{t-3} \\ & (0.005) (0.005) (0.006) \end{aligned} \quad (C1)$$

LM test for serial correlation 2.435 RESET test 0.582

Normality (Jarque-Bera) 1.324 Heteroskedasticity 0.023

AIC = -12.6 SBC = -19.7 $\bar{R}^2 = 0.68$

Estimation period: 1983:Q4 – 1997:Q4

The negative signs on the changes in exchange rate inflation come from the definition of the TWI as an index of the prices of foreign currencies (see Equation (14)). Hence, an early indication of the import price component's effect on inflation can be had from movements in Δh .

References

- Barro, R. and H. Grossman (1976), *Money, Employment and Inflation*, Cambridge University Press, Cambridge.
- Commonwealth Treasury (1996), *Documentation of the Treasury Macroeconomic (TRYM) Model of the Australian Economy*, CPN Printing, Canberra.
- Crosby, M. and N. Olekalns (1998), 'Inflation, Unemployment and the NAIRU in Australia', *Australian Economic Review*, forthcoming.
- Debelle, G. and J. Vickery (1998), 'The Macroeconomics of Australian Unemployment', paper presented at this conference.
- Dungey, M. and J. Pitchford (1998), 'Employment, Growth and Real Wages in Australia', mimeo, La Trobe University.
- Gregory, R. (1986), 'Wages Policy and Unemployment in Australia', *Economica*, 53(210S), pp. S53–S74.
- Hameresh, D. (1993), *Labor Demand*, Princeton University Press, Princeton, New Jersey.
- Malinvaud, E. (1977), *The Theory of Unemployment Reconsidered*, Basil Blackwell, Oxford.
- Meade, J. and E. Russell (1957), 'Wage Rates, the Cost of Living and the Balance of Payments', *Economic Record*, 33(64), pp. 23–28.
- Muellbauer, J. and R. Portes (1978), 'Macroeconomic Models with Quantity Rationing', *Economic Journal*, 88(352), pp. 788–821.
- Pitchford, J.D. (1963), 'Real Wages, Money Wages and the Terms of Trade', *Economic Record*, 39(87), pp. 282–291.
- Pitchford, J.D. (1993), 'The Exchange Rate and Macroeconomic Policy in Australia', in A. Blundell-Wignall (ed.), *The Exchange Rate, International Trade and the Balance of Payments*, Reserve Bank of Australia, Sydney, pp. 147–201.
- Pitchford, J.D. and M. Dungey (1998), 'An Analysis of Inflation and Growth in Australia', mimeo, Australian National University.
- Russell, W. and W. Tease (1991), 'Employment, Output and Real Wages', *Economic Record*, 67(196), pp. 34–45.
- Snooks, G.D. (1998), *Long Run Dynamics*, Macmillan/St Martins Press, London and New York.
- Stevens, G. (1992), 'Inflation and Disinflation in Australia: 1950–91', in A. Blundell-Wignall (ed.), *Inflation, Disinflation and Monetary Policy*, Reserve Bank of Australia, Sydney, pp. 182–244.
- Stolper, S.F., and P.A. Samuelson (1941), 'Protection and Real Wages', *Review of Economic Studies*, 9, pp. 58–73.

The Macroeconomics of Australian Unemployment

Guy Debelle and James Vickery*

1. Introduction

The unemployment rate in Australia has risen from less than 2 per cent in the late 1960s to an average of over 8 per cent over the past fifteen years.

In this paper, we examine unemployment from an aggregate perspective and present a framework with which to analyse how the unemployment rate could be permanently lowered from its current level. In doing so, we also discuss the role that monetary policy can play in assisting the adjustment to a lower unemployment rate.

A macroeconomic examination of unemployment obscures much of the rich detail that underpins the labour market. Nevertheless, it enables us to analyse the broad trends that have occurred over the past twenty years on both the demand and supply sides of the labour market. In the next section we examine these trends at an aggregate level. The aggregate unemployment rate has risen as a result of a large increase in labour supply which has not been matched by an equivalent increase in labour demand (employment). Most of the rise in the aggregate unemployment rate occurred in the 1970s, associated with the increase in labour costs at that time. Since the early 1980s, the aggregate unemployment rate has fluctuated with the economic cycle around a relatively constant mean.

In Section 2, we also discuss estimates of the natural rate of unemployment. Similar to the trend in the aggregate unemployment rate, the natural rate rose sharply in the mid 1970s, but has been relatively steady over the past fifteen years fluctuating between 6 and 8 per cent. The adjustment of inflation expectations has played an important role in the movement of the aggregate unemployment rate relative to the natural rate in the 1990s.

An aggregate labour demand and supply curve are at the core of the model described in Section 3 that provides the foundation for the analysis in the paper. These two equations are estimated in Section 4 of the paper. The empirical analysis identifies the effect of real wages and output on labour demand, and the impact of the business cycle on labour supply.

The model presented in Section 3 highlights the importance of the linkage between the level of the aggregate real wage and the unemployment rate. If the aggregate real wage is too high, the unemployment rate will be permanently above its desired level. Consequently, the analysis in Section 5 focuses on the size of the reduction in the unemployment rate that can be achieved by a given reduction in the level of the real wage. It shows that slower real wage growth of 2 per cent below trend for one year could result in a permanent reduction in the unemployment rate of about one percentage point.

* We thank Philip Lowe, Peter Downes, Jeff Borland, Mardi Dungey, John Pitchford and colleagues at the Reserve Bank for helpful discussions.

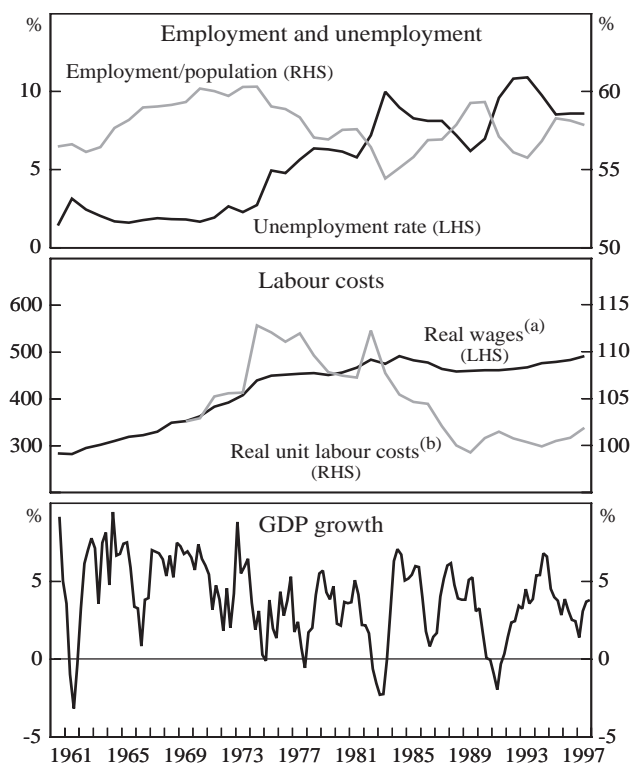
The analysis in Section 5 also suggests that monetary policy can play an important role in the transition to a lower unemployment rate. While monetary policy does not affect the natural rate of unemployment or potential output, it can help to reduce the transition time to the lower unemployment rate, thereby reducing the gap between the actual unemployment rate and the natural rate. It can do so by recognising and correctly interpreting the signs of labour market adjustment. The inflation-targeting framework is well suited to this purpose.

2. A Macroeconomic Overview of the Labour Market

Before presenting the theoretical framework and the empirical analysis, we first summarise the trends in the key aggregate labour market variables over the past forty years. Figure 1 suggests that in general, movements in the real cost of employing labour and the cycles in aggregate demand have been associated with fluctuations in employment and unemployment. We investigate these relationships more explicitly in Section 4.

Since 1960, the employment to population ratio has fluctuated around a reasonably constant mean of around 58 per cent, while the unemployment rate has risen by around

Figure 1: An Aggregate Overview of the Labour Market



Notes: (a) \$/week; 1989–90 prices.

(b) Index; 1966–67 to 1972–73 = 100.

6 percentage points. This definitionally implies that the growth in labour demand has not kept pace with the growth in labour supply, particularly over the past 25 years. The driving force behind the increase in labour supply has been the increased participation of females which has more than offset a slow decline in the male participation rate (Borland and Kennedy 1998).

The rise in the participation rate need not have led to a rise in the aggregate unemployment rate, provided there was a decline in the real wage to enable the labour market to absorb the increased supply. This decline would not necessarily be permanent – in a standard trade model, in the long run, the returns paid to factors of production are invariant to the supply of those factors. However, in actuality, as is discussed in the rest of this section, the reverse occurred, namely the real wage increased at the same time as the increase in supply.

Increases in the unemployment rate occurred primarily in three relatively short periods. The first of these was in the mid 1970s and was associated with a sharp rise in labour costs. After the rapid rise in average weekly earnings in 1974 of 28 per cent, real unit labour costs remained at historically high levels until the early 1980s. This rise in labour costs was associated with a five percentage point fall in the employment to population ratio and an increase in the unemployment rate of nearly 4 percentage points.¹

The unemployment rate increased further around 1982 following the wage push associated with the resources boom of the early 1980s (when average weekly earnings rose at an annual rate of 14 per cent in the two years to June 1982) and as a result of the 1982–83 recession. The wage rise in this case was relatively short-lived, but the unemployment rate rose by 4 percentage points and the employment to population ratio fell by 2 percentage points. In the second half of the 1980s, during the Price and Incomes Accords, real unit labour costs fell below their levels of the early 1970s and employment rose steadily.² However, despite the recovery of the employment to population ratio to its level of the early 1970s, the unemployment rate did not fall much below 6 per cent. This was a result of the increase in the participation rate of over 3 percentage points between 1984 and 1990.

Finally, the unemployment rate rose again in the early 1990s following the recession at that time. Subsequently, the employment to population ratio has recovered to around its average level, and the unemployment rate has fallen back to its current level of around 8 per cent.

The sharp rises and the subsequent slow declines in the unemployment rate highlight the costs of large cycles in output and the benefits of maintaining steady growth (Macfarlane 1997). In previous work, we have shown that if the Phillips curve is non-linear, the more stable the path of economic growth, the lower the average rate of unemployment (Debelle and Vickery 1997). A consistent rate of economic growth close

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1. At the time, there was a vigorous debate about the impact of these wage movements on employment – the ‘real wage overhang’ debate. See Chapman (1990), Gregory and Duncan (1979) and Indecs (1986) for a summary of the debate.
 2. A similar debate has occurred on the role of the Accord in the observed wage outcomes over this time. Cockerell and Russell (1995) and Pissarides (1991) find no impact of the Accord on wages once other influences are accounted for, whereas Chapman and Gruen (1990) and Watts and Mitchell (1990) conclude the opposite.

to the trend growth rate of the economy will ensure that the unemployment rate remains close to the natural rate of unemployment through time, thereby lowering the average unemployment rate. On the other hand, a Schumpeterian view of the world would suggest that there are long-run benefits to economic growth from economic cycles. Caballero and Hammour (1996), however, show that even in this case, large volatility in economic growth is likely to be detrimental.

A standard decomposition of the aggregate unemployment rate is into its cyclical and structural components. The structural or natural rate of unemployment is that level associated with a constant and expected inflation rate, given the institutional structure of the economy. Figure 2 shows some estimates of the natural rate in Australia. These estimates are clearly quite divergent, reflecting, *inter alia*, the different techniques the authors have employed and the different sample periods used in the estimation.

The time series of aggregate unemployment shown in Figure 2 suggests that the natural rate has risen since the early 1970s, but has been relatively constant since the early 1980s. This is supported by Debelle and Vickery's (1997) estimate of the natural rate, which rises sharply in the mid 1970s, and the natural rate series in the TRYM model which has a once-off level shift in 1974 of around 2¹/₂ percentage points (Commonwealth Treasury 1996).

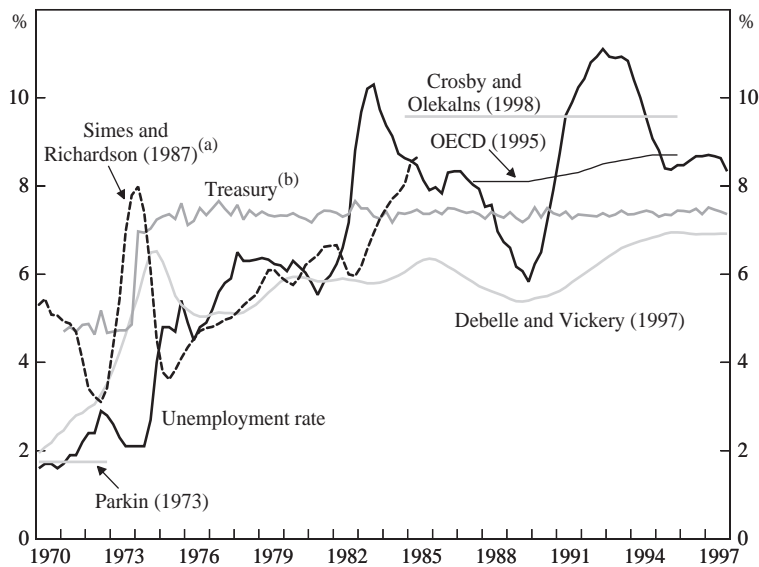
The large movements in the natural rate are generally associated with large movements in real wages: the rise in the natural rate in the mid 1970s occurred at the same time as the large shock to the real wage. Similarly, the decline in Debelle and Vickery's estimate of the natural rate in the late 1980s was associated with the moderation in real wage growth.

A number of microeconomic factors are also likely to have influenced the path of the natural rate, including factors that affect a person's willingness to search for a job such as the level of unemployment benefits and the location of job opportunities. However, it has generally proven difficult to directly relate the rise in the natural rate to specific causes, in part because of the difficulty in estimating the natural rate itself. An indirect guide to movements in the natural rate can be obtained by examining factors that have caused shifts in the Beveridge curve which plots the rate of unemployment against the level of job vacancies (Figure 3).³ The negative slope of the curve is evident, reflecting the fact that in booms, new jobs are being created at a faster pace and there are less unemployed people looking for jobs, while in recessions, the converse is true.

Underpinning the stocks of unemployed people and job vacancies each period are large flows into and out of employment and unemployment. Changes in the efficiency with which the large flows of workers are matched with vacancies shift the position of the Beveridge curve, while over the business cycle the economy shifts along the Beveridge curve.

Using data from 1980 onwards, we estimate the Beveridge curve for Australia in Appendix A. We test to see whether different indicators of the efficiency of process that matches job seekers and job vacancies have led to shifts in the Beveridge curve but find little evidence of this. This suggests that the Beveridge curve has not shifted outwards

3. Reliable vacancies data are not available prior to 1979. However, it appears likely that the Beveridge curve shifted outwards during the 1970s (Harper 1980).

Figure 2: Estimates of the Natural Rate of Unemployment

- Notes: (a) The estimate of the natural rate of unemployment in Simes and Richardson (1987) depends on past rates of unemployment as well as the level of overtime per worker. We have calculated an implied natural rate series based on the coefficient estimates presented in their paper.
- (b) The TRYM estimate of the natural rate was supplied by Peter Downes, Commonwealth Treasury, and is based on the methodology in Downes and Stacey (1996). This measure assumes a constant rate of trend productivity growth which may be too low.

since the early 1980s, corroborating the evidence from Figure 2 that the natural rate has not changed greatly over the past 15 years. Fahrner and Pease (1993) derive similar conclusions from an analysis of the underlying flows data.

Despite the natural rate remaining relatively constant, the actual unemployment rate has remained above the estimate of the natural rate throughout the 1990s. This may in large part be attributed to the relatively slow decline in inflation expectations (Figure 4). The Phillips curve framework implies that as long as inflation expectations remain above the central bank's inflation target, the economy will operate below potential and unemployment will remain above the natural rate of unemployment. If inflation expectations continue to decline as they have in the past year or two, this would imply that the unemployment rate would converge toward the natural rate.

The influence of inflation expectations on the path of the aggregate unemployment rate relative to the natural rate emphasises the need for the central bank to continually ensure that its monetary policy framework is credible and transparent. The more it does so, the faster are inflation expectations likely to fall to the inflation target and the more likely they are to remain anchored at the target in the future.

To some extent, the differences in the estimates of the natural rate shown in Figure 2 reflect the different assumptions about inflation expectations. Crosby and Olekalns (1998) obtain such a high estimate of the natural rate, in large part because they assume that, on average, inflation expectations have equalled actual inflation, thereby implying that the

Figure 3: The Beveridge Curve

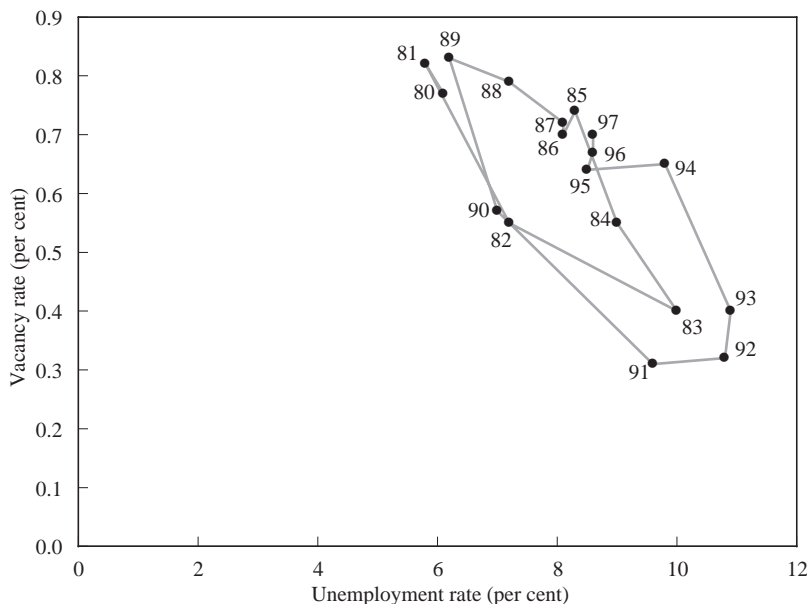
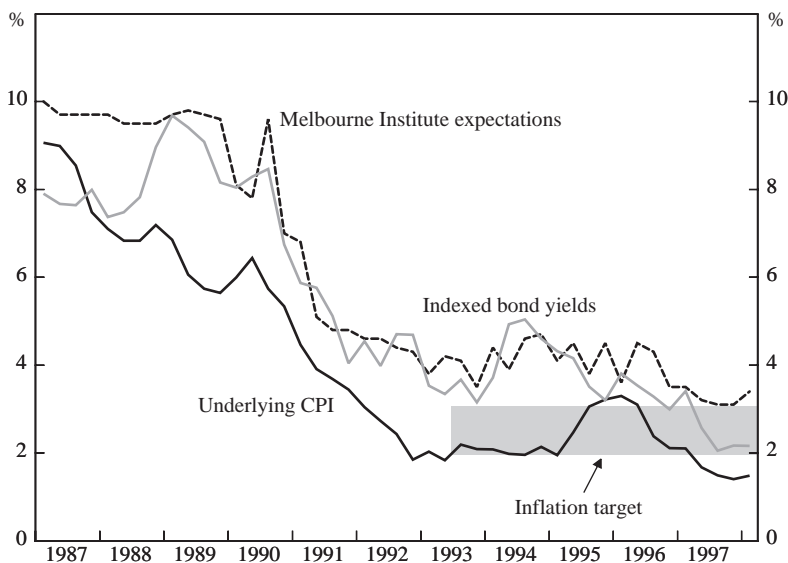


Figure 4: Inflation and Inflation Expectations



natural rate must, on average, approximate the actual unemployment rate. In contrast, Debelle and Vickery’s estimate reflects the fact that inflation has been consistently below their measure of inflation expectations throughout much of the 1990s, so that correspondingly, their estimate of the natural rate has been consistently below the actual unemployment rate.

The OECD (1996) estimate is derived from a wage, rather than a price, Phillips curve, and suffers from the problem that it ignores productivity growth. A trend increase in productivity growth, which is in part reflected in higher wages, will cause the estimate of the natural rate to increase, despite the absence of any inflationary pressure. As there has been an increase in average productivity growth in the 1990s, the OECD measure of the natural rate is above most other measures.

In summary, the aggregate data suggest that there is a strong relationship between movements in real wages and output, and trends in employment and unemployment (we estimate these relationships in Section 4). The large shift upwards in the natural rate of unemployment in the mid 1970s coincided with a rapid increase in labour costs. Subsequently the natural rate has fluctuated around a higher rate of about 7 per cent. In recent years, the actual unemployment rate has remained above estimates of the natural rate, in large part because inflation expectations have only slowly fallen towards the targeted inflation rate.

3. An Aggregate Model of the Labour Market

In this section, we describe a simple framework to examine unemployment from a macroeconomic perspective. Here we present the steady-state version of the model, while later, in Section 5, we add some dynamics to examine the role for monetary policy in assisting the process of labour market adjustment.

In order to address the issue of unemployment, the model requires a departure from the standard neoclassical framework where full employment is generally automatically attained in the long run. Rather, the model is similar to the imperfect competition model of the labour market developed by Layard and Nickell (1986), or the insider/outsider model of Lindbeck and Snower (1988).

Output is produced using two factors, capital (k) and labour (e),⁴ so that the economy-wide production function is given by:

$$y^s = f(k, e) \quad (1)$$

In equilibrium, the output supplied by firms equals the output demanded. If not, there is a change in inventory levels. However, we will ignore the role of inventories and assume that output demanded always equals output supplied:

$$y^d = y^s = y \quad (2)$$

Output will differ from the level of potential output (y^*) if either the real interest rate (r), the instrument of monetary policy, deviates from its equilibrium value (\bar{r}), or through the impact of fiscal policy (fp). To focus on the role of monetary policy, we will assume hereafter that $fp=0$.

$$y - y^* = \xi(\bar{r} - r) + fp \quad (3)$$

4. Lower-case letters denote logs, upper-case letters, levels.

Turning to the labour market, the number of unemployed people U is definitionally equal to the labour force L less the number of those employed E , so the unemployment rate u can be written as:

$$u \equiv 1 - E/L \quad (4)$$

The employment demand equation is derived from the cost minimisation decision of the firm (in this case the economy):⁵

$$e = \delta y - \eta w + \theta c \quad (5)$$

where w is the real wage, c is the real user cost of capital, and η denotes the constant-output elasticity of labour demand.⁶ This elasticity is the percentage change in employment for a one percentage point change in the real wage, holding output (and the cost of capital) constant. The total effect of a change in the real wage on employment, however, will depend on the extent to which output also changes in response to the change in the real wage (the ‘scale effect’). A fall in the real cost of labour results in the substitution of labour for capital in production. In addition, the firm (economy) is able to move to a higher level of production, thereby employing more labour and more capital.

The existence of the scale effect assumes that there are underutilised resources in the economy. If the unemployment rate is at the frictional unemployment rate (that is, unemployed workers are simply in transition from one employment opportunity to another), then a reduction in the real wage would likely be reversed by the resultant labour market pressure.

The demand for capital is similarly derived from the cost minimisation decision:

$$k = \tau y + \psi w - \lambda c \quad (6)$$

The labour supply curve is an aggregate of individuals’ labour supply decisions. It depends on the real wage reflecting the labour-leisure choice, and is also assumed to depend on the state of the economy through the encouraged worker effect: when the rate of unemployment is lower, people are more willing to look for work as they expect the probability of finding employment to be greater.

$$l = -\kappa u + \sigma w \quad (7)$$

We adopt the simple specification that wages depend on an exogenous component, and the gap between the rate of unemployment and the natural rate of unemployment (u^*) which captures the effect of the tightness of the labour market on the level of real wages. This is similar to the wage-setting curve in the Layard-Nickell (1986) model and can be derived from the Shapiro-Stiglitz (1984) model of efficiency wages or the Lindbeck-Snowder (1988) model. The exogenous component may reflect the relative bargaining power of insiders and outsiders in the labour market, or the relative bargaining strengths of workers and firms.

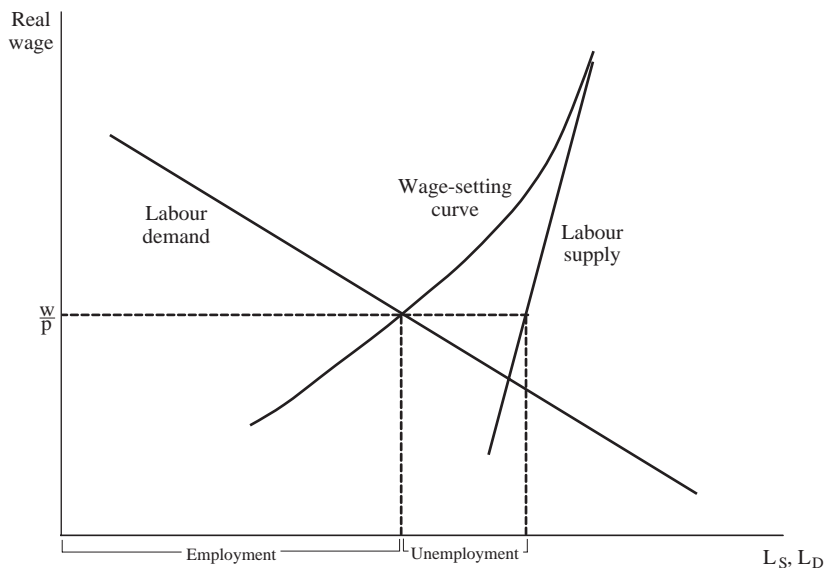
$$w = w' - \zeta(u - u^*) \quad (8)$$

5. For a full treatment see Hamermesh (1993).

6. η is not necessarily the firm-level elasticity of labour demand because of issues of aggregation (Hamermesh 1993, p. 64). Thus the estimates of η obtained in Section 4 below are not directly comparable with those obtained from microeconomic studies.

Equations (5), (7) and (8) can be summarised in the following diagram.

Figure 5: Stylised Model of the Labour Market



Employment is determined by the intersection of the labour demand curve and the wage-setting curve. The level of unemployment is determined by the difference between the level of employment and the size of the labour force at the equilibrium real wage.

To complete the model, we assume that the inflation rate is determined by a standard Phillips curve:

$$\pi = \pi^e + \beta(y - y^*) \tag{9}$$

In equilibrium, when interest rates are at their neutral level, output is at potential ($y=y^*$), unemployment is at its natural rate ($u=u^*$) and the real wage is at its exogenous long-run level w' . The above equations imply the following long-run relationships:

$$\begin{aligned} y^* &\equiv f(k^*, e^*) & e^* &= \delta y^* - \eta w' + \theta c \\ l^* &= -\kappa u^* + \sigma w' & k^* &= \tau y^* + \psi w' - \lambda c \end{aligned} \tag{10}$$

Thus, the long-run level of employment is determined by the level of the real wage (and the cost of capital), as is the long-run level of capital stock. This then determines the long-run level of potential output. The long-run level of labour supply, and the natural rate of unemployment are also determined by the exogenous long-run level of the real wage. Monetary policy does not have any impact on either the long-run level of output or unemployment.

We now examine the effects of a fall in the level of the real wage, as a result of a decline in the exogenous component w' . The long-run elasticity of employment with respect to the real wage is:

$$\frac{\partial e^*}{\partial w'} = \frac{-\eta + \psi(\frac{\partial y}{\partial k})\delta}{1 - \delta(\frac{\partial y}{\partial l}) - \tau(\frac{\partial y}{\partial k})} \quad (11)$$

The numerator of Equation (11) has two components: the first (η) is the own-price elasticity of labour, reflecting the direct increase in labour demand from lower wages. The second is the product of the wage elasticity of capital (ψ), the capital elasticity of output, and the output elasticity of employment (δ): lower wages cause firms to substitute labour for capital, reducing capital demand, which lowers output and consequently reduces employment. Assuming the own price elasticity dominates the employment effects of a lower capital stock, the numerator will be negatively signed overall, thus lower real wages have a net positive effect on employment.

The denominator reflects the scale effect of moving to a higher level of output and is less than one, so the total elasticity is greater than the constant-output elasticity. There is no fall in prices as a result of the decline in the real wage because monetary policy ensures that inflation is maintained at its targeted value.

The elasticity of the unemployment rate with respect to the real wage is:

$$\frac{\partial u^*}{\partial w'} = \left[\sigma - \frac{\partial e^*}{\partial w'} \right] \left[\frac{1}{\frac{L^*}{E^*} + \kappa} \right] \quad (12)$$

The first term reflects the direct effect of the change in wages on the unemployment rate, consisting of the net effect of a change in wages on labour supply (σ) and employment. The second term scales this by the size of the encouraged worker effect (κ). The term E^*/L^* , which equals $1-u^*$, reflects the fact that the relationship between the unemployment rate and employment and the labour force is in levels but the equations determining employment and the labour force are in logs. This implies that the impact of a real wage change on the natural rate decreases slightly with a lower natural rate.

Also, as mentioned above, there are limits to the impact of a real wage cut on the natural rate. The frictional unemployment rate provides a lower bound for the natural rate. Wage cuts beyond that point would be unwound by wage pressures. In an efficiency-wage framework, firms would not be willing to cut the wage any further in order to maintain the productivity of their workforce. In terms of the insider/outsider model, all members of the labour force would be insiders at this point. In Figure 5, the labour supply curve provides a boundary beyond which the wage-setting curve cannot shift.

A primary aim of the rest of the paper is to quantify the elasticities in Equations (11) and (12) to enable us to estimate the approximate magnitude of the reduction in the rate of unemployment for a given reduction in the level of real wages.

4. Labour Demand and Supply

In this section we estimate the equations for labour demand and supply that form the foundation of the model in Section 3.

4.1 Labour demand

As described in Section 3, the basic form of the labour demand equation that we estimate is derived from the cost minimisation decision of the representative firm (the dual of the profit maximisation decision):

$$e = L^d(y, w, c, a) \quad (5')$$

where Equation (5) is extended to take account of a , the level of productivity.

A labour demand curve similar to Equation (5') can also be derived from an imperfect competition framework, where each firm faces a downward-sloping demand curve for their product, and sets output prices based on expectations of future aggregate prices (Barrell, Pain and Young 1996). Layard and Nickell (1986) derive a somewhat different labour demand equation which controls for the capital stock rather than the level of output. Hamermesh (1993) refers to the Layard-Nickell specification as a short-run labour demand curve in that it captures changes in the demand for labour before the capital stock adjusts. In addition to this theoretical consideration, the problems of measuring the capital stock lead us to adopt a specification that controls for the level of output rather than capital.

Sargent (1978) extends the static labour demand model described in Equation (5') by assuming that the firm faces costs in adjusting the level of employment, resulting in a partial-adjustment specification. Furthermore, the non-stationarity of the variables influencing equilibrium employment suggests that an error-correction framework is the appropriate way to model aggregate labour demand (Amano and Wirjanto 1997), and this is the approach that we adopt.

The core variables of interest in our labour demand equation are employment, real wages, output and the user cost of capital. We do not make an explicit distinction between employment and labour demand in our modelling work, obviating the need to estimate a separate equation linking these two concepts. This contrasts with the labour demand equation in the TRYM model which measures labour demand as the sum of employment and vacancies (Commonwealth Treasury 1996). Since our Beveridge curve regression in Appendix A suggests that the relationship between unemployment and vacancies has not shifted over our sample period, and given that it is difficult to translate vacancies into an hours equivalent, we use actual employment, measured by aggregate hours worked in the non-farm economy, as the dependent variable (*hours*) in the labour demand equation.

The real wage measure (*wage*) is total labour costs per hour, which takes into account payroll tax, superannuation contributions and fringe benefits tax in addition to the hourly wage rate, deflated by the non-farm GDP deflator. Output is measured by non-farm GDP(A) and the user cost of capital (*ucc*) is constructed as a weighted average of the real cost of debt and equity. A full definition of each variable is provided in Appendix B.

We include a linear trend to capture labour productivity. We also tried a measure of multi-factor productivity (MFP), calculated as a weighted average of labour and capital productivity, but found that the variable was generally insignificant and of the wrong sign. In part this may be because MFP is affected by cyclical factors, in particular, the level of capital utilisation. When we included both a time trend and multi-factor productivity in the equation, the time trend was significant whereas MFP was not.

Unit root tests suggest that this set of variables are integrated of order 1, thus warranting the use of an error-correction specification.⁷ Hence our initial specification for the labour demand equation is an unrestricted fourth-order autoregressive-distributed-lag (ADL) model expressed in error-correction form:

$$\begin{aligned} \Delta hours_t = & \alpha + \beta_1 [hours_{t-1} + \beta_2 wage_{t-1} + \beta_3 output_{t-1} + \beta_4 ucc_{t-1} + \beta_5 t] \\ & + \sum_{i=1}^3 \gamma_{1i} \Delta hours_{t-i} + \sum_{i=0}^3 \gamma_{2i} \Delta wage_{t-i} + \sum_{i=0}^3 \gamma_{3i} \Delta output_{t-i} \\ & + \sum_{i=0}^3 \gamma_{4i} \Delta ucc_{t-i} + \varepsilon_t \end{aligned} \quad (13)$$

The β s on the variables in levels are the long-run coefficients while β_1 is the speed of adjustment parameter. The rest of the equation where the variables are expressed in first differences represents the short-run dynamics.

The results obtained from estimating Equation (13) are summarised in column 1 of Table 1. Most of the lagged dynamic terms are individually or jointly insignificant. We use the general-to-specific estimation strategy to arrive at a more parsimonious specification which is reported in column 2.

The user cost of capital was insignificant and had the wrong (negative) sign, so in the third column we present our preferred specification which excludes the user cost of capital. The exclusion of the user cost of capital also reduces the problem of autocorrelation.

Because of the potential endogeneity of the contemporaneous values of wages and output in the labour demand equation, we estimated it using both instrumental variables and ordinary least squares. Initially we estimated the equation using two-stage least squares where the instruments were the exogenous variables from a system which included an equation for output and the wage in addition to the labour demand and supply equations. We did not estimate the output equation or the wage equation directly but only used them to provide instruments: namely US GDP for output (Gruen and Shuetrim 1994), and award wages and a measure of union power for wages.

7. We use the Dickey-Fuller $T(\rho-1)$ statistic to test for the order of integration of each of the variables. Each series was found to be I(1) based on a 5 per cent level of significance.

Table 1: Labour Demand Results

Sample period		1978:Q1 – 1997:Q4	1978:Q1 – 1997:Q4	1978:Q1 – 1997:Q4	1969:Q1 – 1997:Q4	1979:Q3 – 1997:Q4
Estimation method		OLS (1)	OLS (2)	OLS (3)	OLS (4)	IV (5)
Long-run elasticities						
Real wage	β_2	-0.42 (0.10)	-0.42 (0.08)	-0.40 (0.05)	-0.68 (0.08)	-0.39 (0.05)
Output	β_3	1.12 (0.16)	1.10 (0.12)	1.09 (0.09)	1.19 (0.21)	1.03 (0.10)
User cost of capital	β_4	-0.03 (0.19)	-0.07 (0.16)			
Time trend	β_5	-0.34 (0.15)	-0.32 (0.12)	-0.33 (0.08)	-0.38 (0.16)	-0.28 (0.08)
Short-run coefficients						
ΔHours_{t-1}	γ_1	-0.30 [#] [0.05]	-0.21 (0.08)	-0.19 (0.08)	-0.32 (0.07)	-0.15 (0.10)
$\Delta\text{Real wage}_t$	γ_2	-0.41 [#] [0.00]	-0.25 (0.06)	-0.21 (0.05)	-0.51 (0.10)	-0.14 (0.11)
ΔOutput_t	γ_3	0.24 [#] [0.07]	0.46 (0.12)	0.45 (0.11)	0.10 (0.17)	0.25 (0.21)
$\Delta\text{User cost of capital}_t$	γ_4	-0.47 [#] [0.13]	-0.16 (0.08)			
Speed of adjustment	β_1	-0.56	-0.51	-0.54	-0.41	-0.59
Cointegration test		-3.63	-6.16 ^{***}	-6.70 ^{***}	-5.74 ^{***}	-5.94 ^{***}
\bar{R}^2		0.59	0.56	0.55	0.48	
LM(1) (p-value)		0.24	0.01	0.06	0.06	0.01
LM(4) (p-value)		0.32	0.01	0.13	0.21	0.01

Notes: The dependent variable is the change in aggregate hours worked. All variables in logs except the user cost of capital. Estimation by ordinary least squares (columns 1 to 4), and instrumental variables (column 5). Standard errors in parentheses except: # for the ADL(4) model in column 1, the reported short-run coefficients are the sum of the short-run coefficients for each variable. The value in square brackets is the p-value for the F-test that the short-run coefficients are jointly significant. *, ** and *** refer to significance at the 10 per cent, 5 per cent and 1 per cent levels of significance for the Kremers, Ericsson and Dolado (1992) test for cointegration. The LM test is the Breusch (1978) test for first and fourth order autocorrelation.

We tested the over-identification restrictions implied by our instrument set and found that they were rejected.⁸ Consequently we also estimated the equations using a smaller instrument set, which excluded the contemporaneous values of the instruments. The

8. Using the Hausman (1983) test for over-identification, the value of the $\chi^2(11)$ test statistic was 29.54.

results of this estimation are reported in column 5 of Table 1. A Hausman test failed to reject the null hypothesis of exogeneity using either instrument set,⁹ so we focus on the OLS estimates in the remainder of the discussion. As column 5 indicates, the results are little changed if IV is used. Quandt and Rosen (1989) also found that endogenising output made little difference to coefficient estimates in an aggregate labour demand curve for the United States, and that exogeneity of output could not be rejected statistically.

We estimate the equation over two time horizons. Columns 1, 2, 3 and 5 use data from 1978:Q1 to 1997:Q4 where labour demand is measured by the aggregate hours worked in the non-farm economy. As this series is not available before 1978, column 4 uses data from 1969:Q1 to 1997:Q4, measuring labour demand by aggregate hours worked in the whole economy adjusted for the share of non-farm output in total output. Hours worked in the non-farm economy is less volatile than that in the whole economy thus accounting, in part, for the lower explanatory power in column 4.

Our estimate of the long-run real wage elasticity of employment of -0.4 is smaller than the previous estimates of around -0.8 (Lewis and Kirby 1988; Pissarides 1991; Russell and Tease 1991). Our estimates lie inside the range of -0.15 to -0.75 that Hamermesh (1993) reports in his survey of the international labour demand literature as 'a reasonable confidence interval' for the real wage elasticity.

The difference between our estimates and the other Australian studies appears to be partially due to the sample period used, and partially a result of different model specifications.¹⁰ When we estimate the model over the longer period (column 4), we find a significantly higher wage elasticity of -0.67. To examine how the wage elasticity has evolved over time, we estimated rolling regressions of the labour demand equation over fifteen-year windows. This indicates that the wage elasticity has declined (in absolute value) since the mid 1980s but has been relatively constant over the 1990s at around -0.4. Furthermore, Russell and Tease use real unit labour costs as their measure of labour costs. In the appendix to their paper they report a specification that uses a measure of real wages which yields a significantly lower wage elasticity of -0.36.

Our estimate of the long-run output elasticity is, however, consistent with previous estimates. The output elasticity is not significantly different from one in either the shorter or longer sample, implying that a one per cent increase in output leads to a one per cent increase in employment. The TRYM model actually imposes a unitary elasticity rather than estimates it.

The speed of adjustment to long-run equilibrium is generally invariant to the specification used. The estimate of around 0.5 implies that 95 per cent of the adjustment back towards long-run equilibrium is completed within four quarters after a shock. The specifications in Table 1 all assume that the speed of adjustment is constant. We also estimated a specification of the labour demand curve where the speed of adjustment depends on the tightness of the labour market and hiring and firing costs (Burgess 1993). However, the evidence suggested that the speed of adjustment is invariant to the state of the business cycle.

9. The value of the $\chi^2(8)$ test statistic was 2.76.

10. The differences are not due to the measure of wages that we use. A similar long-run elasticity was obtained using a number of different wage measures.

In summary, our preferred specification for labour demand contains only real labour costs, output, and a linear trend. The constant-output real wage elasticity appears to be around -0.4, while the output elasticity is around 1.

4.2 Labour supply

The labour supply or participation rate equation can be derived from an aggregate version of the individual's labour/leisure choice, in which labour supply is determined by the wage, the prices of goods in an individual's consumption basket, and non-wage income. An individual will supply labour, provided that the payoff from accepting employment exceeds their reservation wage.

We measure the consumption wage (*cwage*) using after-tax average weekly earnings deflated by the consumer price index, and also include in the specification the real level of unemployment benefits (*ben*) which is likely to have a major influence on the reservation wage.

In the basic labour supply model, the real consumption wage represents the payoff for the individual supplying labour to the market. However, if there is uncertainty about the prospects of obtaining employment, the probability of finding work will also affect the payoff. Consequently, the participation rate tends to be pro-cyclical as a result of this 'discouraged/encouraged' worker effect.

On the other hand, viewing the labour supply decision from the household level, a major component of an individual's non-wage income is the income of their spouse. If their spouse loses their job as the economy enters a downturn, an individual may enter the labour force to offset the decline in household income. This 'added' worker effect will dampen the discouraged worker effect. However, Bradbury (1995) finds little evidence for a significant added worker effect using Australian Department of Social Security data.

A review of early Australian models of aggregate labour supply is provided in Dunlop, Healy and McMahon (1984). They find that in many of the studies surveyed, key parameter estimates were unstable over time, and that the model specifications used were not linked closely enough to economic theory. Since that time, much of the macroeconomic research on labour force participation has focused on separating trend and cyclical influences on labour supply (Dixon 1996; Dowrick 1988; Gregory 1991), rather than modelling labour supply decisions in terms of behavioural variables.

Most of the relevant existing literature on participation rates uses the employment to population ratio to capture the discouraged worker effect (e.g. Dowrick 1988; Elmeskov and Pichelmann 1993; Pissarides 1991; Stacey and Downes 1995). However, there is a definitional link between the employment to population ratio and the participation rate:

$$\text{Labour Force/Population} = \text{Employed/Population} + \text{Unemployed/Population}$$

Any divergence between the two occurs only because of changes in the unemployment rate. Consequently, the direction of causality between the two variables is unclear. Elmeskov and Pichelman suggest that the main linkage runs from employment to participation, although they acknowledge that the causality is most probably bi-directional. If an exogenous increase in labour supply increases employment by putting downward pressure on wages, then the employment to population variable is rendered endogenous in a participation rate equation.

The critical factor in the labour supply decision is the expected probability of finding employment. Therefore we measure the discouraged worker effect using the vacancy rate (*vac*), or the vacancy rate relative to the pool of unemployed (*vacu*).

We estimate separate equations for male and female participation rates, reflecting their divergent behaviour over the sample period. The lower participation rates of women and the higher proportion of women in part-time employment has historically been indicative of a more marginal attachment to the labour force. Thus, we might expect their participation to be more sensitive to the discouraged worker effect. For married women with children, child care costs may also influence their labour supply decision, so we include the ratio of child care costs to female average weekly earnings (*child*) in the female participation rate equation. We also test for the impact of housing loan affordability (*home*) on female labour supply as suggested by Connolly and Spence (1996).

A major change which has influenced the supply decision of both genders over the sample period has been the increase in school retention rates and the increased participation in tertiary education. We control for this effect using the proportion of men and women in full-time education (*edu*).

However, some part of the trends in male and female participation may reflect changes in social preferences which we are unable to model directly, so we also include a time trend in both specifications. Thus our general specification for the participation rate equation for each gender is given by:

$$\begin{aligned} \Delta pr_t = & \phi_1 [pr_{t-1} + \phi_2 vac_{t-1} + \phi_3 cwage_{t-1} + \phi_4 ben_{t-1} + \phi_5 child_{t-1} \\ & + \phi_6 edu_{t-1} + \phi_7 home_{t-1} + \phi_8 t] + \delta_1 \Delta pr_{t-1} + \sum_{i=0}^1 \delta_{2i} \Delta vac_{t-i} \\ & + \sum_{i=0}^1 \delta_{3i} \Delta cwage_{t-i} + \sum_{i=0}^1 \delta_{4i} \Delta ben_{t-i} + \sum_{i=0}^1 \delta_{5i} \Delta child_{t-i} \\ & + \sum_{i=0}^1 \delta_{6i} \Delta edu_{t-i} + \sum_{i=0}^1 \delta_{7i} \Delta home_{t-i} + a + \varepsilon_t \end{aligned} \quad (14)$$

The expression in the square brackets describes the long-run relationship, with ϕ_1 the speed of adjustment parameter while the short-run dynamics are described in the rest of the equation.¹¹

The model is estimated using quarterly data from 1979:Q3 to 1997:Q4. As in the labour demand equation, we initially used instrumental variables estimation to allow for the possibility of endogeneity of the vacancy rate and the wage. However, again a Hausman test failed to reject the hypothesis of exogeneity,¹² so in Table 2, we report the results from estimating the equation using ordinary least squares. The lagged dynamic terms were insignificant so the first column for each gender reports the results with only contemporaneous dynamic terms.

11. The male and female participation rates, and each of the right-hand side variables, were found to be I(1) at the 5 per cent level of significance, based on the Dickey-Fuller $T(\rho-1)$ test.

12. The value of the Hausman $\chi^2(9)$ test statistic was 1.88 for the male participation rate equation, and $\chi^2(9) = 2.73$ for the female participation rate equation.

Table 2: Labour Supply Results

		Male participation rate			Female participation rate		
		(1)	(2)	(3)	(4)	(5)	(6)
Long-run elasticities							
Vacancy rate	ϕ_2	0.54 (0.79)	1.48 (0.68)		4.45 (2.65)	6.22 (1.84)	
Vacancy rate/ unemployment rate	ϕ_2			9.04 (2.80)			28.87 (6.18)
Real wage	ϕ_3	-3.80 (2.80)			-6.84 (8.85)		
Education	ϕ_6	-0.74 (0.28)	-0.57 (0.30)	-0.49 (0.25)	2.89 (0.97)	3.40 (0.88)	2.95 (0.61)
Time trend	ϕ_8	-6.00 (0.43)	-5.90 (0.50)	-5.72 (0.43)	10.21 (2.67)	8.62 (2.24)	10.60 (1.55)
Short-run coefficients							
Δ Vacancies _t	δ_2	-1.05 (0.39)	-0.83 (0.36)		-0.61 (0.55)	-0.51 (0.49)	
Δ Vacancy rate/ unemployment rate _t	δ_2			-3.87 (1.99)			-0.98 (2.78)
Δ Real wages _t	δ_3	-0.41 (0.92)			-0.40 (1.33)		
Δ Education _t	δ_6	-0.17 (0.28)			0.11 (0.49)		
Speed of adjustment	ϕ_1	-0.29	-0.25	-0.30	-0.17	-0.15	-0.19
Cointegration test		-3.93*	-3.83**	-4.52***	-3.19	-3.47	-3.99**
\bar{R}^2		0.22	0.23	0.25	0.22	0.25	0.23
LM(1) (p-value)		0.70	0.77	0.87	0.37	0.50	0.33
LM(4) (p-value)		0.57	0.59	0.47	0.07	0.05	0.09

Notes: The dependent variable is the change in the male participation rate (columns 1 to 3) or the female participation rate (columns 4 to 6). Standard errors in parentheses. Estimation by ordinary least squares. *, ** and *** refer to significance at the 10 per cent, 5 per cent and 1 per cent levels of significance for the Kremers, Ericsson and Dolado (1992) test for cointegration. The LM test is the Breusch (1978) test for first and fourth order autocorrelation.

We found that the cost of child care and the real unemployment benefit were insignificant in both the male and female participation rate equations. In contrast to Connolly and Spence (1996), we found that home loan affordability was not an important influence on the labour force participation decisions of women, although it had the expected sign: increased home loan affordability causes women to leave the labour force. One possible explanation for our result is that greater home loan affordability mainly

results in families purchasing more expensive homes, rather than reducing their repayment burdens.

For both genders, wages were found to be statistically insignificant, and were also negatively signed, suggesting that the income effect of a change in wages at least offsets the substitution effect. Lewis and Kirby (1988) find a significant positive real wage elasticity, although inferences based on their standard errors must be qualified, since they estimate an equation in levels with trending variables. Furthermore, their labour supply equation has a fundamentally different specification to ours, since their dependent variable is the quantity of labour supplied, but they do not control for the size of the working-age population. In contrast, since our dependent variable is the participation rate, we in effect impose linear homogeneity between population size and the level of labour supply.

Our results are consistent with the large international body of microeconomic research on labour supply, which generally finds only a weak, and often tenuous, relationship between wages and hours of labour supplied,¹³ and it is also consistent with the aggregate participation rate equation in Pissarides (1991). Therefore in the remaining columns, we exclude wages from the specification.

The evidence for a cointegrating relationship is weaker than in the labour demand equation, where the null of no cointegration was clearly rejected.¹⁴ The speed of adjustment towards equilibrium is relatively slow: for the specifications in columns 2 and 5, 25 per cent and 15 per cent respectively of the gap between actual and equilibrium labour force participation is closed each quarter.

The results suggest that the encouraged worker effect is an important influence on labour force participation and the economic magnitude is quite large. We also find that the size of the encouraged worker effect is much larger for women than for men, confirming the view of Gregory, McMahon and Whittingham (1985) that many non-participating females represent a latent stock of labour supply that would enter the labour force in the presence of favourable labour market conditions. Between 1991 and 1997, the vacancy rate increased by approximately 0.6 (from 0.3 per cent to 0.9 per cent); based on the models in columns 2 and 5, an increase of this magnitude would raise the female participation rate by 3.7 percentage points, and the male participation rate by 0.9 percentage points. The results are broadly similar whether we use either vacancies or the ratio of vacancies to unemployment to measure the encouraged worker effect.

Participation in full-time education also appears to have an influence on labour force participation. In the male participation rate model (column 2), education is negatively signed (although not significant), reflecting the fact that for men, education is a substitute

13. Killingsworth (1983), and the papers by Pencavel (1986) and Killingsworth and Heckman (1986) in the *Handbook of Labor Economics*, provide a broad survey of this literature. Taken as a whole, this body of work suggests that the wage elasticity of labour supply is negligible for men, and is perhaps slightly positive for women. The small body of Australian research on female labour supply has, however, generally found quite high positive real wage elasticities. This literature is surveyed in Kenyon and Wooden (1995).

14. While for males the null hypothesis of no cointegration is rejected, for females, the test statistic lies in the 'unclear region', between the normal and Dickey-Fuller critical values.

for time which would otherwise have been spent in the labour market.¹⁵ In the female model, however, the coefficient on education is positively signed and significant. One explanation of this finding is that education is correlated with unobservable demographic change variables which are driving the persistent upward trend in the female participation rate. Another explanation is that in contrast to males, education provides an opportunity for females to gain skills which will allow them to gain employment.

The time trend variable is highly significant in both the male and female participation rate equations, suggesting that demographic and attitudinal changes, which we were unable to capture explicitly within our modelling framework, have been an important influence on the observed changes in participation rates.

In conclusion, our preferred specification for labour supply includes the encouraged worker effect (measured by the vacancy rate), participation in education and a time trend.

5. Reducing Unemployment

In this section, we use the model presented in Section 3, and the parameters of the model estimated in Section 4 to provide some benchmark estimates for the size of the reduction in the level of real wages needed to achieve a permanent reduction in the rate of unemployment. That is, we quantify the expression for the elasticity of unemployment with respect to the real wage derived in Equation (12). We also examine the adjustment of the economy to the lower unemployment rate, and the role that monetary policy can play in that adjustment.

The model is somewhat stylised but it highlights the main relationships involved. Later in the section, we compare the results obtained with those from two more fully specified macroeconomic models of the Australian economy.

We assume that initially the economy is in equilibrium at the current natural rate of unemployment determined by the equilibrium real wage, itself a function of the existing set of labour market institutions. The research reported in Section 2 suggests that the natural rate is currently likely to be somewhere between 7 and 7.5 per cent. Over time, the unemployment rate should gradually fall to this level without any change in the exogenous component of the real wage or labour market institutions.

The basic core of the model consists of the labour demand and labour supply equations. The parameters in the labour demand curve are taken from column 3 of Table 1, where the real wage elasticity is -0.4 and the output elasticity is 1.09. For the purposes of the simulation we assume that productivity remains constant. Equivalently, output and productivity could grow at a constant rate with no net effect on employment.

We make two different assumptions about the process for output. Firstly, we assume that output is invariant to changes in employment; that is, the scale effect is one. This is likely to provide a lower bound on the impact of the wage change. Quandt and Rosen (1989) however, provide evidence that the scale effect is one in the United States.

Secondly, we assume that output increases proportionately to labour's share of income, 0.58. That is, a one percentage point increase in employment leads to a

15. While people still participate in the labour force while in the education, the participation rate is lower than that for the rest of the population.

0.58 percentage point increase in output, which amplifies the own price elasticity of employment by 2.4 ($=1/(1-0.58)$). That is, the scale effect is 2.4. This is similar to the long-run response of output relative to employment in the TRYM model in response to a permanent decline in the natural rate.¹⁶

We use the participation rate equations for males and females in columns 2 and 5 in Table 2.¹⁷ These are weighted together to give an aggregate participation rate equation by the share of males and females in the working-age population as at December 1997 (0.49 and 0.51 respectively). We assume that the participation rate in education remains constant at its December 1997 level. We also assume that there are no further trend changes in participation rates. To the extent that the aggregate participation rate is still rising through time, the necessary decline in the real wage to achieve a particular unemployment rate would be larger.

The encouraged worker effect is measured using the vacancy rate, so to relate this to movements in the unemployment rate, we use the Beveridge curve estimated in Appendix A. The employment demand curve is estimated in terms of hours while the Beveridge curve and participation rate equations are estimated in terms of people. To map one into the other, we assume that average hours worked remain at their level of end 1997.

Starting from an unemployment rate of 7.5 per cent, we consider the impact of a reduction in the real wage of two percentage points. The reduction is achieved by a decline in the exogenous component in the wage equation. The exact mechanism by which this could be achieved is beyond the scope of this paper, but could include reforms that permanently changed the balance between insiders and outsiders in wage-setting. It does not imply that only real wages at the lower end of the wage distribution are reduced, but rather that the average real wage in the economy is lowered. Furthermore, given an inflation target of 2 to 3 per cent, this implies that nominal wages do not have to fall to achieve the cut in real wages. Thus issues of nominal wage rigidity can be ignored.

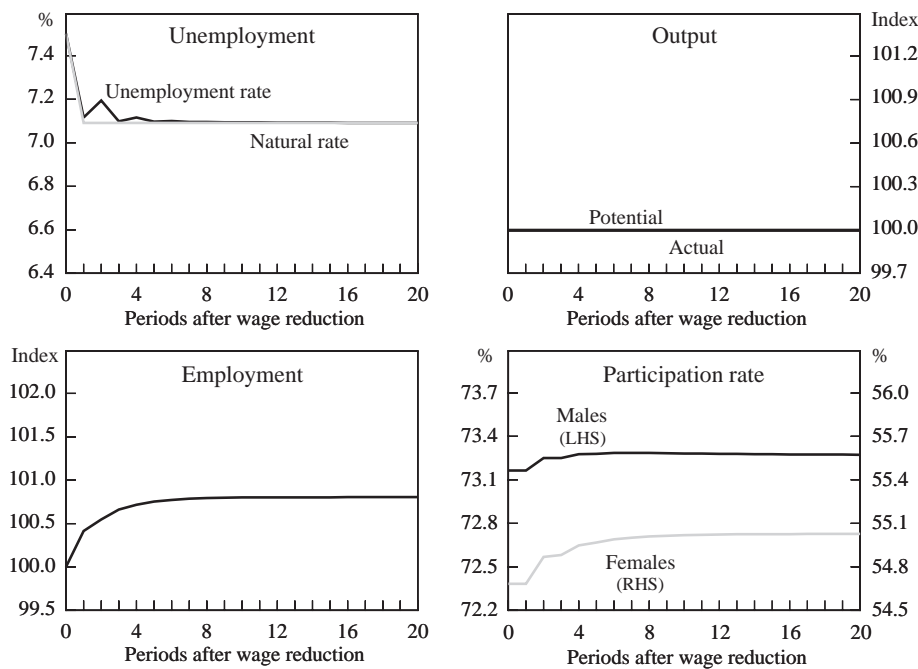
We analyse the sensitivity of these results to different assumptions about the model parameters, including in particular, the effect of monetary policy on the outcomes. First of all, we assume that monetary policy holds the real interest rate at its neutral value throughout. Given this assumption, Figure 6 shows the impact on unemployment, employment and male and female participation rates of the two percentage point reduction in the real wage when the scale effect is 1. Figure 7 shows the results when the scale effect is 2.4.

When the scale effect is 1, there is a fall in the natural rate of unemployment of 0.41 percentage points. The adjustment of unemployment to the new lower natural rate is rapid, given the absence of much dynamics in the labour demand and supply equations. The different patterns of adjustment of the male and female participation rates reflect the different sizes of the encouraged worker effects, and the different speed-of-adjustment parameters. Employment adjusts by a greater proportion (0.8 per cent) than the fall in

16. See Commonwealth Treasury (1996), pp. 34–37. There it is assumed that monetary policy does not accommodate the increase in real activity but rather lets the price level fall.

17. We ignore the dynamic terms in the two labour supply equations which tended to generate some instability in the simulations. This only affects the adjustment process, not the final result.

Figure 6: Wage Reduction with Exogenous Output



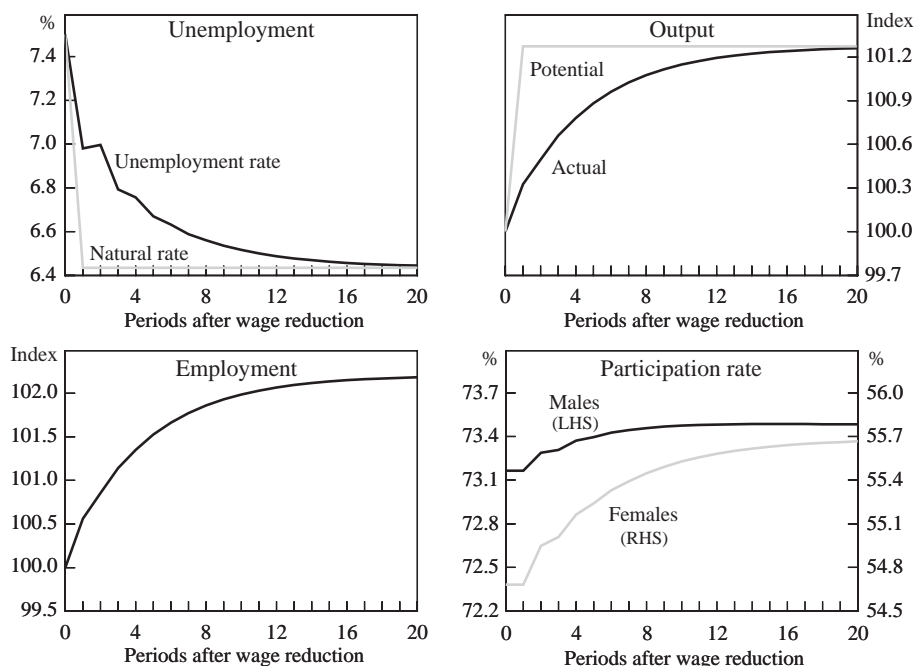
unemployment, because the encouraged worker effect dampens the impact on unemployment of the fall in the real wage: every extra 1 per cent of employment induces a 0.3 percentage point increase in the participation rate, so that the net impact on unemployment is only 0.5 percentage points.

When we allow for the scale effect, the 2 per cent decline in the real wage leads to a fall in the natural rate of unemployment of 1.1 percentage points, and a 2.2 per cent rise in employment. The adjustment to equilibrium is somewhat slower than the previous scenario, reflecting the fact that the scale effect operates with a lag through the error-correction mechanism in the employment equation. Nevertheless, much of the fall in unemployment is complete within a year of the fall in the wage.

Thus far, we have assumed that monetary policy has maintained a neutral stance throughout the adjustment process. We now examine the role that monetary policy can play in assisting the adjustment to the lower unemployment rate.

We assume that monetary policy affects output with a one quarter lag. In reality, the lags of monetary policy are longer than this (Gruen, Romalis and Chandra 1997), but we have adopted this assumption to simplify the argument. Monetary policy is determined optimally in a forward-looking manner to minimise deviations of output from potential and inflation from its targeted value:

$$U = -\sum_{t=1}^{\infty} [(y_t - y_t^*)^2 + b(\pi_t - \pi^*)^2] \tag{15}$$

Figure 7: Wage Reduction with Endogenous Output

Monetary policy cannot affect the long-run level of the natural rate or potential output. Attempts to stimulate the economy above potential will only result in inflation. However, it minimises both the duration and the size of divergences of output from potential, and hence unemployment from the natural rate.

Inflation is determined by a Phillips curve (Equation (9)) where the coefficient β on the output gap is 0.1. For simplicity, inflation expectations are assumed to remain constant at the targeted inflation rate,¹⁸ implying that the deviation of inflation from target is directly proportional to the output gap. Given this, the monetary policy rule implies that real interest rates are adjusted in proportion to the expected output gap.

The above exercise assumes that the central bank realises the decline in the real wage is permanent and understands the full extent of its impact, which may not be very realistic. If the central bank can only infer the structural change in the economy from observed variables, it might initially perceive the rise in output shown in Figure 7 as being inflationary and will act to counteract it. Over time, inflation will, in fact, fall as a consequence of the output gap that has thereby been generated. So only gradually would the central bank be able to realise that output is rising only in line with potential, and is not, in fact, inflationary. The inflation-targeting framework ensures that the economy eventually returns to potential as the central bank reacts to the resultant disinflation, but

18. This implies that expectations are not rational. Adding a process for inflation expectations would only serve to further complicate the dynamics.

in the interim, unemployment will be higher than otherwise. If instead of an inflation target, the central bank targets the output gap, the inflation rate will continue to fall, but the central bank will still attempt to counteract the inflationary impulse of the perceived positive output gap. We illustrate this point in Figure 8.

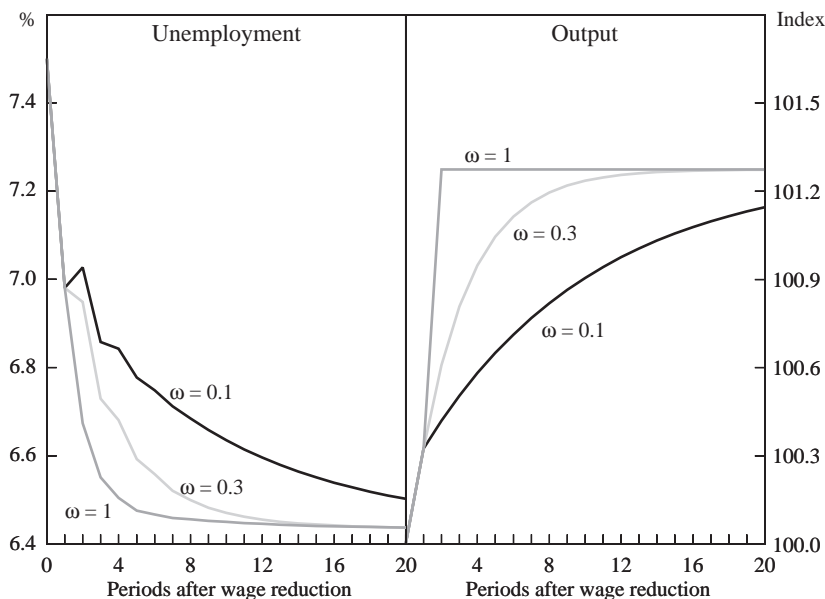
We assume that the central bank only gradually learns about the increase in potential, as a result of the structural change in the labour market. Let y_{CBt}^* be the central bank's estimate of potential output at time t , and y_{At}^* be the actual level of potential output. Assume that the central bank adjusts its estimate of potential output in the following manner:

$$y_{CBt}^* = (1 - \omega)y_{CBt-1}^* + \omega y_{At}^* \tag{16}$$

This is equivalent to the central bank placing some weight on the wage change being temporary and some weight on it being permanent.

Figure 8 shows the paths of output and unemployment for $\omega = 0.1, 0.3$ and 1 .

Figure 8: Wage Reduction and Monetary Policy



When $\omega = 1$, the central bank immediately realises the wage change is permanent. Interest rates are set so that output rises to its new long-run level within one quarter: an output gap persists only as long as the lag in the effect of monetary policy. Unemployment does not immediately attain its long-run value, given the dynamics of the participation rate, but the gap between the natural rate and the actual rate of unemployment is less than that of neutral policy. Thus, monetary policy can increase the speed with which the unemployment rate falls to the new natural rate during the adjustment phase provided it recognises that the wage change is permanent.

In practice, it will be difficult for the central bank firstly to identify the change, and secondly to ascertain whether it is permanent or not. We now take account of this fact. When ω is set equal to 0.1, the central bank believes that the chance that the wage change is permanent is quite small. When the central bank sees stronger output growth, it believes that output has risen above potential and acts to counteract that with higher interest rates, although this is mitigated to some extent by the fact that inflation is falling below its targeted level because, in reality, output is below potential. Unemployment clearly takes a longer time to reach the lower steady state level. The gap between the actual unemployment rate and the natural rate of unemployment is greater than 0.1 percentage points for over three years. In the intermediate case when $\omega = 0.3$, the unemployment rate still falls more slowly than if the central bank believed the wage change was permanent immediately.

Above we have assumed that the real wage has fallen but the central bank believes it is temporary. If on the other hand, the central bank believes that the wage change is permanent when in fact it is temporary, it will believe that the level of potential output has risen (when in fact it has not) and will therefore loosen policy. This will lead to a rise in inflation, which will need to be counteracted by a period of unemployment above the natural rate.

There are clearly problems of possible misinterpretation in both directions. In practice, it is extremely difficult to identify whether such developments in the labour market are temporary or permanent, particularly in a period of ongoing structural change. Nevertheless, the results suggest that the central bank can enhance the adjustment process by constantly monitoring and assessing the economy in light of new evidence about developments in the labour market. An inflation target can assist this process because the focus on the inflation rate will alert the central bank to the possibility of structural change when the inflation rate persistently undershoots its forecast value.

Thus far, we have ignored the effect of changes in the capital stock as a result of the change in the real wage, and the induced increase in employment. The fall in the real wage will cause firms to substitute labour for capital. However, the scale effect will induce more investment and an expansion of the capital stock. This process is difficult to quantify in the framework used here, however, the Murphy and TRYM models explicitly address this issue (Commonwealth Treasury 1996; Murphy 1992). Both models have a direct link between the natural rate and the real wage, and have a labour market structure very similar to the one used here. In terms of the model in Section 3, the primary difference is that these models incorporate a direct feedback from the capital stock to the real wage in the medium to long term.

Brooker (1993) examines the effect of a cut in the real wage in both models and finds that the fall in the real wage initially results in a decline in the capital stock as firms substitute towards labour. However, in the longer term the reduction in the real wage increases the expected return on capital and hence leads to an increase in investment, which in turn leads to a further increase in employment. This process is eventually curtailed by a feedback mechanism from the increased employment to a higher real wage. In the long run, the real wage can even rise above its initial value, but the initial decline is still necessary to stimulate the adjustment. There is still the need for a permanent shift in labour market institutions. The new long-run equilibrium with the

higher real wage and capital stock is not compatible with the initial institutional framework.

The two models tend to generate a slightly higher increase in employment as a result of a decline in the real wage than that presented here, because of the long-run increase in the capital stock. The TRYM model also finds that the lower unemployment rate decreases the amount of unemployment benefits paid. This then permits the government to reduce the tax rate resulting in a rise in after-tax wages which can offset the initial decrease (Stacey and Downes 1995).

In light of these caveats, we examine the sensitivity of the results to different parameter values. Table 3 shows the effect on the long-run change in the unemployment rate as a result of the 2 per cent reduction in the real wage, of varying the real wage elasticity parameter, and the scale effect parameter. We allow the wage elasticity to be as high as -0.8 consistent with that in other Australian studies of labour demand (see Section 4.1). We let the scale effect take the values of 1 (consistent with the US evidence), 2.4 (corresponding to labour's share of income of 0.58) and an intermediate value of 1.33. The table shows that doubling the wage elasticity leads to around twice as large an impact on the unemployment rate. As the scale effect increases, the decline in unemployment is larger, although not proportionately so.

Table 3: Sensitivity Analysis

Change in the equilibrium unemployment rate in response to a 2 per cent fall in the level of the real wage; percentage points

Wage elasticity	Scale effect		
	1	1.33	2.4
-0.40	-0.41	-0.56	-1.07
-0.68	-0.68	-0.92	-1.71
-0.80	-0.80	-1.07	-1.97

Finally, we use the model to examine the impact of the 1970s increase in the real wage on the natural rate. The natural rate in 1973 before the large increase in wages was around 4.4 per cent. From 1973 to 1975, real unit labour costs increased by 6.1 per cent. In the framework we have estimated here, this would lead to an increase in the natural rate of just under 3 percentage points to around 7.3 per cent. This is of a similar order of magnitude to the shift in the natural rate in the TRYM model in the mid 1970s.

The increase in labour supply in the 1970s required a transitory decline in the real wage to enable the necessary investment to occur so that the additional labour could be employed. In fact, the reverse occurred and the real wage rose. This rise is likely to have discouraged investment and led to a sub-optimal level of the capital stock, the effects of which have persisted, so that, despite the real wage falling to the levels of the early 1970s, the unemployment rate has remained well above those levels. A larger capital stock would have allowed more labour to be employed at the existing real wage, by increasing the productivity of the workforce.

6. Conclusion

The primary conclusion of this paper is that the average level of real wages can have a significant impact on the long-run level of unemployment in the economy. The paper has suggested that slower growth in real wages of 2 per cent for a year could lead to a permanent reduction in the unemployment rate of around 1 percentage point. The final decrease in the unemployment rate may indeed be even larger if there is a long-run increase in investment and the capital stock as a result of the fall in wage growth.

Estimates of the long-run or natural rate of unemployment suggest that it rose sharply in the 1970s associated with the rapid rise in labour costs at the time but has since fluctuated between 6 and 7.5 per cent. Our estimates imply that the wage rise in the 1970s may have increased the natural rate by around 3 percentage points.

Results from our labour demand equation confirm the findings of previous studies that the elasticity of employment with respect to output is close to unity. Our estimate for the wage elasticity of employment of -0.4 is lower than empirical work from the 1980s, but is consistent with a range of international evidence and the estimates reported in Dungey and Pitchford (1998) in this volume. We find clear evidence that labour supply is sensitive to the state of the labour market – the ‘encouraged worker effect’. The size of this effect is much larger for women than for men. We also find that labour supply is relatively invariant to real wages.

Monetary policy does not have any impact on the natural rate but can seek to ensure that the unemployment rate remains as close as possible to the natural rate by avoiding, as far as possible, sharp swings in the business cycle. Maintaining a relatively constant rate of economic growth can reduce the average unemployment rate, although the natural rate provides a lower bound. Inflation expectations also play a critical role. The fact that the unemployment rate has been above the natural rate for most of the 1990s, is in part due to the slow adjustment of inflation expectations to the lower inflation rate.

Monetary policy can also play a role in the transition process to a lower unemployment rate in the event of structural change in the labour market. In practice, it is extremely difficult to identify whether developments in the labour market are temporary or permanent. However, forward-looking monetary policy that is cognisant of the structural change going on in the economy can reduce the amount of excess unemployment during the adjustment phase. An inflation-targeting framework for monetary policy is beneficial in this regard by ensuring that monetary policy is forward-looking and because developments in the labour market are a crucial component of the outlook for inflation.

Appendix A: The Beveridge Curve

In this Appendix, we estimate a Beveridge curve for Australia and examine whether changes in the efficiency with which workers are matched with the vacant jobs have caused the curve to shift over time, in order to indirectly assess whether those factors are likely to have caused the natural rate to rise over time.

We measure changes in the efficiency of the matching function by: an index of sectoral dispersion to capture mismatch between skills supplied and demanded (Lilien 1982); the standard deviation of state unemployment rates to measure geographic mismatch; the share of young people in the labour force, as they tend to have a greater proclivity to move from job to job to find one that suits; and the real level of the unemployment benefit which may affect search intensity.

We estimate the curve using an error-correction specification over the period 1979:Q3–1997:Q4. We find that none of the above characteristics of the efficiency of the labour market are statistically significant. Furthermore, a time trend to capture any ongoing shift in the curve caused by other factors was also insignificant, indicating that the Beveridge curve has not shifted over the period. However, Figure 2 suggests that most of the rise in the natural rate may have occurred in the mid 1970s, which predates the sample period employed here (Harper 1980).

In Table A1, we report our estimate of the Beveridge curve which we use in Section 5. The results confirm the negative relationship between unemployment u and vacancies v suggested by Figure 3.

Table A1: Estimate of the Beveridge Curve

$$\Delta u_t = 0.16 - 0.20 \Delta v_t + 0.27 \Delta u_{t-1} - 0.09(u_{t-1} - 0.79v_{t-1})$$

(0.05) (0.04) (0.10)

$$\bar{R}^2 = 0.65 \quad \text{LM(1) p-value} = 0.21 \quad \text{LM(4) p-value} = 0.38$$

Notes: The Kremers, Ericsson and Dolado (1992) test for cointegration has a test statistic of -3.06, which lies in the indeterminate region between the normal and Dickey-Fuller distributions. Standard errors are in parentheses.

Appendix B: Data Sources

Data	Source
Unemployment rate	ABS cat. no. 6203.0, Table 1.
Employment to population ratio	Ratio of total employment to civilian population aged 15 and over. ABS cat. no. 6203.0, Table 1.
Inflation expectations based on indexed bond yields	Nominal 10-year bond yield, deflated by yield on a 10-year capital indexed bond (Reserve Bank <i>Bulletin</i> Table F.2).
Melbourne Institute inflation expectations	Median inflation expectations. Melbourne Institute Survey of Consumer Inflationary Expectations, Melbourne University.
Real labour costs per hour worked	Australian Treasury, http://www.treasury.gov.au .
Real unit labour costs	Australian Treasury, http://www.treasury.gov.au .
Underlying consumer price index	ABS cat. no. 6401.0, Table 10.
Real child care costs	Nominal index of child care costs (ABS cat. no. 6401.0, Table 6), deflated by the CPI (ABS cat. no. 6401.0, Table 1).
Average weekly earnings	ABS cat. no. 5206.0, Table 1, deflated by the final consumption deflator (ABS cat. no. 6401.0, Table 1).
Non-farm GDP(A)	ABS cat. no. 5206.0, Table 54.
Real user cost of capital	Weighted average cost of capital, based on the tax-adjusted cost of debt, derived from the business indicator rate (RBA <i>Bulletin</i> , Table F.3) and the real cost of equity, calculated using a Gordon dividend growth model.
Total factor productivity	Non-farm index. ABS cat. no. 5234.0, Appendix 1.
US GNP	Datastream, USGDP...D.
Award wages	ABS cat. no. 6312.0, Table 1, deflated by the CPI. (ABS cat. no. 6401.0, Table 1).
Union coverage	ABS cat. no. 6323.0, Table 3.
Male (female) real consumption wage	Male (female) average weekly earnings per hour worked multiplied by (1 – implied personal tax rate). Real AWE is from ABS cat. no. 6302.0, Table 2, deflated by the CPI (ABS cat. no. 6401.0, Table 1). Average hours worked by gender is from ABS cat. no. 6203.0, Table 17. The implied personal tax rate is calculated as the ratio of net tax paid by individuals (NIF database) to wages, salaries and supplements (ABS cat. no. 5206.0, Table 22).
Real unemployment benefits	Nominal unemployment benefit for a single adult deflated by the CPI (ABS cat. no. 6401.0, Table 1).
Vacancy rate	ABS cat. no. 6354.0, Table 1.
Home loan affordability	Ratio of average household disposable income to initial payment on average sized owner-occupier home loan.
Male (female) participation in full-time education	Proportion of 15–24 year olds participating in full-time education (ABS cat. no. 6227.0). Interpolated to give a quarterly time series.

References

- Amano, R. and T. Wirjanto (1997), 'An Empirical Study of Dynamic Labour Demand with Integrated Forcing Processes', *Journal of Macroeconomics*, 19(4), pp. 697–715.
- Barrell, R., N. Pain and G. Young (1996), 'A Cross-country Examination of the Demand for Labour in Europe', *Weltwirtschaftliches Archiv*, 132(4), pp. 638–650.
- Borland, J., and S. Kennedy (1998), 'Dimensions, Structure and History of Australian Unemployment', paper presented at this conference.
- Bradbury, B. (1995), 'Added, Subtracted or Just Different: Why do the Wives of Unemployed Men Have Such Low Employment Rates', *Australian Bulletin of Labour*, 21(1), pp. 48–70.
- Breusch, T. (1978), 'Testing for Autocorrelation in Dynamic Linear Models', *Australian Economic Papers*, 17(31), pp. 334–355.
- Brooker, R. (1993), 'Structural Modelling of Unemployment', paper presented at the Access Economics, Centre for Economic Policy Research National Forecasting and Economic Policy Conference.
- Burgess, S. (1993), 'Labour Demand, Quantity Constraints or Matching', *European Economic Review*, 37(7), pp. 1295–1314.
- Caballero, R. and M. Hammour (1996), 'On the Timing and Efficiency of Creative Destruction', *Quarterly Journal of Economics*, 111(3), pp. 805–852.
- Chapman, B. (1990), 'The Labour Market', in S. Grenville (ed.), *The Australian Macroeconomy in the 1980s*, Reserve Bank of Australia, Sydney, pp. 7–65.
- Chapman, B. and F. Gruen (1990), 'An Analysis of the Australian Consensual Incomes Policy: The Prices and Incomes Accord', Australian National University Centre for Economic Policy Research Discussion Paper No. 221.
- Cockerell, L. and B. Russell (1995), 'Australian Wage and Price Inflation: 1971–1994', Reserve Bank of Australia Research Discussion Paper No. 9509.
- Commonwealth Treasury (1996), *User's Guide to the TRYM Model of the Australian Economy*, CPN Printing, Canberra.
- Connolly, G. and K. Spence (1996), 'The Role of Consumer Loan Affordability and Other Factors Influencing Family Decisions in Determining the Female Full-time Participation Rate in the Australian Labour Force', paper presented at the 25th Conference of Economists, Australian National University, Canberra.
- Crosby, M. and N. Olekalns (1998), 'Inflation, Unemployment and the NAIRU in Australia', *Australian Economic Review*, forthcoming.
- Debelle G. and J. Vickery (1997), 'Is the Phillips Curve a Curve? Some Evidence and Implications for Australia', Reserve Bank of Australia Research Discussion Paper No. 9706.
- Dixon, R. (1996), 'Apparent Asymmetries in the Relationship Between the Participation Rate and the Employment Rate in Australia', University of Melbourne Department of Economics Research Paper No. 522.
- Downes, P. and G. Stacey (1996), 'The NAIRU in the Treasury Macroeconomic (TRYM) Model of the Australian Economy: Definition, Measurement and Policy Implications', Note Prepared for Input into the OECD, Economic Policy Committee Working Party 1, Programme of Work, Commonwealth Treasury, Canberra, <http://www.treasury.gov.au/publications/TRYM>.
- Dowrick, S. (1988), 'Labour Supply Trends and Prospects for Unemployment in the Medium Term', Australian National University Centre for Economic Policy Research Discussion Paper No. 188.

- Dungey, M. and J. Pitchford (1998), 'Prospects for Output and Employment Growth with Steady Inflation', paper presented at this conference.
- Dunlop, Y., T. Healy and P. McMahon (1984), 'Australian Models of Labour Force Participation: A Critical Review', in A. Kaspura (ed.), *Labour Force Participation in Australia, The Proceedings of a Conference*, Bureau of Labour Market Research, Australian Government Printing Service, Canberra, pp. 17–39.
- Elmsekov, J. and K. Pichelmann (1993), 'Unemployment and Labour Force Participation – Trends and Cycles', OECD Economics Department Working Paper No. 130.
- Fahrer, J. and A. Pease (1993), 'The Unemployment/Vacancy Relationship in Australia', *Australian Economic Review*, 26(4), pp. 43–57.
- Gregory, R. (1991), 'Jobs and Gender: A Lego Approach to the Australian Labour Market', *Economic Record*, 67(supplement), pp. 20–40.
- Gregory, R. and R. Duncan (1979), 'The Labour Market in the 1970s', in W. Norton (ed.), *Conference on Applied Economic Research*, Reserve Bank of Australia, Sydney, pp. 256–319.
- Gregory, R., P. McMahon and B. Whittingham (1985), 'Women in the Australian Labour Force: Trends, Causes and Consequences', *Journal of Labor Economics*, 3(1), Part 2, pp. S293–S309.
- Gruen, D., J. Romalis and N. Chandra (1997), 'The Lags of Monetary Policy', Reserve Bank of Australia Research Discussion Paper No. 9702.
- Gruen, D. and G. Shuetrim (1994), 'Internationalisation and the Macroeconomy', in P. Lowe and J. Dwyer (eds), *International Integration of the Australian Economy*, Reserve Bank of Australia, Sydney, pp. 309–363.
- Hamermesh, D. (1993), *Labor Demand*, Princeton University Press, Princeton, New Jersey.
- Harper, I. (1980), 'Unemployment and Vacancies in Australia', *Economic Record*, 56(154), pp. 231–243.
- Hausman, J. (1983), 'Specification and Estimation of Simultaneous Equation Models', in Z. Griliches and M. Intriligator (eds), *Handbook of Econometrics*, North-Holland, Amsterdam, Vol. 1, pp. 392–446.
- Indecs (1986), *State of Play 4*, Allen and Unwin, North Sydney.
- Kenyon, P. and M. Wooden (1995), 'Labour Supply', in K. Norris and M. Wooden (eds), *The Changing Australian Labour Market*, Economic Planning Advisory Commission Paper No. 11, AGPS, Canberra, pp. 15–38.
- Killingsworth, M. (1983), *Labor Supply*, Cambridge University Press, Cambridge, England.
- Killingsworth, M. and J. Heckman (1986), 'Female Labor Supply', in O. Ashenfelter and R. Layard (eds), *Handbook of Labor Economics*, North-Holland, Amsterdam, Vol. 1, pp. 103–204.
- Kremers, J., N. Ericsson and J. Dolado (1992), 'The Power of Cointegration Tests', *Oxford Bulletin of Economics and Statistics*, 54(3), pp. 325–348.
- Layard, R. and S. Nickell (1986), 'Unemployment in Britain', *Economica*, 53(210S), pp. S121–S169.
- Lewis, P. and M. Kirby (1988), 'A New Approach to Modelling the Effects of Incomes Policies', *Economics Letters*, 28(1), pp. 81–85.
- Lilien, D. (1982), 'Sectoral Shifts and Cyclical Unemployment', *Journal of Political Economy*, 90(4), pp. 777–793.
- Lindbeck, A. and D. Snower (1988), *The Insider-Outsider Theory of Employment and Unemployment*, MIT Press, Cambridge, Massachusetts.

- Macfarlane, I. (1997), 'Monetary Policy, Growth and Unemployment', Reserve Bank of Australia *Bulletin*, June, pp. 1–8.
- Murphy, C. (1992), *Access Economics Murphy Model Manual Version 2.1, The Model in Detail*, Access Economics Pty Ltd, Canberra.
- OECD (1996), *OECD Economic Surveys, Australia*, OECD, Paris.
- Parkin, M. (1973), 'The Short-run and Long-run Trade-offs between Inflation and Unemployment in Australia', *Australian Economic Papers*, 12(21), pp. 127–144.
- Pencavel, J. (1986), 'Labor Supply of Men: A Survey', in O. Ashenfelter and R. Layard (eds), *Handbook of Labour Economics*, North-Holland, Amsterdam, Vol. 1, pp. 2–102.
- Pissarides, C. (1991), 'Real Wages and Unemployment in Australia', *Economica*, 58(229), pp. 35–55.
- Quandt, R. and H. Rosen (1989), 'Endogenous Output in an Aggregate Model of the Labor Market', *Review of Economics and Statistics*, 71(3), pp. 394–400.
- Russell, B. and W. Tease (1991), 'Employment, Output and Real Wages', *Economic Record*, 67(196), pp. 34–45.
- Sargent, T. (1978), 'Estimation of Dynamic Labor Demand Schedules under Rational Expectations', *Journal of Political Economy*, 86(6), pp. 1009–1044.
- Shapiro, C. and J. Stiglitz (1984), 'Equilibrium Unemployment as a Worker-Discipline Device', *American Economic Review*, 74(2), pp. 433–444.
- Simes, R. and C. Richardson (1987), 'Wage Determination in Australia', *Economic Record*, 63(181), pp. 144–155.
- Stacey, G. and P. Downes (1995), 'Wage Determination and the Labour Market in the Treasury Macroeconomic (TRYM) Model', paper presented at the 24th Conference of Economists, Adelaide.
- Watts, M. and W. Mitchell (1990), 'Australian Wage Inflation: Real Wage Resistance, Hysteresis and Incomes Policy: 1968(3)–1988(3)', *The Manchester School*, 58(2), pp. 142–164.

Discussion

1. Warwick J. McKibbin

The Dungey and Pitchford (DP) paper and the DeBelle and Vickery (DV) paper are important contributions to the macroeconomic analysis of unemployment in Australia. Both papers focus on the question of what macroeconomic factors would reduce unemployment in Australia. Both papers use a rigorous theoretical framework as a basis for developing empirical relationships between unemployment, economic growth and real wages in Australia. The two papers have a similar theoretical basis and although different in implementation, reach the same policy conclusion: that unemployment can likely be significantly reduced by either or both, a reduction in real wages and an increase in economic growth. How this might be achieved either economically or politically is not addressed but the key result is that unemployment can be reduced by macroeconomic means.

Rather than agree in detail with the approaches taken in both papers, in these comments I will draw on my own general equilibrium modelling to illustrate two key issues that both papers treat insufficiently and which require further research. The first is to directly address the question: if macroeconomic shocks are responsible for increasing unemployment in Australia, is the reduction in unemployment also possible through macroeconomic policy or is it really in the microeconomic details of labour markets where answers lie? The second issue is the key difference between an open economy and a closed economy in how the labour market should be modelled.

Both papers conclude that macroeconomic changes such as real wage cuts or stronger economic growth will reduce unemployment. Surely a significant part of this result comes about because the period of the regressions includes both falls in economic growth and a sharp rise in real wages, both of which caused a rise in unemployment. Is it likely that by reversing the shock, the unemployment rate will fall just as it rose? A key stylised fact is that unemployment falls much more slowly than it rises.

The issue of symmetry in responses to macroeconomic shocks is important for the empirical results and their interpretation. There is some allowance for non-linearity in the DP paper although even this may not capture the issues posed by labour economists. Labour economists accept the role of macroeconomic shocks in generating the surge in unemployment but would also argue that the empirical observation that unemployment falls slowly after a shock goes away is to do with labour market structures. Are both papers then capturing the rise in unemployment as a macroeconomic phenomenon but missing the important microeconomic issues involved with reducing unemployment that show up in the asymmetric responses that are clearly in the data? I believe the debate is still open on this issue. In partial-equilibrium macroeconomic labour market analysis (and even in both papers I suspect), it is hard to capture the stylised facts of the asymmetric movements in aggregate unemployment. However, it is possible in general equilibrium to capture this through adjustments elsewhere in the economy that impact directly on the labour market. In particular, it is possible that the adjustment in the capital stock is what causes the asymmetric response in the labour market. This point will be

demonstrated below using a general equilibrium model with a macroeconomic labour market model with symmetric properties similar to that developed in both papers.

The second issue which is important and only partly touched upon in the DP model is the role of the open economy in labour market adjustment. In the DP paper it is belatedly recognised that in a small open economy, changes in the real exchange rate need to be taken into account. I feel this is the weakest part of both papers since the DV paper ignores the open economy completely while DP only consider one aspect of the impact of real exchange rate changes on inflation. This is through the changes in the price of imports on the price of the consumption bundle.

It is clear that the openness of the economy has important impacts that both papers ignore. First, a real depreciation has both income and price effects and therefore should be expected to impact on domestic demand through changes in real wealth. Domestic goods become cheaper in world markets and foreign goods become more expensive in Australian markets. Thus there is a substitution towards Australian products in the consumption bundle of Australians and foreigners, which will change the demand for Australian products. Secondly, and very importantly, imports are not just used for final consumption. In both the G-Cubed model (McKibbin and Wilcoxon 1998) and the MSG2 model (McKibbin and Sachs 1991), for example, imported inputs play an important role in aggregate supply and therefore in the demand for labour. In these models it is gross output rather than value added that determines the demand for labour. Gross output is produced by capital and labour but also by other inputs both domestically produced and imported. In a production technology for a closed economy, the difference between value added and total production is not important. However in a small open economy with imported inputs the difference between value added and gross output can be very important. In the MSG2 model for example, it is of little relevance for the United States but very important for Asian economies. Australia lies between these two extremes.

To see why this difference between value added and gross output production functions with imported inputs matters, consider an example. A depreciation of the real exchange rate makes imported inputs more expensive and leads to a substitution into other domestic inputs as well as contracting aggregate supply. Thus a shock that shifts aggregate demand will also shift aggregate supply through changes in the real exchange rate. Thus untangling the impact of real exchange rate changes is more complex than the simple approach of adjusting consumer prices advocated by DP.

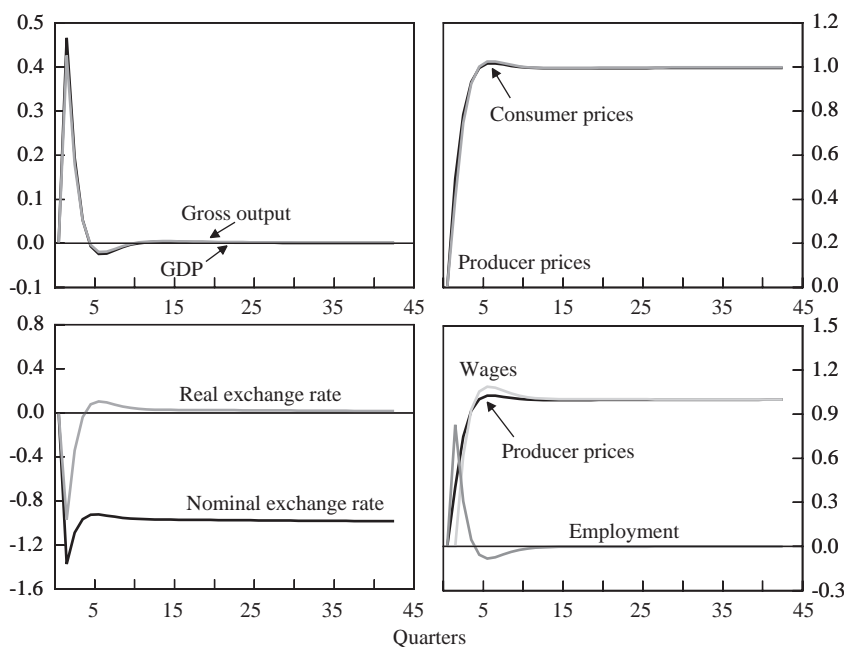
Are the supply effects of a change in the real exchange rate important? In estimating cost functions for the United States in the G-Cubed model, we find important substitution between capital, labour and other inputs such as materials and energy which are partly imported. Empirically, value added is not additively separable from other inputs in production although it is frequently assumed to be so in the theoretical specification of production. In various simulations we can show that the distinction between value added and gross output is important for the demand for labour in both the G-Cubed and MSG2 models.

To demonstrate that the role of imported goods in production is worth further exploration, some simulations are presented using the MSG2 multi-country model. A full description of that model can be found in McKibbin and Sachs (1991) and on the

internet at www.msgpl.com.au. In the context of the two papers being discussed, one key point to note is how the labour market is specified. It is assumed that the aggregate nominal wage adjusts slowly based on past and expected inflation and economy-wide employment relative to full employment. In each sector of the economy, firms are on their labour demand schedules hiring workers up to the point where the marginal product of labour (defined in terms of gross output) in that sector is equal to the economy-wide nominal wage relative to the output price of that sector. Thus a shock can cause a fall in employment that persists until the economy-wide wage has adjusted to absorb all unemployed workers. Along the transition path the physical capital stock can also change (but subject to adjustment costs) and so the adjustment can be quite drawn out depending on the effect of the shock on the return to capital.

Figure 1 contains results for a change in monetary policy in Australia where this is defined as a permanent increase in the money supply of 1 per cent. A temporary cut in short-term interest rates could also be simulated, but monetary policy is modelled in this example through shifting the money supply for ease of exposition. All results are per cent deviation from what otherwise would have been observed ('the baseline'). Many of the results are quite familiar. The rise in money supply reduces short-term interest rates which increases aggregate demand causing prices to rise which temporarily reduces real wages and stimulates employment and production. The nominal exchange rate depreciates by more than 1 per cent initially as does the real exchange rate, but as prices rise over a number of years the real exchange rate returns to baseline. The nominal exchange rate

Figure 1: Monetary Policy Expansion
Percentage deviation from baseline



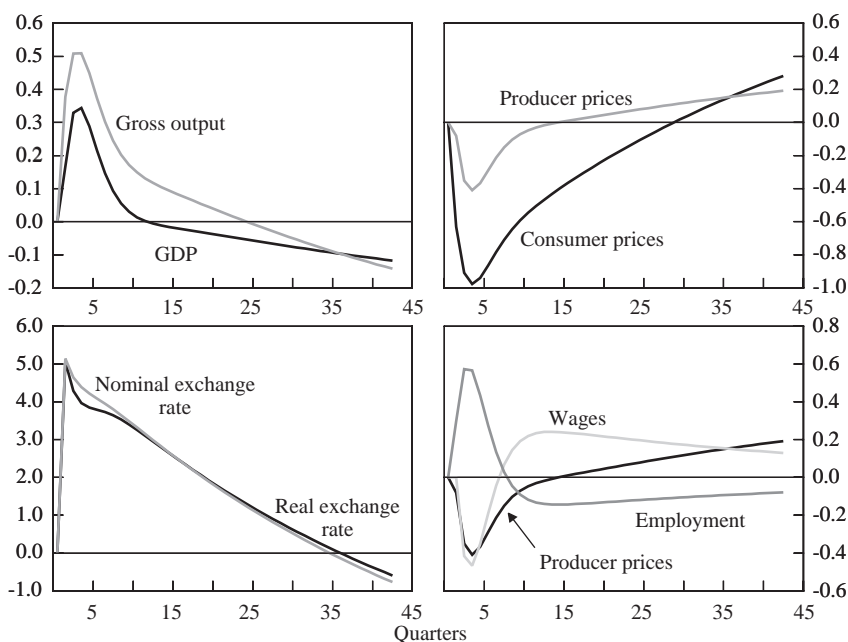
Note: Employment, gross output and GDP are in logs.

is permanently depreciated by 1 per cent which is the same as the rise in prices and the rise in the money supply. Production returns to baseline after a few years. Aggregate output and gross domestic product move very similarly because the real cost of imported inputs only changes temporarily.

In contrast to the monetary shock, consider the results in Figure 2 which are for a permanent fiscal expansion of 1 per cent of GDP financed by issuing government debt, announced and implemented in period 1. The fiscal stimulus raises aggregate demand directly through higher government spending. Interest rates rise and the real and nominal exchange rates appreciate by around 5 per cent initially and then gradually depreciate over time (although being appreciated relative to baseline for many years). This long-lasting fall in the relative price of imported intermediate goods, caused by the exchange rate appreciation, causes aggregate supply to expand at the same time as aggregate demand rises. The change in the relative price of imported inputs also causes firms to substitute away from domestic inputs such as capital and labour towards imported inputs. Notice that aggregate output rises by more than GDP since the difference is the use of imported intermediate inputs in production. What matters for the demand for labour is gross output, not just value added in this model.

Notice also that producer prices, in the top right hand panel of Figure 2, fall as a result of the fiscal expansion because, although domestic demand rises, the input price of imported goods falls and supply rises more than demand. The consumer price index falls further than the producer price because (as noted by DP), a nominal exchange rate

Figure 2: Fiscal Policy Expansion
 Percentage deviation from baseline



Note: Employment, gross output and GDP are in logs.

appreciation would lower imported final goods and thus reduce consumer prices relative to producer prices. However, note that the adjustment to prices suggested by DP would not fully capture the effect of the exchange rate change on inflation.

Also note that the rise in employment is sharp but the fall in employment is quite drawn out reflecting changes in the capital stock over time. Thus although the labour market demand and supply curves are linear, the changes in the nominal wage and the capital stock cause an asymmetric response of employment.

These results illustrate that for real and persistent shocks that lead to large and persistence changes in real exchange rates, the role of imported intermediate goods in production can be important for the labour market and price outcomes for some shocks but not for others. Indeed this suggests that the standard use of value-added production functions rather than gross output production functions may be fine for a closed economy but can be problematic for a small open economy with a varying real exchange rate.

In summary, both papers are important contributions to the debate on the macroeconomics of unemployment but really need to be extended in future research to capture more fully both the general equilibrium and open economy issues raised in these comments.

References

- McKibbin, W. and J. Sachs (1991), *Global Linkages: Macroeconomic Interdependence and Co-operation in the World Economy*, Brookings Institution, Washington, D.C.
- McKibbin, W. and P. Wilcoxon (1998), 'The Theoretical and Empirical Structure of the G-Cubed Model', *Economic Modelling*, forthcoming.

2. John Neville

There is a great deal in Dungey and Pitchford's paper with which I agree, indeed which I admire and wish that I had said myself. However given the time constraint I will confine my remarks to points where I think that the paper is lacking, or at least where more needs to be said than is in the paper. Similarly, I will not spend time complimenting Debelle and Vickery, but concentrate on disagreement or elaboration.

Dungey and Pitchford (DP) argue that 'the NAIRU has been highly variable' and for it 'to be a reliable concept for guiding macro policy the determinants of how it shifts would need to be well established empirically'. Hence DP offer the SIRG (or stable inflation rate of growth). To a fair extent, their comments on the NAIRU can be applied equally well to the SIRG. Over their estimation period, the SIRG was constant but most observers agree that the NAIRU was more or less constant over this period. Casual empiricism suggests big movements in the NAIRU have been accompanied by a noticeable movement in the SIRG. Despite this, I think that the SIRG is a better variable than the NAIRU to use as a macroeconomic policy target. For example it overcomes the problems of measuring the NAIRU that are thrown up by changes in the relative importance of unemployment, underemployment and hidden unemployment.

Apart from the need to be alert to changes in the SIRG, which DP themselves note, the key question in relation to the constancy of the SIRG is whether it is, in part, path-determined. DP's model implies that the NAIRU is, in part, path-determined (see the discussion of Figure 1). Although the SIRG is assumed to be constant in the estimated equations, DP's discussion of their model implies that the SIRG may also, in part, be path-determined. This has important policy implications. For example, it increases the desirability of raising the target growth rate a little above the SIRG when there is persistent deflationary pressure from import prices.

Although they do not use these terms, DP revive the old distinction between demand-pull and cost-push inflation. The SIRG relates to demand-pull inflation, of course, and import prices are currently the major source of cost-push inflation or disinflation. Nevertheless, other sources of cost-push inflation have been important in the past: taxation, for example, and the combination of Clyde Cameron's pay policies with the push for equal pay for women. Sources of cost-push inflation, besides import prices, could become important in the future.

However, currently the major question is how to deal with import price inflation. DP argue that policy should ignore this component of inflation when setting a growth policy target, at least for modest rates of inflation from import prices. DP seem happy to take advantage of import prices reducing the level of inflation by establishing a slightly higher growth target and are silent about how to react to a major inflationary impulse from import prices. I agree with their conclusion, as long as bouts of import price inflation are relatively short run. However, if they go on for a long time (say 5 to 10 years) then it may be no more prudent to ignore them than it is to ignore large short-lived bursts of import price inflation. As DP would no doubt agree, what policy must ensure is to avoid a depreciation-inflation vicious circle, even a slow-moving one.

My third point relates to a variable not mentioned in the paper – the current account deficit. Given John Pitchford's views that private sector overseas borrowing should not be a concern of policy this is not surprising. However, I doubt if life is that easy. There are at least three reasons for not leaving net private borrowing overseas entirely to market forces and a floating exchange rate:

- 1) Overshooting is likely and may cause unnecessary adjustment costs. (Despite Friedman, speculation seems to be destabilising rather than stabilising).
- 2) There is the possibility, already mentioned, of a depreciation-inflation vicious circle.
- 3) Even if there is not much overshooting, experience shows that, if it is left to markets, there is likely to be a rapid large adjustment as opposed to slower steadier structural change. The social costs of rapid adjustment are likely to be greater.

The real question is how much persistent large current account deficits influence speculative currency movements and how large is large? *A priori*, I am sure that persistent large current account deficits must increase the chance of speculative attacks on the exchange rate, or even just a large rapid, if perhaps delayed, depreciation. Empirically, I am not at all sure of the answer to the second question 'how large is large?'. Nevertheless, given the size of Australia's foreign debt, it seems distinctly imprudent to ignore the current account when determining monetary policy.

This brings me to the last comment on DP. Given that one of the sponsors of the conference is the Reserve Bank, it is natural to concentrate on monetary policy. However, DP hardly mention fiscal policy and only have a passing reference to incomes policy. In general it is a mistake, even if one frequently made today, to assign instruments to targets or to treat particular policy instruments in isolation. Many years ago Tinbergen taught us that policy is more likely to be successful if all instruments are considered as a package with the optimal values of each determined jointly.

Debelle and Vickery (DV) call their paper ‘Macroeconomics of Australian Unemployment’, but is in fact about the relationship between the average level of real wages and the size of the NAIRU in Australia. The relationship between these two is an important part of the macroeconomics of unemployment, but it is only a part. Calling it the whole lends to judgments which overstate the importance of this relationship. Consider their statement:

‘The increase in the labour supply in the 1970s required a transitory decline in the real wage to enable the necessary investment to occur so that the additional labour could be employed. In fact the reverse occurred and the real wage rose. This rise is likely to have discouraged investment and led to a sub-optimal level of the capital stock, the effects of which have persisted, so that, despite the real wage falling to the levels of the early 1970s, the unemployment rate has remained well above those levels’.

This statement points to one important causal influence on the behaviour of unemployment over the past 25 years, but even at the macro level, other factors were also important. Obvious macroeconomic changes in Australia in the 1970s, which were also probably causal, include:

- A major change in the formation of inflationary expectations. (In the 1950s and 1960s, practical decision-making with a horizon greater than a year or two assumed a constant rate of inflation around 2 to 2½ per cent.)
- A marked slowdown in the growth rate of potential GDP in Australia and other OECD countries.
- Even slower growth rates of actual GDP due to policies of fighting inflation first.
- A loss in the belief that governments could maintain full employment as understood over the previous 25 years.
- For all these reasons as well as real wage overhang, a decline in capital accumulation and hence a further decline in potential GDP and in labour productivity.

Turning now to DV’s model itself, it assumes productivity growth is exogenous. This has at least three consequences. First it does not allow for any feedback between the average level of real wages and labour productivity. This is a complex but important issue. On the one hand there is the cost-minimisation argument that higher real unit labour costs will encourage investment, as they do in Equation (6) in the paper. On the other hand, as the passage already quoted implies, in the real world a lower profit share discourages animal spirits and reduces the marginal efficiency of capital and also makes it harder and more expensive for firms to finance investment. When the real wage falls both these effects are reversed but the second effect is, on balance, probably less important if the fall is rapid. The psychological animal spirits effects may not stand up to objective large cost-minimisation effects. While this will increase employment in the

relatively short run, if the adverse longer-run effects of reduced investment are to be avoided, there may be fairly tight limits on how quickly real wages, or more correctly real unit labour costs, should fall.

The second consequence of assuming constant productivity growth is indirect. DV state in various places that monetary policy does not have any impact on the long-run level of output or unemployment. Two points can be made about this. The first is a digression, but a worthwhile one. Long run in this context means long-run equilibrium: a hypothetical situation which may never be attained. As DV themselves say explicitly, monetary policy can and should reduce the average level of unemployment over a long period.

The second point is that both the assumption of constant productivity growth and the claim of neutrality of monetary policy as far as long-run equilibrium is concerned, only make any sense if monetary policy is considered in isolation and the stance of fiscal policy is assumed to be always neutral. If we adopt Tinbergen's approach and consider the joint use of monetary and fiscal policy (and indeed other macro policies), the long-run neutrality claim for monetary policy is no longer correct. The easiest way to illustrate this is to start with the statement, already quoted, that the capital stock for Australia is sub-optimal. This is true not only in an aggregate quantity sense, but also in that there is an imbalance between public sector and private sector capital with the stock of public sector capital relatively too small.

It is relatively easy to devise a fiscal and monetary policy mix which leaves total investment unchanged but increases the share of public sector investment, increasing labour and private sector capital productivity and reducing unemployment for a given real wage. It should be possible to devise a mix which also increases total investment if that is desired by the community. In the real world, both monetary and fiscal policy affect productivity growth and potential output.

The third consequence of assuming constant productivity growth is that it rules out any Salter effect, or an increase in the rate of growth of capital productivity as the rate of output growth rises. Thus, the model rules out of consideration a type of virtuous circle in which more rapid output growth increases productivity growth which raises the growth rate of potential output enabling more rapid output growth in the longer run.

Finally, let me just outline three further points. First, unlike DP, DV do not in effect disaggregate unemployment in the underlying labour market model and hence miss the desirability (apart from social reasons) of reducing long-term unemployment. Their recommendation to minimise the amplitude of the business cycle is very important in this respect.

Secondly, DV do not consider how the minimum wage should be reduced, apart from a brief comment about the possibility of 'reforms that permanently change the balance between insiders and outsiders in wage-setting'. Despite the Maritime Union of Australia, unions are a declining force in Australia, especially in the private sector, and market-based factors are becoming more important in making a division between insiders and outsiders. It may well be sensible to look for other ways, than lowering real wages, of reducing real unit labour costs. Reductions in payroll tax are a possible candidate, especially since most proponents of reducing real wages argue for actual or tax expenditures to help low-wage workers. If net revenue is to be reduced, why not go to the source of the problem and reduce payroll taxes?

Finally, with current labour market institutions, the easiest way to reduce average real wages is to work on the bottom end of the wage distribution. Casual, and especially casual part-time, employees are almost certainly a bigger proportion of workers at the lower end of workers ranked by wages. If this is the case, much of any increase in hours worked may be in the form of casual workers working more hours per week, or more weeks per year (for less annual pay) but with a relatively small increase in the actual number of people employed.

3. General Discussion

The two papers in this session argued that unemployment can be lowered through strong economic growth and/or real wage reductions. This led to discussion of three main questions:

- How can we determine the rate of economic growth that will help reduce unemployment without causing an acceleration of inflation?
- How can the aggregate real wage be lowered?
- How should the gains from productivity growth be shared?

There was much discussion about how Pitchford and Dungey's estimated steady inflation rate of growth (SIRG) accords with other judgments about a feasible rate of non-inflationary growth. It was considered that, in practice, the SIRG, like the natural rate of unemployment, is likely to be time-varying, complicating the policy-makers' task of seeking to stimulate growth. Estimates are also likely to be sensitive to the method of modelling the inflation process – in particular, the domestic component of it – and also the sample period used. Reflecting this, some participants thought the estimated SIRG may be too high. However, others thought that it may be feasible given the structural improvements in productivity that have occurred over the current expansion.

While most participants agreed that reducing the level of the real wage would aid the reduction of unemployment, there was no clear view on how this could be achieved in the absence of a formal incomes policy. Some participants claimed that, in the absence of an incomes policy, there was a need to change the balance of power between insiders and outsiders in the labour market to deliver lower average real wages. Other participants claimed that the likelihood of this occurring was limited by the probable existence of hysteresis in unemployment. A number of participants noted that, without a return to centralised or co-ordinated wage-setting, the main mechanism for achieving reductions in the aggregate real wage was to suppress wages growth for those remaining in the administered stream. The use of the relatively small administered stream of bargaining for this purpose was considered undesirable and inequitable by those participants who argued that wage relativities were less important to labour market outcomes than average real wage levels. For others, it was considered an appropriate mechanism for achieving necessary changes to both relativities and the average level of real wages, particularly if it were linked to income compensation through either the welfare system or the tax system.

Finally, there was discussion about how the gains from productivity growth should be allocated to wages, profits and prices. Some participants emphasised that if real wages grow in line with productivity, the effects of productivity growth on output and employment will be dissipated by the effects of higher real wages. They stressed that output and employment prospects will be further inhibited if wage claims are based on overly optimistic assessments about actual or anticipated productivity growth. It was argued that a key interface between macroeconomics and labour market economics was the decision about allocating productivity gains, and that the opportunities for employment would be enhanced by some increase in the returns to capital and/or some lowering of product prices. Developments in enterprise bargaining could provide greater scope for making these allocation decisions.

What Works Among Active Labour Market Policies: Evidence from OECD Countries' Experiences

John P. Martin*

1. Introduction

High and persistent unemployment has been a major blot on the economic and social record of most OECD countries since the early 1970s: the OECD average standardised unemployment rate rose from just over 3 per cent in 1973 to 7.3 per cent in 1997. In response to growing political concerns about the seemingly inexorable rise in unemployment, OECD Ministers gave the Organisation a mandate in 1992 to analyse the causes and consequences of high and persistent unemployment and propose effective remedies to deal with the problem.

The first fruits of this work, published in 1994 under the title *The OECD Jobs Study*, included a list of more than 60 detailed policy recommendations backed up by two volumes of research – see OECD (1994a, b). Ministers then mandated the Organisation to pursue its analytical work in certain areas, including an examination of how to make active labour market policies a more effective weapon in the fight against high and persistent unemployment. They also asked the Organisation to take the detailed policy recommendations and match them to the needs and circumstances of each individual OECD country, and to monitor progress in the implementation of these recommendations and their impacts on labour market performance.

This paper does not aim to report on progress in the implementation of the OECD Jobs Strategy recommendations by individual OECD countries¹ and the effects on labour market outcomes. Instead, it confines its remit to a narrower topic: what is the potential contribution which active labour market policies can make as part of a strategy to combat high and persistent unemployment and the problems of low pay and poverty among the working-age population? In order to answer this question, it is vital to know *what works* among active policies and *in what circumstances*. The OECD Secretariat has been working intensively on these questions in recent years and this paper summarises the main results of our work to date.²

* Deputy Director, Directorate for Education, Employment, Labour and Social Affairs, OECD, Paris. I am very grateful to Robert Fay, David Grubb, Peter Schwane and participants at the Reserve Bank conference for helpful comments on an earlier version of the paper, and to Maxime Ladaique and Marco Doudeijns for statistical assistance. The views expressed in this paper are my own and cannot be held to represent those of the OECD or its Member Governments.

1. For detailed reviews of progress in the implementation of the country-specific recommendations, see OECD (1997d, 1998c).
2. The results of this work are presented in OECD (1996a, 1997c).

The structure of the paper is as follows. Section 2 provides some factual background on public spending on labour market policies in OECD countries over the past decade, drawing on an internationally comparable data set which the OECD has developed to monitor trends in this field of public spending. Then I summarise the main results of ongoing OECD research into the effectiveness of active labour market policies. My review mainly exploits two sources: (i) the recent literature on the evaluation of labour market programs (Section 3); and (ii) in-depth reviews which the OECD has conducted over the past five years on the interactions between active and passive labour market policies in 16 OECD countries (Section 4). The final section draws some conclusions.

2. Recent Trends in Public Spending on Labour Market Programs

Public spending on labour market programs absorbs significant shares of national resources in many OECD countries, these policies being expected to achieve a variety of economic and social objectives. For analytical and policy purposes, the OECD splits this spending into so-called 'active' and 'passive' measures. Active measures comprise a wide range of policies aiming at improving the access of the unemployed to the labour market and jobs, job-related skills and the functioning of the labour market. Spending on active measures is, in turn, split into five program areas: public employment services; labour market training; youth measures; subsidised employment; and measures for the disabled. Passive measures cover spending on unemployment and related social benefits and early retirement benefits.

We have been collecting comparable data on public spending on labour market measures since 1985. These data show that the typical OECD country spent almost 3 per cent of its GDP on active and passive labour market measures in 1996 compared with 2 per cent in 1985. There is wide variation across countries in the share of public spending on labour market measures, ranging in 1996 from a low of under 0.5 per cent of GDP in the Czech Republic, Japan and Korea to a high of over 6 per cent in Denmark (Figure 1).

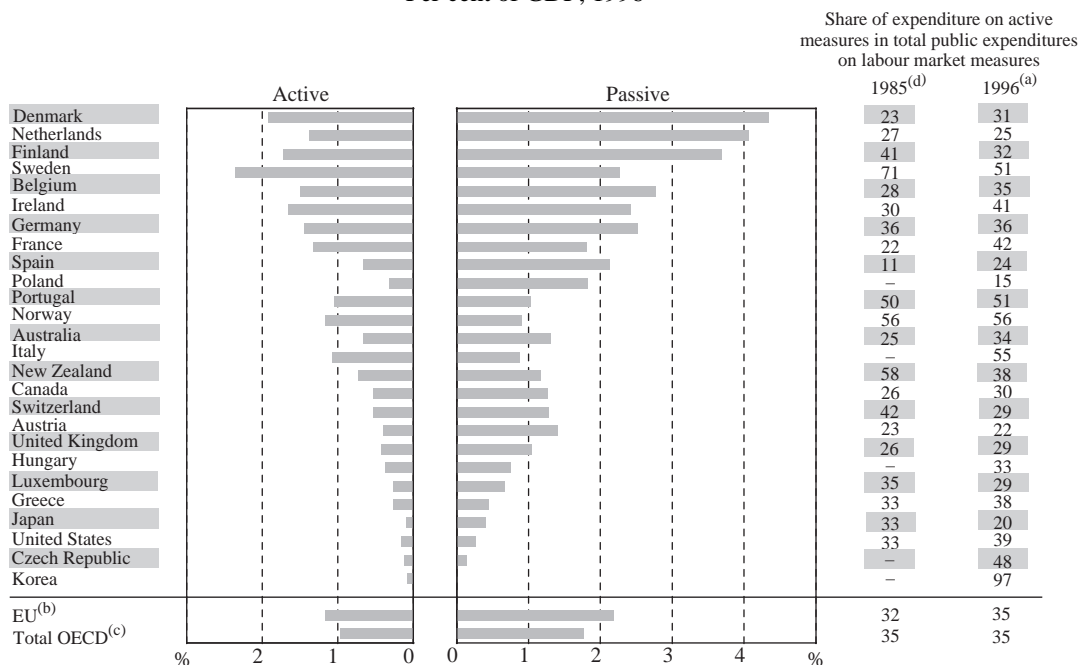
2.1 Indicators of spending effort on active labour market policies

Within the total public spending on labour market policies, the main focus of this paper is on the fraction devoted to active measures. Using the OECD data set on active measures, it is possible to compute three different measures of the 'spending effort' of countries: (i) the share of public spending on active measures as a percentage of GDP; (ii) spending on active measures per person unemployed; and (iii) the number of participants on active programs relative to the size of the labour force.

Data on the first indicator are shown in Table 1. These data show a wide disparity in spending on active measures in 1996, ranging from a low of 0.2 per cent of GDP or less in the Czech Republic, Japan, Korea and the United States to a high of 2.4 per cent in Sweden. There has also been a slight upward trend in the spending effort devoted to active measures, on average across the OECD area, especially since 1990.

Figure 1: Public Spending on Active and Passive Labour Market Measures

Per cent of GDP; 1996^(a)



Notes: (a) Data refer to 1995–96 for Sweden; countries are ranked in order of the ratio of total public expenditures on labour market programs as a per cent of GDP, from the highest spending (Denmark) to lowest spending (Korea).

(b) Unweighted average.

(c) Unweighted average, excluding Czech Republic, Hungary, Italy, Korea and Poland.

(d) Data refer to 1986 for Denmark and Portugal, to 1987 for Japan.

Source: OECD database on labour market programs.

The second indicator measures public spending on active measures per person unemployed relative to output per member of the labour force. Such normalised measures of public spending on active labour market policies have been used as regressors in cross-country equations attempting to explain OECD unemployment rates by Elmeskov *et al.* (1998), Layard *et al.* (1991), Nickell and Layard (1997) and Scarpetta (1996). They can best be thought of as proxies for the so-called ‘replacement rate’ paid to participants in active labour market programs, defined as average compensation per participant relative to expected income in work. However, the data are less than ideal for this purpose since they do not relate to that fraction of the unemployed who participate on active measures, but instead relate active spending to the *total* stock of the unemployed in a given year irrespective of whether they participated in a program or not; in addition, the spending data include items other than the compensation or

Table 1: Spending on Active Labour Market Policies
Percentage of GDP

	1985	1990	1996
Australia	0.4	0.3	0.7
Austria	0.3	0.3	0.4
Belgium	1.3	1.2	1.5
Canada	0.6	0.5	0.5
Czech Republic	–	0.2 ^(d)	0.1
Denmark	1.1 ^(b)	1.1	1.9
Finland	0.9	1.0	1.7
France	0.7	0.8	1.3
Germany ^(a)	0.8	1.0	1.4
Greece	0.2	0.4	0.3
Hungary	–	0.6 ^(e)	0.4
Ireland	1.5	1.4	1.7
Italy	–	2.0 ^(d)	1.1
Japan	0.2 ^(c)	0.1	0.1
Korea	–	0.1	0.1
Luxembourg	0.5	0.3	0.3
Netherlands	1.3	1.2	1.4
New Zealand	0.9	0.9	0.7
Norway	0.6	0.9	1.2
Poland	–	0.3 ^(e)	0.3
Portugal	0.4 ^(b)	0.6	1.1
Spain	0.3	0.8	0.7
Sweden	2.1	1.7	2.4 ^(f)
Switzerland	0.2	0.2	0.5
United Kingdom	0.7	0.6	0.4
United States	0.3	0.2	0.2
EU ^(g)	0.9	0.9	1.2
Total OECD ^(h)	0.7	0.7	0.9

Notes: (a) Data are for Western Germany only prior to 1990; they are for the whole of Germany from 1991 onwards.

(b) 1986.

(c) 1987.

(d) 1991.

(e) 1992.

(f) 1995–96.

(g) Unweighted average excluding Italy.

(h) Unweighted average of the above countries excluding the Czech Republic, Hungary, Italy, Korea and Poland.

Source: OECD database on labour market programs.

training allowances paid to program participants. Be that as it may, the data in Table 2 reveal a high disparity in spending effort per person unemployed relative to output per member of the labour force across countries in 1996, ranging from 5 per cent or less in the Czech Republic, Greece, Hungary, Japan, Korea, Luxembourg, Poland, Spain, the United Kingdom and the United States to a high of over 30 per cent in Sweden.

The third indicator reports data on the numbers engaged in such programs (Table 3). Almost 8 per cent of the labour force in the typical OECD country participated in these programs in 1996, up from 4 per cent in 1985.³ Data on inflow rates reveal a similar wide disparity across countries to that shown by the other indicators, ranging from 3 per cent or less of the labour force in 1996 in Canada, the Czech Republic, Greece, Korea, Spain, Switzerland and the United Kingdom to almost 20 per cent in Denmark.⁴

Looking at all three indicators together, it is clear that there is a strong positive correlation in the country rankings. This is confirmed by computing Spearman rank correlation coefficients using 1996 data:

	ALMP/GDP	ALMP/U
ALMP/GDP	–	0.82
ALMP/U	0.82	–
PART/LF	0.62	0.84

Note: All correlations are significant at the 1 per cent level.

2.2 Has there been a shift from passive to active measures?

In recent years, it has become a common theme in the political debate on remedies to tackle the unemployment problem, that governments should shift the balance of public spending on labour market policies away from passive income support towards more active measures designed to get the unemployed back into work. At first sight, this seems an eminently sensible proposal: why should our societies pay the unemployed to be idle when the public funds in question could be used instead to supply them with a range of labour market services which would raise their chances of getting a job and their future earnings prospects?

The basic principle of shifting public resources from income support to active labour market policies has been endorsed on several occasions in recent years by OECD Labour

3. The data in Table 3 relate to annual *inflows* to slots on various labour market programs. They do not tell us anything about the average length of time which a participant spends on the program nor do they provide any information on repeat spells on programs. We hope to be able to extend our database in the future in order to include information on these important dimensions of participation on labour market programs. We would also like to directly collect data on the average compensation paid to participants on active measures.
4. The data on inflow rates cover public training for *employed* adults as well as the unemployed. In a few countries, e.g. Denmark, Belgium, Greece, Ireland and Portugal, this accounts for a large proportion of the total inflow rate to all active measures, ranging from 20 per cent in Ireland to around 50 per cent in Denmark, Greece and Portugal in 1996.

Table 2: Spending on Active Labour Market Policies per Person Unemployed
Percentage of GDP per member of the labour force

	1985	1990	1996
Australia	5.6	3.7	7.8
Austria	7.6	9.6	9.5
Belgium	10.8	13.9	11.4
Canada	6.2	6.5	5.6
Czech Republic	–	4.1 ^(d)	3.3
Denmark	20.9 ^(b)	13.6	27.9
Finland	18.5	29.4	10.7
France	6.6	9.2	10.7
Germany ^(a)	10.0	16.7	16.1
Greece	2.2	5.2	2.6
Hungary	–	6.2 ^(e)	3.8
Ireland	8.8	10.5	13.9
Italy	–	18.3 ^(d)	9.0
Japan	5.8 ^(c)	6.2	3.0
Korea	–	2.3	4.3
Luxembourg	3.3	2.8	0.8
Netherlands	11.5	16.2	21.3
New Zealand	19.2 ^(a)	11.7	12.1
Norway	23.7	17.6	23.9
Poland	–	2.4 ^(e)	2.6
Portugal	4.2 ^(b)	14.0	14.1
Spain	1.6	4.7	3.0
Sweden	73.8	102.4	30.6 ^(f)
Switzerland	21.9	45.1	13.7
United Kingdom	6.4	11.0	5.0
United States	3.8	4.2	3.2
EU ^(g)	13.3	18.5	11.3
Total OECD ^(h)	13.0	16.2	11.4

Notes: (a) Data are for Western Germany only prior to 1990; they are for the whole of Germany from 1991 onwards.

(b) 1986.

(c) 1987.

(d) 1991.

(e) 1992.

(f) 1995–96.

(g) Unweighted average excluding Italy.

(h) Unweighted average of the above countries excluding the Czech Republic, Hungary, Italy, Korea and Poland.

Sources: OECD database on labour market programs for data on spending, GDP and labour force; OECD *Labour Force Statistics* for data on unemployment.

Table 3: Participants Inflows to Active Labour Market Programs
Percentage of the total labour force

	1986	1990	1996
Australia	3.6	3.2	5.6
Austria	–	2.4	–
Belgium	–	10.9	17.0
Canada	2.4	2.5	2.7 ^(c)
Czech Republic	–	1.3 ^(b)	0.6
Denmark	9.5	11.0	19.4 ^(c)
Finland	4.5	5.3	12.8
France	–	7.4	11.3 ^(c)
Germany ^(a)	–	4.0	4.2
Greece	–	2.5	3.0
Hungary	–	–	5.7
Ireland	–	6.9	11.3
Korea	–	0.2	1.0
Netherlands	2.3	2.8	12.7
New Zealand	–	8.4	11.5 ^(c)
Norway	–	–	4.1
Poland	–	–	3.9
Portugal	1.5	4.7	7.1 ^(c)
Spain	6.6	7.6	2.8
Sweden	–	3.7	13.8 ^(c)
Switzerland	0.4	0.5	2.5 ^(c)
United Kingdom	–	2.2	2.4
United States	–	2.7	–
EU ^(d)	–	5.8	9.8
Total OECD ^(e)	–	4.7	7.9

Notes: (a) Data are for Western Germany only prior to 1990; they are for the whole of Germany from 1991 onwards.

(b) 1991.

(c) 1995.

(d) Unweighted average excluding Austria.

(e) Unweighted average of the above countries excluding Austria, Hungary, Norway, Poland and the United States.

Source: OECD database on labour market programs.

Ministers, most recently at their meeting in Paris on the 14–15 October 1997.⁵ It also forms part of the current EU Strategy to combat unemployment, as agreed at the Essen Summit in December 1994.

Have countries managed to switch resources into active measures in line with the principle endorsed by Ministers? Progress has been very limited in terms of this goal: for the typical OECD country, Table 1 shows that spending on active measures rose only from 0.7 per cent of GDP in 1985 to 0.9 per cent in 1996. More disappointingly, the share of spending on active measures as a proportion of total public spending on labour market programs was stable or declined between 1985 and 1996 in over one-third of the countries (Figure 1).⁶ Furthermore, Italy, Norway, Portugal, and Sweden were the only OECD countries where spending on active measures was equal to or exceeded spending on passive measures in 1996.

One obvious reason for the very limited success in switching resources into active measures over the past decade is the rising trend in unemployment in many countries. As unemployment and related welfare benefits are entitlement programs, increases in unemployment bring in their wake an automatic increase in public spending on passive income support. Active labour market programs, on the other hand, are discretionary. In addition, as the next section makes clear, the track record of many active programs is patchy in terms of achieving their stated objectives. This has led many policy-makers to be wary of authorising large spending increases on new or existing programs.⁷

3. Active Policies: What Works and What Does Not

3.1 Macroeconomic evaluations

Since the ultimate aim of active policies is to cut overall unemployment and/or raise earnings, an obvious approach to assessing their effectiveness is to seek to establish robust econometric relationships between key macroeconomic aggregates such as unemployment or real wages and various measures of the size of active policies. There is, indeed, a small but growing empirical literature on this approach: Calmfors (1994, 1995), Calmfors and Skedinger (1995), Forslund and Krueger (1994), Jackman (1994),

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5. The relevant extract from the Press Communiqué issued at the end of the Ministerial meeting reads as follows: 'When they last met in 1992, OECD Ministers of Employment and Labour stressed the need to shift public spending on labour market policies from passive to active measures. In most countries, more progress is needed in achieving this objective. Today, Ministers reiterate this policy objective while at the same time underlining the need to enhance the effectiveness of active labour market policies and to design and manage unemployment and related welfare benefits fairly, but tightly. Active measures must not become inadvertently 'passive' in that they simply provide parking slots for the unemployed or serve to re-establish benefit entitlements. At the same time, so-called passive measures should be designed and rigorously managed so that active job search by benefit claimants is rewarded, thereby ensuring that they do not become overly dependent on income support'.
 6. However, the fact that inflow rates to programs increased between 1986 and 1996 in many more countries than did spending/GDP ratios suggests that there was a shift to shorter-duration programs over the period.
 7. There is a nice illustration of this in recent US experience. When the national evaluation of the Job Training Partnership Act (JTPA) revealed that it had failed to provide earnings gains to disadvantaged youths, the US Congress eliminated nearly all of the funds for JTPA.

Jackman *et al.* (1990), Layard *et al.* (1991), Nickell (1997) and Nickell and Layard (1997) and have all published articles on this topic recently. The OECD Secretariat has also contributed to this literature – see Chapter 2 in the 1993 edition of the OECD *Employment Outlook* and recent articles by Elmeskov *et al.* (1998) and Scarpetta (1996).

I do not intend to review this literature in my paper – there is a good survey of it in Calmfors (1994). However, it is fair to conclude that the jury is still out on this case: the results of these macroeconomic evaluations are inconclusive, some studies appearing to show robust effects of active policies in terms of lowering the natural rate of unemployment or real wage pressures, others appearing to show zero or insignificant correlations.⁸ This literature is bedevilled by a number of data and technical difficulties, notably simultaneity bias since cross-country comparisons reveal that the amount of spending on active programs is positively related to the unemployment rate.⁹ Because of these uncertainties, the rest of this section concentrates on the main findings from the evaluations of *individual* labour market programs.

3.2 The literature on evaluation of individual programs

There is a large literature which seeks to evaluate the outcomes of individual programs. These evaluations can be divided into two main types. The first type seeks to measure the impact of program participation on individuals' employment and earnings outcomes after they have left the program, judging the outcomes against the experiences of a benchmark or control group of similar individuals who did not participate in the program. This type of evaluation makes sense for programs which attempt to make participants more productive and competitive in the open labour market, e.g. training and job-search assistance.

The second type of evaluation attempts to measure the net effects of programs on aggregate employment and unemployment by estimating what are called in economists' jargon 'deadweight', 'substitution' and 'displacement' effects. These evaluations are mostly relevant for employment programs, i.e. programs which attempt to stimulate job creation in the private sector (including self-employment), as well as direct job creation in the public sector. Since subsidised employment programs have the explicit objective of increasing the number of jobs in the economy at large and/or raising the employment prospects of the target group, evaluations must determine whether the subsidised jobs would have been created anyway in the absence of the subsidy (so-called deadweight

8. For example, Scarpetta (1996) includes a measure of the intensity of public spending on ALMPs (defined as average spending on ALMPs per unemployed person) in his pooled cross-section/time-series analysis of the determinants of the unemployment rate in a large sample of OECD countries over the period 1983–93. While the estimated impacts of ALMPs were always negative in his regressions, the coefficients were small and in some cases insignificant. However, a sensitivity analysis designed to identify outliers in the data suggested that the data from Sweden should be excluded from the panel. Once this adjustment was made, the magnitude and statistical significance of the estimated coefficient of the ALMP variable increased sharply. Re-estimation of these equations for a larger sample of countries and a somewhat longer time period by Elmeskov *et al.* (1998) revealed even stronger ALMP effects, once Sweden is excluded. Calmfors and Skedinger (1995), on the other hand, highlight the lack of robustness of their results for Sweden.

9. See Calmfors and Skedinger (1995) for a discussion of these problems.

effects) or whether the subsidised jobs have displaced, or have been substituted for, unsubsidised jobs elsewhere in the economy.

3.3 Caveats to bear in mind when assessing the literature on program evaluation

Before turning to the main findings from the recent evaluation literature, I think it is important to stress some caveats concerning the reliability and generality of the conclusions that can be drawn from this literature.

First, much of the evaluation literature relates to the United States and Canada where there is a long-standing tradition of evaluating labour market programs. Indeed, in both countries, there is effectively a mandatory requirement on the public authorities to evaluate their programs. Few European countries have carried out rigorous evaluations until recently.¹⁰ This unsatisfactory situation is changing slowly, as tight fiscal constraints make it imperative to get better value for public spending on active labour market policies. As a result, some European countries (I would single out Norway, Sweden and the United Kingdom in this regard) and Australia are beginning to see the light as regards undertaking rigorous evaluations of their labour market programs. However, in most other countries, the most common method of 'evaluation' consists of simply monitoring the labour market status and earnings of participants for a brief period following their spell on a program. While this sort of exercise provides useful information, it cannot answer the vital question of whether the program in question 'worked' or not.¹¹

Second, one must recognise that there is almost never a *stable* set of active programs to evaluate. Countries are continuously chopping and changing the mix of programs. For example, Grubb (1995) highlights the strong tendency on the part of the US Congress to respond to specific new problems with a specific new program, rather than to incorporate new purposes into old programs. This leads to a proliferation of programs, many of which are overlapping, tend to cancel each other out, are costly to administer, and are confusing to firms and the unemployed they are supposed to assist.

Third, there is very little evidence on the long-run effects of active programs. The vast majority of rigorous evaluations only provide evidence on short-run outcomes, covering at best 1 to 2 years after the person has participated in the program.¹² This may well be too short a period for a full assessment of the private and social returns to public investment in many active measures.

Fourth, 'outcomes' in the evaluation literature, are invariably expressed in terms of program impacts on future earnings and/or re-employment prospects of participants, and

10. One explanation for the lack of evaluations in Europe was put to me frankly about ten years ago by a leading policy-maker who shall remain nameless. If I can paraphrase his explanation, it would run as follows: 'Most of our programs are lousy! They were dreamed up quickly to give the Minister some good news to announce at a time when unemployment is rising. We do not want evaluations revealing to the general public how bad our programs are; we know this already!'

11. There is a large literature on the appropriate methodology to use in evaluating labour market programs. See Friedlander *et al.* (1997) for a good review of the issues.

12. There are a few US evaluations which cover longer time periods, following individuals up to 5 to 6 years after their participation in the program. See Grubb (1995) for a review of these studies.

Table 4: Lessons from the Evaluation Literature

Program	Appears to help	Appears not to help	General observations
Formal classroom training	Women re-entrants	Prime-age men and older workers with low initial education.	Important that courses signal strong labour market relevance or signal 'high' quality. Keep programs relatively small in scale.
On-the-job training	Women re-entrants; single mothers	Prime-age men (?)	Must directly meet labour market needs. Hence, need to establish strong links with local employers, but this increases the risk of displacement.
Job-search assistance (job clubs, individual counselling, <i>etc.</i>)	Most unemployed but in particular, women and sole parents		Must be combined with increased monitoring of the unemployed and enforcement of work tests.
<i>of which:</i> [Re-employment bonuses	Most adult unemployed		Requires careful monitoring and controls on both recipients and their former employers.]
Special youth measures (training, employment subsidies, direct job creation measures)		Disadvantaged youths	Youths need a combination of programs targeted at their specific labour market needs and family support. <i>Early</i> interventions are likely to be most effective. Need to deal with inappropriate attitudes to work on the part of youths. Adult mentors can help.
Subsidies to employment	Long-term unemployed; Women re-entrants		Require careful targeting and adequate controls to maximise net employment gains and social benefits, but trade-off with employer take-up.
<i>of which:</i> [Aid to unemployed starting enterprises	Men (below 40, relatively better educated)		Only works for a small subset of the population.]
Direct job creation	Severely disadvantaged labour market groups (?)	Most adult unemployed	Typically provides few long-run benefits and principle of additionality usually implies low marginal-product jobs.

Notes: The above table was filled out based on evaluation results presented in the US Department of Labor (1995), Fay (1996), Friedlander *et al.* (1997), Grubb (1995), HRDC (1997), Lerman (1997) and OECD (1993c).

this stress is reflected in this paper. There is little or no evidence available on social benefits such as reduced crime, less drug abuse or better health.

Fifth, there is an issue about the *scale* of programs, even those which appear to work. It is unclear from the existing literature how cost-effective such programs would be if they were greatly extended in terms of scale of participation.

Sixth, many evaluations are undertaken by public sector agencies. While there are good reasons for this, it does give rise to concerns about the independence of the findings. Therefore, where evaluations are undertaken by public sector agencies, it is important to check whether there has been any *external* validation of the evaluation results in question.

Finally, while the evaluation literature, as we shall see, tells us quite a lot about *what* works, it is not very instructive in answering other equally important and related questions, such as why do certain programs work for some groups (see below) and not for others, and in what circumstances? It is not helpful in explaining what combination of employment services is likely to work. For example, there is almost no evidence on which types and content of training programs work best. Do skill-enhancing activities – e.g. via classroom training and/or on-the-job training – work best or must they be combined with personal counselling, job-search assistance and mentoring services to work? Policy-makers want to know the answers to such questions, but the evidence is simply not there for the moment.

3.4 Findings from the evaluation literature

The OECD has reviewed the available evaluation literature in a chapter which was published in the 1993 edition of the OECD *Employment Outlook* and a colleague, Bob Fay, has updated this review recently.¹³ What does this latest review of the evaluation literature tell us about what works and what does not? In seeking to answer this question, I will summarise briefly the findings for each major labour market policy measure in turn.¹⁴ Table 4 summarises the main lessons in terms of what works for which groups.

3.4.1 Public training programs

They usually account for the largest share of spending on active measures: on average, OECD countries devoted 27 per cent of their total public spending on active measures to training programs in 1996, up from 23 per cent in 1985 (Table 5). But evaluations of public training programs in OECD countries suggest a very mixed track record. Some programs in Canada, Sweden and the United States have yielded low or even negative rates of return for participants when the estimated program effects on earnings or employment are compared with the cost of achieving those effects.¹⁵ However, all is not

13. See Fay (1996). See also Katz (1994) for a good review of the recent US literature.

14. I do not include special employment measures for the disabled since we have not reviewed the evaluation literature in this field.

15. See Forslund and Krueger (1994) for a review of the Swedish evaluation evidence on training programs; Friedlander *et al.* (1997) and Grubb (1995) for reviews of the US literature; and Park *et al.* (1996) for a review of some Canadian programs.

**Table 5: Composition of Expenditures on Active Labour
Market Measures**

As a per cent of total expenditures on active measures; 1985 and 1996^(a)

	PES adminis- tration		Labour market training ^(b)		Youth measures		Subsidies to private sector employment ^(c)		Direct job creation in the public sector		Measures for the disabled	
	1985	1996	1985	1996	1985	1996	1985	1996	1985	1996	1985	1996
Australia	27	29	4	18	15	7	17	11	28	27	8	8
Austria	38	37	31	35	10	2	9	5	3	8	8	13
Belgium	13	16	15	20	1	6	2	8	58	41	11	10
Canada	37	36	55	38	5	5	0	10	3	6	0	5
Czech Republic	–	71	–	5	–	5	–	5	–	10	–	3
Denmark	7	5	37	51	19	7	5	5	15	13	17	20
Finland	9	9	29	33	6	13	5	6	41	32	10	7
France	20	12	39	29	25	19	9	15	0	17	8	7
Germany	26	17	24	32	6	5	6	7	15	21	23	19
Greece	40	42	12	28	16	9	26	20	4	0	1	1
Hungary	–	30	–	30	–	0	–	15	–	25	–	0
Ireland	11	15	42	13	34	14	6	15	6	38	1	5
Japan	17	26	16	24	0	0	61	48	6	2	0	1
Luxembourg	8	10	0	3	18	50	23	20	0	1	50	16
Netherlands	21	26	15	9	3	7	1	9	3	10	57	39
New Zealand	11	18	16	46	1	13	5	14	65	4	2	4
Norway	19	14	16	16	7	5	3	5	28	8	27	52
Poland	–	7	–	7	–	30	–	31	–	21	–	4
Portugal	18	11	51	37	10	34	3	8	7	3	10	7
Spain	25	13	7	52	0	12	37	14	29	7	2	2
Sweden	12	11	24	23	10	5	5	11	15	19	34	31
Switzerland	40	21	7	13	0	0	1	2	0	29	53	35
United Kingdom	22	43	9	22	35	26	4	1	25	2	4	6
United States	25	39	42	20	12	15	4	2	3	3	14	21
EU ^(d)	19	19	24	28	14	15	10	10	16	15	17	13
Total OECD ^(e)	21	21	23	27	11	12	11	11	17	14	16	15

Notes: (a) Data refer to 1986 for Denmark and Portugal, to 1987 for Japan, to 1991 for the Czech Republic, to 1992 for Hungary and Poland, and to 1995 for Australia, Belgium, France, Greece, Hungary, Japan, New Zealand, Sweden, the United Kingdom and the United States.

(b) Including training for employed adults as well as unemployed adults.

(c) Including support to unemployed persons starting their own enterprises.

(d) Unweighted average.

(e) Unweighted average excluding the Czech Republic, Hungary and Poland.

Source: OECD database on labour market programs.

black on the front of public training programs. A recent comprehensive review of public training programs for disadvantaged groups in the United States by Friedlander *et al.* (1997) highlights quite a number of successful programs in terms of earnings gains and positive rates of return for participants. It is noticeable that the most consistently positive results were recorded for adult women. The findings were less optimistic with regard to adult men: some programs gave positive results, others not. The most dismal picture emerged with respect to youth: almost no training program worked for them. Even for those groups for whom participation in the programs yielded a positive rate of return, Friedlander *et al.* (1997) note that the estimated earnings gains are not large enough to lift most families out of poverty.

As noted above, the available evaluation literature can tell us whether training programs work for particular disadvantaged groups or not. However, it does not provide satisfactory answers as to why they appear to work for some target groups (e.g. adult women) and not for others. Until we have answers to this question, it is going to be extremely difficult to design effective public training programs.

Such evidence, as exists, highlights three crucial features in the design of public training programs: (i) the need for tight targeting on participants; (ii) the need to keep the programs relatively small in scale; (iii) the need to have a strong on-the-job component in the program, and hence to establish strong links with local employers. At the same time, it is clear that training programs which foster strong links with local employers are likely to encourage displacement, an outcome which arises when those who participate in the program get jobs at the expense of individuals who did not participate in the program.¹⁶

3.4.2 Job-search assistance

Unfortunately, it is not possible in the OECD database at the moment to separate out spending on job-search assistance from the administrative costs of running the public employment service (PES): in 1996, the average OECD country devoted 21 per cent of active spending to PES administration, but much of this comprises the fixed costs of running the service. Job-search assistance comprises many different types of services, for example, initial interviews at the public employment service, in-depth counselling at some stage in the unemployment spell, re-employment bonuses, jobs clubs *etc.* Such services may also be combined with increased monitoring and enforcement of the job-search requirements for receipt of unemployment benefits.

Job-search assistance is usually the least costly active labour market program and the good news is that evaluations from several countries show consistently positive outcomes for this form of active measure.¹⁷ It seems that investment in active placement and raising the motivation of the unemployed, as well as taking steps to encourage and monitor their job-search behaviour, pay dividends in terms of getting the unemployed back into work

16. Friedlander *et al.* (1997) point out that there is no evidence in the rigorous evaluation literature quantifying the size of displacement associated with training programs for disadvantaged groups.

17. See Meyer (1995) for a review of the US evidence and HRDC (1997) for a review of the Canadian evidence.

faster.¹⁸ While the optimal combination of additional job-placement services and increased monitoring of job-seekers and enforcement of the work test is unclear, the evidence suggests that both are required to produce benefits to unemployment insurance claimants and society.

One particularly interesting form of job-search assistance is re-employment bonuses, i.e. cash payments to unemployment insurance recipients who find a job quickly and keep it for a specified length of time. Such a scheme exists in Japan and has been experimented with in several US States. The US evaluations show that the bonus payments did reduce the average duration of unemployment benefit receipt significantly. However, such bonuses can give rise to negative effects too. Their existence may have an effect on the size of the group claiming benefits. In particular, they may induce workers with a high probability of finding a new job quickly to arrange with their employers to be laid off so as to collect the bonus. In order to minimise such abuse, Japan has several safeguards and controls in place involving both the bonus claimant and his former employer.

3.4.3 *Special youth measures*

On average, OECD countries devoted 12 per cent of spending on active policies to these measures in 1996. One of the most disappointing conclusions is that almost all evaluations show that special measures are not effective for disadvantaged youths. This holds not only for public training programs (see above) but also for targeted wage subsidy measures too. Given the depth of public concern about youth unemployment and the large public spending devoted to special youth measures, a high priority must be assigned to discovering the reasons for the dismal track record of such measures and designing and implementing more effective programs.

Among the large number of negative evaluation results, there are a few hopeful signs. Job Corps in the United States did yield statistically significant earnings gains for disadvantaged youth. However, it had to rely on savings from reduced criminal activity among the target group to produce a net social benefit, given that it is a high-cost program.¹⁹ In addition, within national demonstrations such as JOBSTART in the United States, it is possible to identify specific sites where the program appeared to work for disadvantaged youth. One such example of a site that appeared to deliver large gains is the Center for Employment Training (CET) in San José, California; it was the only one of the 13 JOBSTART sites which delivered statistically significant earnings gains for youths. However, we do not know precisely what factors distinguished the CET site from the other sites or how feasible it would be to replicate their positive results elsewhere.

The evidence from Canadian and US evaluations suggests that the biggest payoffs for disadvantaged youths come from early interventions. This involves not only intensive efforts to boost their performance in primary and secondary schooling and reduce drop-out rates, it also reaches back to early childhood including the pre-school period.

18. However, Canadian evidence, summarised in HRDC (1997), suggests that any earnings gains from job-search assistance are likely to be transitory.

19. The evaluation results supporting this positive assessment of Job Corps were based on non-experimental methods and were done almost 20 years ago. A rigorous nationwide evaluation of Job Corps is now under way to try to settle the issue of whether it works or not.

The limited empirical evidence that is available suggests that early childhood interventions of high quality can have lasting effects on the employment and earnings prospects of disadvantaged children.²⁰ It is also important to target support not only at the youngsters themselves but also at their families and local communities. It cannot be over-emphasised that if young people leave the schooling system without qualifications and a good grounding in the 3Rs, it is well nigh impossible for labour market programs to overcome these handicaps later on.

Finally, several authors (e.g. Lerman 1997) highlight the importance of poor attitudes towards work among disadvantaged youth as a major factor in explaining the dismal record of special youth measures. It is not easy for many programs to influence attitudes in ways that improve the jobs and earnings prospects of disadvantaged youth. But mentoring programs, by providing for both ongoing contact with an adult over an extended period of time and elements of monitoring as well as support, can help overcome negative attitudes to work.

3.4.4 *Subsidies to private sector employment*

These measures accounted for 11 per cent of total spending on active measures in the typical OECD country in 1996. Subsidies to private sector jobs may have a number of objectives other than creating additional jobs. They may seek to enhance effective labour supply by helping individuals to keep in contact with the world of work, thereby maintaining their motivation and skills.²¹ For equity reasons they may also be intended to provide the long-term unemployed with jobs, even if this happens at the expense of the short-term unemployed. These other goals of wage-subsidy schemes may still be important even if the *net* employment gains of these programs are very small or zero.

Indeed, most evaluations show that subsidies to private sector employment have both large deadweight effects (i.e. employers use the subsidy to hire workers they would have hired anyway) and displacement effects (many subsidised hires displace others who would have been hired in the absence of the subsidy). As a result, most such schemes yield small net employment gains, particularly in the short term when aggregate demand and vacancies are fixed. For instance, evaluations of wage subsidies in Australia, Belgium, Ireland and the Netherlands have suggested combined deadweight and substitution effects amounting to around 90 per cent, implying that for every 100 jobs subsidised by these schemes only 10 were net gains in employment. However, such wage-subsidy programs do give an advantage to the target group compared with other job seekers, and the resulting redistribution of job opportunities may be justified on equity grounds.

The evidence suggests it may be possible to raise the size of net employment gains associated with private sector wage subsidies to 20–30 per cent or more via tight targeting of the measures to particular groups among the unemployed and monitoring of employer behaviour in order to curb abuses. However, there is a difficult trade-off for policy-makers here: the evidence also suggests that the more controls are multiplied in order to curb

20. See Heckman (1994) and HRDC (1997).

21. See Richardson (1998) for evidence, using a panel of Australian youth, that participation in subsidised jobs improved their employability.

abuse and maximise the net employment gains from wage subsidies, the less willing are firms to participate in such programs and employer take-up drops off sharply, defeating the ultimate goal of the exercise. In addition, the more tightly the program is tied to characteristics of ‘disadvantage’, the greater the risk of so-called ‘stigma’ which may discourage the unemployed from availing themselves of such schemes.

One specific form of wage subsidy that appears to be successful for a small group of unemployed individuals is aid to starting up a small business. Controlled experiments in the United States suggest that such schemes result in employment gains for men, primarily between the ages of 30 and 40, who have relatively high levels of education. Evidence from less rigorous evaluations of such schemes in other countries such as Australia, Ireland, Norway and the United Kingdom tends to confirm longer term survivability, but only for a relatively small share of all enterprises started up in this manner.

3.4.5 Direct job creation in the public sector

Spending on this measure exceeds spending on subsidies to private sector jobs in many countries: on average, the typical OECD country devoted 14 per cent of its spending on active measures to public sector job creation measures in 1996. The evaluation literature shows fairly conclusively that this measure has been of little success in helping unemployed people get permanent jobs in the open labour market. As a result, there has been a trend away from this type of intervention in recent years but it appears to be making a comeback now in some OECD countries, usually as part of a ‘reciprocal obligation’ on the unemployed in return for continued receipt of benefits (see below).

However, OECD countries continue to spend large amounts on public sector job creation programs and the policy debate about the utility of this intervention is still alive. Temporary employment programs in the public sector can be used as a work test for unemployment benefit claimants and as a means of helping the unemployed maintain contact with the labour market, particularly in a recession when aggregate demand is depressed and vacancies are scarce. But since most jobs provided through direct job creation schemes typically have a low marginal product, they should be short in duration and not become a disguised form of heavily subsidised permanent employment.

3.5 The bottom line

In sum, our review of the evaluation research highlights the following five principles which should guide the selection of active policies in order to maximise their effectiveness:

- First, rely as much as possible on in-depth counselling, job-finding incentives (e.g. re-employment bonuses) and job-search assistance programs. But it is vital to ensure that such measures are combined with increased monitoring and enforcement of the work test.
- Second, keep public training programs small in scale and well-targeted to the specific needs of both job-seekers and local employers.
- Third, early interventions, reaching back to pre-school, can pay dividends for disadvantaged youths. This should include steps to reduce early school-leaving targeted on at-risk students combined with policies to ensure that they leave the

schooling system equipped with basic skills and competences that are recognised and valued by employers. It is also important to improve poor attitudes to work on the part of such young people and adult mentors can help in this regard.

- Fourth, as the duration of unemployment spells lengthens, various forms of employment subsidies may serve to maintain workers' attachment to the labour force. However, employment subsidies should be of short duration, targeted and closely monitored.
- Fifth, use subsidised business start-ups for the minority among the unemployed who have entrepreneurial skills and the motivation to survive in a competitive environment.

Finally, if we are to expand the range of international knowledge on 'what works' and 'why' among active labour market policies, it is vital that more countries begin to evaluate their labour market programs systematically. Indeed, evaluation should be built into the design of programs at the beginning rather than being viewed as an *ex post* exercise. Evaluations should also be undertaken in a rigorous way that allows one to draw useful inferences about the effectiveness of the interventions in terms of their impacts on the employment and earnings prospects of the program participants.

4. Interactions between Active and Passive Policies

Recent OECD research also suggests that it is vital to focus on the interactions between active and passive labour market policies if one seeks to enhance the effectiveness of active labour market policies. I will now turn to this topic drawing on OECD reviews of labour market policies in 16 countries (Austria, Belgium, Denmark, Finland, Germany, Greece, Ireland, Italy, Japan, the Netherlands, Portugal, Norway, Spain, Sweden, Switzerland, and the United Kingdom).²²

Why is this an important topic? Unemployment and related welfare benefits provide income support to the unemployed while they are searching for jobs. It is well known that such benefits can have significant effects on work incentives for the unemployed and on the wage-setting behaviour of workers and employers. Active labour market policies aim to help the unemployed get back into work and raise their future earnings prospects by providing them with a range of employment services. But they also provide income support to the unemployed while they participate in an active program and such participation can affect future entitlements to unemployment benefits, thereby influencing the behaviour of labour market actors.²³ For this reason, it is important to pay attention to the interactions between active measures and unemployment benefit systems.

4.1 Gross and net replacement rates in OECD countries

An obvious starting point to analysing these interactions is the relative generosity of income support to the unemployed via unemployment benefits or the compensation paid while they participate on an active program. Unfortunately, we do not have data on the latter, only on the former. But it is likely that both forms of income support are highly

22. See OECD (1993b, 1993c, 1996b, 1996c, 1996d, 1997b, 1998b). We are currently undertaking a review of the PES and how it interacts with ALMPs and unemployment benefit systems in two US states, Wisconsin and Connecticut.

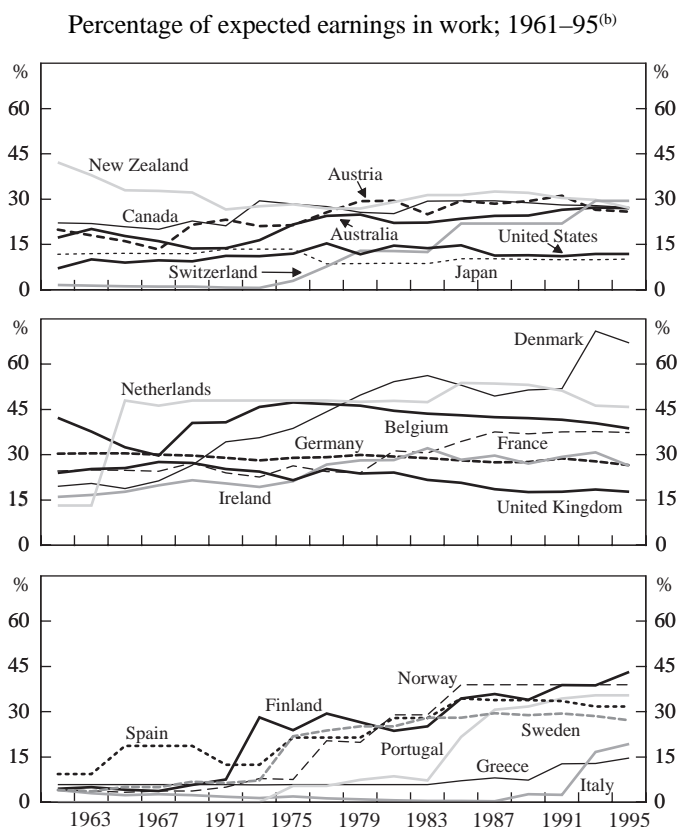
23. See Calmfors (1994) for a detailed exposition of this argument.

correlated. Indeed, it seems to be the case in many countries that participants on some active measures are paid unemployment benefits, sometimes with a small top-up. Hence, trends in the generosity of unemployment benefit systems are likely to be mirrored closely in the average compensation paid to program participants.

The standard indicator of the generosity of an unemployment benefit system is the so-called ‘replacement rate’, i.e. the proportion of expected income from work which is replaced by unemployment and related welfare benefits. The OECD has devoted much effort in recent years to developing a range of *gross* and *net* (i.e. after-tax) replacement rates for the purposes of international comparisons.

Figure 2 presents time-series data on the OECD summary measure of unemployment and related welfare benefit entitlements over the period 1961–95. The summary measure in Figure 2 is an average of 18 separate *gross* replacement rates covering a variety of

Figure 2: The OECD Summary Measure of Benefit Entitlements^(a)



Notes: (a) The OECD summary measure is defined as the average of *gross* unemployment benefit replacement rates for two earnings levels, three family situations and three durations of unemployment. For further details, see OECD (1994b, Chapter 8) and Martin (1996). The earnings data used to compute replacement rates for 1995 are Secretariat estimates.

(b) Final-year data refer to 1994 for the United States.

Source: OECD database on labour market programs.

household types, a range of earnings possibilities and different durations of an unemployment spell.²⁴ It shows that few OECD countries have taken steps to roll back the generosity of their benefit systems in recent years in terms of cutting benefit levels and/or reducing the average duration of benefit payments: the OECD average of the summary measure doubled from 16 per cent in 1961 to 31 in 1995.

At the same time, *net* replacement rates are typically much higher than *gross* rates for a variety of reasons described in Martin (1996). Table 6 shows a selection of net replacement rates from the OECD database for two different earnings levels, the earnings of an average production worker (APW) and a worker assumed to earn two-thirds of the APW level. These data show that net replacement rates in excess of 80 per cent are quite common in OECD countries once social assistance benefits, housing benefits and the effect of the tax system are taken into account. While we do not have time-series data on net replacement rates to parallel the data in Figure 2, it seems likely that they too have tended to drift upwards in many OECD countries over the past three decades.

In sum, the available evidence suggests that replacement rates, whether provided through unemployment and related welfare benefit systems or active programs, are sufficiently large to have potentially significant effects on work incentives and on wage-setting behaviour. This, in turn, has led to attempts in recent years to curb the so-called 'unemployment trap'.

4.2 Actions being taken by OECD countries to curb unemployment traps

The most direct step to curb the unemployment trap is to cut replacement rates. However, where actions were taken to cut replacement rates, they were usually motivated by budget considerations rather than out of concern about the possible emergence of benefit dependency or work disincentives.²⁵ Given the political difficulties with dismantling benefit entitlements, the preferred approach to curbing the unemployment trap in the majority of OECD countries has been to make only marginal cuts in the generosity of benefit entitlements, but to tighten up on eligibility conditions for receipt of benefits and to develop 'activation' strategies for the unemployed. The aim of the latter is to encourage the unemployed to be more active in job search and keep more in touch with the labour market. Activation strategies range from attempts to provide more effective job-search assistance to the unemployed at one end of the spectrum, to making it obligatory on the unemployed to satisfy work tests or participate in active programs or in education and training if they are to continue to draw benefits. Such activation strategies are becoming quite common for young people in OECD countries (e.g. the Welfare-to-Work initiative in the United Kingdom), and they are even being extended to other groups of the unemployed in some countries.²⁶

24. See Martin (1996) for a detailed discussion of these data.

25. It should be noted that the replacement rates in Figure 2 refer to a 40-year-old worker with a long contributions history since this case was considered a good approximation to the average situation of an unemployed worker in most countries. However, this assumption means that most changes in eligibility conditions for receipt of unemployment benefits will not show up in the OECD summary measure.

26. New Zealand has recently decided to work test not only the unemployed but all other welfare beneficiaries of working age.

Table 6: Net Replacement Rates at Different Earnings Levels^(a)
1994–95

	First month of unemployment		60 th month of unemployment	
	APW earnings	2/3 APW earnings	APW earnings	2/3 APW earnings
Australia ^{(b)(c)(d)}	71	78	71	78
Belgium	61	76	61	91
Canada	66	67	54	61
Denmark ^(e)	80	95	95	95
Finland	81	89	100	100
France	75	88	65	83
Germany	79	77	59	80
Ireland ^(c)	65	72	70	72
Italy	47	46	11	14
Japan ^(c)	59	67	72	87
Netherlands	82	84	80	95
New Zealand ^{(c)(d)}	64	77	64	77
Norway	73	75	83	100
Spain	76	73	46	63
Sweden ^{(b)(e)}	85	85	100	122
Switzerland	84	86	66	91
UK ^(c)	67	80	76	91
US ^(f)	60	60	49	42

Notes: In the first month of unemployment it is assumed that families possess enough assets to be ineligible for social assistance. In the 60th month it is assumed that they no longer have such assets and so social assistance (SA) is assumed to be paid where it is higher than other benefits to which they may still be entitled. Figures in **bold** indicate those cases where families would be entitled to SA on the basis of their income, were they not to have been assumed to have been qualified by an assets test. The replacement rates reflect a strict application of legal provisions rather than common practice, where these differ.

- (a) It is assumed that the worker is 40 years old, has a dependent spouse and 2 children, and started work at 18. The replacement rates are for the first month of unemployment, after waiting periods have been satisfied. This entitlement is then multiplied by 12 to give an annualised equivalent on which tax is calculated. The person is fully unemployed. Social assistance is calculated according to a 'typical rate' for the country concerned. Help with housing costs is calculated on the basis of rental costs being 20 per cent of gross APW earnings.
- (b) Benefit amounts for couples are calculated on the basis of both spouses actively seeking work.
- (c) Figures for Australia, Ireland, New Zealand and the United Kingdom are for 1995. Unemployment benefit parameters for Japan are for 1996.
- (d) There is no social insurance in Australia or New Zealand. All figures in the Table, including columns 1–5, refer to the assistance benefit.
- (e) SA is only available when there is a 'social event' such as unemployment. Low earnings are not themselves a social event.
- (f) The taxes and benefits are calculated using the rules applying in Detroit, Michigan. All figures include AFDC-UP and food stamps.

Source: OECD database on taxation and benefit entitlements.

The role of active labour market policies changes subtly in the context of an activation strategy. They can then be viewed as a vehicle for enforcing a work test on the unemployed, especially in cases where the supply of job vacancies is low. In such cases, continued receipt of unemployment benefits becomes conditional on program participation, such as is the case in Denmark or Switzerland, and/or by offering a sufficiently wide range of programs so that a maximum number of the unemployed will choose to enter them voluntarily. Related to this, there is a growing interest in the issue of the rules used to control job-search behaviour and curb benefit abuse by claimants of unemployment benefits. As noted in the previous section, the evaluation literature suggests that these rules, if used intelligently and supported by effective sanctions, can help stimulate job search and serve to keep benefit claimants in touch with the labour market.²⁷

However, there is a lack of available evidence on the magnitude and incidence of benefit sanctions across countries; there is also a lack of hard evaluation evidence yet on the outcomes of activation strategies. Our reviews have also revealed that there appears to be a noticeable reluctance on the part of public officials in some countries to enforce the existing rules tightly for a variety of reasons. Hence, it is important not to exaggerate the reality on activation, as opposed to the rhetoric. Since sanctions are a potentially important tool in influencing job-search behaviour, it is important to understand their workings better and assess how they can play a role in enhancing the effectiveness of active measures. We have just launched a new round of country reviews on this subject.

4.3 The importance of integrated management of benefit systems and active labour market policies

There is a close interaction between active and passive measures which is central to the trade-off between equity and efficiency. If the unemployment benefit system is generous and poorly managed, it is very difficult to operate active programs in ways which increase labour market efficiency and reduce structural unemployment. Conversely, if active measures are used on a large scale and mainly serve to re-establish benefit entitlements, they risk becoming a *de facto* passive measure. They thus need to be better managed and linked more closely to the benefits system.

Our research at the OECD suggests that the public employment service has a central role to play in achieving this better management. It can play this role most effectively if it operates as a fully *integrated* agency combining the three core functions of job placement, benefit payments and placing participants on active programs. Such integration is desirable for the following reasons:

- a close co-ordination between placement and benefit work is needed in order to apply work tests effectively and hence to fulfil one of the key preconditions for benefit entitlement;

27. Abbring *et al.* (1996) is one of the few rigorous evaluations of the effect of unemployment insurance sanctions on the transition rate from unemployment to employment. They use a micro data set covering the population of individuals who started collecting benefits in the Netherlands in 1992. Their results show that the transition rates to employment are increased significantly by the imposition of a benefit sanction.

- a close co-ordination between job broking and ALMPs is needed in order to ensure that the unemployed can acquire the attributes necessary to fill available job vacancies; and
- a close co-operation between benefit administration and referral to ALMPs is needed in order to avoid long-term dependency on benefit receipt and program participation for the sole purpose of renewing benefit entitlements.

However, it should be noted that many OECD countries do not have a fully integrated public employment service in this sense, though Australia has taken a large step in this direction recently with the establishment of Centrelink, and New Zealand has announced that it will fully integrate the delivery of income support with the delivery of employment services in a single agency.

4.4 The bottom line

The recent history of active and passive labour market policies in the 16 OECD countries which have been reviewed suggests the following eight lessons for the design of future policies in order to make them more effective:

- First, integrate the referral to active programs as closely as possible with benefit and placement work. Ideally, all three basic functions should be provided by the same front-line public employment office (so-called ‘one stop’ labour offices).
- Second, use ‘profiling’ for new benefit claimants to identify those at risk of becoming long-term unemployed; provide the latter (but not the others) immediately with counselling and job-search assistance.²⁸
- Third, make passive income support as ‘active’ as possible by using instruments like re-employment bonuses, in-work benefits, regular contacts of claimants with the public employment service, job clubs, *etc.*
- Fourth, use ‘availability for work’ (to be controlled by work tests) and ‘job search initiatives’ (to be confirmed by employers) as independent criteria which must be met in order to qualify for continued benefit receipt (e.g. both criteria have to be fulfilled in Switzerland).
- Fifth, make continued receipt of income support conditional on accepting to participate in active programs after a certain minimum duration of an unemployment spell (say after 6 or 8 months); do not, however, guarantee a slot in a program by that time, but handle the referral flexibly in accordance with the availability of slots which correspond to the needs of the job seeker in question.
- Sixth, ensure that participants in training and public sector employment programs continue to be available for work in the open labour market; and encourage them to engage actively in job search.
- Seventh, ensure that participation in training and public sector employment programs does not serve mainly to establish new benefit entitlements. One way to ensure this

28. See OECD (1998a) for a review of experiences with different profiling approaches in Australia, Canada, the United Kingdom and the United States. It should be noted that there are strong differences of view about the relevance and reliability of formal profiling methods, and how central a role profiling can play in making active labour market programs more effective.

is by making the duration of employment subsidies to the private sector shorter than the minimum contribution period required for benefit entitlements. These steps will minimise the so-called 'carousel effect', whereby a considerable number of the long-term unemployed move between spells of benefit receipt and program participation. Our research has shown that the carousel effect is a significant problem in many European countries and I am aware that it has also been a problem in Australia. Some countries, e.g. Denmark, Finland, Norway and Switzerland, have taken steps recently to curb this possibility.

- Finally, explore ways of making the public employment service more effective by giving greater play to the role of market signals. For example, many active measures, particularly training programs, are provided by the public sector and this may not be the most efficient form of provision. Some countries are beginning to experiment in this area with a range of initiatives designed to give greater play to private sector agencies in the provision of active measures.²⁹

Australia has gone further in this direction than any other OECD country with its recent initiative designed to make the market for job placements fully contestable, with specific incentives for both private and public employment services to compete to place the most at-risk job-seekers. OECD Labour Ministers were clearly fascinated by this Australian initiative when it was presented to them at their October 1997 meeting, but many of them expressed reservations about imitating it for the moment. They want to see if it will produce better outcomes for job seekers. However, it will be several years before it is possible to evaluate whether the new Employment Services Market improves significantly the employment and earnings prospects of at-risk job-seekers compared with other, more traditional active measures. I hope that a sufficiently high priority has been assigned to rigorous evaluation of this initiative.

5. Conclusions

At first sight, the bottom line from recent OECD research on the effectiveness of active labour market policies is not terribly encouraging. The track record of many active measures is mixed in terms of raising the future employment and earnings prospects of job-seekers and producing benefits to society. In addition, little progress has been made to date in shifting public spending from passive to active labour market measures in most OECD countries, despite the widespread endorsement of this goal by politicians.

While we cannot ignore the undoubted problems with active measures, it would be wrong to draw a pessimistic conclusion about their potential role in the fight against high and persistent unemployment and the problems of low pay and poverty. We now know a great deal more about what works and what does not work among the large array of active measures currently in use across OECD countries. We are also much more aware nowadays of the crucial nature of the various interactions between active and passive measures. Recent OECD research suggests several practical steps which can be taken to enhance the effectiveness of active measures. At the same time, there is a crying need to expand the quantity and quality of evaluations of labour market programs in a wider range of OECD countries so that countries can learn from each other's experiences.

29. See Fay (1997) for a review of these issues.

However, even if all these steps were to be implemented, it is important to be realistic about their likely impacts on unemployment; one should not oversell the case for active labour market policies. More effective active labour market policies, as Lars Calmfors has rightly warned, are not a magic bullet on their own to solve the unemployment problem. Since one of the main objectives of active measures is to assist the unemployed to get back into work, they require a reasonably buoyant supply of job vacancies in order to be effective. If an economy is generating few vacancies, one should not be surprised if active measures prove to be relatively ineffective. Aggregate demand matters too. As *The OECD Jobs Study* has stressed, more effective active policies are only one element in a comprehensive strategy of macroeconomic and microeconomic measures required to cut unemployment significantly. Nonetheless, they remain a potentially important weapon in the fight against unemployment.

References

- Abbring, J., G. van den Berg and J. van Ours (1996), 'The Effect of Unemployment Insurance Sanctions on the Transition Rate from Unemployment to Employment', paper presented at the Canadian International Labour Network Conference, Burlington, Ontario, 4–7 September.
- Calmfors, L. (1994), 'Active Labour Market Policies and Unemployment: A Framework for the Analysis of Crucial Design Features', *OECD Economic Studies*, 22, pp. 7–49.
- Calmfors, L. (1995), 'What Can We Expect from Active Labour Market Policy?', *Konjunkturpolitik*, 43, pp. 1–30.
- Calmfors, L. and P. Skedinger (1995), 'Does Active Labour Market Policy Increase Employment? Theoretical Consideration and Some Empirical Evidence from Sweden', *Oxford Review of Economic Policy*, 11(1), pp. 91–109.
- Elmeskov, J., J. Martin and S. Scarpetta (1998), Key Lessons for Labour Market Reforms: Evidence from OECD Countries' Experiences, paper presented to the Economic Council of Sweden Conference on 'The Political Economy of Labour Market Reform', Stockholm, 25th May.
- Fay, R. (1996), 'Enhancing the Effectiveness of Active Labour Market Policies: Evidence from Programme Evaluations in OECD Countries', Labour Market and Social Policy Occasional Papers No. 18, OECD, Paris.
- Fay, R. (1997), 'Making the Public Employment Service More Effective Through the Introduction of Market Signals', Labour Market and Social Policy Occasional Papers No. 26, OECD, Paris.
- Forslund, A. and A. Krueger (1994), 'An Evaluation of the Swedish Active Labor Market Policy: New and Received Wisdom', NBER Working Paper No. 4802.
- Friedlander, D., D. Greenberg and P. Robins (1997), 'Evaluating Government Training Programs for the Economically Disadvantaged', *Journal of Economic Literature*, 35(4), pp. 1809–1855.
- Grubb, W. (1995), 'Evaluating Job Training Programs in the United States: Evidence and Explanations', University of California at Berkeley National Center for Research in Vocational Education, Technical Assistance Report, May.
- Heckman, J. (1994), 'Commentary: Active Labor Market Policies to Expand Employment and Opportunity', in *Reducing Unemployment: Current Issues and Policy Options*, Federal Reserve Bank of Kansas City, Kansas City, Missouri, pp. 291–311.
- Human Resources Development Canada (1997), *Lessons Learned: Effectiveness of Employment-Related Programs for Youth*, Human Resources Development Canada, Ottawa, June.
- Jackman, R. (1994), 'What Can Active Labour Market Policy Do?', *Swedish Economic Policy Review*, 1(1–2), pp. 221–257.
- Jackman, R., C. Pissarides and S. Savouri (1990), 'Labour Market Policies and Unemployment in the OECD', *Economic Policy*, 11, pp. 449–490.
- Katz, L. (1994), 'Active Labour Market Policies to Expand Employment and Opportunity', in *Reducing Unemployment: Current Issues and Policy Options*, Federal Reserve Bank of Kansas City, Kansas City, Missouri, pp. 239–290.
- Layard, R., S. Nickell and R. Jackman (1991), *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford University Press, Oxford.
- Lerman, R. (1997), 'Employment and Training Programs for Out-of-School Youth', mimeo, Urban Institute, Washington, D.C.

- Martin, J. (1996), 'Measures of Replacement Rates for the Purposes of International Comparisons: A Note', *OECD Economic Studies*, 26, pp. 99–116.
- Meyer, B. (1995), 'Lessons from the U.S. Unemployment Insurance Experiments', *Journal of Economic Literature*, 33(1), pp. 91–131.
- Nickell, S. (1997), 'Unemployment and Labor Market Rigidities: Europe versus North America', *Journal of Economic Perspectives*, 11(3), pp. 55–74.
- Nickell, S. and R. Layard (1997), 'Labour Market Institutions and Economic Performance', Oxford University Institute of Economics and Statistics Discussion Paper No. 23.
- OECD (1993a), *Employment Outlook*, OECD, Paris.
- OECD (1993b), *The Labour Market in the Netherlands*, OECD, Paris.
- OECD (1993c), *The Public Employment Service in Japan, Norway, Spain and the United Kingdom*, OECD, Paris.
- OECD (1994a), *The OECD Jobs Study: Facts, Analysis, Strategies*, OECD, Paris.
- OECD (1994b), *The OECD Jobs Study: Evidence and Explanations*, Volumes I and II, OECD, Paris.
- OECD (1996a), *The OECD Jobs Strategy; Enhancing the Effectiveness of Active Labour Market Policies*, OECD, Paris.
- OECD (1996b), *The Public Employment Service: Denmark, Finland, Italy*, OECD, Paris.
- OECD (1996c), *The Public Employment Service: Austria, Germany, Sweden*, OECD, Paris.
- OECD (1996d), *Labour Market Policies in Switzerland*, OECD, Paris.
- OECD (1997a), *Employment Outlook*, OECD, Paris.
- OECD (1997b), *The Public Employment Service: Belgium*, OECD, Paris.
- OECD (1997c), *Enhancing the Effectiveness of Active Labour Market Policies: A Streamlined Public Employment Service*, OECD, Paris.
- OECD (1997d), *Implementing the OECD Jobs Strategy: Member Countries' Experience*, OECD, Paris.
- OECD (1998a), *Early Identification of Jobs Seekers at Risk of Long-term Unemployment: The Role of Profiling*, OECD, Paris.
- OECD (1998b), *The Public Employment Service: Greece, Ireland, Portugal*, OECD, Paris, forthcoming.
- OECD (1998c), *Implementing the OECD Jobs Strategy: Progress Report*, OECD, Paris.
- Park, N., B. Power, W. Riddell and G. Wong (1996), 'An Assessment of the Impact of Government-sponsored Training', *Canadian Journal of Economics*, 29 (Special issue), Part 1, pp. S93–S98.
- Richardson, J. (1998), 'Do Wage Subsidies Enhance Employability? Evidence from Australian Youth', London School of Economics Centre for Economic Performance Discussion Paper No. 387.
- Scarpetta, S. (1996), 'Assessing the Role of Labour Market Policies and Institutional Settings on Unemployment: A Cross-country Study', *OECD Economic Studies*, 26, pp. 43–48.
- US Department of Labor (1995), *What's Working (and What's Not): A Summary of Research on the Economic Impacts of Employment and Training Programs*, Office of the Chief Economist, January, Washington, D.C.

Discussion

1. Bruce Chapman

John Martin has written an excellent overview paper on the nature, role and consequences of active labour market policies. He considers the (strong) rationale for active versus passive labour market expenditure, describes the main results from an extensive evaluation literature, and offers practical suggestions concerning successful program design. I am confident that the paper will become a widely cited reference for this important policy area; it is a major contribution to the conference.

The paper is accurate and balanced, which can be a dilemma for a discussant. This is resolved in what follows by offering some complementary observations and some suggestions for an alternative research approach. I do this with respect to the critical policy question: do labour market programs work?

Martin reports that there are two broad ways this issue is addressed in the literature. One is to consider the effects of program expenditure on aggregate labour market outcomes, such as a country's unemployment rate. The other is through microeconomic – usually econometric – studies of the effect of specific initiatives. What follows questions both, and suggests a new methodology for understanding the conceptual basis of programs and their implications for government expenditure.

Macroeconomic studies

The accepted evaluation methodology assumes that a major aim of active labour market expenditure is to increase the aggregate number of jobs. In a macroeconomic context – both within and between countries – much research focuses on the extent to which the overall unemployment rate falls with increases in program activity. A point hinted at by Martin, but not comprehensively explored, is that it is difficult to believe that such research can tell us much. It is worth drawing this out fully.

Macroeconomic approaches to evaluation are unconvincing, essentially because of the great difficulty of measuring the impact of relatively small and heterogeneous policies on a significant aggregate statistic. There are four main problems, now considered.

The potential size of the effects of labour market programs

A very useful contribution of Martin's paper is the documentation of active labour market expenditure in OECD countries. The data are presented both as proportions of GDP and relative to the number of unemployed people. The dimensions are instructive: in no country is active labour market expenditure per year as a proportion of GDP greater than 2.5 per cent, and the average is about 1 per cent. These data allow the first point to be illustrated: the potential effect of changes in program outlays is just not big enough to be identified in aggregate analyses.

Imagine that in response to a large increase in the unemployment rate in a particular year – say of 4 per cent – a government significantly expands active labour market program expenditure from, say, 0.75 to 1.25 per cent of GDP per annum. To illustrate

how unlikely this is, consider the case of Australia. An increase in active labour market program outlays of 0.5 per cent of GDP means, currently, about \$2.5 billion per annum. This is a big number.

Not even with the considerable re-orientation towards intervention that came with the implementation of *Working Nation* in 1994 did such a large increase occur. Specifically, the radical changes in active labour market program expenditure at that time were not more than about half of this.

Even if there is an increase in intervention of this order, and policies work to the maximum possible employment-creation potential, the orders of magnitude of their possible consequences are such that it would be quite hard to identify effects. In the context of understanding program influences for a phenomenon as complex as unemployment, it is not credible to believe that program implications could be measured accurately, if at all. There are obvious reasons for this imprecision, with several now considered.

The endogeneity of labour market policy and unemployment

Martin accurately identifies that active labour market expenditure is endogenous to the state of the macroeconomy, and that this is one of the most important difficulties for aggregate evaluation. The problem is that governments respond to actual or expected increases in unemployment by expanding active labour market policies. Similarly, as the unemployment rate falls, the perceived need for maintaining relatively high outlays on active labour market programs dissipates, and with this so too does expenditure fall.

There is thus an obvious cause and effect interpretation for the aggregate evaluation exercises, with an endogenous government response biasing results towards finding positive associations between the level of unemployment and active program expenditure. Even if the programs decrease unemployment, the policy endogeneity issue will make such a conclusion less likely to be found.

Compositional issues in measuring program effects

There are myriad types of labour market policy interventions, and Martin identifies five of these. A significant point for aggregate evaluation is that the effects of heterogeneous programs will be quite different in terms of a host of possible outcomes and costs. For example, some approaches are more likely than others to generate new jobs instantly, while others entail a participant acquiring employment at the expense of a non-targeted person. As well, the costs of different types of schemes differ markedly.

However, an implicit assumption in much of the aggregate evaluation research is that the employment 'bang per buck' is equivalent across programs. But so long as program composition changes over time, and/or differs between countries, this cannot be true. And the further is the assumption from the reality, the more unlikely it is that this type of research will find that aggregate measures of program expenditure are associated with decreases in unemployment.

The timing issue

A quintessential time-series econometric issue is that exogenous variables can have important effects, but with lags. Indeed, the timing of policy influence is mostly not obvious from economic theory and is thus usually difficult to determine. The problem

is very clear with respect to the role of active labour market expenditure for the macroeconomy. A few examples are worth noting.

When a government institutes significant changes to its labour market policies, there might be an important lag between increases in outlays and the on-the-ground implementation of new or expanded programs. For example, setting up an administrative infrastructure and disseminating information will entail expenditure increases with no immediate returns.

As well, programs will have different timepaths for participants' employment prospects. For example, a public sector job scheme might improve the eventual job prospects of participants some time after the program ends, while a wage subsidy scheme could improve job prospects for participants immediately.

These distinctions are typically not made in the aggregate evaluation literature. This implies, again, that much progress needs to be made before any clear conclusions arise as to the effect of active labour market interventions on the macroeconomy. As Martin notes, we know very little in this area.

Microeconomic evaluation of programs

Given the extraordinary difficulties associated with the measurement and interpretation of the aggregate evaluation of programs, the question then turns to microeconomic assessment. This area of research is well documented in Martin's paper. Its essence is accepted generally as the right way to think about the issue, and is as follows.

The net employment-creation effects from programs are given by the equation:

$$\text{Total new jobs} = \text{Gross program jobs} - \text{deadweight} - \text{displacement}$$

where 'gross program jobs' is employment of participants, 'deadweight' is the number of targeted people who would have gained employment in the absence of the program, and 'displacement' refers to those who lost, or did not find, employment because a program-eligible person was employed instead.

Martin documents the general findings from research based on this methodology, and finds a very large variance in research results concerning program effects. His broad conclusions are that: generalisations about the effects of programs are not credible; active labour market programs are not a panacea for the aggregate unemployment problem of OECD countries; and, some types of programs have a useful role to play in increasing net employment.

Martin's conclusions are circumspect and based firmly on a plethora of professionally competent studies. However, such an apparently broadly based consensus should not necessarily be seen as the bottom line. A significant point now developed is that the research essence of the conventional approach is open to question; this is the most important contribution of this commentary.

The problem with the accepted methodology

There are good reasons to question the usefulness of the accepted methodology. Its important limitation is that it ignores the dynamics of displacement, deadweight and the effectiveness of programs. What happens over time is not accounted for, and might very

well be critical to the assessments documented by Martin. This is an important point pertinent to all aspects of the effects of programs, and the dynamic aspects are now explained.

With respect to displacement, what matters is not that a proportion of those displaced become or remain unemployed. The issue is rather how long they remain unemployed and what their increased unemployment duration implies for eventual employment probabilities. That is, if the timeframe is not instantaneous, there must be different conclusions.

Similarly, with respect to deadweight, it is not very interesting to know that a program participant would have got a job without the program. What is more important is the probability that such a participant has their eventual employment prospects changed, and by how much, from being involved in the program.

Finally, the issue of program effectiveness is not well addressed with the conventional approach. Little rigorous account is typically taken of what happens after the program ends, in terms of changed employment probabilities. Again, having a longer timeframe of evaluation allows this issue to be taken into account.

In summary, the conventionally accepted evaluation method reported by Martin misses critical aspects of programs because it ignores effects beyond the initial period. The case for a more sophisticated approach is clear.

Improving the conventional evaluation method

A useful demonstration of the above problem, and its possible solution, has been developed by Piggott and Chapman (1995), and entails the use of a simple three-period flows model of unemployment. It provides a basis from which to account for the probability of programs changing the exit probabilities to employment over time of participants including the deadweight and those displaced. The considerable advantage of such an approach is that it explicitly takes into account what happens in the labour market after the initial period of program initiation.

Illustrations of what different scenarios of program effectiveness, deadweight and displacement mean in this dynamic scenario are provided in both Piggott and Chapman (1995) and Chapman (1998). They imply quite different assessments of the role of programs to those documented in Martin, although the broad thrust of his conclusions remain solid. As well, for the first time, the flows approach illustrates the public expenditure implications of program composition taking into account the additional tax revenue and lower welfare payments from net employment creation.

The bottom line with respect to method is that taking into account the dynamic aspects of programs leads to a significantly enriched understanding of what active labour market programs are all about. The current static evaluation processes miss a lot of the action, and it is time that they are improved.

It was not the job of John Martin to challenge orthodox method, and it should be recognised that the task assigned to him of reporting research findings has been done excellently. But if the flows methodology alluded to above, and reported fully in Piggott and Chapman, has an important story to tell, it is an obligation of the OECD to now explore its potential. There is a case for a different evaluation methodology which takes account of fundamental dynamic issues.

Summary

John Martin has provided this conference with a significant reference point concerning the role of active labour market policies in the OECD. With respect to how important programs are for net employment outcomes, the flavour of his paper is ambivalent but not jaundiced.

The important point to take from his overview is that the strength of the case for active labour market intervention is highly contingent. Successful outcomes depend on: the circumstances of the economy; the nature of the program; the effectiveness of implementation; and the existence and efficacy of supporting policies. There is no doubt that this is right.

The significant point of departure offered in this commentary concerns the methodology used in most of the research reported in Martin. As usually modelled, program effects are considered in a static context, as if the implications for those affected after the initial policy intervention are irrelevant, and this cannot be correct. An alternative conceptual framework is available.

References

- Chapman, B. (1998), 'Would Increasing the Skills of the Unemployed Solve Australia's Unemployment Problem?', paper presented at the Centre for Economic Policy Research and Reshaping Australian Institutions Conference, 'Fairly Efficient: Equity and Productivity in the Australian Labour Market', Australian National University, Canberra, June.
- Piggott, J. and B. Chapman (1995), 'Costing the Job Compact', *Economic Record*, 71(215), pp. 313–328.
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2. General Discussion

Discussion in this session ranged across the following issues:

- the impact of labour market programs on different population groups;
- the evaluation of labour market programs;
- the role of profiling; and
- the privatisation of job placement.

Participants noted that labour market programs appear to be successful for some groups in the population but not others. It was agreed that the failure to understand why this is so constitutes a large hole in the profession's knowledge, which should be remedied. Some participants noted that labour market programs are particularly successful for sole parents, and this group has derived considerable benefit from their entry to employment and has subsequently moved up in the income distribution. It was suggested that the relative success of programs directed towards this group is, in part, a consequence of sole parents being relatively more labour-market ready, and in part, a result of the greater availability of jobs that such people were likely to seek.

On the other hand, labour market programs are particularly unsuccessful for young people. However, there is some tentative evidence that early intervention (that is, at the primary school stage) may be more successful than programs that focus on young people who have already lost contact with the formal education system.

Participants argued that it is necessary to examine labour market programs in combination rather than in isolation. Other participants argued that it is important to evaluate programs taking into account the macroeconomic environment in which the programs are operating. Furthermore, it is also important to consider the macroeconomic consequences of the programs, for example, whether they can permanently reduce the natural rate of unemployment by reducing (say) the incidence of skill bottlenecks.

It was also stressed that short-term evaluations may give a misleading impression of the effectiveness of programs. In the longer term it is important to take account of all the benefits that might be generated, including more indirect effects such as a reduction in crime. However, it is often difficult to assess the impact of labour market programs given that many of them are subject to frequent modification or even complete abandonment before they have been operating for long enough to have their full effect.

Others pointed out that longer-term evaluations in other countries suggest that workers gain from an initial boost in earnings as a result of participation in some labour market programs, but there is little evidence of an ongoing gain in earnings, although weekly hours of work appear to increase in the longer term, so that overall income of participants is higher.

Profiling of participants in labour market programs was highlighted by some as an important component of the implementation of labour market programs. Profiling involves identifying particular characteristics of eligible participants and tailoring the labour market programs to suit those characteristics. Others noted that the international evidence on the effectiveness of profiling is, however, mixed.

Finally, there was a discussion of the recent privatisation of job placement in Australia. It was noted that many countries are taking a great interest in the Australian experience. Participants agreed that it is important to ensure that the process did not result in 'cherry picking' – that is, job-placement agencies devoting resources only to those with high probabilities of finding employment. Therefore, it is essential to monitor the effectiveness of the incentive structure facing the job-placement agencies to guard against this. Some participants also suggested that while there are certainly benefits from increased competition among job-placement agencies, there is the potential for costs flowing from the loss of centralisation that existed under the previous system.

Solutions to Unemployment and Avoiding the ‘Diabolical Trade-off’: A Discussion

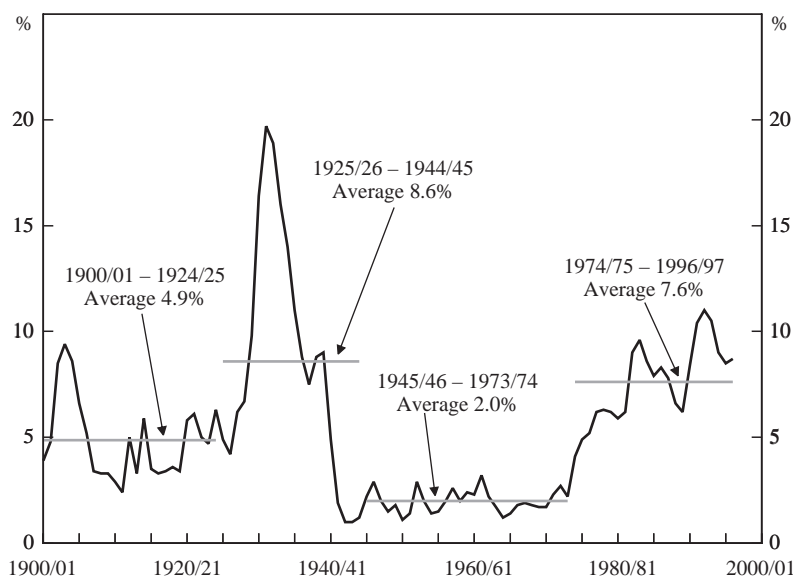
Peter Dawkins

1. Introduction

The papers for this conference canvass a wide range of issues that are relevant to understanding the causes of high unemployment in Australia. They also provide considerable insights into a range of possible policy responses. This paper draws on many of the points made in these papers. It does not, of course, confine itself to these papers alone.

The aim of the paper is to help in the search for the appropriate policy responses to unemployment in Australia. In so doing, it must first address the question of what has caused the persistence of high unemployment in the past quarter of the century, following thirty years of very low unemployment (Figure 1). In the subsequent discussion of solutions, a distinction is highlighted between policies aimed at increasing employment in general, and policies that are more focused on the bottom end of the labour market. It is concluded that if we wish to make a substantial reduction in unemployment on a long-term basis, it is appropriate to adopt policies of both kinds. Further it is argued that they would be complementary.

Figure 1: Unemployment this Century



Sources: Goodridge, Harding and Lloyd (1995). Data obtained from M.W. Butlin, ‘A Preliminary Annual Database 1900/01 to 1973/74’, Reserve Bank of Australia Research Discussion Paper No. 7701; ABS, *Labour Force, Australia*, cat. no. 6203.0.

It is noted that there are uncertainties about the likely magnitude of the effects of the kind of policy package proposed, and also important political issues about who would be winners and losers and whether such a policy package is politically feasible. It is contended, however, that the costs of not embarking upon policies of this kind are likely to be such as to make such a package potentially politically feasible.

Another theme of the paper is whether we can avoid the 'diabolical trade-off'. The papers about the United States and Europe by Katz (1998) and Jackman (1998) respectively, tend to lead one to the conclusion that the first-best solution to the unemployment problems of many OECD countries such as Australia is, in Jackman's words, one that 'favours policies of flexibility, deregulation and generally the reduction of government intervention in the labour market'.

The downside of such policies is that they tend to lead to a wider distribution of earnings, although as the paper by Harding and Richardson (1998) for this conference points out, a redistribution even from low-wage earners to unemployed people would make the overall distribution of income more equal. Nonetheless, Harding and Richardson argue that it does not follow that lower incomes for low-wage earners would necessarily be egalitarian. In their words: 'a tax on low-wage workers is a much less equitable way to finance this than a tax on all wage and salary earners'.

As Katz points out, however, the story might be a little bit more complicated than the existence of a 'diabolical trade-off'. Further, he argues that in the US, policies should be adopted to improve the position of the disadvantaged in the labour market without losing the benefits of labour market flexibility. In this paper I argue that what we need in Australia is to increase the flexibility of the labour market in order to reduce unemployment, while adopting such policies for the disadvantaged that avoid the creation of a severe working poor problem and the potential detrimental effects on equity of freer labour markets.

2. The Causes of High Unemployment

2.1 Economic growth

The Green Paper on unemployment (Committee on Employment Opportunities 1993), and the resultant *Working Nation* policy (Keating 1994), strongly emphasised the importance of the rate of economic growth as a determinant of the rate of unemployment, and its main conclusion was that the rate of economic growth needed to be increased to substantially reduce unemployment. Its main prescription as a result (alongside a considerable expansion of labour market programs), was to maintain or increase the rate of microeconomic reform, in order to raise the rate of economic growth.

Since that time, the unemployment debate appears to have reflected a growing view that while raising the rate of economic growth is a good aim, we should not place too much emphasis on this as a solution to the unemployment problem (see for example Borland 1997).

One paper in this conference, however, that strongly asserts the importance of growth is Dungey and Pitchford (1998). They point out that:

'Historically, periods of high activity and growth such as in World War 2 and during 1945–75 were accompanied by low unemployment. It would be surprising if growth were not the cause of such favourable employment experience'.

They also emphasise the benefit to be had from less drastic recessions. Nonetheless, they point out that higher growth is not a panacea because it brings with it the potential for rising inflation. They suggest that we should aim to achieve as high a rate of growth as is possible without causing rising inflation. They also provide an estimate of the 'steady inflation rate of growth' (SIRG) for Australia, since the floating of the Australian dollar, of 4.37 per cent per annum. They suggest that, as a result, it may be possible to get unemployment down to 5 or 6 per cent over the next four years, without causing rising inflation.

How optimistic their scenarios are, depend partly on the assumed rate of wage inflation. If real wages increase at half the rate of economic growth, we get about a one per cent lower unemployment outcome in four years than if they increase at the same rate as output growth. This highlights how both economic growth and real wages are influential in determining the rate of unemployment.

2.2 Real wages

Probably the greatest degree of consensus exists about the importance of real wages in determining the level of employment and unemployment. The two wages explosions of the mid 1970s and early 1980s were very significant episodes in the long-run growth of unemployment in Australia and we have not yet recovered from them (Figures 2 and 3).

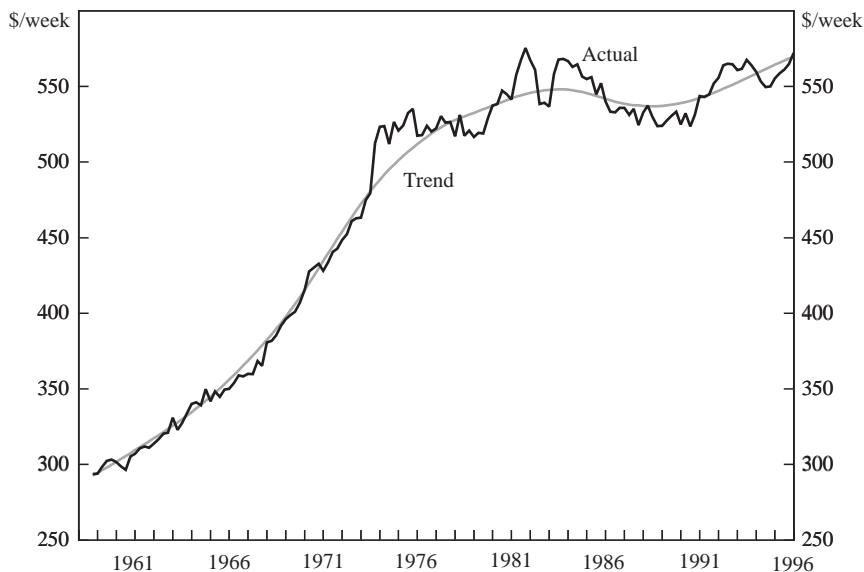
In their paper for this conference, Debelle and Vickery (1998) estimate an aggregate model of the labour market, and an associated NAIRU, in which a slower growth of real wages of 2 per cent for a year would lead to a permanent reduction in the unemployment rate of around 1 percentage point. They estimate that the NAIRU or natural rate of unemployment is about 7 per cent, and that to get it down requires a structural change in the labour market to produce a significant decline in the equilibrium real wage.

2.3 A collapse in the demand for unskilled workers

So far we have been thinking at a macroeconomic level. Turning to a more microeconomic perspective, a major issue is the extent to which the growth in unemployment has been concentrated in certain parts of the labour market.

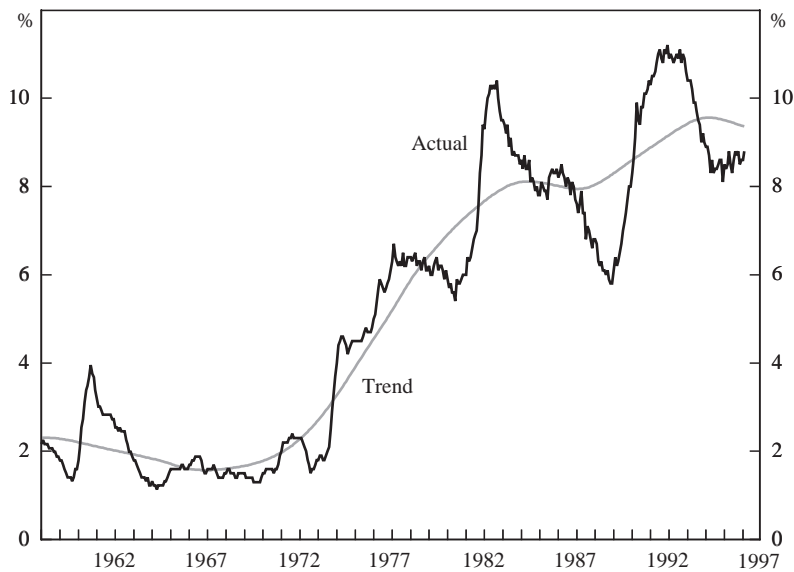
In an article entitled 'The Collapse in Demand for the Unskilled and Unemployed Across the OECD', Nickell and Bell (1995) highlighted the fall in the demand for unskilled labour across OECD countries over the previous twenty years and suggested that the demand had been falling faster since the beginning of the 1980s. Evidence was presented for Australia that between the mid 1980s and the early 1990s, the ratio of the unemployment rate of the high skilled to the rate of unemployment of the low skilled (based on educational attainment) had reduced significantly. This was a typical, though not universal, experience for an OECD country.

Figure 2: Real Average Weekly Earnings – Trend and Actual



Source: Dawkins and Harding (1997).

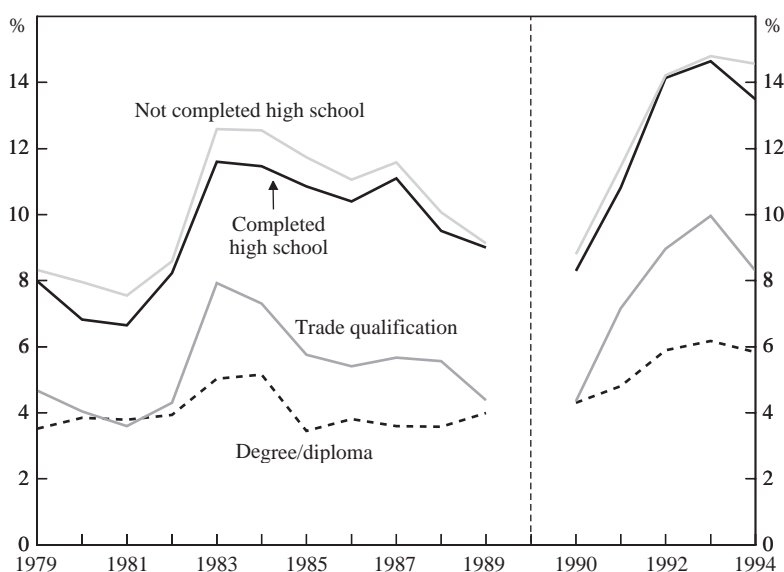
Figure 3: Unemployment Rate – Trend and Actual



Source: Dawkins and Harding (1997).

The paper by Borland and Kennedy (1998) for this conference includes data on unemployment rates by educational attainment, which also suggest that degree and diploma holders have fared much better in the market than either those who leave education after Year 12 or before (reproduced here as Figure 4). The former group had an increase in their unemployment rate from about 4 per cent to about 5 per cent between 1980 and 1994, while the latter had an increase from about 8 per cent to about 14 per cent. Of particular interest in Borland and Kennedy's figure, is that this has been particularly prevalent in the 1990s, although we are still to find out how much of this is cyclical and how much structural.

Figure 4: Rate of Unemployment by Educational Attainment



Source: Reproduced from Borland and Kennedy (1998), Figure 9.

Nickell and Bell (1995) incidentally went on to compute that the fall in the share of employment of the high skilled in OECD countries between the 1970s and the 1980s, accounts for about 20 per cent of the rise in aggregate unemployment. It seems likely that this order of magnitude also applies to Australia.

In the paper by Katz (1998) for this conference, there is a discussion of this shift in demand towards higher-skilled labour. He mentions that Krugman's diagnosis is that skill-biased technological change has worked against low-skilled workers, but the way that it affects them depends upon the flexibility of the labour market (Krugman 1994). In the flexible US labour market it shows up as greater wage inequality. In Europe it shows up in higher unemployment.

Katz argues that 'labour market adjustments to changes in the relative demand for skill also depends upon education and training policies, macroeconomic policies and experiences, and wage-setting institutions in a manner possibly more complicated than

suggested by a simple diabolical trade-off between inequality and unemployment' (Freeman and Katz 1994, 1995). According to Katz (1998), however, Krugman's interpretation 'probably contains substantial grains of truth'.

2.4 Institutional arrangements

2.4.1 Introduction

This then takes us on to institutional arrangements. As Katz (1998) points out, this needs to be conceived of far more broadly than wage-setting institutions. In particular, he argues that unemployment benefit arrangements are very important.

2.4.2 Unemployment benefits

In a simple theoretical framework used to illustrate various hypotheses, Katz (1998) points out that an increase in unemployment benefits increases the reservation wage relative to productivity and shifts up the 'wage-setting curve'. Increased transfers are also likely to require increased taxes on the employed and thereby increase the tax wedge and produce a downward shift in the 'demand wage relation'. Both these effects are predicted, in this framework, to lead to higher equilibrium unemployment. Katz refers to empirical evidence which tends to support this effect including research by Layard, Nickell and Jackman (1991). The paper by Jackman (1998) for this conference shows that studies of the European experience suggest that increases in unemployment benefits have had a small upward effect on the unemployment rate. Australian studies vary in their estimates but it seems likely that the significant rise in the replacement ratio in the mid 1970s had such an effect, perhaps of the order of one percentage point. Pissarides (1991) attributes a larger effect to this increase in the replacement ratio.

Katz (1998) points out, however, that there is a puzzle that needs to be resolved. That is, unemployment benefits in the US were less generous than in Europe and Australia in the 1950s, 1960s and 1970s, when unemployment was actually higher in the US than in Europe. One possible explanation he puts forward is that 'the generosity of the treatment of the unemployed affects the dynamic response to adverse macroeconomic shocks'. After various shocks to OECD economies in the 1970s and 1980s there was an increase in unemployment in most OECD countries that became sustained. Katz (1998) states: 'The periods of high unemployment were of shorter duration in the United States, and the lower generosity of unemployment benefits and lower insider bargaining power, meant that the unemployed continued to put strong pressure on wage-setting in the United States'. Another possible explanation that he discusses is that higher unemployment benefits may have become more costly in the face of the decline in the relative demand for less-skilled workers.

2.4.3 The wage-setting system and labour market regulation

Discussions of the role of the wage-setting system are controversial and the associated disputes hard to settle empirically. Jackman (1998) points out that there have been two basic approaches to wage-setting and labour market regulation in Europe in the past

twenty years. In the UK the thrust has been to deregulate the labour market, reduce union power and emphasise market forces. In most continental European countries a much more interventionist model has been adopted, to a greater or lesser degree. In the corporatist model of Austria and Sweden for example, this includes centralised co-ordination of wage determination by the social partners.

A view that has achieved considerable credibility is that of Calmfors and Driffill (1988). They argued that the best outcomes for real wages, employment and unemployment tend to be either in the most centralised systems, which enable co-ordination to achieve wage restraint, or in the most decentralised systems such as the United States where real wage growth has been very low by international standards. This view receives some support in the paper for this conference by Wooden and Sloan (1998), who point out that the experiences of Australia, New Zealand and the UK are consistent with this framework.

Calmfors and Driffill's (1988) classification had Australia in the middle of their scale of centralised versus decentralised systems, or on 'the hump', which they argue, is the worse place to be.

This framework provides an interesting way to think about the Australian experience over the past thirty years. Attempts to decentralise wage-setting in 1974–75 and 1980–81 produced wage inflation and unemployment, arguably because the wage-setting system still had strong unions and a strong principle of comparative wage justice, which resulted in leap-frogging wage claims and associated wage explosions. It was not a true decentralisation of wage-setting.

On the other hand, in the mid 1980s, the then Labor Government chose to adopt a wages policy as part of the Accord with the Australian Council of Trade Unions, which represented a move towards the corporatist approach of countries such as Austria and Sweden. In the early stages of the Accord, this was a very centralised wages policy with common wage increases across the workforce. This was loosened in the late 1980s and early 1990s.

Reviews of the success of the Accord suggest that especially in the early stages it was very successful in restraining the growth of real wages and as a result, led to stronger employment growth and lower unemployment than would otherwise have occurred. In the context of the Calmfors and Driffill framework, this was a move away from the top of the 'hump' towards the more centralised system, which produced superior macroeconomic outcomes.

This move towards centralisation, however, was not sustained. First it did not prove possible to 'lock in' the idea of corporatism. This was partly because employer groups never consented to the process. Secondly, in the latter stages of the Accord, consistent with other policies that had been introduced by the Labor Government – which had moved towards deregulation of markets – the Accord itself started to embody much more decentralisation in wage-setting. The Labor Government started to encourage enterprise bargaining, a process that has been further accelerated by the subsequent Coalition Government. The election of the Coalition Government, of course, represented the official end of the Accord. Thus there was a reversal of the move away from the 'hump' towards centralisation in the Calmfors and Driffill model. It seems that now we are moving away from the hump again, this time in the decentralising direction.

It should be added that the ACTU have indicated that they do not favour a return to the corporatist approach of the Accord and there would have to be significant doubt that moving back in the corporatist direction is a feasible option in Australia. Following the Calmfors and Driffill framework, this suggests perhaps that we should keep moving in the decentralising direction, in order to lock in the benefits that can be obtained from being towards that end of the distribution.

3. Solutions

3.1 The role of economic growth

There is some evidence that the long-run rate of economic growth may have risen in recent times because of an increase in total-factor productivity growth (Industry Commission 1997; Melbourne Institute 1997a). Dungey and Pitchford's estimate of a 4.37 per cent stable inflation rate of growth is also suggestive that there has been an increase in the long-run rate of economic growth in recent times, although it would be interesting to see how sensitive this estimate is to the choice of time period.

This does beg the question of why employment growth has not been stronger and why unemployment has not come down more. A related question is why has the current business cycle recovery not brought with it much greater increases in employment and reductions in unemployment?

There are a number of possible answers to these questions, all of which could be contributory explanations. One is that we have not fully exploited the potential non-inflationary growth rate yet. We can perhaps run the economy faster on the demand side.

The second is that the rate of productivity growth has been high and the rate of economic growth required to reduce unemployment has become commensurately higher. Part of the possible explanation for rising productivity growth is a period of substantial downsizing of Australian companies, which might, in principle, allow for the shed labour to be productively utilised elsewhere, though this could take a significant amount of time to happen.

A third explanation is that in a period in which inflation has reduced considerably, it has taken some time for wage expectations to adjust downward, and thus wage increases in the mid 1990s have been higher than would normally be associated with such a low level of inflation. Thus real wages have been growing faster in the current recovery phase of the business cycle than would normally be the case.

A fourth explanation could be that enterprise bargaining has been part of the cause of productivity increase but most of the benefit has gone into higher real wages which has tended to confine the benefits to the 'insiders'.

Having said that, unemployment is now around 8 per cent. It was as high as 11 per cent in the last recession and if the economy continues to grow above trend for another three or four years we could see unemployment come down towards 5 per cent, which looks possible in the context of the Dungey and Pitchford model. The chance of economic growth producing substantial employment gains will be further enhanced by the fact that consumers' inflationary expectations as monitored by the Melbourne Institute (1997b,

1998a) have declined substantially over the past eighteen months and wages growth also appears to be moderating (Melbourne Institute 1998b).

We noted above that there is some evidence that the long-run rate of economic growth has become enhanced in recent times. This could be partly due to the microeconomic reform that has occurred in the past fifteen years and partly due to enhanced technical progress. As Dungey and Pitchford (1998) suggest, it seems very likely that faster economic growth was a major cause of low unemployment in the 1950s and 1960s and we should be able to derive some such benefits from faster growth in the 1990s and 2000s. The evidence both of Dungey and Pitchford (1998) that there is scope to run the economy a little faster, and of DeBelle and Vickery (1998) that we are still above the natural rate of unemployment, suggest that we can get unemployment down somewhat through faster growth in demand. Further continuing to implement microeconomic reforms aimed at productivity growth could be expected to be helpful, in the long run, to employment prospects. Policies aimed at enhancing technical progress especially where there are associated externalities are also worth focusing on (Rogers 1997).

However, evidence suggests that what happens to real wages is a critical issue in determining whether faster economic growth delivers substantially lower unemployment on a long-term basis. Indeed it may even be possible to substantially reduce unemployment without faster economic growth, if equilibrium real wages are reduced.

3.2 Restraining the general level of real wages

3.2.1 Introduction

Real wage restraint in the Accord produced positive employment benefits and reduced the level of unemployment. In the past few years of enterprise bargaining and very low inflation, real wages have moved ahead again. However, the growth in real wages appears to be declining now that low inflationary expectations are getting 'locked in' although they are still rising significantly.

There is widespread agreement amongst economists that holding down real wages would offer great hope for significantly lower unemployment. DeBelle and Vickery (1998) have a 1 per cent decline in the equilibrium rate of unemployment for a decline in the growth of real wages for one year of 2 per cent.

This begs the question, how can we get a decline in the growth of real wages by 2 per cent below what it would otherwise be?

3.2.2 Wages policy – a wage-tax trade-off

One solution, as adopted under the Accord would be a wages policy. Under the Accord the submissions of the Commonwealth and the ACTU to the Industrial Relations Commission proposed modest wage increases that actually entailed for some time a reduction in real wages. It is implausible that the ACTU will argue along these lines with a Coalition Government in power and somewhat unlikely even with a Labor Government.

However, it would be open to the Commonwealth to mount this argument. The main problem they face under the current wage-setting system is that many fewer employees

now depend essentially upon award wages handed down by industrial tribunals. Whereas it was about 90 per cent of employees at the time of the Accord, it is now thought to be between 30 and 40 per cent.¹ It is likely, however, that many wages determined by enterprise bargains may also be influenced by what happens to award wages.

If there were no adjustments to the 'wages safety net', that is, wages in awards were frozen for, say, four years, this could be expected to lead to a reduction in their real value of the order of 10 to 12 per cent depending upon the rate of price inflation. If about 25 per cent of employees' wages were held constant as a result and say a further 40 per cent increased slower than they otherwise would have, then this could have the effect of holding back the average growth in real wages by the order of 3 to 4 per cent, bearing in mind that those employees who depend on award wages are generally low in the distribution of earnings.

This policy would need to be complemented by various others discussed later but as a guide, if we apply DeBelle and Vickery's estimates of the effect of lower real wage growth this could be expected to reduce the equilibrium level of unemployment by about 1.5 to 2 percentage points, bringing it down to about 5 to 5.5 per cent.

One of the main side effects of such a policy would be to cause a widening in the distribution of earnings as higher-paid employees on enterprise bargains would be less affected than lower-paid employees.

It seems unlikely therefore that the Industrial Relations Commission would agree to a freezing of award wages, unless low-paid workers could be compensated in some other way. Here, a possible solution is for the Commonwealth to compensate low-paid workers through the tax-transfer system, by awarding them tax credits. One advantage of such a policy is that low-paid workers who are in families with children could be awarded higher tax credits than those without children, thus incorporating the Australian tradition embodied in the famous Harvester Judgement that we should be concerned about the needs of low-paid workers, which are affected by their family circumstances. Whereas the traditional view of the average worker as a married man with three children, might have applied at the time of the Harvester Judgement, the workforce is far more heterogeneous in the 1990s.

A second advantage could be that a tax credit may turn out to be more valuable to low-paid workers than a wage increase. This would depend upon the way it was implemented. The problem at present, is that for many low-wage earners, especially those with children, an increase in their wage has little effect on their net income. First they pay tax on the extra income. Second, they lose some of their social security benefits because of the high taper rates that apply to the associated means tests.

1. There have been various estimates of this and some of these have been discussed in submissions to the last two Living Wage cases, because it is this proportion of employees who depend upon a wages safety-net adjustment for a wage increase. The Melbourne Institute (1998b) has a regular survey of employees who have been in the same job for the past twelve months, which has produced estimates of between 30 and 40 per cent of such employees whose rate of pay 'is currently determined by the safety net, that is your wages are solely determined by an award'. This is not to be confused with being an award-based employee as employees on registered enterprise agreements are 'award based' but their pay is determined by the agreement. Of course, it is still likely that many agreements would be influenced by what happens to awards.

3.2.3 *The wage-setting and industrial relations system*

In Section 2.4.3 it was noted that Calmfors and Driffill's analysis of the effect of the wage-setting system suggests that there are two broad strategies to achieve lower real wages and therefore greater employment and lower unemployment. One is for centralised co-ordination of wages so that powerful unions agree to wage moderation so that everyone can benefit (thus internalising an externality). The other is to have highly decentralised wage-setting, so that any individual wage bargain that seeks to achieve higher wage increases than the norm does not get passed on through the principle of comparative wage justice with the danger of pricing the associated labour out of the market.

We noted that while Australia experimented with moving to a highly centralised and co-ordinated wage-setting system of the corporatist variety under the Accord, this does not appear to be an option now. In the latter stages of the last Labor Government, we started moving towards a more decentralised wage-setting system that the current Coalition Government is seeking to lock in through further industrial relations reform. This reform further emphasises decentralised wage-setting and reduces the power of the unions to have a general effect on wage growth, through such things as disallowing secondary boycotts *etc.*

If Australia is to capture the benefits that can be attained from fully decentralised wage-setting, it would appear to be the best approach to continue the kind of industrial relations reforms that have set Australia in this direction.

3.2.4 *The unemployment benefit system*

We noted in Section 2.4.2 that a more generous unemployment benefit system is likely to raise the natural level of unemployment and that particularly the rise in unemployment benefits in the mid 1970s probably had this effect. It was also noted that the duration of unemployment benefits is an issue. Countries like the US where unemployment benefits cut out after a while, probably have an advantage in terms of keeping the rate of unemployment, especially long-term unemployment, down. The problem, however, that we face is that cutting unemployment benefits or reducing their duration would have significant negative effects, at least in the short term, on many people towards the bottom of the income distribution.

It should be added that this issue needs to be thought of in the context of the social security system in general and the interface of that system with the tax system. The combination of means-tested social security benefits such as unemployment benefits and family payments, along with the effect of income taxation, mean that for many individuals, and especially families, the monetary benefits from taking a job or moving from part-time to full-time work are often very low, and especially when you add in the cost of work-related expenses (such as transport, child care, work clothes *etc.*) may even be negative (for a lengthier discussion of this, see Dawkins *et al.* 1997).

3.2.5 *Negative income tax*

As a radical solution to this problem, Dawkins and Freebairn (1997) recommended part or all of social security benefits be replaced by a tax-credit system, which is a version

of what is sometimes called ‘negative income taxation’. A full ‘basic income flat-tax system’ is the most radical version of this and would reduce effective marginal tax rates considerably for low-income families and increase the incentive to work. The main problem with this radical proposal, is that if it were introduced in one go, it would probably need a flat tax rate in excess of 50 per cent – if it was to be revenue neutral in its effect – which would become the effective marginal tax rate for everyone (Dawkins *et al.* 1997). This would reduce the effective marginal tax rate for many low and middle income families but increase it for those on high incomes. In time, it is likely that the behavioural benefits from such a system would increase the tax base and allow a reduction in the tax rates. It seems likely that such a radical reform, with an apparently high tax rate and significant numbers of winners and losers may not be politically feasible in the short term. It appears more likely that we could move in this direction gradually, in such a way that when it is finally achieved, it could be achieved at a significantly lower tax rate (Garnaut 1998).

As an alternative short-term measure, in the same spirit, Dawkins and Freebairn (1997) recommend the idea of earned-income tax credits, borrowed from the United States.² This is a policy which the paper by Katz (1998) for this conference also endorses as having been a good move in the US. Earned-income tax credits are a kind of partial negative income tax system aimed solely at individuals or families with low incomes because they are on low wages. This idea was recommended earlier in this paper as a complement to freezing award wages, so that those on low wages, especially families with children, were not detrimentally affected, and many could become better off. This would contribute to avoiding the diabolical trade-off. While we may need to accept a wider distribution of earnings and reforms to the unemployment benefit system that increases the incentive to work so that it improves the wage-setting curve in the framework outlined by Katz (1998), we may be able to do it in a way that does not have overall adverse effects on equity.

3.2.6 *Is there a case for a jobs levy?*

My predecessor as Director of the Melbourne Institute, Richard Blandy, proposed in 1993, the idea of a jobs levy, which was a variant on a proposal that had been floated by the ACTU at the time that *Working Nation* was under development.

Blandy’s idea (1998) was that all employees should pay a levy on their wages, the revenue from which would be used to enable employers to take on new employees. Indeed the interesting twist in this proposal was that firms could reclaim the levy paid by their employees, if they were creating net new jobs in their firms.

It is an interesting idea in that it seeks to achieve consent for the tax by making the benefits of paying it more visible to the taxpayers who actually observe the new jobs

2. The Melbourne Institute and NATSEM are currently costing alternative approaches to introducing earned-income tax credits. The findings will be published in Dawkins and Beare (1998). As an example, we have costed an earned-income tax credit equivalent to 5 per cent of wages (plus 1 per cent for each child up to a maximum of 3 children) – up to wage income of \$20 000, held at \$1 000 (plus \$200 per child) until income of \$25 000, and tapered down to zero by \$40 000. The cost is computed to be \$2.6 billion, or \$1.5 billion if restricted to families with incomes less than \$40 000 (a more gentle means test would be preferred).

being created in their enterprise. The way that it would be making new jobs possible, of course, is effectively by reducing real wages to firms which increase their employment.

One argument against such a proposal is that many of the new jobs that it would subsidise would have been created anyway. This is a conventional argument against wage subsidies. Another argument against it is that while it effectively reduces real wages in 'upsizing firms' it does not have the effect of reducing real wages in firms that are 'downsizing'. This might be defended as an attempt to encourage upsizing rather than downsizing, but it is also arguable that it is downsizing firms that have the greatest need to be able to reduce real wages as a way of avoiding employment reductions. A third argument is that it would create pressure for larger wage increases, which would have a counteracting effect, and that the proposal could even be counterproductive as a result.

Blandy, however, puts up a spirited defence of the proposal. I choose to mention it because it is an imaginative idea which seeks to address a central issue of how a reduction in the growth in real wages can be achieved. This is not an easy task.

If the proposal was varied so that employers received wage subsidies if they engaged long-term unemployed persons, whether they were upsizing or downsizing, it could be argued that the problem of deadweight loss would be counteracted by the equity benefit of increasing the employment of long-term unemployed persons. This proposal would, in effect, represent an extension of existing labour programs paid for by a tax on wages.

At present, I am not convinced about the proposal. The major thrust of the approach that I am proposing is one which seeks to make the labour market work more efficiently, reduce wage inflation *etc.* Bearing in mind the Calmfors and Driffill analysis and the argument for a greater reliance on market forces, as proposed in the paper by Jackman (1998) in this conference, this proposal does not seem to fit naturally into such an agenda. It could distort the operation of labour markets and might add to the sclerosis problem that Jackman discusses. I do believe, however, that it is worthy of discussion.

3.3 Focusing on the low skilled

We noted in Section 2.3 that there appears to have been a collapse in the demand for low-skilled workers. This suggests that while we should consider policies aimed at reducing the general level of unemployment, there is also a special case for policies targeted at the low skilled who have the highest rate of unemployment and one that has been growing faster than for other employees.

3.3.1 Education and training – long-term policies

An important long-term issue here is whether it may be possible over time to substantially reduce the proportion of the labour force that can be labelled as unskilled. The first place to look here, would be at improving the whole system of education and training in Australia. I do not propose, in this paper, to provide a blueprint for the future of the education and training system in Australia, but it is clearly worthy of attention.

3.3.2 Labour market programs

Martin (1998) has presented an excellent paper on labour market programs to this conference, reviewing OECD experience in this area.

Given the high incidence of unemployment among unskilled workers, it seems inevitable that active labour market policies will remain very important for some time to come. One of the criticisms of Australia's approach to active labour market policies is that they tend to be introduced or expanded as a short-term political expedient and chopped and changed around without much ongoing systematic analysis of strategy.

The case to be more systematic and improve our evaluation of these policies is very strong, and Martin's proposals look like a very good basis for such a systematic approach. He has seven proposals of strong relevance to the Australian case which I repeat here:

- i) integrate the referral to active programs as closely as possible with benefit and placement work;
- ii) 'profile' new benefit claimants to identify those at risk of becoming long-term unemployed; provide the latter immediately with counselling and job-search assistance;
- iii) make passive income support as 'active' as possible by using instruments like re-employment bonuses, in-work benefits *etc.*;
- iv) enforce availability to work and job-search tests;
- v) make continued receipt of income support conditional on accepting to participate in active programs after a certain minimum duration of unemployment spell;
- vi) ensure that participants in training and public sector employment programs continue to be available for work and actively seek jobs; and
- vii) explore ways of making the public employment service more effective by giving greater play to the role of market signals.

Some of these ideas are already embodied to a greater or lesser extent in Australian policies. For example, Australia has recently embarked on a major new initiative with respect to (vii) and we will watch with interest how the reform of job-placement services works. Also we do have some in-work benefits. The idea of tax credits proposed in Section 3.2.2 above would extend this further. The idea of re-employment bonuses as a way of improving the incentive structure of the unemployment benefit system is well worth examining. What is in some doubt is that the policies that have been adopted in Australia that are in keeping with Martin's proposals, have been conceived of as an integrated package of employment/welfare policies, with a central focus of moving people from welfare to work. This is what is needed.

3.3.3 Award wages

The proposal put forward in Section 3.2.2 to freeze award wages was made in the context of reducing the growth in average real wages.

We noted, however, that this would have a greater impact on the real wages of low-skilled and relatively low-paid workers. It could therefore be expected to create more employment opportunities for such workers than for higher-skilled workers.

The paper by Freebairn (1998) for this conference discusses the evidence on the elasticity of demand for workers of different categories. His main point is that there is a paucity of evidence about this and the need for more research in this area.

However, a few pertinent points can be made both from a theoretical perspective and from the limited empirical evidence that does exist.

First, in an extreme case where low-skilled and high-skilled workers are perfect complements, a reduction in the real wage of low-skilled workers would have an equal effect on the demand for high-skilled workers as on the demand for the low skilled. However, as we move to higher values for the elasticity of substitution of workers of different skill categories, the more such a change in the real wage tends to favour low-skilled workers.

Second, evidence presented by Hamermesh (1993) suggests that low-skilled workers have a higher own wage elasticity of demand than high-skilled workers. The determinants of the own wage elasticity are the price elasticity of demand for low-skilled intensive products, the elasticity of substitution of low-skilled for high-skilled employees, the elasticity of substitution of low-skilled employees for capital, and the share of the low-skilled workforce in labour costs. It seems likely that a major reason why low-skilled workers tend to have a higher elasticity of demand than high-skilled labour is that they are more easily substituted for by capital than high-skilled workers who tend to be complementary with capital.

Although the own wage elasticity of demand for low-skilled workers is generally found to be higher than for high-skilled workers, in a number of studies in various countries, the value of the elasticity in the limited number of studies reported by Hamermesh is quite variable. Some estimates suggest quite high elasticities for less-skilled labour and for younger workers (e.g. Grant 1979; King 1980; Lewis 1985) whereas some are substantially lower, but still normally higher than for more-skilled workers (e.g. Bresson, Kramarz and Sevestre 1992; Okunade 1991). The lower ones are either much the same or lower than the typical values estimated for the aggregate elasticity of labour demand. The two possible reconciliations of such an apparent contradiction could be as follows. First, the studies are often of particular industries or firms that may have lower labour demand elasticities than firms or industries in general. Secondly, it could be that the elasticity of substitution between low-skilled and high-skilled employees may be low enough that a reduction in the wage of one group, not only increases the demand for its labour but also the demand for the other group as well. That is, there are negative cross-price elasticities.

Thus the freeze on award wages could increase the employment of all types of workers but would be expected to have a disproportionately positive effect on the employment of low-skilled workers. Further, given the higher estimated elasticities of demand for low-skilled workers, it seems likely that for any given reduction in the average real wage, it will have a greater effect on employment the more it relates to low-skilled workers.

One argument that is sometimes raised against the idea of restraining the wages of low-skilled workers, is that recent studies, especially by Card and Krueger (1994, 1995) in the US, have found that increases in minimum wages do not have negative employment effects. Freebairn (1998) discusses this evidence and points to various reviews on the subject. In common with a number of other critics he expresses doubt that the Card and Krueger evidence does provide a good natural experiment of the effect of minimum wages, particularly emphasising a point made by Hamermesh (1995) that much of the adjustment to the change may have been made before the change in minimum wages, as it had been anticipated a long time in advance.

There is an emerging consensus anyway, that the Card and Krueger evidence is consistent with there being a small negative effect of raising minimum wages on the employment of workers on these wages (see for example Seltzer 1997).

Further, whether you doubt the Card and Krueger evidence or not, its relevance to assessing the effect of freezing all award wages in Australia is not clear. First, the minimum wage is significantly higher in Australia than in the US. Secondly, we are talking here not only about restraining the minimum wage but the wages of all people reliant on awards, amounting to over 30 per cent of employees. In this context, the evidence that labour demand curves generally slope downwards and that the elasticity of demand for low-skilled employees tends to be higher than for high-skilled employees, would seem to be more pertinent.

3.3.4 Social security reforms

The proposal outlined earlier, about negative income taxation or earned-income tax credits, while relevant to the improvement of the operation in the labour market in general, would be particularly beneficial at the bottom end of the labour market.

3.4 The case for a reform package drawing on a range of policies

One of the points that comes through very strongly from Katz (1998), from Jackman (1998), and from Martin (1998) is that monocausal solutions are inappropriate. It is not good enough just to change the unemployment benefit system. It is not good enough just to make the wages system more flexible. It is not good enough just to enhance labour market programs to increase the work-readiness of the unemployed. It is necessary to undertake a combination of all these and other things.

4. Should We Aim to Reduce Unemployment Substantially?

4.1 The case for aiming to reduce unemployment substantially

Australia has had an unemployment rate averaging over 7.5 per cent for about the past twenty-five years. I argue that we should seek to adopt a reform package aimed at reducing the level of unemployment to around 5 per cent or below. It could be argued that if this were possible, why have we not done it before? Are the costs of achieving it likely to be too great to justify the policy package?

Against this, however, there is a strong argument that there is a danger of underestimating the benefits of reducing unemployment. Firstly as shown in one of the papers for this conference (Borland and Kennedy 1998) and previously by Dawkins (1996), unemployed people generally feel worse off in terms of their life satisfaction than is likely to be explained by their low incomes. In turn we can expect them to feel better off if they became employed.

Second, the high levels of unemployment that we have been experiencing tend to lead to sub-optimal economic policies, particular when unemployment is rising. Thus for

example, the Coalition Government slowed up on the tariff-reform agenda when unemployment was rising in 1997. Similarly, high and rising unemployment tends to foster anti-immigration attitudes, despite the lack of evidence that immigration has had any role in causing unemployment. If we could get unemployment down to 5 per cent or below then such problems might be eliminated.

4.2 Winners and losers and the problem of politics

Nonetheless the package of policies proposed here can be expected to have winners and losers. The main winners would be those employees who would otherwise have been unemployed. There would however, be losers amongst those people who would have been employed anyway but whose net income turns out to be lower. Some people would have lower wages than they would have otherwise, although changes to tax and social security would make some of them better off. Other wages may not have been affected much but their tax rates may be higher.

Major policy packages which have significant winners and losers tend to make politicians nervous. They tend not to like policies with losers. The more the policy package can be designed as a positive-sum game, the more likely the politicians will adopt it. It is very unlikely, however, that there would not be some losers and this reinforces the need to raise the profile of the importance of reducing unemployment for the national interest.

4.3 Uncertainties involved

A further problem is that the effects of embarking upon a policy package are uncertain. I have argued that adopting the policies proposed above might be able to reduce unemployment to 5 per cent or below. Whether this turns out to 6 per cent or 4 per cent or some other number, however, remains uncertain. This is partly because we do not have precise estimates of the elasticities involved *etc.* For the same reason, estimates of the budgetary cost of such policies are also uncertain. Judgments then have to be made as to whether the uncertain benefits are likely to outweigh the uncertain costs.

My judgment is that a policy package of the kind proposed here is worth embarking on, for the reasons outlined. More attempts to quantify the costs and benefits, and the winners and losers could be made, but given the uncertainties involved, judgments have to be made eventually. One thing that should help such a judgment to be made is that if a policy package aimed at reducing unemployment substantially is not adopted, that is tantamount to saying that we are broadly speaking content with the status quo.

5. Conclusions

Unemployment has averaged over 7.5 per cent over the past twenty-five years. This is generally regarded as having been too high and a strong policy debate about how to get it down has resulted. The papers for this conference, between them, represent a considerable advance to the debate in Australia, about the causes of persistent high unemployment, and clues about where to look if we want to make a substantial reduction in the unemployment rate.

In reviewing the evidence and many of the ideas discussed in these papers, I conclude that a systematic policy package aimed at getting unemployment down to 5 per cent or below, on a sustained basis, should be adopted. This will require a mix of policies aimed at continuous improvement of the education and training system, higher economic growth, less severe recessions, lower equilibrium real wages, improved and more systematic labour market programs, reform of the tax and social security system to reduce effective marginal tax rates to increase work incentives and to supplement low wages, and continuing reform of the wage-setting and industrial relations system to achieve more decentralised wage determination. In so doing, I argue that it is important to get around the ‘diabolical trade-off’ that is sometimes thought to exist between lower unemployment associated with freer labour markets, and greater inequality. In keeping with the argument put forward by Katz (1998) for the US, we should aim for a freer labour market, and reforms to the tax and social security system and to education and training and labour market programs that are in tune with this flexibility but have positive outcomes for equity.

References

- Blandy, R. (1998), 'A Scheme for Full Employment', mimeo, Austral*asia Economics, Adelaide.
- Borland, J. (1997), 'Unemployment in Australia – Prospects and Policies: An Overview', *Australian Economic Review*, 30(1), pp. 391–404.
- Borland, J. and S. Kennedy (1998), 'Dimensions, Structure and History of Australian Unemployment', paper presented at this conference.
- Bresson, G., F. Kramarz and P. Sevestre (1992), 'Heterogeneous Labor and the Dynamics of Aggregate Labor Demand: Some Estimations Using Panel Data', *Empirical Economics*, 17(1), pp. 153–168.
- Calmfors, L. and J. Driffill (1988), 'Bargaining Structure, Corporatism and Macroeconomic Performance', *Economic Policy*, 6, pp. 14–61.
- Card, D. and A. Krueger (1994), 'Minimum Wages and Employment: A Case Study of the Fast-food Industry in New Jersey and Pennsylvania', *American Economic Review*, 84(4), pp. 772–793.
- Card, D. and A. Krueger (1995), *Myth and Measurement: the New Economics of the Minimum Wage*, Princeton University Press, Princeton, New Jersey.
- Committee on Employment Opportunities (1993), *Restoring Full Employment*, AGPS, Canberra.
- Dawkins, P. (1996), 'The Distribution of Work in Australia', *Economic Record*, 72(218), pp. 272–286.
- Dawkins, P. and G. Beare (1998), 'Costing Earned Income Tax Credits for Australia', Melbourne Institute of Applied Economic and Social Research, University of Melbourne Working Paper, forthcoming.
- Dawkins, P., G. Beare, A. Harding, D. Johnson and R. Scutella (1997), 'Towards a Negative Income Tax for Australia', report by the Melbourne Institute and NATSEM to the Full Employment Project.
- Dawkins, P. and J. Freebairn (1997), 'Towards Full Employment', *Australian Economic Review*, 30(4), pp. 405–417.
- Dawkins, P. and D. Harding (1997), 'Developments in the Australian Labour Market: What Chance 5% Unemployment Now?' *Mercer-Melbourne Institute Quarterly Bulletin of Economic Trends*, 1.97, pp. 36–50.
- Debelle, G. and J. Vickery (1998), 'The Macroeconomics of Australian Unemployment', paper presented at this conference.
- Dungey, M. and J. Pitchford (1998), 'Prospects for Output and Employment Growth with Steady Inflation', paper presented at this conference.
- Freebairn, J. (1998), 'Microeconomics of the Australian Labour Market', paper presented at this conference.
- Freeman, R. and L. Katz (1994), 'Rising Inequality: The United States vs. Other Advanced Nations', in R. Freeman (ed.), *Working Under Different Rules*, Russell Sage, New York, pp. 29–62.
- Freeman, R. and L. Katz (1995), *Differences and Changes in Wage Structures*, University of Chicago Press and NBER, Chicago.
- Garnaut, R. (1998), 'Time to End Unemployment', *Mercer-Melbourne Institute Quarterly Bulletin of Economic Trends*, 1.98, pp. 55–62.
- Goodridge, S., D. Harding and P. Lloyd (1995), 'The Long-term Growth in Unemployment', Melbourne Institute of Applied Economic and Social Research, University of Melbourne, Working Paper No. 2/95.

- Grant, J. (1979), *Labour Substitution in U.S. Manufacturing*, PhD thesis, Michigan State University.
- Hamermesh, D. (1993), *Labor Demand*, Princeton University Press, Princeton, New Jersey.
- Hamermesh, D. (1995), 'Comment', *Industrial and Labor Relations Review*, 48(4), pp. 835–838.
- Harding, A. and S. Richardson (1998), 'Unemployment and Income Distribution', paper presented at this conference.
- Industry Commission (1997), *Assessing Australia's Productivity Performance*, AGPS, Canberra.
- Jackman, R. (1998), 'European Unemployment: Why is it So High and What Should be Done About it?', paper presented at this conference.
- Katz, L. (1998), 'Reflections on US Labour Market Performance', paper presented at this conference.
- Keating, P. (1994), *Working Nation: Policies and Programs*, AGPS, Canberra.
- King, W. (1980), *A Multiple Output Translog Cost Function Estimation of Academic Labor Services*, PhD dissertation, Michigan State University.
- Krugman, P. (1994), 'Past and Prospective Causes of High Unemployment', in *Reducing Unemployment: Current Issues and Policy Options*, Federal Reserve Bank of Kansas City, Kansas City, Missouri, pp. 49–80.
- Layard, R., S. Nickell and R. Jackman (1991), *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford University Press, Oxford.
- Lewis, P. (1985), 'Substitution Between Young and Adult Workers in Australia', *Australian Economic Papers*, 24(44), pp. 115–126.
- Martin, J. (1998), 'What Works Among Active Labour Market Policies: Evidence from OECD Countries' Experience', paper presented at this conference.
- Melbourne Institute (1997a), *Mercer-Melbourne Institute Quarterly Bulletin of Economic Trends*, 3.97, pp. 1–5.
- Melbourne Institute (1997b, 1998a), *Survey of Consumer Inflationary Expectations*, Melbourne Institute of Applied Economic and Social Research, University of Melbourne.
- Melbourne Institute (1998b), *Quarterly Wages Report*, Melbourne Institute of Applied Economic and Social Research, University of Melbourne, February, May.
- Nickell, S. and B. Bell (1995), 'The Collapse in Demand for the Unskilled and Unemployment Across the OECD', *Oxford Review of Economic Policy*, 11(1), pp. 40–62.
- Okunade, A. (1991), 'Translog Cost Estimates of Labor–Labor Substitution in U.S. Hospital Pharmacies', *Journal of Research in Pharmaceutical Economics*, 3, pp. 91–113.
- Pissarides, C. (1991), 'Real Wages and Unemployment in Australia', *Economica*, 58(229), pp. 35–55.
- Rogers, M. (1997), 'Knowledge, Technology and Productivity in Australia: Lessons From Overseas', *Mercer-Melbourne Institute Quarterly Bulletin of Economic Trends*, 3.97, pp. 38–57.
- Seltzer, A. (1997), 'An Evaluation of the International Evidence of the Employment Effects of Minimum Wage Legislation', *Australian Economic Review*, 30(2), pp. 208–214.
- Wooden, M. and J. Sloan (1998), 'Industrial Relations Reform and Labour Market Outcomes: A Comparison of Australia, New Zealand and the United Kingdom', paper presented at this conference.

What Do We Mean by an Unemployment Solution?

R.G. Gregory

1. Introduction

What unemployment level would be regarded as a solution to Australia's unemployment problem? If the US is taken as a guide, a solution would be an unemployment level similar to that which prevailed here in the 1960s. This suggests an unemployment rate of around 2 per cent. Keeping the US as a guide, it also suggests an increase of perhaps 12–14 per cent in the number of jobs. Such a change, at current per capita income levels, would make a large difference to the Australian economy: tax revenue would be boosted, government expenditure reduced. There could be substantial personal tax cuts. It would be a completely new world. But I cannot see such an unemployment level in the near future. To achieve 2 per cent unemployment would require a combination of growth and labour productivity outcomes far outside the range of experience of the past two and a half decades.¹ I am not alone in this judgment and it illustrates, in a very clear way, that almost all of us believe that Australia cannot easily or quickly separate itself from its recent economic history.

What about a more modest target of 5 per cent unemployment? This is very modest indeed, relative to recent US outcomes, but it also seems unlikely in the next three or four years. To achieve such a target would require large changes in the performance of the Australian economy against a world background which, over the next few years, is more likely to generate increases rather than reductions in unemployment.

This is a very pessimistic start to these comments, but it is only describing what has become commonplace over the past twenty-five years. Australia has become a high unemployment country in which it has proven very difficult to reduce unemployment significantly, quickly and permanently. It is important at the outset to realise that over twenty years have passed without a satisfactory unemployment outcome either in Australia or in almost all European OECD countries. The way forward is not easy or obvious. We can all agree that faster growth rates are needed but how are they to be achieved? We can all agree that if we had avoided recessions unemployment would be significantly lower, but how could that have been done? We all might agree that real wage moderation would help but how is that to be achieved? It is important to be a little humble in the promises that we might hold out or in what we might expect the economy to deliver.

Still, there are things to be learnt and things that can be done to improve the situation. Furthermore, just because reforms will not deliver improved outcomes quickly is no

1. There is another problem. It has never been adequately explained why US unemployment rates were so much higher than those of Australia during the 1950s and 1960s. Therefore, even if labour markets were fully deregulated, it is not clear whether a 2 per cent unemployment rate is compatible with a modern Australian economy.

argument against advocating and adopting sensible changes. But if we wish to emulate the US, and return to low unemployment rates of 2–3 per cent, then it is difficult to see how current policies will achieve this. Perhaps, we may be fortunate and the economy may be subject to favourable employment shocks that we have not yet foreseen, in much the same way that we did not foresee the adverse shock twenty-five years ago.

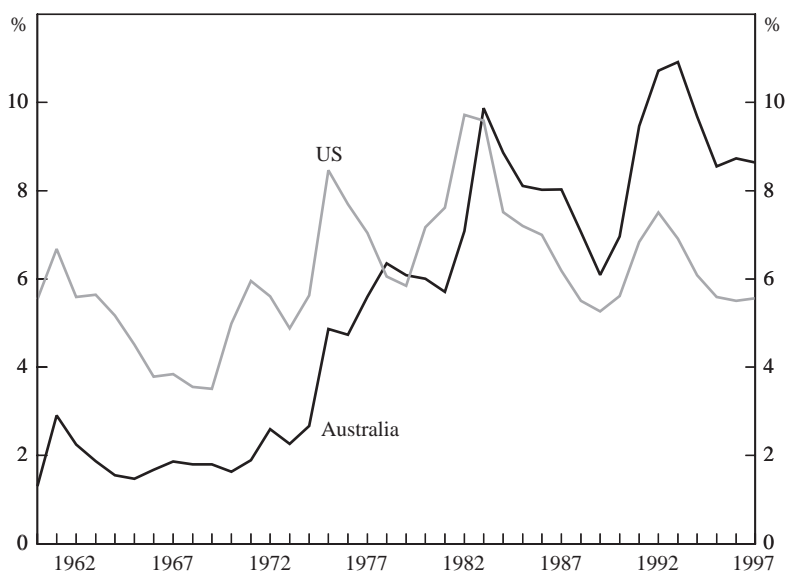
If we adopt a more modest approach and seek to reduce unemployment to, say, 6 or 7 per cent then this does not seem so difficult. But our main task over the next two years may well be to try and avoid unemployment increases.

2. Some Background Facts

My comments will be presented in the context of an Australian–US comparison. The US is chosen for comparison because, among OECD countries, it is the only one which has been able to achieve unemployment rates similar to those that prevailed during the 1960s. In addition, this comparison might be useful to complement the excellent paper by Larry Katz in this volume.

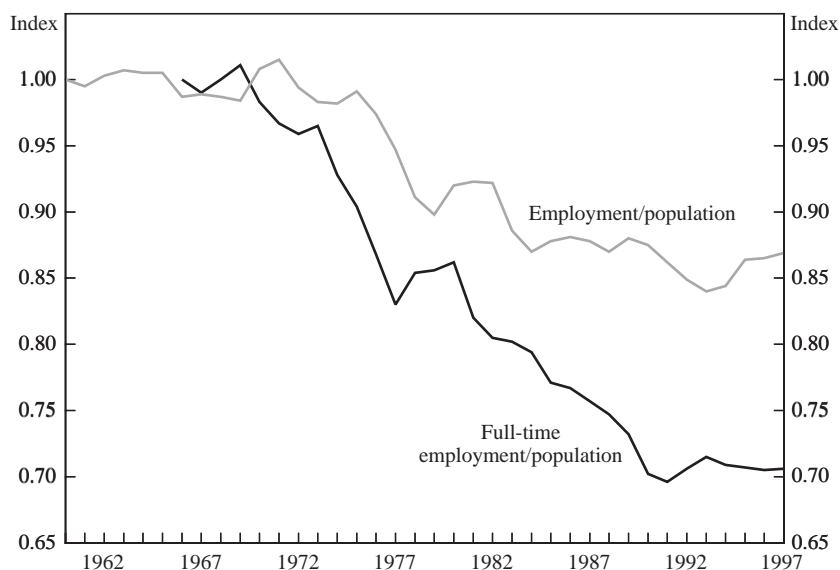
The Australian unemployment problem began in the early 1970s. Between the recession of 1972 and 1983, unemployment increased from 1.9 to 9.4 per cent (Figure 1). Over that decade, Australian unemployment increased from approximately 40 per cent of US levels to approximate equality. In the following eight or nine years unemployment in the two countries moved in a parallel fashion, but since 1990, Australian unemployment has increased to well above US levels and US unemployment has fallen to historically low levels.

Figure 1: Unemployment Rates



The extent of the Australian deterioration is even greater if measured in employment terms (Figure 2). Between 1970 and 1998, Australian employment, adjusted for population, fell 15 per cent relative to the US. In terms of full-time employment the reduction was 30 per cent.

Figure 2: Total and Full-time Employment/Population Indices
Ratio of Australia to the US



These data raise two important questions: What began the process of employment decline in Australia and why has it persisted?

The fundamental causes of our high unemployment problem are unlikely to be unique to Australia. Our changing labour market outcomes share many common features with other OECD countries. Indeed, the unemployment situation is so severe among most OECD countries that in a recent OECD paper (Elmeskov, Martin and Scarpetta 1998) Australia is declared as one of six 'success' countries which have succeeded in reducing structural unemployment following labour market reform and adoption of the OECD Jobs Strategy. In 1997, the average structural unemployment rate of the 'success' countries was 7.6 per cent. The structural unemployment rate of Australia was estimated to be 7.5 per cent (down from 7.9 per cent in 1986). By structural unemployment the authors mean that unemployment rate consistent with a non-accelerating rate of wage increases. To name Australia, with a 7.5 per cent structural unemployment rate, as a success among OECD countries is to illustrate the widespread pessimism that most economists feel and illustrates again that 5 per cent would be a very good unemployment outcome, relative to current expectations. It also suggests that 5 per cent may require a more radical policy approach to policy than is currently being adopted. But focusing on Europe reinforces the pessimism and perhaps should not be allowed to divert us away from the key fact: if the Australian economy had performed like the US, and we had maintained our relative positions, Australian unemployment would be around 2 per cent.

3. What is Causing the Unemployment Problem?

To simplify the analysis, the possible unemployment causes are placed in two groups which seem to be important from a labour market perspective. The two groups can be described as (i) average wages that are too high relative to the labour productivity level which is compatible with full employment,² and (ii) relative wages that are too rigid.

This dichotomy can be found in many of the papers delivered at the conference. It is not the only approach that may be adopted to analyse unemployment. For example, unemployment may be attributed to a range of factors that inhibit economic growth, such as balance of payments constraints and lack of savings, or to labour market institutions that, at high unemployment levels, lead to nominal wage increases incompatible with the Reserve Bank's inflation target.

3.1 The relationship between average real wages and the average level of labour productivity that is compatible with full employment

The initial increases in Australian unemployment were generated by the large increases in real wages that occurred in the early 1970s and which were initiated by an exceptional rate of growth of nominal wages. In the first half of 1974, for example, the rate of growth of nominal wages, measured at an annual rate, peaked at 30 per cent. Price increases lagged behind nominal wage increases and consequently real wages lifted. Wage indexation from April 1975 locked in the real wage increase by preventing subsequent price increases from eroding the real wage change.

Relative to the US, the Australian real wage increased by about 30 per cent during the 1970s. In retrospect, however, it appears that the large increase in real wages was not the only important shock. There are two reasons for this belief.

First, although the real wage shock was substantial, real wages remained constant for a few years after the shock, so that by 1979, real wages were at about the level they would have been if Australian trends before the shock had been maintained. And yet unemployment and employment did not return to previous levels. Either there was a very long response to the real wage shock or something else was occurring.

Second, in the US, which did not experience a real wage shock, labour productivity growth slowed markedly from around 1970, and real wages growth ceased and today they are not that much above 1970 levels. To the extent that the US and Australia are similar economies changing in a parallel way, Australia too may have experienced a substantial slowdown in labour productivity growth compatible with full employment.

A second shock – a marked slowdown in the underlying labour productivity growth consistent with full employment – would explain why low real wage growth for a few years after the real wage shock, failed to return employment and unemployment to previous levels.³ It would also explain why the Accord with its moderation of real wage growth during the 1980s was not more successful. The history of Australia's real wage growth alone cannot explain the long-run decline in employment, something else is

2. This group of arguments used to be referred to as the real wage overhang.

3. Some of the theory underlying this framework can be found in Bruno and Sachs (1985).

needed. That a real wage shock, concentrated in a few years, could have such a long-lasting effect seems such an unexpected outcome.⁴

We do not clearly understand what caused the sudden slowdown in the rate of growth of productivity consistent with full employment, and why its adverse effects have persisted.⁵ These issues are vital because they lie at the centre of the pessimistic outlook for unemployment.

The difficulty with a focus on the growth of full-employment labour productivity is that it is not observed unless there is full employment. What is observed is *actual* labour productivity which might be expected to disguise the slowdown in the full-employment labour productivity growth rate when there is a positive real wage shock.

To form a judgment about the role of labour productivity, I would turn to the US experience where the extent of the productivity slowdown, compatible with full employment, has been substantial and has persisted longer than was predicted.

We can investigate this issue by writing employment growth as the following identity:

$$e \equiv q - l \tag{1}$$

which states that a given rate of employment growth e can come about by various combinations of labour productivity growth l and output growth rates q .

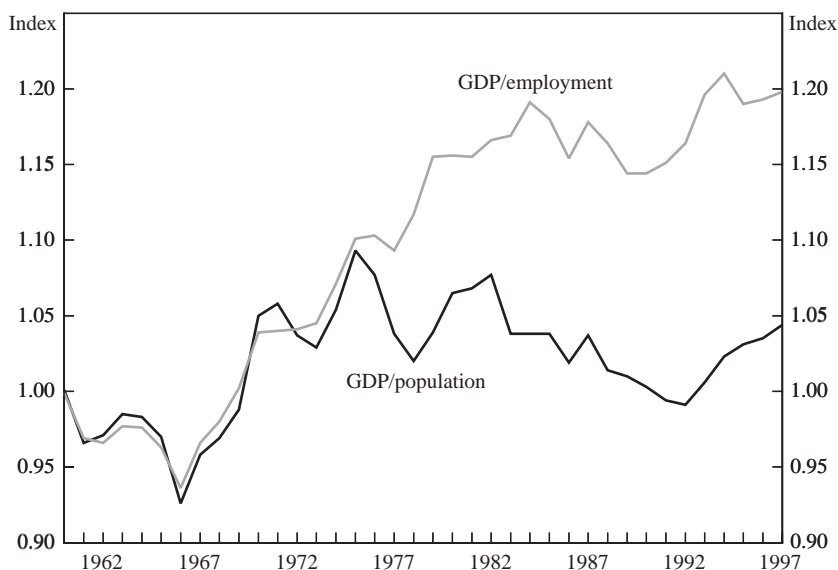
Figure 3 plots the ratio of Australian GDP per capita relative to that in the US, and the ratio of GDP per person employed in both countries, using 1960 levels as the base. Before 1975 labour productivity and output per capita evolved in an almost identical manner in both countries and the close association of the growth of GDP per person has continued. By 1997 Australian per capita output levels relative to the US, are much the same as in the early 1970s. In output terms, the US economy has performed no better than Australia and there is no obvious evidence of a break in the relative rates of output growth in the early 1970s and no sign of any differential shock with long-lasting effects. Consequently, this comparison suggests that there was a labour market shock that affected relative employment outcomes with minimal effects on relative output.

The relationship between the rate of growth of labour productivity across the two countries has changed a great deal and since the early 1970s Australian labour productivity has increased approximately 15 percentage points more than that of the US. The different employment outcomes of Australia and the US, therefore, are predominantly explained by a change in the observed labour productivity performance of the two economies, rather than by a change in relative output growth rates. The US has achieved higher employment growth rates because labour productivity growth rates have been lower. The marked difference in the change in the observed labour productivity relationship across the two countries lasted approximately a decade.

4. There is a long and complicated debate on these issues (Gregory and Duncan 1979; Norton 1979). Everyone who participated in the debate seems to have won some of their original arguments and lost others. No-one predicted, however, that unemployment would remain so high for so long.

5. Blanchard (1997) in a recent article is also revisiting this period. He adopts a twin-shock approach and argues that the real wage shock takes place in the 1970s, as we do, but the productivity shock takes place in the 1980s. We prefer to date the productivity shock from the early 1970s.

Figure 3: GDP/Population and GDP/Employment Ratios
Ratio of Australia to the US



What follows from this? First, it appears that the difference between the two economies since the mid 1970s, is the implicit income-sharing rule that is produced by each economy which leads to different sharing of an almost identical rate of output growth. In the US, the output growth has been associated with employment growth and very little income growth per employed person. In Australia, the same output growth per capita has been associated with additional income for a smaller group of employed. In Australia, government has reacted to the underlying labour productivity slowdown by increasing its role in income sharing and has distributed income to the not employed through unemployment benefits and various pensions. In the US, the sharing has been done by the labour market which has prevented average wage growth. This analysis suggests that the institutional structure of the labour market is important.

Second, the US labour market and the processes that have generated full employment have not led to more income being available for US citizens. The rate of growth of output has been the same across both countries. If this is the way labour markets respond to labour productivity shocks, then the comparison is not between Australia and the US unemployment rates alone, but there is a trade-off between less unemployment and lower wages.

To understand why productivity growth and employment growth have been negatively related across these two countries, and why differential productivity growth rates have not impacted more on output growth rates, seems to me to be the major research agenda needed at this time. The cross-country comparison does not suggest that the higher labour productivity in Australia, matched by wage increases, has led to faster or slower output growth.

Let me illustrate this point in another way. It might be argued that Australia needs more radical labour market reform and it is only in this way that we can reduce unemployment. The advocates of this approach, however, usually relate more labour market reform to higher rates of actual labour productivity growth. But, to the extent to which observed labour productivity is increased, unemployment will not be reduced unless the reforms lead to an even greater increase in output growth. To date this has not happened.

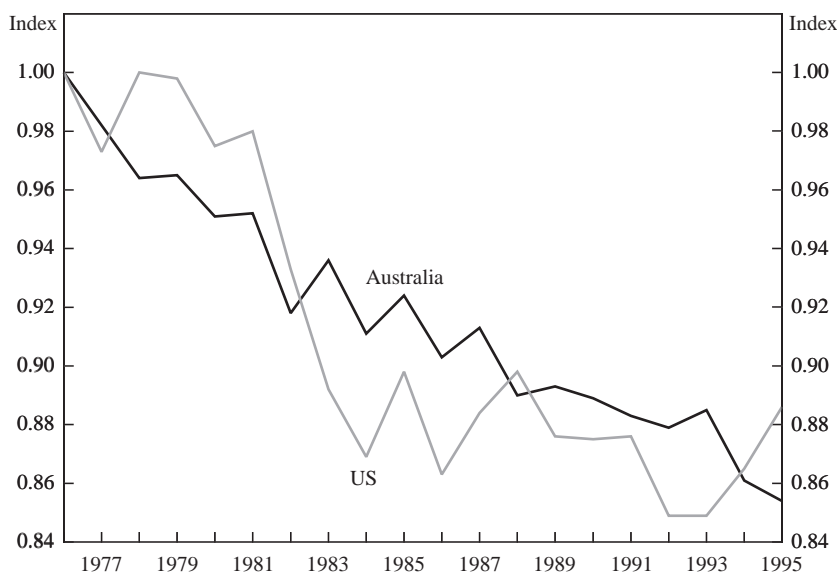
If this analysis is right and the twin shocks have had a long drawn-out effect, generated to a significant extent by the unobserved full-employment productivity slowdown, then the unemployment strategy should consist of a policy to increase the full-employment productivity level but not to increase average real wages and therefore not to increase observed labour productivity. How this might be done is not clear. Under the old labour market institutional framework, an Accord process was the ideal policy instrument and Figure 1 suggests some success, but such an approach does not seem possible today. The current strategy of relying on labour market deregulation and reducing trade union power in the hope that this leads to a reduced rate of growth of average real wages does not as yet seem to be successful. Real wage growth has been high, given the level of unemployment, and is generating increases in labour productivity. Employment, on the other hand, has not been increasing at a sufficiently fast rate.

3.2 Lack of relative wage flexibility

The second possible cause of high unemployment in Australia may be lack of relative wage flexibility. The argument is that there has been a demand shift away from unskilled labour which has led to significant wage falls for this group in the US. It is often argued that a similar shift away from unskilled labour has happened here, but, instead of the labour market responding with wage falls for the unskilled, it has responded with unemployment. But there is not much direct evidence supporting this view. Figure 4 plots changes in full-time weekly earnings of males at the 10th percentile relative to the median full-time earnings. These data do suggest that in the US there has been a marked shift in demand away from low-paid labour which has resulted in large falls in wages at the bottom end of the pay distribution. At the 10th percentile, for example, and relative to the median weekly earnings of a male full-time worker, earnings have fallen by approximately 12 per cent since 1976. It is apparent though that wages at the bottom of the pay distribution have fallen in a similar manner in Australia. Indeed the close association across the countries is surprising. Given this close association it appears that if relative wage rigidity has made a contribution to unemployment, it is probably not the major source of our difficulties. The change in relative wages is not sufficiently different across the two countries.

If relative wage rigidity, however, did explain the high rate of Australian unemployment, then this also suggests a pessimistic outlook. Quite large falls in Australian relative wages have already occurred and seem not to have had much effect on unemployment. If relative wage changes are needed, then the requirement may be for very large changes indeed. Large falls in low wages would require substantial redesign of the Australian social security system leading to reductions in benefits and pensions if employment disincentives are to be avoided. This would require an acceptance of a society in which there would be a large increase in the working poor.

**Figure 4: Full-time Male Average Weekly Earnings,
Ratio of 10th Percentile to Median**



4. Stepping Back a Little Further

If we look long enough at Figure 1, which plots US and Australian unemployment rates, and apply a little imagination, it is possible to see three separate periods, especially when the US data after 1980 are moved back one year.

In the first period, 1970 to 1979, unemployment increases markedly in Australia. This is the effect of the twin shocks discussed earlier. There is then a middle period, 1980 to 1990, which coincides with the Australian Accord during which the unemployment histories of Australia and the US are very similar. Then there is the third period, which begins at the start of the 1990s recession, after which Australian unemployment drifts upwards relative to the US.

The analysis embodied in the conference papers and the surrounding discussions did not naturally fit into this three-period framework. There was wide recognition of the first and second period, and fairly widespread acceptance of the underlying explanations, but there was no suggestion that a third period had begun.

If Australia is embarking on a third period, how does it fit into the analysis? Is it a macro phenomenon generated by the fact that our asset-price bubble of the late 1980s and the subsequent adjustment was so much more pronounced than that of the US? If so, then perhaps we should not think of post-1990 outcomes as having any necessary long-run implications for structural reform of the Australian labour market? Or can post-1990 outcomes be fitted easily into the earlier analysis of average and relative wage changes and be thought of as a continuation of the forces that were important in the first two periods?

To throw more light on these issues, we utilise the earlier employment identity and apply it to quarterly data and a shorter time period to see more clearly the changes since 1990 (Figure 5). As suggested by the recent increase in Australian unemployment relative to the US, the Australian employment growth rate has fallen relative to the US. The relative change in output, however, is very different. Australia has recovered better from the 1990s recession and output growth rates are well above those which would be predicted on a US–Australian comparison.

Figure 5: GDP and Employment Ratios



Given that the recent US output performance is not as good as Australia's, why has the US managed to reduce unemployment relative to Australia? This answer is the same as it has been through all the period since 1970. Different unemployment and employment outcomes across these two countries are predominantly explained by different labour productivity outcomes. Although Australia has faster output growth than the US, this has been more than offset by an increase in the rate of growth of labour productivity in Australia relative to the US. It appears, on balance, that the recent Australian productivity lift has been associated with job destruction rather than job creation and understanding the different outcomes in the product and labour market is crucial to understanding this recent history.

Why has there been a lift in Australian productivity? Perhaps it is the result of enterprise bargaining. The deregulation of the labour market has brought wage increases and productivity increases closer together at the firm level and yet this is not what is required. It strengthens the insider-outsider dichotomy. If employees capture more of the productivity gains within firms, there is no room left for additional employment. Productivity increases are effectively directed towards income increases for the employed and not towards the unemployed in terms of extra jobs.

Finally, it might be worthwhile to look quickly at one other country. New Zealand has been subject to significant labour market reforms and it may be instructive to consider the changing balance among output, employment and labour productivity. Table 1 lists output and productivity changes for Australia and NZ over the periods 1979–90 and 1990–97. Since their labour market reforms, employment growth has been strong in NZ relative to the past but productivity growth has been low. Australia has generated the opposite pattern. Productivity has increased markedly but employment has not. Both countries have had much the same output growth record relative to the past.

Table 1: Australian and New Zealand Employment, Output and Productivity Growth
Per annum

Period	Australian employment			Australia			New Zealand		
	Full-time	Part-time	Total	Hours	GDP	Labour productivity	Hours	GDP	Labour productivity
	Thousands			Per cent					
1979–90	98	55	153	2.1	3.1	0.9	0.2	2.1	1.9
1990–97	3	68	70	0.8	3.0	2.2	1.7	1.8	0.1

Note: GDP calendar years.

Sources: DX Australian National Accounts, OECD historical services; Labour Force Australia, ABS cat. no. 6203.0, August (various issues).

Once again it is the differences in labour productivity growth rates that account for employment differences and it is low observed labour productivity growth rates relative to the past that are associated with the strong employment growth of NZ, rather than changes in output growth rates. The NZ reforms seem to have changed the income-sharing rules generated by the labour market rather than to have led to faster economic growth. The NZ experience, therefore, is similar to the US before and after 1970. Employment increases relative to the past are generated primarily by labour productivity increases lower than the past.⁶

5. Concluding Comments

The above analysis, which has been offered to stimulate debate, leaves me feeling uneasy on four counts.

First, there is no clear and easy way forward. The comparison with the US seems to point to the need for substantial moderation in real wage growth and probably significant average real wage reductions, and yet it is not clear how this will be delivered. The

6. It should be remembered that the NZ employment–population levels, although growing strongly out of the deep recession of the early 1990s, are yet to return to 1975 levels.

evidence suggests that the constancy of the average wage during the Accord helped employment but it was not sufficient to enable Australia to claw back any of the employment deterioration relative to the US. We did not go far enough. Furthermore, over the past few years, under the new and reformed labour market the economy is producing significant increases in average real wages but very little employment growth, which does not seem to be what we want. But it is not clear how to avoid this. A new Accord framework, which I would favour, seems politically impossible whichever government is in power.

Second, others, who believe in a real wage moderation seem not to share my concerns as to the ineffectiveness of relative wage changes and therefore advocate reducing wages at the bottom of the wage distribution as a method of reducing the average wage. There are three difficulties that make this not an attractive option. One is that the reductions in low wages would need to be substantial to have a large effect on average wages. Reform may just reduce the wages of low-paid workers with insufficient employment growth to make the reforms worthwhile or any guarantee that further wage increases among the well paid will not offset the changes. It also seems unlikely that the Industrial Relations Commission could deliver such a large reduction in the wages of the low paid and remain an effective body. This policy, therefore, may well involve the abandonment of the Industrial Relations Commission and a hundred years of history. It may also involve the abandonment of minimum wages at current levels. These would be large steps for us to take. Finally, as indicated earlier, substantial wage falls among the low paid is not possible without reform of the social security system which will inevitably leave low-income groups worse off while in work or out of work.

Third, the focus on the lack of growth of full-employment labour productivity, which I find myself increasingly emphasising, leads us into research areas that have been seriously neglected. The neglect is understandable because the centre of the analysis is something that is unobservable. But nevertheless the dynamics associated with a developing gap between observed labour productivity and that compatible with full employment is important and should be pursued.

Fourth, if the US–Australian comparison is regarded as a valid one then the US provides us with a counterfactual that is not very attractive. We can achieve full employment but at a large price that involves substantial falls in average wages and larger wage falls at the bottom of the wage distribution. Even if we put aside average real wage reductions, it is not easy to see how we can convert Australia into an economy in which average real wages do not increase for a long period of time. It is just not easy to see how we can undo the average real wage increases of the past. We seem to be left without a policy instrument to effect real-wage moderation.

Whichever way we turn therefore, the choices are difficult and desirable outcomes are not guaranteed. Perhaps the best way forward then is to try a little of everything. The government should keep emphasising training of the unemployed, try to moderate wage increases and try to foster growth. But when the OECD labels as a success an Australian unemployment rate of 7.5 per cent (a reduction from 7.9 per cent a decade earlier), we should not expect too much of an improvement.

Finally, two remaining comments. It is important to emphasise how much judgment is involved in these comments and it is disappointing that the evidence does not enable

us to be more prescriptive and optimistic. If the arguments developed above are right – that there has been a large and continuing productivity shock and the impact of this type of shock on different economies with different labour market institutions is primarily in terms of a wage-employment trade-off rather than variations in output growth – then unemployment does not involve any significant long-run efficiency loss. Unemployment is about the way income is shared rather than about lost output. This is a very radical idea which has not been consistent with the facts in normal time periods⁷ or in developing countries. Nevertheless it is an important issue that is raised in a comparison of Australia with the US, the only country that has managed to maintain unemployment at 1960s levels.

If full employment is defined as an unemployment rate over 5 per cent, say 6 or 7, then the problem becomes a different one and the target can be achieved and it is possible to be much more optimistic. But given that the unemployment level has been so high for more than two decades and given that unemployment in the US is around 1960s levels, shouldn't we try harder?

7. A comparison of Australia and the US in the 1930s suggests that the two economies behaved then in much the same way as they do today (Gregory, Ho and McDermott 1988).

References

- Blanchard, O. (1997), 'The Medium Run', *Brookings Papers on Economic Activity*, 2, pp. 89–158.
- Bruno, M. and J. Sachs (1985), *The Economics of World Wide Stagflation*, Basil Blackwell, Oxford.
- Elmeskov, J., J. Martin and S. Scarpetta (1998), Key Lessons for Labour Market Reforms: Evidence from OECD Countries' Experiences, paper presented to the Economic Council of Sweden Conference on 'The Political Economy of Labour Market Reform', Stockholm, 25th May.
- Gregory, R. and R. Duncan (1979), 'The Labour Market in the 1970s', in W. Norton (ed.), *Conference on Applied Economic Research*, Reserve Bank of Australia, Sydney, pp. 256–319.
- Gregory, R., V. Ho and L. McDermott (1988), 'Sharing the Burden: The Australian Labour Market during the 1930s', in R. Gregory and N. Butlin (eds), *Recovery from the Depression: Australia and the World Economy in the 1930s*, Cambridge University Press, Melbourne, pp. 217–244.
- Norton, W. (ed.) (1979), *Conference on Applied Economic Research*, Reserve Bank of Australia, Sydney.

Unemployment or Tax Reform?

Chris Richardson*

1. Introduction

Different schools of thought in economics have divergent views on solutions for unemployment. This paper:

- argues the benefits of reform are large (estimating the gap between the current NAIRU and an achievable one at some 300 000 people);
- uses the Access Economics Macro (AEM) model to suggest the cost to real wages in lowering joblessness may not be as great as often imagined, with short-term belt-tightening having ongoing benefits to capital stocks and foreign debt (and so to jobs) even when the belt-tightening is over; and
- notes that now is a once in a decade opportunity for healthy Federal finances to build a coalition behind unemployment reform, using prospective surpluses to paper over some of the cracks between the different schools of thought on unemployment, but suggests success is unlikely – Federal surpluses are expected to be spent on tax reform rather than on lowering unemployment.

2. Why Unemployment Matters

Why is a solution to unemployment so important to achieve? Because its rise has been the chief economic policy failing in Australia and much of the OECD in the past twenty-five years. Subject to caveats on causality, Borland and Kennedy in this volume note links between unemployment on the one hand, and poor health, criminal activity and poor 'life satisfaction' on the other. Add to that the wastage of resources implicit in having 800 000 people unemployed (and an almost equivalent number underemployed), and it is hard to challenge unemployment for a position at the head of the priority list for Australian policy-makers.

Unemployment averaged a mere 1.7 per cent during the 1960s, but rose to 3.7 per cent in the 1970s, 7.6 per cent in the 1980s, and a depressing 9.2 per cent in the 1990s to date. Moreover, the quality of the jobs created over time has deteriorated. From its high-tide mark in July 1990, full-time employment has grown by just 0.3 per cent a year in the past eight years. That represents only 20 000 extra breadwinners a year, during a period when Australia's population has been rising by 200 000 people a year.

Yet we may have brought this on ourselves. As Treasury Secretary Ted Evans opined in October 1993, 'unemployment is a matter of choice' for Australian society. Our choice has been harsh for some. As a society, we have condemned a large number of people to

* I would like to thank my colleagues Stephen Corcoran and David Rumbens for research assistance, and David Chessell and Bob Hawkins for their comments on an earlier draft. All errors are mine.

be fringe dwellers, to suffer extreme unfairness so that the bulk of society enjoys the ‘fair go’ of Australian myth.

The numbers are large. At a rough cut, some 300 000 people are needlessly unemployed. Moreover, the urgency of a cure is on the rise. The ageing of the Australian population will raise the relative costs of supporting the unemployed. The current consensus in favour of reasonable income support for the jobless may waver as babyboomers feel the threat of the stretching in public sector resources.

Most important of all, aside from the macro equity- and efficiency-related issues, is the human angle to joblessness. It is hard to consider unemployment without remembering that ‘there but for the grace of God go I’.

3. What Causes Unemployment?

Cyclical unemployment can, at best, be smoothed. Frictional unemployment is not particularly amenable to improvement via government policy.¹ This paper will concentrate on structural unemployment – the chronic mismatch between the skills and cost of the available labour on the one hand, and the types of jobs and the level of wages offered by employers on the other.

There are several different (and overlapping) schools of thought to explain the rise in unemployment in Australia and Europe since the 1960s. First are the *populists*. This is the most potent school of thought on unemployment’s causes, as it is the most widely accepted through Australian society. Go to any barbecue and listen. Non-economists attribute unemployment to a range of supply-side factors including:

- high levels of immigration;
- a Luddite view that technology is stealing jobs;
- a related view that change is occurring too fast (such as the rollback of retail networks in banking), with the subsequent churning of jobs adding to frictional unemployment;
- a decline in the manufacturing sector;
- cheap Asian imports; and
- a view that unemployment is attributable to the presence of married females in the workforce.

Supply-side concerns are the focus of more serious analysis as well. The *supply-siders* school believes the answer to unemployment lies in lifting the quality of the supply side via active labour market policies (ALMP) to address the existing unemployment overhang.

Third are non-stability theorists, who also have supply-side concerns. This is a hybrid school looking to *hysteresis* to argue macro systems may lack the degree of system-stability properties that neoclassicists otherwise see. That is, the system will not ‘right’ itself automatically. Under those conditions, with labour markets divided into insiders and

1. Though there is a case for the Government to back its introduction of competition into job-search provision with increased subsidies to providers.

outsiders, the latter may become marginalised as a competitive force. That means that unemployment will have a tendency to ratchet up over time.

Fourth are the *demand-siders*, who believe the answer to unemployment lies in volume adjustment. Macro policy-makers should set their sails for growth, either in total (using both the fiscal and monetary levers) or specifically (using government spending in particular).

Fifth are the *anti-regulators*. This school believes the answer to unemployment lies in demand stimulation via price adjustment. The anti-regulators point to factors inhibiting the labour market from being efficient. These include institutional rigidities in wage relativities (notably quasi-legal wage-fixing arrangements), high marginal rates of personal taxation or benefit withdrawal (blunting incentives), restrictive dismissal laws (adding to labour mobility costs), monopolies among both capital and labour (directly and indirectly lowering employment), unemployment benefit systems (raising the reservation wage of the unemployed), and the rise of a ferocious culture of litigation.

Sixth are the *centralists*, who consider market outcomes have unfortunate effects at both the micro and macro levels, and prefer the adoption of a social compact. Like the demand-siders, they blame unemployment on a lack of growth, as well as the desire of employers to keep a pool of cheap labour available.

4. What are the Solutions to Unemployment?

Each school of thought has its preferred set of solutions. Sadly there is only a modest overlap, and that exists at the expense of Federal Budget surpluses. The *anti-regulators* look to free up the system, with reduced reliance on wage tribunals, a larger gap between awards and market pay rates, controls over access to and levels of unemployment assistance, and the like. In effect, anti-regulators put their trust in the market (and in particular its pricing mechanism) to achieve efficient outcomes. They note that many in Australian society already face full adjustment of their incomes to the prevailing economic winds, including farmers and those in small business.

However, there are clear negatives with the anti-regulators' package of solutions. Essentially, the school suggests that for Australia to lower unemployment, it must move towards more US-style policies. Jackman in this volume notes the underlying trade-off, that unemployment benefits 'may lead to higher unemployment but still be desirable on social grounds' (p. 49), while there is a risk that 'the American free enterprise approach has bought full employment at the expense of creating an "underclass" of people whose living standards fall well below a socially acceptable level' (p. 58). That is, an anti-regulation package may raise overall efficiency and see fairness improve for those among the unemployed who gain jobs, but worsen equity for the lower paid who lose purchasing power.

Some anti-regulators, recognising their policy settings would benefit the unemployed at the expense of the lower paid, look to mechanisms to compensate the latter (including the tax system). The work of Dawkins and Freebairn (1997) along these lines is well known.

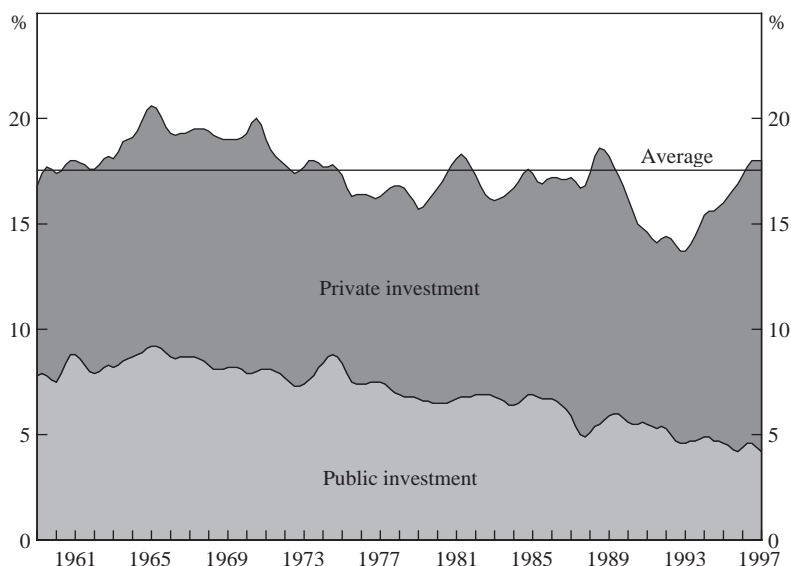
The *demand-siders* look to Keynesian pump priming for a solution to unemployment, with particular emphasis on public works. Occasionally the prescription is more

complex. For example, Langmore and Quiggin (1994) suggest switching policies to promote labour-intensive industries, while Mitchell and Watts (1997) suggest using the government as an employer of last resort at award minimum wages. The *supply-siders* look to picking the right labour market policies to raise the potential marginal product of the unemployed to prospective employers – Martin has considered such policies in his paper in this volume.² In essence, their aim is to move the short-run Phillips curve, so that speed limits to growth stand less in the way of reduced unemployment.

Both the demand-siders and the supply-siders look to the public sector purse to address unemployment. Both argue that not enough is being done. Demand-siders like Kenyon (1997) point out public sector investment spending has declined as a proportion of GDP. That is indisputable. From an average of around 8 per cent of national income in the 1960s and 1970s, public investment has been pegged back to an average of 6.5 per cent in the 1980s and 4.8 per cent in the 1990s to date. However, there are caveats:

- The decline in public investment is more apparent than real. As the likes of the Commonwealth Bank and Qantas have been privatised, their investment spending has been labelled ‘private’ rather than ‘public’. Similarly, State Governments have increasingly turned to private consortiums to build roads and stadiums (such as CityLink).
- Accordingly, it makes more sense to consider the sum of public investment and private business investment. That total, shown in Figure 1, has lost little ground over time, suffering mainly during the recession of the early 1990s.

Figure 1: Trend Real Investment Ratios
Percentage of GDP



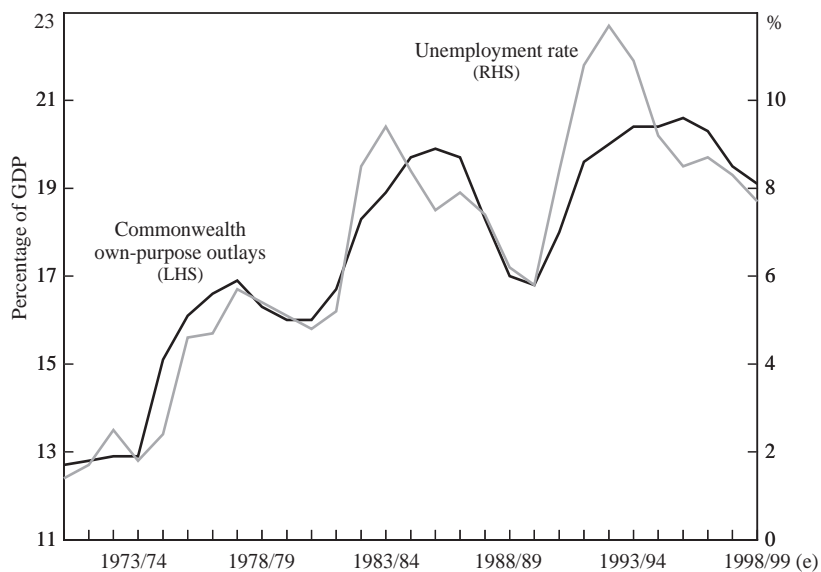
Source: ABS cat. no. 5206.0.

2. The ABS (cat. no. 6222.0) has produced some indirect insight into the Australian experience.

In addition, governments are spending more on social capital such as education than hitherto. Allowance for the latter suggests that governments have not been derelict in their spending duties.

Similarly, it is true that the Howard Government cut back the ALMP spending of *Working Nation*. That said, and as Figure 2 shows, governments are not averse to trying as hard as they can to use public monies to ‘address’ unemployment. The figure indicates that Commonwealth own-purpose outlays (that is, excluding grants to the States) rise pretty much in line with unemployment. As the Government pays for unemployment benefits and labour training programs, it is unsurprising joblessness and Federal spending move together in the figure. What is surprising is that increased unemployment benefits and spending on labour market programs account for only about one quarter of the increase in Federal spending over time.

Figure 2: The Lockstep Mystery – Unemployment and Federal Spending



Sources: Federal Budget Paper No. 1, pp. 7–28, Australian Bureau of Statistics and Access Economics.

Or, in other words, when Federal politicians have been faced by rising or stubborn unemployment, their typical response has been to throw money at the problem. The most recent example was the *One Nation* package. So, in a sense, money has not been the problem. The problem is that often this spending has been of a kind not considered particularly useful by either the demand-siders or the supply-siders.

The *centralist* school see the solution to unemployment as coming from a social compact which keeps real wage gains sufficiently limited to bolster job growth. The ability of governments to use wages as a macro policy lever is seen as raising the speed limits of growth. The high-water mark for that school was the early years of the Accord. That period saw subdued real wage behaviour relative to the speed of output growth, though this effect was also aided by an unemployment rate above the NAIRU (Simes and Richardson 1987).

The *hysteresis* school looks to policy-makers to intervene to improve the competitiveness of outsiders and to limit the collusion of insiders. This school therefore adopts hybrid solutions, looking for macro policies to be set such that the economy burns rubber as it exits a recession (a view drawn from the demand-siders), backed up by active labour market policies (with thanks to the supply-siders) and an assurance that award wages do not appropriate most of the gains to national income into an upturn (drawing on either the centralists or the anti-regulators).

In addition, the hysteresis school spends some time worrying about how to avoid recessions in the first place. In part that has been a catalyst behind policy reaction functions such as those proposed by Taylor (1993).

The *populists* look to cutbacks in immigration, mandated worksharing, picking sectoral winners (usually including manufacturing, but often IT development as well), the re-imposition of tariff walls, increased regulation of corporate activity (rights to hire and fire, but also to adopt new technology), an end to privatisation and the apparent endless search for new efficiencies, and policies aimed at intervention in favour of groups seen to be at risk in modern society (including the bush, kids and women).

5. What are the Potential Gains from ‘Better Policies’?

The task for policy-makers is to identify potential common ground among the solutions proffered by these schools, to identify the potential social losses to be balanced against any gains from lower unemployment, and to build the necessary coalitions at the political level to actually achieve lower unemployment.

The question of the potential gain from lower unemployment is related to the size of the available improvement in Australia’s NAIRU. If we assume that a NAIRU of 5 per cent is possible (witness the US experience), then how much of an improvement does that represent over the Australian NAIRU?

There have been a plethora of studies. Borland and Kennedy in this volume suggest the consensus NAIRU range for Australia is 6¹/₂ per cent to 7¹/₂ per cent. The wage equation in the AEM model also produces a NAIRU estimate. It is a deliberately simplistic inflation expectations augmented Phillips Curve. In the short run, wage growth is affected by the reciprocal of the unemployment rate, lagged four quarters. In the long run, there is no trade-off between inflation and unemployment.

The equation includes a measure of trend productivity arising from the model’s production function. This term – the model’s estimate of Harrod-neutral technical progress – attempts to capture increases in wages due to rising productivity.

Inflation enters the wage equation first via the expected inflation rate over the next ten years, which allows for future inflation to affect current wage bargaining. There is also a channel for recent inflation to have an influence on wage outcomes. The parameters on these inflation terms sum to one, with the inflation expectations term dominating the effects of recent inflation in the estimated equation.

The equation also includes the lagged change in unemployment as, even starting from a relatively high unemployment rate, a sudden fall in unemployment can give rise to wage pressures because of short-term job mismatch. It is therefore a partial channel for

hysteresis. Unlike the standard hysteresis model, however, the impact of the change in the unemployment rate is temporary. Were a hysteresis effect to be permanent, the model would have system instability risks:

$$\Delta w_t = \Delta prd_t + \alpha_1 + \alpha_2 \Delta un_{t-1} + \alpha_3 / un_{t-4} + (1 - \alpha_4 - \alpha_5) \Delta inf_{t-1} + \alpha_4 \Delta inf_{t-3} + \alpha_5 inf_{t-1} + \varepsilon_t \quad (1)$$

where *prd* is trend productivity, *un* is the unemployment rate, *inf* is current inflation and *infe* is long-run inflation expectations. The latter are measured (in history) as the difference between the 10-year bond and 10-year indexed bond yields.

Table 1: Estimation Results
1976:Q1 to 1997:Q4

Coefficient	Estimate	Standard error	t-statistic
α_1	-0.012	(0.0064)	-1.86
α_2	1.08	(0.36)	3.01
α_3	0.0008	(0.0004)	1.76
α_4	-0.11	(0.23)	-0.49
α_5	1.05	(0.25)	4.17
\bar{R}^2	0.22		
Standard error	0.012		
Durbin-Watson statistic	2.23		

Diagnostic tests		
Serial correlation	$\chi^2(4) = 4.43$	Prob = 0.35
Ramsey reset functional form	$\chi^2(4) = 9.47$	Prob = 0.002
Jarque-Bera normality	$\chi^2(4) = 0.13$	Prob = 0.94
Heteroscedasticity	$\chi^2(4) = 1.93$	Prob = 0.16
Chow stability	F(5,78) = 1.27	Prob = 0.29

The wage equation passes all diagnostic tests, except that for functional form. In part that is due to the reciprocal of the unemployment rate (the Phillips curve variable) being included in a linear equation.

In long-run equilibrium, the rate of wage inflation will equal the rate of price inflation plus the rate of technical progress, so the wage equation simplifies to:

$$0 = \alpha_1 + \alpha_3 / un \quad (2)$$

Solving for the long-run unemployment rate, or NAIRU, therefore produces:

$$un = -\alpha_3 / \alpha_1 \quad (3)$$

Over the period analysed, the estimate for the NAIRU is 6.7 per cent.³ Splitting the estimation period does suggest the NAIRU has increased over time. The estimate for the NAIRU from 1976 to 1988 is 6.4 per cent, while from 1988 to 1997 it is 7.7 per cent.

However, a cloud over the latter estimate of 7.7 per cent is the risk that Australia's NAIRU is higher still. Although nominal wage growth in Australia remains subdued, recent real wage gains have been the largest in a generation. Although wage inflation has been constant, price inflation has dipped sharply (mostly due to the strength of the \$A through to late 1996), leaving a substantial gap between the two. That suggests it is possible that, with unemployment rates the lowest they have been since 1990, a NAIRU effect has already been felt in labour market outcomes. (As always, it is difficult to know whether real wages have risen due to recent improved productivity growth, or whether the latter has in part been attributable to employers economising on labour as it becomes more expensive.)

Certainly it would be short-sighted not to admit to the possibility of a NAIRU of 8 per cent. In that light the potential gain to an improvement in it is large – reaching a US-like NAIRU of 5 per cent suggests Australia could bring 300 000 people back into the tent of insiders.

6. The Plan

How to lower the NAIRU from near 8 per cent to near 5 per cent? Building a consensus implies compromise and therefore a broad program of attack on unemployment. One possibility would:

- 1) Maintain the existing industrial relations system, but freeze increases in awards for a period over which they would otherwise have risen by 5 per cent.⁴ Maintenance of the system and its safeguards provides some consolation to the centralists, as would step three below.
- 2) Use the tax system to attempt a degree of compensation to losers (on the view that deadweight losses in the tax system may, post tax reform, be lower than those implicit in centralised wage bargaining). After all, with an election nigh, both sides are looking to give tax cuts anyway.
- 3) Use government spending to add to both outlays on ALMP (hopefully bringing the supply-siders on board) and on infrastructure (ditto the demand-siders).⁵ Among the

3. As always in this field, parameters are ill-defined. The standard errors on α_3 and α_1 are so wide that the NAIRU could range from 2 per cent to 20 per cent with 95 per cent significance.

4. There are many possible 'plans'. Each needs lateral thinking. One possibility would be to charge differential rates of payroll tax – higher for high-income earners, lower for the low paid. Given the existence of the PAYE system, compliance complexity would be minimal. Although this possibility raises labour supply elasticity issues, it might be a politically acceptable way to widen labour-cost skill differentials without disrupting equity.

5. I cannot claim to believe infrastructure spending would have other than a *short-term* impact on jobs. Presumably demand-siders could not claim to believe wage restraint would help jobs. However, both sides might come to a compromise at the expense of Federal surpluses. I would define 'infrastructure' broadly so as to include education/training spending – that might also help tempt ACOSS into the cart.

ALMP adopted would be spending to increase the return to job-search agencies for successful placement, but requiring that the increased returns go to the job consultant who succeeded in placing someone, rather than into a wider pool. (That is, ‘profit sharing’ rather than ‘employee share ownership’.)

- 4) As the first step would raise the relative attractiveness of unemployment benefits, there would also be a need to ensure that unemployment benefits were not an end unto themselves. The ALMP adopted would have that in mind. For example, eligibility for continued benefits would rely on agreement to undertake recommended training.

All the above would be expensive. Part financing would have to come via reductions in poorly targeted (‘middle class’) welfare. However, at least the plan is formulated against a background of rising Federal Budget surpluses. But any window of opportunity on the Budget front will be brief at best. There are reasons to doubt the long-run outlay projections in the Budget (Access Economics 1998), while the imminent election campaign may well see those surpluses returned as personal tax cuts to swinging voters.

7. The Necessary Shift in Wages

The key to implementing the above plan is the elasticity between wage restraint and employment gains. If the elasticity is too low, then any coalition of schools would break down fast.

Many commentators have addressed the issue of the necessary shift in wages to put a substantial hole in unemployment. Fewer have used a macro model to assess the same question, in part because most of the action would be in micro specifics. However, there are advantages in a macro assessment, in that the dynamics of stocks and flows arguably have positive implications for a price-based solution to unemployment. These advantages are explored here.

Table 2 sets out the Australia-wide impact of a 1 per cent decrease in nominal wages in the AEM model.

I should begin by noting that AEM has an equation for the unemployment rate. The latter performs better in a forecasting context than the separate modelling of labour supply. The unemployment equation has the long-run property that joblessness returns to the NAIRU. Therefore the variable of interest in Table 2 is employment rather than unemployment. Were we to allow the NAIRU in the model to ease back over time, there would be additional positive benefits (to variables such as public sector spending on transfer payments) not noted in Table 2.

The neo-Keynesian dynamics in AEM ensure the wage cut has several negative short-term impacts. The removal of \$3 billion in wages from the system acts as an immediate dampener. In particular, it cuts spending by consumers in Years 1 and 2. But gains in employment, profits (leading to an increase in community wealth) and the \$A combine with falls in interest rates and taxes to turn the impact on *private consumption* positive. As a simple proxy for welfare, the gain in long-run consumption suggests the Australian community as a whole is better off as a result of the pay cut.

The impact on investment in *housing* is positive, even though lower wages initially ease some people out of the market. This effect is dominated by the fall in short-term

Table 2: Impact of a 1 Per Cent Decline in Nominal Wages in the AEM Model

Percentage change (unless otherwise specified)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Private consumption	-0.22	-0.24	0.12	0.16	0.07	0.27	0.51	0.53	0.58
Private dwelling investment	0.00	0.32	1.73	1.12	-1.53	-0.93	1.48	0.70	-1.18
Private business fixed investment	-0.36	-1.42	1.88	2.37	-0.21	0.46	2.47	1.55	0.15
Stock of business fixed capital	-0.07	-0.32	0.04	0.41	0.31	0.35	0.71	0.86	0.77
Gross domestic product	-0.06	-0.11	0.61	0.69	0.24	0.43	0.89	0.77	0.54
Consumer price index	-0.39	-1.36	-1.46	-0.94	-0.98	-1.17	-0.77	-0.36	-0.40
Average earnings (nat. acc. basis)	-1.01	-1.41	-1.52	-1.15	-1.08	-1.20	-0.98	-0.63	-0.56
Real wages	-0.62	-0.05	-0.06	-0.21	-0.10	-0.03	-0.21	-0.27	-0.16
Employment	0.03	-0.05	0.36	0.65	0.43	0.40	0.70	0.78	0.63
Employment in persons	2 788	-4 160	32 431	58 515	39 289	37 177	67 005	75 537	62 097
Participation rate	0.01	-0.01	0.07	0.20	0.23	0.23	0.31	0.39	0.40
Unemployment rate	-0.02	0.03	-0.23	-0.32	-0.07	-0.03	-0.21	-0.18	-0.03
Unemployment in persons	-1 260	2 192	-18 125	-25 281	-3 263	-600	-14 428	-11 668	1 939
Nominal 90-day bill rate	-0.15	-1.08	-0.49	0.50	0.21	-0.22	0.22	0.49	0.14
Real 90-day bill rate	0.24	-0.11	-0.38	-0.02	0.25	-0.03	-0.17	0.07	0.18
Nominal 10-year bond rate	-0.01	-0.19	-0.30	-0.03	0.12	-0.01	-0.02	0.11	0.11
Nominal TWI exchange rate	0.15	0.12	-0.01	0.16	0.31	0.26	0.10	0.05	0.16
Real TWI exchange rate	-0.25	-1.24	-1.47	-0.78	-0.67	-0.90	-0.67	-0.31	-0.24
Government consumption spending/GDP	-0.05	0.02	-0.11	-0.13	-0.05	-0.08	-0.16	-0.15	-0.10
Public enterprise investment/GDP	0.00	-0.02	0.03	0.03	0.00	0.00	0.02	0.01	0.00
Tax revenue receipts/GDP	0.10	0.31	0.18	-0.13	-0.11	0.00	-0.07	-0.18	-0.16

continued

Table 2: Impact of a 1 Per Cent Decline in Nominal Wages in the AEM Model
(continued)

Percentage change (unless otherwise specified)	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Net public sector deficit	-0.16	-0.32	-0.27	0.02	0.05	-0.08	-0.08	0.03	0.04
Net public sector deficit (\$ millions)	-\$743	-\$1 539	-\$1 361	\$88	\$292	-\$468	-\$472	\$176	\$240
Net public debt	-0.33	-1.32	-2.52	-2.61	-2.34	-2.80	-3.43	-3.41	-3.24
Net public debt (\$ millions)	-\$541	-\$2 169	-\$4 035	-\$4 233	-\$3 805	-\$4 426	-\$5 239	-\$5 069	-\$4 727
Ave rate of tax on wages (cents per \$)	\$0.03	\$0.06	-\$0.07	-\$0.17	-\$0.14	-\$0.16	-\$0.25	-\$0.30	-\$0.30
Foreign debt	-0.14	-0.70	-0.92	-1.21	-1.88	-2.33	-2.32	-2.57	-3.14
Foreign debt (\$ millions)	-\$334	-\$1 835	-\$2 711	-\$3 838	-\$6 388	-\$8 370	-\$8 706	-\$9 897	-\$12 443

interest rates, which is accompanied by lower mortgage rates. The fall in bill rates peaks in Year 2. Note that the impact on real bill rates is initially positive. However, liquidity constraints mean that nominal as well as real rates play a role in housing activity.

Unlike housing, *business investment* actually falls in Years 1 and 2, as employers switch towards people (who are now cheaper) and away from machines (now relatively more expensive). In addition, lower consumer spending and the modest initial fall in long-term interest rates (bond yields) also leave business flat-footed. However, that phase proves short-lived, as consumer spending bounces back, profits rise and the fall in long-term interest rates gathers pace. The effect on business investment spending turns positive in Year 3.

Total GDP (*national income*) falls in Years 1 and 2, spiralling down on the back of the Keynesian cut to demand via lower wages (lower consumption and investment is only partly offset by a contribution from net exports, resulting in a fall in output levels in Years 1 and 2). However, total national income begins to rise at the end of Year 2. It stays positive thereafter, given the lift in consumer and investment spending.

Prices are pushed down by *wages*. Initially the Australian economy produces no more or less as a result of the wage change, yet people have the capacity to buy less. The result is a fall in domestic prices. The fall in *real wages* is most notable in Year 1, but the fall in unemployment eats into the original dip in real and nominal wages. A minor effect lingers thereafter.

The initial decline in consumption and business investment reduces the demand for labour, while the dip in real wages adds to the demand for labour. The net balance leaves *employment* lower in Year 2. However, by Year 3 the gain in employment is substantial.

It peaks in Year 4 at 59 000, and again in Year 8 at 76 000. This cyclical pattern is the result of the shock imparted to housing, which runs a four-year cycle. In Year 9, the gain to employment is 0.63 per cent – a result whose underpinnings are discussed below.

The dip in *labour market participation* in Year 2 is a function of the bad employment news in that year and of the fall in real wages in Year 1. However, the unemployed soon regain enthusiasm for the job hunt as opportunities open up. That leaves participation higher. As discussed earlier, the decline in the number of *unemployed* is gradually whittled away.

The decline in *short-term interest rates* is driven by the drop in the inflation rate in the early years of the simulation. Note that the fall in the real (inflation-adjusted) bill rate is lagged, with an initial increase. Nominal rates are ultimately brought back above baseline by a combination of the passing of the disinflation peak, a rise in capacity utilisation, and a drop in the unemployment rate below the NAIRU. (Were the NAIRU to be dropping at the same time, the latter channel would not operate.)

The move in *long-term interest rates* mirrors that in short rates, following the nominal bill rate down. As bond yields react to expected changes in inflation over a ten-year horizon, the shift in real yields is essentially the same as the move in nominal yields shown in the table. However, as the dip in inflation is a one-off, the impact on *long-term* rates is quantitatively smaller. In the long run, nominal and real bill rates and bond yields end up essentially unchanged, aided back up by the long-run positive impact of stronger national income.

Lower inflation and an initial rise in real bill rates cause an increase in the nominal *exchange rate*, but the fall in prices ensures the real exchange rate goes the other way. That means the decline in domestic labour costs starts to price Australia into export markets (while improving the competitiveness of domestic industry against imports). The depreciation in the real exchange rate slowly withers, but a modest impact remains in the long run. As prices stay permanently lower, the nominal \$A is permanently higher.

Public enterprise investment fluctuates with the business investment cycle. However, the main impact on governments is via an increase in *tax revenue*, notably due to gains in employment (affecting PAYE and payroll taxes), corporate profits (company tax, superannuation tax, FBT and ‘other individuals’), and housing turnover and values (stamp duties). There is a loss to PAYE and payroll tax from lower nominal wages. The net impact leaves the Federal and State Governments better off by \$0.75 billion in Year 1 and \$1.5 billion in Year 2. That has a cumulative impact on *net public debt* (the impact is not exactly one-for-one with the cumulating surplus, as the net debt position is also affected by changes in interest and exchange rates). Note that AEM says that governments hand back the surplus thus created by cutting *personal income tax rates* rather than by increasing government services. Average tax rates eventually fall by 0.3 cents in the dollar.

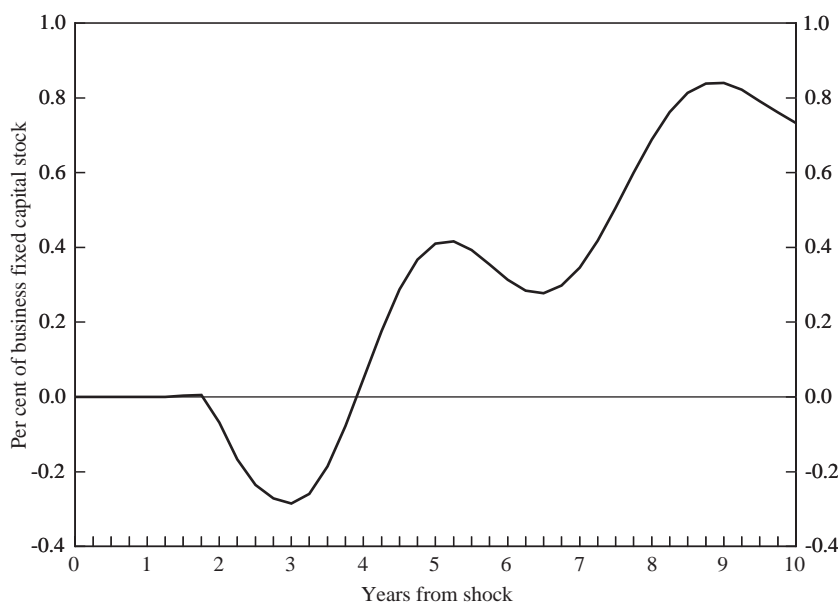
Imports fall and *exports* rise due to the lower domestic consumption (reduced domestic spending adds to the availability of product to go to export markets). Both these effects are magnified by the fall in the real exchange rate. The net impact is an improvement in the *trade deficit*. In addition, lower domestic interest rates mean that the cost of paying interest on Australia’s foreign debt falls – that is, the *net income deficit* goes down. That combination (trade better, net income better) reduces the *current*

account deficit. It is no surprise therefore that *Australia's foreign debt* goes down too (with an additional direct impact from the stronger nominal \$A). It ends up \$12.4 billion lower than it would otherwise be.

AEM sees no *long-term* change in real wages. However, despite that there is a long-run gain in jobs – an apparent Magic Pudding. The reason lies in the interaction of stocks and flows. The best analogy is perhaps that of the overweight dieter. If he stays on the wagon and lives on health food for a month, a return to cheesecake is bad for him. However, it does not of itself undo the gain of the previous month. Similarly, the removal of some \$3 billion a year in wage income means that consumers tighten their belts for a couple of years. In so doing they:

- *Leave foreign debt permanently lower*. That has a minor long-run positive effect on the wealth available to consumers to spend in the long run, helping add to consumption. The lower foreign debt also has a minor downward impact on the risk premium charged in *long-term* bond yields.
- *Leave the stock of business capital permanently higher* (Figure 3), due to increased consumer spending, the lower risk premium, and the depreciated real exchange rate. The latter has a leveraged effect as Australia is a small open economy selling on world markets, so output is elastic with respect to the real exchange rate (that is, output is elastic to small changes in import prices relative to export prices, and hence relative to business prices and the nominal wage). In turn, the higher capital stock feeds back into the wealth available to consumers to spend, acting as another addition to that spending.

Figure 3: The Long-run Gain to the Capital Stock



- *Leave national income permanently higher, with the gain in it matched by the equivalent gains in employment and the business capital stock.* The peak impact on employment (in Year 8) sees a 1 per cent decrease in nominal wages adding 0.78 per cent to jobs. In the long term (Year 9) the ratio is 0.63, while the equivalent ratio to the real wage at that time is 3.94.

Like the dieter, the impact of living on health food for a month aids the economy. Short of turning the clock back (by raising wages again), the economy gains some *long-term* benefits.

This result is a key one. The pain of achieving employment gains may not be as sharp as some stakeholders fear. It is also a result familiar to other Australian macro modellers – Stacey and Downes (1995) report a very similar result using Federal Treasury’s TRYM model (with a long-run employment to real wage ratio larger than that here).

8. A Concluding Thought

The above suggests that, at the macro level, 5 per cent nominal wage restraint would eventually produce little by way of real wage restraint but may provide 300 000 extra jobs. The Magic Pudding element arises because of the stocks involved – the lift in the capital stock and the fall in foreign debt (and the associated risk premium on Australian paper).

That long-run trade-off between real wages and employment is sufficiently good to suggest that an assault on unemployment is not impossible. But it seems an historic opportunity is passing us by. As a nation, we look to have the critical mass of public sector funding to underwrite a concerted attack on unemployment – with enough funding to address the concerns of a number of different schools. Such opportunities only crop up once a decade. However, as a nation it looks as though we are more likely to use the Federal nest egg to finance tax reform. Hopefully it is good reform.

References

- Access Economics (1998), *Budget Monitor*, 38.
- Borland, J. and S. Kennedy (1998), 'Dimensions, Structure and History of Australian Unemployment', paper presented at this conference.
- Dawkins, P. and J. Freebairn (1997), 'Towards Full Employment', *Australian Economic Review*, 30(4), pp. 405–417.
- Jackman, R. (1998), 'European Unemployment: Why is it So High and What Should be Done About it?', paper presented at this conference.
- Kenyon, P. (1997), 'Infrastructure Spending and Unemployment: Government Responsibility for Growth and Jobs', *Australian Economic Review*, 30(4), pp. 421–432.
- Langmore, J. and J. Quiggin (1994), *Work for All, Full Employment in the 1990s*, Melbourne University Press, Melbourne.
- Martin, J. (1998), 'What Works Among Active Labour Market Policies: Evidence from OECD Countries' Experience', paper presented at this conference.
- Mitchell, W. and M. Watts (1997), 'The Path to Full Employment', *Australian Economic Review*, 30(4), pp. 436–444.
- Simes, R. and C. Richardson (1987), 'Wage Determination in Australia', *Economic Record*, 63(181), pp. 144–155.
- Stacey, G. and P. Downes (1995), 'Wage Determination and the Labour Market in the Treasury Macroeconomic (TRYM) Model', paper presented at the 24th Conference of Economists, Adelaide.
- Taylor, J. (1993), 'Discretion Versus Policy Rules in Practice', *Carnegie-Rochester Conference Series on Public Policy*, 39, pp. 195–214.

Discussion

1. General Discussion

The discussion focused on the proposed solutions to unemployment presented by the three speakers in the session.

The participants agreed that there is clearly no simple fix to unemployment, and that any solution must encompass a number of different elements. There was disagreement among the participants, however, on the necessary components of the package. Participants agreed that maintaining an appropriate rate of growth is a key element of any package to reduce unemployment. However, participants were divided on the extent to which growth alone could contribute to a further reduction in unemployment in Australia at the moment.

All the participants agreed that it was important to consider the interaction of the social security system with the labour market in any reform package. High effective marginal tax rates could pose a significant hurdle if the welfare system is not adjusted in line with developments in the labour market. Some participants argued that the earned-income tax credit is worth examining in this respect. However, it is important to consider the degree of taper in such a system taking into account both the disincentives from the high marginal tax rates, and the possible fiscal cost.

The means by which a reduction in the level of real wages could be achieved generated much discussion. Some participants argued that freezing award wages at their current level would not have a large impact because of the relatively small share of the labour force directly covered by the basic awards. Thus to achieve a given reduction in the average wage would require a larger reduction in wages at the lower end of the wage distribution. Other participants noted that there needed to be a shift in the balance of bargaining power from the employed to the unemployed, although, again, the mechanism by which this could be achieved was not obvious. Finally, some participants suggested that it might be worth considering policy measures which focus more on changing the cost of employing workers to the firm such as changes in payroll taxes.

In considering the equity impact of a decline in wages, participants noted that it is important to consider the welfare of the unemployed. While the decline in wages would disadvantage the already employed, it would be beneficial to those who entered employment. Given that the evidence suggests that low-wage earners are spread out across the household income distribution whereas the unemployed tend to be concentrated at the lower end, the welfare implications of a decline in wages may be more muted.

Finally, participants questioned why there have not been more aggressive attempts to address unemployment in the past. Some suggested that the up-front fiscal costs may be politically unpalatable, although others countered that in the long run, a reduction in unemployment is likely to more than cover the cost of any reform package.

Summaries of the Papers

Reflections on US Labour Market Performance

Lawrence F. Katz

This paper considers the impressive employment and unemployment performance of the United States over the past two decades, and the contrasting high unemployment experienced by most other OECD nations over the same period. It concludes that the multiple dimensions of US labour market flexibility have helped to produce strong labour market outcomes. However, the paper also documents the large increase in income inequality that has accompanied strong employment growth in the United States, and considers a number of policies that could address the increased inequality without being detrimental to the other, more favourable labour market outcomes.

The paper contrasts the differing unemployment experiences by examining shifts in the natural rate of unemployment. Evidence from simple Phillips curve regressions suggests the natural rate of unemployment has remained relatively steady in the United States since 1970, but increased substantially during the 1980s and 1990s in OECD Europe.

Three classes of explanations are considered for the divergent evolution of the natural rate in the United States and other OECD nations. The first, based on the concept of hysteresis, argues that in the presence of generous unemployment benefits and high bargaining power of the already employed, declines in employment can have lasting effects on the natural rate of unemployment. In particular, the absence of these rigidities in the US allowed unemployment to recover more quickly after the supply shocks of the 1970s. The second explanation is that technological change has favoured skilled workers, but in many OECD nations this has not been matched by corresponding movements in relative wages between skilled and unskilled workers. This explanation implies that there should be an increase in unskilled unemployment rates in countries with relatively less labour market flexibility; however, this does not appear to have occurred. The third explanation centres on employment protection: more stringent hiring and firing restrictions in Europe reduce the flows of workers into and out of employment. Although firing restrictions alone have little effect on unemployment rates, the interaction of these restrictions with other labour market rigidities may increase unemployment.

The flip-side of strong US employment performance has been a large increase in inequality. Wages have increased more rapidly for those with more education and in high-skill occupations, but the dispersion of wage outcomes within demographic and skill groups has also increased. The paper suggests increased inequality in the US has been fuelled by increasing demand for skilled workers, a relative slowdown in the supply of educated workers, a decline in union membership and falls in the real minimum wage. The paper also suggests several policy options to improve the incomes and labour market prospects of less-skilled workers, including strategies to encourage education of the less skilled and increasing years of schooling for children from low-income families, tailoring job-assistance packages for the unskilled, and tax credits for low-income workers.

European Unemployment: Why is it So High and What Should be Done About it?

Richard Jackman

This paper reviews evidence on the comparative labour market performance of European economies, and evaluates possible reasons for the high rate of unemployment in Europe in recent years. Based on simple comparisons, the paper finds no conclusive evidence that more heavily regulated labour markets such as those in continental Europe have produced inferior employment and unemployment outcomes. A reason for this may be that labour market interventions reduce unemployment initially, but may result in higher unemployment in the long run. This will not be reflected in static comparisons of unemployment rates across countries.

High European unemployment is often explained as the outcome of a range of institutional labour market factors which act to increase aggregate wage pressure. Cross-country studies generally find that factors like union coverage and the duration of unemployment benefits are associated with higher unemployment, although some other features, such as co-ordinated wage bargaining, actually result in lower unemployment.

The paper notes, however, that arguments that interventionist labour market institutions have caused high European unemployment must address the fact that in the 1960s, apparently similar policies and institutions produced very low unemployment, both in an absolute sense and relative to the United States.

The paper offers several competing explanations for this fact. The first is that changes in European labour market institutions since the 1960s have been sufficient to account for the increases in unemployment. A complementary argument is that past unemployment rates in Europe were unsustainably low, reflecting overly expansionary macroeconomic policy.

An alternative explanation, based on hysteresis, is that European labour market institutions do not cause unemployment *per se*, but act to lock in increases in unemployment rates resulting from macroeconomic shocks such as the oil price shocks of the 1970s.

A third explanation stems from the idea that technological change has increased the relative demand for skilled labour. In the United States this has increased the relative wages of skilled workers, while in Europe relative wages have not changed but rather the unemployment rate of unskilled workers has increased.

The paper also notes that differences in unemployment between European countries are large and it is therefore inaccurate to consider Europe as an homogenous region – some of the most regulated European economies have produced the lowest unemployment rates. A popular explanation for this fact is that there is a ‘decentralisation externality’, where individual wage bargainers do not take into account the adverse effect of their actions on third parties. This leads to the idea of a hump-shaped relationship between the degree of centralisation and unemployment, where both highly centralised and largely decentralised systems produce lower unemployment than intermediate systems.

To explain why policy-makers might seek to undertake policy interventions that increase unemployment in the long run, the paper presents a simple model of

unemployment sclerosis. In the model, the government is assumed to intervene in labour markets whenever the unemployment rate is above a target rate. In the short run, the intervention reduces unemployment towards the target, but in the long run it increases unemployment even further, which only leads to further policy interventions. The model implies that dismantling interventionist policies will have adverse effects in the short run, but will result in lower unemployment in the long run. These opposing short- and long-run effects mean that static comparisons of labour market outcomes at a point in time may miss key elements of the impact of labour market policies.

Finally, the paper notes the stark contrast between traditional ‘continental European’ approaches to unemployment, based on principles of social equity, and those of other nations such as the UK which seek to reduce unemployment by making the labour market more responsive to market signals. The paper concludes that these fundamental differences in approach make a co-ordinated European approach to solving unemployment unlikely.

Dimensions, Structure and History of Australian Unemployment

Jeff Borland and Steven Kennedy

This paper provides an overview of the main features of unemployment in Australia. It describes the evolution of unemployment, and shows that the incidence of unemployment varies greatly by skill and demographic groups, and across different phases of the business cycle. The paper also presents evidence on the social consequences of unemployment, showing that life satisfaction and other measures of well-being are significantly lower for the unemployed than for the employed.

The paper begins by summarising aspects of the increase in Australian unemployment since the 1970s. Unemployment rates for teenagers, the less educated, and some groups of immigrants lie well above the national average. Those whose last job was as a labourer or tradesperson, or in the manufacturing, construction or accommodation/restaurants/cafes industries also have an above-average incidence of unemployment, although unemployment rates have increased across most industry groups. Unemployment rates in each state generally do not differ greatly from the national rate, but a greater degree of variation exists between the unemployment rates of different regions within a state. The paper also summarises estimates of the natural rate of unemployment which suggest that it has risen from 2 per cent to 7 per cent since the early 1970s.

The paper further breaks down developments in aggregate unemployment by examining trends in male and female participation rates and employment to population ratios. Cyclical phases where aggregate unemployment has increased have been associated with falls in the male full-time employment to population ratio, resulting mainly from lower employment in manufacturing, construction and agriculture. Growth in female employment has occurred mainly in trade, finance, community services and personal services. Analysis of flows into and out of unemployment show that rates of inflow and outflow are larger for women than for men, but that flow rates exhibit a stronger cyclical pattern for men than for women. There is also some evidence that both inflow and outflow rates for males have increased in the 1990s compared with the 1980s.

The paper concludes with a discussion of the social consequences of unemployment. Unemployed persons are disproportionately concentrated in the bottom two deciles of the income distribution. Some evidence exists that crime rates by region are positively related to regional unemployment rates, and unemployment also has an adverse effect on health levels, partially as a result of lower incomes. Survey evidence suggests that unemployed persons report significantly lower levels of life satisfaction than employed persons, although it is difficult to establish the direction of causation.

Microeconomics of the Australian Labour Market

John Freebairn

This paper discusses the microeconomic foundations of the Australian labour market. The starting point of the paper is a 'sticky wage' model of the labour market comprised of a labour demand, labour supply and wage-offer curve. Relatively sticky wages mean that quantity (and quality) adjustments are an important part of labour market adjustment. The paper considers the microeconomic features of each of the components of the model in turn, and discusses empirical estimates of their key parameters. In general, the paper highlights that much empirical work remains to be done to improve understanding of the workings of the labour market.

The wage-offer curve describes the behaviour of wages at each level of employment. The existence of this curve reflects non-market-clearing aspects of the labour market, such as inflexible institutional arrangements, nominal rigidities or efficiency wage effects. The paper discusses three alternative models of aggregate wage-setting: a disequilibrium labour market model, an expectations-augmented wage Phillips curve, and a bargaining model. At an individual level, wages vary according to factors which determine the level of human capital, such as education, and years of workforce experience. While there is some evidence that wage relativities partially adjust to changes in labour demand across industries, there is still considerable stickiness in these relativities perhaps reflecting social and political notions of equity and fairness, the existence of implicit contracts between workers and firms, and the existence of centralised wage-bargaining arrangements.

The body of Australian empirical research on labour demand generally finds an output elasticity of labour demand close to unity, a negative wage elasticity, and a negative effect of productivity on labour demand. The paper speculates that substitutability between labour and other factors of production varies significantly across skill, gender, age and occupation, although there is a dearth of convincing empirical evidence on the magnitude of these differences.

There is considerable time-series evidence that the supply of labour responds to the state of the economic cycle – the encouraged/discouraged worker effect. The evidence suggests that labour supply does not respond greatly to changes in wages. The paper also reviews the literature which examines the quality of labour supply in terms of education levels and skills development.

Finally, the paper also notes that the Australian economy is characterised by substantial reallocations of labour across industries, occupations, regions and skill

groupings. Quantitative signals, such as differentials in employment growth or vacancy rates across sectors, play a key part in these reallocations.

Unemployment and Income Distribution

Ann Harding and Sue Richardson

This paper examines the link between unemployment, income distribution and poverty. The incomes and demographic characteristics of unemployed individuals and families are compared with those in the labour force, with low-paid workers, and with the population at large. The paper also speculates about the effects on income inequality of a wage cut for low-wage workers.

The paper summarises recent trends in inequality in the distribution of earnings in Australia. It finds that the distributions of both individual and family disposable incomes have become more unequal over the past two decades or so. The growth in earnings inequality is not explained by increasing differentials in education; indeed, the returns to education appear to have fallen. Instead, there has been an increase in 'within group' inequality – inequality has increased between individuals with similar measured educational and skill characteristics. The increase in income inequality in Australia is greater than in continental Europe, but less than in the United States or the United Kingdom.

The paper examines the income positions of the unemployed, using data from the 1994–95 ABS *Survey of Income and Housing Costs*. The average gross income of unemployed individuals is only one-fifth of average wage and salary earners' income, while families including a wage or salary earner enjoy gross incomes about 2¹/₂ times greater than families with an unemployed member.

Government benefits are the main source of income for families with an unemployed member, rather than the wage and salary income of other family members. However, unemployed women are more likely to have a family member earning a wage income than unemployed men. Government cash benefits provide nearly all the personal income of unemployed people and only a small proportion of the incomes of employed people, reflecting a tightly targeted welfare system. The unemployed are heavily concentrated in geographic areas with low socioeconomic status, and this is especially true of the long-term unemployed.

The unemployed are also over-represented in the lowest three deciles of the income distribution. They are significantly more concentrated at the bottom of the earnings distribution than employed workers on minimum wages. Using a poverty line arbitrarily defined as half the median family disposable income, the paper then examines the relationship between unemployment and poverty. Only 8 per cent of families, but 28 per cent of families with at least one unemployed member, are in poverty by this measure.

The paper concludes by presenting some caveats to the argument that a cut in minimum wages would stimulate employment and provide an equitable way of reducing income inequality. Firstly, the paper argues that the cost of a mechanism to increase the incomes of the unemployed should be borne by all wage and salary earners, not just low-paid workers. Second, available evidence suggests the employment effects of a cut

in minimum wages would be modest. Third, a fall in the salaries of the low paid would exacerbate the high effective tax rates faced by individuals moving from unemployment benefits to low-paid employment. Finally, many of the jobs created could go to people outside the labour force, dampening the effect of higher employment on the measured unemployment rate.

Industrial Relations Reform and Labour Market Outcomes: A Comparison of Australia, New Zealand and the United Kingdom

Mark Wooden and Judith Sloan

This paper compares and contrasts the evolution of industrial relations regimes in Australia, New Zealand and the United Kingdom, drawing out conclusions about the effect of these changes on labour market outcomes. The paper also conducts a cross-country comparison of OECD nations which finds some evidence for a ‘hump shaped’ relationship between the degree of labour market centralisation and labour market performance.

Around 25 years ago, labour market institutions in Australia, New Zealand and the United Kingdom were quite similar. The paper reviews and contrasts the reforms that have been undertaken in the three countries, each of which has moved towards a more deregulated labour market in recent years. In the United Kingdom, the process of deregulation began in the early 1980s, and has continued at a consistent pace since that time. Reform in New Zealand occurred quite rapidly during the period between the mid 1980s and early 1990s, when there was a movement towards individual employment contracts and the award system was dismantled. In Australia, there was an initial move towards a centralised wage-fixing system under the Accord, followed by a gradual move towards enterprise bargaining and decentralisation. Despite differences in the pace and timing of industrial relations reform, labour market outcomes such as trends in unemployment rates and employment to population ratios, declining union membership and falling levels of industrial disputes have been remarkably similar in each of the three countries.

The paper reports further evidence on the validity of the Calmfors and Driffill ‘hump’ hypothesis that either a highly centralised or highly decentralised system produces superior labour market outcomes to a partially centralised system. The paper argues that all three countries were close to the top of the hump at the beginning of the 1980s, sharing features of both centralised and enterprise-based bargaining systems. Subsequently, both the United Kingdom and New Zealand have moved down the left (decentralised) side of the hump. The Accord can be viewed as an attempt to move Australia down the hump to the right (increased centralisation). Since that time, however, Australia has shifted towards more decentralised bargaining.

The paper does not find strong evidence that these regime shifts resulted in much difference in employment and unemployment outcomes. This may reflect the difficulty of isolating changes in industrial relations regimes from other factors, the complexity of the response of the economy to institutional change, or the unknown length of lags between institutional changes and observed outcomes.

Finally, the paper conducts a wider international comparison to test the Calmfors-Driffill hypothesis, dividing OECD countries into centralised, decentralised and intermediate groups. By this comparison, economies moving away from the intermediate position (at the top of the hump) performed better on all indicators than economies moving towards the intermediate position, providing some support for the hump-shaped relationship between the degree of centralisation and labour market outcomes.

Prospects for Output and Employment Growth with Steady Inflation

Mardi Dungey and John Pitchford

This paper argues that macroeconomic policy can reduce unemployment both by ameliorating recessions, and by achieving the highest possible growth rate consistent with steady inflation. The paper estimates this steady inflation rate of growth, or SIRG, to be 4.37 per cent for Australia over the post-float period. The paper suggests that growth at the SIRG for four to five years could bring unemployment down to a rate near that experienced in the late 1980s, although this is subject to some uncertainty.

Firstly, the paper develops and estimates an equation for consumer goods inflation. The price of domestic consumption goods is modelled as a weighted average of the prices of domestic goods and imports. Domestic goods prices respond to excess demand pressures, for which the rate of economic growth is used as a proxy. An empirical inflation equation is estimated which is then used to derive the steady inflation rate of growth. When the inflation equation is estimated over the period since 1983, this growth rate is 4.37 per cent. Using the estimated equation, it is shown that deviations in import prices have affected the actual inflation rate by up to two percentage points at various times during the sample period.

The paper then presents estimates of an aggregate labour demand equation, which is used to estimate the effect of a change in output growth on employment. From these estimated results, bands of wage growth consistent with particular rates of output and employment growth are calculated.

The paper argues that policy should act to counter domestic goods price inflation caused by excess demand pressures. However, policy should not respond to inflationary pressures resulting from a depreciation in the real exchange rate. Rather, policy-makers should aim to maintain growth at the SIRG, tolerate the movement in the inflation rate, and wait for a subsequent appreciation in the real exchange rate to reverse the upward pressure of traded goods prices on aggregate inflation.

Finally, the paper estimates the effect of a sustained period of growth at the SIRG on the unemployment rate using various assumptions for the growth in real wages. The fall in unemployment is sensitive to the assumptions used, although in most cases, growth at the SIRG allows unemployment to fall to around 5 per cent after four years.

The Macroeconomics of Australian Unemployment

Guy Debelle and James Vickery

This paper analyses the Australian labour market from an aggregate perspective, and develops a framework to analyse how unemployment could be permanently lowered from its current level. In particular, it estimates that a fall in real wage growth below trend of 2 per cent for one year could lead to a permanent reduction in the unemployment rate of about 1 percentage point. Although monetary policy cannot influence the equilibrium or 'natural' rate of unemployment, it can significantly affect the speed of adjustment of unemployment towards the new equilibrium rate.

Firstly, the paper discusses broad trends in the Australian labour market. Increases in the unemployment rate since 1960 have been concentrated in three relatively short episodes. The first of these was associated with a sharp increase in labour costs during the mid 1970s; the second was coincident with both a wages push and the 1982–83 recession; and the third occurred during the recession of the early 1990s. These episodes demonstrate the important impact of aggregate demand and real wages on employment and unemployment. The large increases in unemployment during recessions also highlight the benefits of maintaining a steady rate of growth.

Estimates of the natural rate of unemployment suggest that the natural rate rose substantially during the 1970s, but since that time has been relatively constant. Current estimates place the natural rate at between 7 and 7¹/₂ per cent. The actual unemployment rate has remained above the natural rate for most of the 1990s, reflecting disinflation during the early part of the decade and the slow adjustment of inflation expectations to the new lower rate of inflation.

The paper estimates an imperfect-competition model of the labour market. It then uses empirical estimates of labour demand and supply elasticities to simulate the effects of a fall in the aggregate real wage on employment and unemployment. If it is assumed that a fall in the real wage has no effect on the level of output, a 2 per cent fall in the real wage causes employment to increase by 0.8 per cent, and unemployment to fall by 0.4 percentage points. The increase in employment is more pronounced than the fall in unemployment, because the higher employment stimulates labour supply through the encouraged worker effect. If however, as seems more likely, output is assumed to rise as employment rises, the higher output amplifies the employment effects of the cut in wages. In this case, the 2 per cent fall in wages causes employment to rise by 2 per cent, and unemployment to fall by just over 1 per cent. The effect of higher employment on output could be even greater if the capital stock expands as a consequence of the increase in employment.

In this framework, monetary policy cannot affect the equilibrium or natural rate of unemployment. However, it can affect the speed with which the economy adjusts towards the new natural rate. The model shows that the faster the central bank 'learns' that the wage change is permanent, the less the gap between the actual rate of unemployment and the natural rate during the adjustment phase. However, in practice, it may be difficult to identify whether developments in the labour market are temporary or permanent. An inflation-targeting framework for monetary policy is beneficial in this regard to ensure that monetary policy is forward-looking and because developments in the labour market are a crucial component of the outlook for inflation.

What Works Among Active Labour Market Policies: Evidence from OECD Countries' Experience

John P. Martin

Active labour market policies aim to improve the access of the unemployed to the labour market, develop the skills of the unemployed and enhance labour market efficiency. This paper summarises OECD research examining which active labour market policies are successful, and in what circumstances. It concludes that such policies, if properly designed, can be a useful component of an overall labour market strategy, however they are not a 'magic bullet' solution to unemployment in their own right.

Across the OECD, spending on active labour market programs averages 0.9 per cent of GDP, and has increased somewhat over the past decade, although there are large differences in spending between countries. Despite a broad consensus that spending on the labour market should focus on active rather than passive programs such as increased unemployment benefits, the proportions devoted to the two types of spending have not changed greatly over the past decade.

Macroeconomic evaluations of active programs, focusing on aggregate relationships between the level of active labour market spending and macroeconomic variables such as unemployment, find mixed results regarding the effectiveness of active labour market programs. However, since such evaluations are necessarily crude, the paper focuses instead on the literature on the evaluation of individual labour market programs. From this literature, the paper draws five main rules to guide policy-makers in their selection of active labour market policies: (i) rely as much as possible on in-depth counselling, job-finding incentives and job-search assistance; (ii) public training programs should be kept small, and highly targeted to the needs of job-seekers and employers; (iii) early interventions – as early as pre-school – can reduce early school-leaving and improve the job-readiness of disadvantaged young people; (iv) employment subsidies of short duration can be used as unemployment duration lengthens to maintain contact with the labour market; and (v) provide subsidies to start-up businesses for unemployed people with entrepreneurial skills.

The paper argues that there are important linkages between active and passive labour market programs. It presents evidence that work incentives may be adversely affected in countries where unemployment-benefit replacement ratios are relatively high, and that a generous and poorly managed unemployment benefit scheme substantially reduces the beneficial effects of active labour market programs.

Finally, the paper suggests that an integrated public employment agency controlling job placement, benefits payment and participation in active programs can help improve the degree of co-ordination between different aspects of labour market assistance. The receipt of benefits should be linked to participation in labour market programs and availability for work criteria, passive income support should be made as active as possible, and profiling should be used to target potential long-term unemployed for counselling and job-search assistance when they first become unemployed.

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