The Sources of Unemployment: A Simple Econometric Analysis

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Unemployment is currently at levels not experienced since the great depression of the nineteen thirties. Official figures show that over ten percent of the workforce is unemployed but there is general agreement that this figure is an underestimate of the number of people who would like to work but cannot find a job. It is also recognised — although the concern does not seem to be as great as it was in past and less serious bouts of unemployment — that this situation involves serious costs. First, there are economic costs in the form of lost income and, arising out of this loss, lower saving and investment. Secondly, there are social costs including the damage to family life and the problems which arise in any society which maintains a large pool of long-term unemployed. These social problems are not without economic consequences. There is in the short run increased pressure on social services and a blowout in government budgets and in the long run the loss of output arising from the failure to fully utilise an important resource and the depreciation of human capital.

An illustration of the low priority now given to unemployment is provided by the recent book by Gruen and Grattan (1993). In an otherwise comprehensive survey of economic developments under the Labor Government, little attention is given to the causes of the present high level of unemployment or potential solutions to it. Unemployment is treated largely as a cyclical indicator and discussed as a motivation for social policy.

Recent suggestions for dealing with the unemployment problem have focussed on social rather than economic policies. They have looked for solutions in increased training and education or in some form of "sharing the work", a variation of the wages fund theories of economists of the last century. But Economics has some important

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1 A revised version of a paper presented to a seminar at the Treasury, 8th September, 1993. The author is grateful for suggestions received at that seminar.
things to say about the causes of unemployment and these insights deserve attention ahead of social theorising, which will often be useful only if we are willing to drastically change the way in which production is organised in our society. Occam's Razor suggests that we should not go looking for complex explanations and elaborate solutions when simpler answers are available. Economic theory suggests that we should look for the explanation of unemployment first in high real wages, low productivity or inadequate economic growth. The objective of this paper is to test whether these factors provide an adequate explanation of unemployment.

The first section of this paper begins with an examination of macroeconomic influences on unemployment. It then develops an econometric equation explaining the unemployment rate over the period 1965 to 1992 with respect to changes in its economic determinants. The equation provides a good overall explanation of unemployment and the section also reports some counter-factual experiments (one involving a simple simultaneous equation model) to determine the relative importance of the determining variables.

The second section looks at the implications of the econometric results for possible economic solutions to the unemployment problem. In particular, it considers the impact of recent Government policies on labour costs and, therefore, on unemployment and the usefulness of monetary policy in dealing with unemployment. The third section of the paper canvasses some popular solutions to the problem — training and job sharing.

1. **The Econometric Determinants of the Unemployment Rate**

**Macroeconomic Determinants of Unemployment**

Australia's unemployment history over the period 1965 to 1992 is shown in Figure 1. The figure shows that higher unemployment rates were experienced in the nineteen eighties and nineties than in the sixties and seventies. An obvious economic
explanation for unemployment is higher real wages\textsuperscript{2} and Figure 1 shows that a crude correlation provides substantial support for this proposition. There is clearly a close association between increasing real labour costs and increasing unemployment.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure1}
\caption{Real Labour Costs and the Unemployment Rate}
\end{figure}

Increases in real wages reduce employment in a number of ways:

- they cause a substitution of capital for labour;
- they lead to a reduction in the output produced by businesses; and
- they make Australian industry less competitive internationally, leading to increased imports and reduced exports.

\textsuperscript{2} An earlier study by Powell (1985) surveys the theoretical and econometric evidence in support of the view that high real wages are an important cause of unemployment.
It could be argued that a more relevant measure of labour cost is real unit labour cost which takes account of changes in labour productivity as well as changes in real labour costs. Real unit labour cost (RULC) is

\[ RULC = \frac{w}{ry} \]  

(1)

where \( w \) is real average earnings and \( ry \) is real output per worker. Real average earnings \((w)\) is defined as

\[ w = \frac{W}{P} \]

where \( P \) is the implicit GDP deflator and \( W \) is Wages, Salaries and Supplements divided by employment \((WSS/E)\). Real output per worker is defined as

\[ ry = \frac{y}{P} = \frac{RY}{E} \]

where \( y \) (nominal GDP per worker) is \( Y/E \) (GDP, \( Y \), divided by employment) and \( RY \) is GDP in constant prices i.e. \( Y/P \).

Figure 2 shows real unit labour cost over the period 1965 to 1992. It is clear that real unit labour costs have followed a pattern different to that of real labour costs. They rose until 1975 but then proceeded downwards, with a reversal in the early eighties and at the end of the period. The fall in real unit labour costs was due to an increase in output per worker. Whether real labour costs or real unit labour costs are appropriate in explaining unemployment will be discussed below.

The level of real labour costs probably interacted with some other influences to increase unemployment over the period of the study. First, the level of economic growth was not high enough to absorb the additions to the workforce at the level of real labour costs which existed. Putting this another way, the high level of real labour costs may have been consistent with low unemployment if economic growth had been higher. This possibility is tested below.
Secondly, high real wages may have led to the introduction of labour saving capital equipment over time. In addition labour saving technological developments may have occurred autonomously. Such developments lead to an increase in the marginal product of capital so that unless wages fall, it is substituted for labour. In the present study this possibility is tested only by the inclusion of a simple time trend in unemployment.

Thirdly, capital equipment may have become more efficient so that its effective cost has been reduced (i.e. technical progress could have been capital augmenting). In the face of such a development and assuming no increase in output, a failure to reduce the real cost of labour input would lead to a reduction in employment.

Fourthly, unemployment would emerge if the rate of capital accumulation is low relative to the rate of growth of the workforce\(^3\). Figure 3 shows that there has been

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\(^3\) Friedman (1980, Ch. 8) presents a detailed analysis to support the view that U.S. productivity has declined relative to that in Japan because of the lower rate of capital accumulation in the U.S.
a marked decline in the proportion which public capital formation represents of gross domestic product. In this case there would be a fall in the marginal product of labour and if there is no corresponding fall in wage rates, an increase in unemployment.

![Graph](image)

**Figure 3** Public Capital Formation as a Percentage of GDP 1964-1992

Fifthly, the emergence of a high unemployment rate in the eighties and nineties could be part of a process of international factor price equalisation created by reductions in barriers to international trade\(^4\). Australian institutional arrangements prevented an adjustment in wage levels and so the adjustment occurred in employment. Gregory (1993) touches indirectly on this explanation when he explains the divergence between the US and Australian unemployment rates by the differences in the real wage experiences of the two countries. He concludes that it will take a decade for

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\(^4\) See Anderson and Findlay (1993) for a discussion of the effect of removing tariff protection of Australian industry. This is not an argument for retaining or increasing protection. As Anderson and Findlay point out, the problem is best solved by deregulation of industry and the wages system. In the long-run this combination of policies will lead to greater competitiveness and higher employment.
Australia to adjust real wages to an appropriate level (i.e. one which is consistent with lower levels of unemployment).

It will be seen that the critical element in these possible explanations of the increase in unemployment is the failure of wages to adjust to clear markets. Wages in Australia are inflexible downwards. The major reason for this inflexibility is the flawed legacy of Mr Justice Higgins which has burdened us with a wage fixation system which focuses almost entirely on questions of income distribution and "social justice" and pays little attention to the employment implications of its outcomes. (See Stone (1984) and Evans (1985) for a discussion of Justice Higgins' legacy and Henderson (1985) and McGuiness (1985) for an analysis of the role of the "Industrial Relations Club" in implementing it).

The Higgins' legacy provides part of the explanation of the question raised by Lindbeck and Snower (1986) — why the unemployed do not underbid the employed to obtain jobs. The award system prevents this reaction. Also, Lindbeck and Snower (1986) point out that "insiders" can be protected against "outsiders" by union efforts to increase the cost of replacing one of the former with one of the latter. Such costs arise from restrictions on firing employees and high severance payments. These restrictions on the ability of the unemployed to compete for jobs obviously reduces the productiveness of the economy. Some highly productive workers who lose their jobs by chance are prevented from re-entering the workforce and replacing less productive workers.

**Explaining Unemployment**

The first empirical equation includes RULC as a measure of labour costs and an output variable (RY i.e. real GDP) to reflect the impact of increased production on unemployment. The time trend has already been discussed.

The equation includes a lagged dependent variable to allow for the lag in adjustment to changes in the factors determining unemployment. For example, when wages
increase, employers do not react immediately by laying off workers. Similarly, when output increases, they do not immediately increase their workforce. An additional adjustment variable has been included in the equation in the form of the proportional change in the workforce (DLF). When there is a large inflow into the workforce, it is likely to take longer for it to be absorbed, so that there is a transitory increase in the unemployment rate.

All the equations reported below were estimated on the Microfit (3.0) program (Pesaran and Pesaran (1991)) using annual data for the period 1965 − 1992 taken from Foster and Stewart (1991) and recent editions of the Bulletin of the Reserve Bank of Australia. The unemployment rate used is the ABS survey data. $\bar{R}^2$ is the adjusted coefficient of determination and $h$ is the statistic suggested by Durbin (1970) for testing for first order autocorrelation when the equation includes a lagged dependent variable. The figures under the coefficients are t-statistics. One asterisk indicates significance at the five percent level and two asterisks significance at the one percent level.

$$\log UR = 59.7 + 5.802\log RULC - 2.535\log RY +$$

$$(6.39**) (8.09**) (4.27**)$$

$$0.480\log UR_{-1} + 0.133\text{TIME} + 4.802\text{DLF}$$

$$(5.82**) (5.76**) (1.79)$$

$$\bar{R}^2 = 0.978 \quad h = -1.60$$

Real unit labour costs and output are highly significant. The time trend is also highly significant, suggesting that over the sample period there were influences on the unemployment rate apart from the economic factors included in the equation. The mean lag is 0.92 years. There is no evidence of instability in a CUSUM of SQUARES test, but it must be remembered that this test is not strictly valid when the equation includes a lagged dependent variable.

It is also useful to estimate the long-run coefficients embedded in this equation directly by nonlinear regression. This approach allows us to obtain the correct (asymptotic) variances of the long-run coefficients. The equation to be estimated is:
\[
\log UR = A0 \times A1 + (1 - A1) \log UR_{-1} + A2 \times A1 \times TIME + 
A3 \times A1 \times \log RULC + A4 \times A1 \times \log RY + A5 \times A1 \times DLF
\]

The maximum likelihood estimates are:

- A0 = 114.8 (5.41**)  
- A1 = 0.520 (6.29**)  
- A2 = 0.256 (6.12**)  
- A3 = 11.17 (5.84**)  
- A4 = -4.88 (4.06**)  
- A5 = 9.24 (1.62)

As the definition (1) shows, real unit cost can be broken down into two components: real wages (\(w\)) and output per head (\(ry\)). The following equation also does this.

\[
\log UR = 62.8 + 5.385 \log w - 3.386 \log ry - 3.530 \log RY + 
(6.44**) (6.62**) (1.43) (3.21**)
0.393 \log UR_{-1} + 0.142 \ TIME + 4.874 \ DLF
(3.40**) (5.80**) (1.83)
\]

\(\bar{R}^2 = 0.978\)  
\(h = -0.69\)

These results suggest that the unemployment rate reacts to changes in real labour cost which arise from changes in real wages differently to those which arise from changes in output per head. Also, the productivity variable has a coefficient which is not significantly different from zero.

Is real unit labour cost an appropriate measure of the cost of labour? There are in fact two problems with it. First, it is actually a measure of the share of labour in national income. From (1), it can be seen that
\[ RULC = \frac{WSS}{E} \times \frac{E}{P} \times \frac{R}{Y} \]

which is the share of labour income in gross domestic product. The coefficient of this variable might therefore reflect the macroeconomic effects of the movements in factor shares rather than the impact of changes in labour costs.

The second problem arises from an extension of this view. Real unit labour cost results from the adjustments of businesses to changes in the labour costs they face as well as from wage rates. If labour costs increase, the firm can reduce unit labour cost by reducing employment which would increase the marginal product of labour. If the production function has the Cobb-Douglas form, a profit maximising firm will maintain a constant real unit labour cost. Real unit labour cost is therefore an endogenous variable which incorporates the adjustments (including reduced labour input) which firms make in response to changes in their labour costs. Much of the fall in real unit labour costs documented in Figure 2 resulted from increased unemployment and therefore cannot be interpreted as a sign of future increases in employment.

This suggests that real labour costs would be a better variable to use in an attempt to explain unemployment. But the exogeneity of this variable can also be questioned. First, are nominal wages exogenous? It appears that they are. Average labour costs are closely related to award wages\(^5\). Also, it is difficult to view the wage increases in the first decade of the sample period as anything other than exogenous.

Secondly, it could be argued that real wages are endogenous because prices can be raised to offset increased wage rates. As Gregory, Ho and McDermott (1988) show, nominal wage reductions in the nineteen thirties had no impact on real wages.

\(^5\) Average labour costs rose more rapidly than award wages at the end of the eighties. A major reason for this divergence was the loss of jobs amongst low income earners.
because prices also fell. Figure 1 suggests that this has not been the case over the sample period. The same conclusion is suggested by the following equation explaining the implicit GDP deflator (P):

\[ \log P = 2.07 + 0.0123 \times TIME + 0.3561 \log P_{-1} + 0.317 \log W - 0.372 \log ry + 0.230 \log PX \]

\[ (4.22**) \quad (4.20**) \quad (7.19**) \quad (6.73**) \quad (2.84**) \quad (6.90**) \]

\[ R^2 = 0.9998 \quad h = 1.12 \]

PX is the deflator for exports. This equation shows that there is a substantial lag in the adjustment of prices to changes in wages. That is, real wages can be affected, in the short-run at least, by changing nominal wages. The equation also indicates that prices are affected by changes in output per worker. For a given increase in wages, prices will increase less when there is a concurrent increase in output per worker. As discussed above, the latter could be achieved by reducing employment\(^6\).

The following equation therefore includes real labour costs rather than real unit labour costs. There is, however, little reason to abandon the idea that the share of wages (or profits) in GDP affects employment. This view has been incorporated in the present equation by replacing real output with the value of the gross operating surplus of companies divided by the implicit GDP deflator (RGC). This variable reflects the incentive for firms to expand production and employment and to the extent that internal finance is more attractive than external finance, the availability of funds for the purpose.

\(^6\) The movement in prices would also affect exports and imports unless it is offset by a movement in the exchange rate (i.e. purchasing power parity holds). There is little evidence that this is the case.
\[
\log{UR} = 12.1 + 0.341\log{UR_{-1}} + 0.092\, TIME + \\
(8.71**) + (4.07**) + (6.32**)
\]
\[
1.683\log{W/P} - 1.744\log{RGC} + 6.630\log{DLF} \\
(4.65**) + (6.64**) + (2.53*)
\]
\[\overline{R^2} = 0.980 \quad h = 0.32\]

Output per worker is not significant when it is added to this equation. When the real wage variable is broken into two parts, nominal wages and prices, there is little increase in the explanatory power of the equation.

Long-run coefficients and their correct asymptotic standard errors can be obtained by obtaining the maximum likelihood estimates of the parameters in

\[
\log{UR} = A_0 + A_1 + A_2\log{UR_{-1}} + A_3\log{W/P} + A_4\log{RGS} + A_5\log{DLF}
\]

This gives

\[
\begin{align*}
A_0 & = 18.4(8.06**) \\
A_1 & = 0.659(7.84**) \\
A_2 & = 0.140(7.97**) \\
A_3 & = 2.556(4.43**) \\
A_4 & = -2.648(6.40**) \\
A_5 & = 10.07(2.35**) \\
\end{align*}
\]
\[R^2 = 0.984\]

Two other variables were tested in the equation. The first was the terms of trade. The Australian economy is highly dependent on overseas trade and historically it has tended to do well when the terms of trade are favourable. This variable does not, however, have a significant coefficient when it is added to the equation. Perhaps this influence is already reflected through real GDP and the implicit GDP deflator.

Secondly, the Treasury note rate, in both lagged and current form, was added to the equation. It was insignificant, suggesting that monetary policy (as measured by short-term interest rates, at least) has no direct effect on unemployment. Once again this factor could have an indirect influence through real GDP.
Some Experiments

It is useful to carry out some simulations with the first equation reported in the previous subsection in order to examine the sensitivity of the unemployment rate to changes in some of the variables determining it. First, Figure 4 compares the actual unemployment rate with the value predicted by the equation under the assumption that real wages increased by one percent per annum over the period 1964 to 1992. Such an increase represents a significant improvement in living standards, but it is well below the increase which actually occurred over the period in question (an average increase of 1.7% per annum).

Figure 4  Unemployment Rate Resulting From a Lower Increase in Real Wages

Figure 4 shows that unemployment would have been kept at low levels under the alternative regime assumed. This result is also suggested by the high long-run elasticity of the unemployment rate with respect to real unit labour costs obtained from the non-linear equation reported in the previous subsection.
Moreover, the experiment takes no account of the impact of lower real wage growth on the other variables entering the equation and the coefficients of the equation. Although the statistical analysis does not encompass these effects, it is worthwhile enumerating them here.

Lower real wage growth may have reduced the extent to which capital was substituted for labour over the sample period. In terms of the equation, this could have meant a smaller coefficient for the time trend i.e. the technological progress creating the positive trend in the unemployment rate might not have been completely autonomous. Some of it may have been induced by higher real labour costs. In the long term this substitution means a lower demand for labour but in the short term it could mean increased investment and, therefore, economic activity. It should be noted, however, that Australia has a high propensity to import sophisticated investment goods so that the major impact was probably on imports.

It is sometimes suggested by union leaders that higher wages lead to increased expenditure, increased output and, therefore, increased employment. The propensity to consume out of wage income is likely to be higher than the propensity to consume out of other forms of income so that this channel of influence probably does exist, but there are others which were enumerated at the beginning of the first part of this section. The likely net outcome of these effects is reduced income and increased unemployment.

The second experiment, the results of which are reported in Figure 5, examines the effect of higher economic growth on unemployment.

Specifically, it has been assumed that real gross domestic product grew at a rate one percentage point higher than the actual growth rate (i.e. 4.6% p.a. instead of 3.6% p.a.). In the earlier part of the period this assumed growth rate is below the actual growth rate so that the unemployment rate is above the value which occurred. Through the eighties, however, unemployment is considerably lower. In fact it at no stage exceeds 6.0% of the workforce. It should be noted that this experiment makes
no change in real unit labour cost as a result of higher labour productivity likely to be related to higher growth.

These experiments indicate the basic source of the unemployment problem — increasing real wages in excess of the level justified by economic growth. They show that if productivity can be increased autonomously, the current level of real wages can be sustained at lower levels of unemployment. If this cannot be done, unemployment can be reduced only by reducing real wages.

An Econometric Model to Examine the Effect of Nominal Wages

Table 1 combines some of the equations reported earlier with an additional equation (which explains the share of profits in national income) into a simple econometric model. The objective of this model is to test the effect of a change in nominal wages on the unemployment rate.
The model has been simulated using the ECOLAB program written by John Perkins. Results for the unemployment rate from two simulations are shown in Figure 6. The first resulted from a dynamic simulation based on historical data. It shows that apart from missing the fall in the unemployment rate in 1989, the model tracks its movements fairly well.

The second series shown in Figure 6 indicates the effect on unemployment of removing the large nominal wage increase which occurred in 1975. No other changes have been made. It is clear that the lower nominal wages would have resulted in a substantial reduction in unemployment, a reduction which would have persisted to the present time albeit to a diminished extent. This experiment suggests that a reduction in nominal wages leads to a reduction in unemployment.

![Figure 6: Effect of Removing 1975 Nominal Wage Increase.](image)

Note: UR+ is the solution based on actual data and UR* is the solution when the 1975 wage increase is removed.
Table 1: An Econometric Model of Unemployment, Wages and Prices
1965-1992

Unemployment

\[
\log UR = 12.1 + 0.341\log UR_{-1} + 0.092\, TIME + \\
(8.71**)
\]

\[
1.683\log W/P - 1.744\log RGC + 6.630\, DLF
\]

\[
(4.65**)
\]

\[
(6.64**)
\]

\[
(2.53*)
\]

\[
\bar{R}^2 = 0.980 \quad h = 0.32
\]

Prices

\[
\log P = 2.07 + 0.0123\, TIME + 0.356\log P_{-1} + \\
(4.22**)
\]

\[
(4.20**)
\]

\[
(7.19**)
\]

\[
0.317\log W - 0.372\log ry + 0.230\log PX
\]

\[
(6.73**)
\]

\[
(2.84**)
\]

\[
(6.90**)
\]

\[
\bar{R}^2 = 0.9998 \quad h = 1.12
\]

Gross Operating Surplus of Companies

\[
\log (RGC/RY) = -6.9 + 0.0279\log (RGC/RY)_{-1} + 0.0157\, TIME - 0.995\log W/P
\]

\[
(5.75**)
\]

\[
(1.87)
\]

\[
(3.40**)
\]

\[
(4.07**)
\]

\[
\bar{R}^2 = 0.823
\]

Estimated with first-order autoregression process:

\[
A(1) = 0.739(5.81**)
\]

Employment

\[
E = (I - UR) \, LF
\]

Gross Domestic Product

\[
Y = E.W + GC + OY
\]

\[
OY \text{ is other income}
\]
2. Economic Policies to Reduce Unemployment

Wages Policies

The results discussed in the previous section indicate that wages policy plays a critical role in dealing with unemployment. Figure 1 shows that the Labor Government, through various versions of the Accord, managed to reduce real wages in the first part of its administration. This reduction was, however, quite minor compared with the earlier increases and it was certainly insufficient to prevent the continuation of high levels of unemployment. Real wages increased again at the end of the eighties, getting close to the peak reached in 1983. Nominal wages increased steadily over the whole period.

What effect are the Government's current policies likely to have on labour costs? There are several elements which must be considered here. First, the Superannuation Guarantee Charge (SGC) has been imposed on employers so that is represents an increase in labour costs. It also builds in future increases. It must, therefore, lead to higher unemployment. The impact will be largely on lower paid workers because most highly paid workers already benefit from employer contributions to superannuation.

Secondly, the training levy also represents an increase in labour costs which will increase unemployment. Once again, the impact is likely to fall mainly on lower paid workers because the majority of higher paid workers are already receiving training. The policy must also be questioned on the basis of its indiscriminate nature. Many small businesses forced to make these expenditures cannot make productive use of them — in their particular activity, training does not provide a return large enough to justify the expense. Putting this another way, the businesses would not have made the expenditure if they had not been compelled to do so. In the light of this, the Levy can be justified only on the grounds that the training provides benefits to the general community which are not reflected in the return earned by the businesses themselves. This proposition is at best doubtful. Even if it is true, there is a question of whether
the training is best provided at the place of employment. Also the training levy has undoubtedly led to waste, with various types of fringe benefits now disguised as training.

Thirdly, there is a push for wage increases not justified on the basis of higher productivity. The Government's resistance to such increases has been weak. The results of the previous section indicate that these increases will lead to higher unemployment. The targeting of the increases towards lower paid workers is yet another factor leading to high unemployment in this segment of the labour market.

The Government's general wages policy, based on enterprise bargaining in which wage increases are linked to improvements in productivity, is at least in one respect in line with the analysis of the previous section. Wage increases related to productivity increases will not lead to increases in real unit labour cost although they will do nothing to reduce the latter to levels consistent with significantly lower unemployment. If, however, increases in productivity arise from reducing the workforce, wage increases will simply lock in the unemployment. Also, as the Appendix shows, such an approach to wage fixation could create a disincentive for investment. Businesses are less likely to install new capital equipment if the resulting increase in output per worker will mean a higher wages bill.

**Monetary Policy**

Monetary policy has been eased in the nineties in an attempt to stimulate the economy and thereby reduce unemployment. This is a natural reaction in that the current high level of unemployment must be attributed in part to the low rate of economic growth created by the tight monetary policy in force at the end of the eighties. This point is reinforced by the results reported in Figure 5. Nevertheless, the present recession cannot be attributed entirely to the tight monetary policy. First, as shown by Figure 1, real wages increased in the final years of the eighties. Secondly, commodity prices have fallen since 1988/89. The RBA commodity price index (USD terms) was 81.8 in July 1993 as against 130.1 in 1988/89. Thirdly, it is
likely that the AUD was overvalued at the end of the eighties. In September 1990 it reached 0.8265 against the USD and 61.6 on the TWI. The July 1993 figures were, respectively, 0.6834 and 50.6. The major reason for the high value reached in 1990 was the focus of the foreign exchange market on the high interest rates of the time.

It should also be noted that the results of the previous section do not suggest that monetary policy is an appropriate policy instrument to be assigned to unemployment. There appears to be no direct relationship between short-term interest rates and the unemployment rate. In fact, the major conclusion of the earlier discussion is that wages policy is the most useful instrument to deal with unemployment.

More importantly, the experience of the last five years suggests that monetary policy may be asymmetric in its impact, a tight monetary policy being very effective in slowing economic activity (although with an unpredictable lag) but an easy monetary policy having little effect on economic activity. One explanation for this apparent asymmetry in the current situation arises out of the impact of monetary policy on firms' cash flows.

At the end of the eighties many firms had very low cover ratios\(^7\) (see Valentine (1991b) and Reserve Bank of Australia (1993)). Higher interest rates put many of them in a position where their cash flows no longer covered their commitments, forcing some into bankruptcy and others to curtail their activities. The lag in the reaction to the tight monetary policy can be explained by the fact that most businesses did not have to react immediately to the reduction in their free cash flow.

Interest rate reductions have given businesses additional free cash flow. As Reserve Bank of Australia (1993) documents, this has not been used to increase investment but rather to pay off debt, a process encouraged by taxation changes which have made debt financing relatively less attractive and the reduced rate of inflation. More importantly, increased business saving without increased investment is also a reaction

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\(^7\) The cover ratio is the ratio of earnings to interest payments.
to the perceived absence of potential sales. The asymmetry arises because the tightening of monetary policy produced a compulsion for businesses to contract their activities whereas the easing of monetary policy simply created conditions favourable to expansion.

This argument also suggests that measures such as reductions in corporate tax rates will also have little effect on economic activity. One argument in their favour, however, is that they will reduce saving less than other types of tax reduction.

Another reason why interest rate reductions have failed to stimulate activity is that businesses expect interest rate increases in the future. This view is supported by the sharply positive yield curve which has ruled in funds markets since the easing of monetary policy. Various objective factors could create this expectation. For example:

- the large Commonwealth budget deficit; and

- resulting high current account deficits which are likely to increase as economic activity picks up.

3. Non-Economic Policies to Deal with Unemployment

There are many policies of this type being canvassed at the moment, but this discussion will be restricted to two major examples:

- training; and

- job sharing (increased part-time work).

The Government has put considerable emphasis on training as a solution to the unemployment problem. One motivation for this approach is that there are still some vacancies for skilled workers in spite of the high unemployment rate. This avenue,
however, cannot in itself provide employment for more than a small proportion of those currently unemployed. It also represents a short-term "solution" in that it reduces the number of young people recorded as unemployed. This leads to an underestimation of the unemployment problem which undermines attempts to develop long-term policies to deal with it. As a long-term solution it suffers from some serious weaknesses, namely:

- it adds to the budget deficit;
- it does nothing about the large number of middle aged workers who have become unemployed, a problem the social consequences of which have not yet begun to emerge;
- nothing has been done to create jobs for the newly trained when their education is completed. There appears to be an [incorrect] assumption that training creates a demand for its output;
- related to the previous point, little planning has been done to ensure that training meets the likely future needs of industry; and
- the expansion of training has diluted the quality of education.

Some of these points raise the question of whether additional training which raises the quality of the workforce increases the demand for labour. Such training can be viewed as increasing the amount of "effort" (output per worker) obtained at current wage levels. It seems that this must increase firms' demand for labour input, but this does not necessarily imply an increase in the number of workers employed\(^8\). In order to ensure this reaction, it would be necessary to promote increased demand.

\(^8\) It can be shown that if a firm is maximising profits, an increase in the efficiency of labour will lead to higher employment. If, however, the firm is minimising the cost of producing a given output, this is not the case.
The final point questions the extent to which the quality of the workforce is actually being improved. It can be illustrated by the deterioration of the quality of Australian universities. Australia had been moving to the point where all university staff had Ph.Ds. This trend has now been sharply reversed. Most university staff do not have Ph.Ds and a substantial proportion have no more than a first degree. It is not surprising that research output is low. [See DEET (1992).] Extension of educational facilities has also resulted in increased bureaucratisation which always reduces the quality of the final product.

Also, it is unrealistic to believe that all young people can be educated or trained to a high level. Note that this does not mean that things cannot be arranged so that they all obtain "qualifications". This can be done by simply lowering standards to the appropriate level. Rather than attempting to make all workers skilled or nominally skilled, it would be more helpful to expand the opportunities for unskilled employment. One way of doing this would be to encourage the industries which provide a great deal of unskilled employment, such as the tourist industry, by removing impediments to their expansion, including penalty rates and restrictive work practices.

Increased job sharing (part-time work) is often justified in positive terms as a movement to a society with increased leisure and expanded opportunities for personal development. In fact, it represents a movement to a society with lower incomes, increased poverty and severe constraints on personal development. It is not the "wave of the future" (or, at least, not of a desirable future) as is indicated by the relatively low proportion of the workforce in part-time employment in such countries as Japan and Singapore (see Sloan (1993)).

Sharing work involves some inefficiencies and costs. In many occupations the switchover costs are substantial. For example, there is a considerable amount of

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9 See Green and Grattan (1993, pp. 185-187) for a balanced evaluation of the Labor Government's education reforms.
information on various aspects of the job which must be passed on. There would also be increased overhead costs arising out of the need to keep records for two or three workers where in the past there was only one.

Most importantly, job sharing means income sharing i.e. reduced incomes. The earlier discussion indicated that the unemployment problem could be solved by a general reduction in incomes (lower real wages). This is a fairer and surer way of achieving the same objective. Why waste time with relatively ineffectual and rough approximations to this solution?

4. **Conclusion**

This paper provides some statistical support for the view that the present high level of unemployment can be explained by fairly obvious economic factors. It is not an Act of God or a problem which is the unavoidable consequence of overseas events beyond our control, but a problem which has been created by the poor economic management of successive governments. We have attempted to maintain a real wage rate inconsistent with our economic growth. This diagnosis suggests the cure — we must either reduce real wages or grow more rapidly. In either case we will need to abandon our fixation with "distributive justice" and pay more attention to expanding productivity and increasing economic growth.

The counterfactual experiments performed in this paper lead to the same conclusion as the earlier ones reported in Valentine (1980) — unemployment can be substantially reduced by a reduction of the real wage. Valentine (1988) also concludes that the employment effects of the depression of the thirties would have been minimised by a policy which related wages to unemployment thereby replicating a market outcome. There is a clear choice between wage flexibility and employment flexibility and the former is likely to create a better social outcome than the latter. That is, social justice will be better served by a wages policy which at least mimics market outcomes than one which attempts to create an artificial income distribution.
The results also indicate, however, that a higher rate of economic growth would have allowed the actual levels of real wages to be sustained at much lower levels of unemployment. This leads to the following conclusion, taken from Valentine (1980) and cited by Powell (1985):

"These results indicate that a successful policy to deal with unemployment would combine wage restraint with a moderate expansion of government spending. A similar conclusion was reached in a study of the depression period. It is unfortunate that those people who support one of these policies are usually opposed, for reasons which are largely ideological rather than analytical, to the other one."

The concern with the second leg of this policy prescription (expansionary fiscal policies) is its impact on the current account deficit. As noted by Valentine (1991a, p.10) the stimulatory effect of the standard Keynesian policy of deficit financing may be undermined by an increase in the current account deficit. This is precisely why expansionary fiscal policies need to be combined with wage restraint. The increase in competitiveness has positive effects on the current account. Powell (1985) points out that this view is also in line with the analysis of Swan (1955) on the need to maintain a balance between domestic demand and costs in order to ensure a stable level of employment without creating balance of payments pressure. In addition, fiscal expansion will encourage business to believe that sales are about to increase so that they will react to lower wages by increasing employment rather than by paying off debt.

One subsidiary aspect of the present discussion is worth remarking on. A misplaced concern for social justice has led us to adopt policies which have created unemployment especially amongst lower income earners. Wage increases biased towards low incomes will have this effect. It also seems likely that the Government's SGC and training levy will have a greater impact on low income workers than on those who are more highly paid.
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Appendix: The Effect of Wage Increases Based on Productivity

Consider a firm which seeks to maximise profits and which is faced with the following situation:

Production function \( Q = f(L,K) \)

- \( Q \) = output
- \( K \) = capital input
- \( L \) = labour input

Demand: \( Q = Q(P) \)

Costs:
- Cost of capital \( c \)
- Cost of labour \( w = w_0 + \alpha \frac{Q}{L} \)

That is, it is assumed that the wage rate increases with labour productivity.

Profits (\( \pi \)) are given by

\[
\pi = P.Q - cK - (w_0 + \alpha \frac{Q}{L})L \\
= P.Q - cK - w_0L - \alpha Q
\]

\[
\frac{\delta \pi}{\delta L} = P \cdot \frac{\delta Q}{\delta L} + Q \cdot \frac{\delta P}{\delta Q} \cdot \frac{\delta Q}{\delta L} - w_0 - \alpha \frac{\delta Q}{\delta L} = 0
\]

\[
\frac{\delta \pi}{\delta K} = P \cdot \frac{\delta Q}{\delta K} + Q \cdot \frac{\delta P}{\delta Q} \cdot \frac{\delta Q}{\delta K} - c - \alpha \frac{\delta Q}{\delta K} = 0
\]
The second equation can be rewritten:

$$\frac{\delta Q}{\delta K} = \frac{c}{P + Q \frac{dP}{dQ} - \alpha}$$

For a given cost of capital $c$, $\frac{\delta Q}{\delta K}$ has to be greater the larger $\alpha$. If, as is likely (and as required by the second order conditions for a maximum), $\frac{\delta Q}{\delta K}$ is a decreasing function of $K$, this means a lower value of $K$ (capital input). Note that as output declines, $\left(P + Q \frac{dP}{dQ}\right)$ which is marginal revenue increases. The higher the elasticity of demand, therefore, the higher the value of $K$ for a given value of $\alpha$.

This analysis suggests that a wages outcome based on the equation above is likely to reduce output and investment and, therefore, employment.

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