UNEMPLOYMENT: CAUSES AND POLICY OPTIONS

INTRODUCTION AND BACKGROUND

This article is based on a number of papers written within the Bank's Research Section which examine various aspects of New Zealand's labour market. The papers attempt to ascertain the causes of (and analyse potential solutions to) the increased unemployment in New Zealand since 1976. They discuss in particular the direct determinants of labour supply, labour demand and the nature of domestic wage determination procedures and examine various policy options which may assist in reducing unemployment. An important point to emerge from this body of research is that disequilibrium wage setting behaviour has been a crucial determinant of the level of unemployment in recent years. The relationship between real wages and unemployment is examined in more detail later in the article but first some background on recent developments in both unemployment and labour supply is provided.

The number of registered unemployed rose from 4,500 in December 1976 to 50,200 in December 1981 while the population census measured unemployment at 25,500 in April 1976 rising to 60,800 in April 1981. By either definition, therefore, unemployment is shown to have increased markedly, and while the registered unemployment figures are not an entirely satisfactory measure of unemployment (in that some people searching for jobs fail to register as unemployed) they do reveal the trends regarding increases in unemployment and discussion in this article focuses on this measure. Important labour market data are shown in table 1 for the December years 1961-1980, the period the research covers, while any other data mentioned in the article is Reserve Bank model data.

Column 1 of table 1 reveals that the increase in unemployment (U) since 1976 has been unprecedented (in the last two decades at least) both in terms of the level and the duration of the unemployment increase. The changes to labour supply (LF) over the same period are shown in column 2 and while the labour force is shown to have increased over the final four years by 59,000 (compared with the contemporaneous increase in unemployment of 42,100) the average annual labour force growth during these years (14,975) is actually shown to be less than the 1961-1980 average annual growth (16,885). Hence while labour force growth has exceeded the growth in unemployment since 1976, the growth itself has not been abnormal except in its constituent parts. Column 3 shows that the average annual growth in the population of working age (PWA) in the four years 1976-1980 (at 16,525) was slower than the average growth (30,455) in the 1961-1980 period. As table 2 shows, however, this slow recent growth has primarily been due to a large migration outflow that has largely offset the higher natural increase in the population of working age.

Indeed the average natural increase in PWA has risen throughout the last decade largely as a result of the 'baby-boom' of the late 1950s and early 1960s, which has placed a greater strain on the labour market in the 1970s. This strain appears to have been eased, at least in aggregate, by the migration outflow which in itself is likely to have been a consequence of both increased domestic unemployment and reduced domestic living standards compared with Australia.

While population growth has been slower than average since 1976, the proportion of the population offering themselves for jobs (shown in column 4 in table 1) increased in each of the final three years which had the effect of increasing the labour force between 1977 and 1980 by 37,000 people. A large proportion of this increase is no doubt due to an increase in female labour force participation. In addition, the 1978 decline in real after-tax wage payments per employee may have encouraged additional household members to seek work so as to maintain the level of household income. Despite these factors, the participation rate increase over these

TABLE 1: DATA

Year (as at Dec.)	(1) U	(2) ΔLF	(3) ΔPWA	(4) LF/PWA	(5) ΔEP	(6) ΔEG
1961	0.4	18.2	36.5	.4244	18.0	0.1
1962	0.9	13.7	37.4	.4229	7.2	6.0
1963	0.5	22.2	35.1	.4278	19.0	3.7
1964	0.5	27.2	35.5	.4355	22.8	4.4
1965	0.3	26.7	33.7	.4432	22.1	4.9
1966	0.5	21.7	22.4	.4504	15.4	6.1
1967	5.8	0.4	21.1	.4449	-8.6	3.7
1968	4.7	4.9	20.8	.4423	4.2	1.8
1969	1.7	20.8	24.8	.4481	20.8	2.9
1970	1.5	25.5	34.0	.4541	19.2	6.5
1971	4.6	10.8	31.3	.4522	3.2	4.4
1972	5.0	14.3	45.4	.4487	6.5	7.4
1973	1.1	31.5	51.2	.4533	24.9	10.5
1974	1.0	22.4	56.3	.4517	13.3	9.1
1975	4.3	12.4	29.0	.4513	-6.2	15.3
1976	4.5	5.1	28.5	.4473	2.3	2.6
1977	12.5	-0.2	15.4	.4437	-10.1	1.9
1978	22.0	26.8	13.4	.4543	11.0	6.3
1979	21.7	13.6	5.3	.4599	8.8	5.1
1980	46.6	19.7	32.0	.4624	0.6	-5.8

All data except (LF/PWA) is expressed in terms of 000's of people; Δ represents the annual change in the series.

U is registered unemployment (source: Monthly Abstract of Statistics).

PWA is the population aged between 15 — 64 years (source: Statistics Department).

LF is the full-time labour force (= EP + EG + U) (source: Labour Department half-yearly surveys).

EP is full-time private sector employment (including subsidised employees).

EG is full-time private sector employment (including non-private sector employees on special work schemes).

TABLE 2: IMPACT OF MIGRATION AND NATURAL INCREASE ON POPULATION OF WORKING AGE (PWA)[1]
Annual Averages, 000 People

Period	*Change in PWA*	*Net Inward Migration of PWA*	*Natural Increase in PWA*
1961–65	35.6	12.9	22.7
1966–70	24.6	1.5	23.1
1971–75	42.6	9.6	33.0
1976–80	18.9	-22.8	41.7

1. Population of working age is the total population aged between 15 and 64 years.

three years is still somewhat abnormal in that, historically, the participation rate has declined during periods of increased unemployment as people are discouraged from seeking work when the employment situation is tight. It appears from the recent evidence, however, that this effect may not be significant when unemployment is of a longer term nature than that traditionally experienced in the post-war period.

Certainly in the current recession both the participation rate and the natural increase in the population of working age have caused the labour force to expand with resultant pressure on unemployment but the migration outflow has been such that labour force growth as a whole has not abnormally affected the unemployment rate. This suggests that the level of unemployment which has emerged in recent years has been the result of factors bearing on the *demand* for labour rather than being a result of abnormal increases in labour supply.

EMPLOYMENT

Employment growth since 1974 (in the case of the private sector) and since 1975 (in the case of the public sector) has been extremely slow when compared with historical rates of growth. Columns 5 and 6 of table 1 present the annual growth in both private and public sector full-time employment and from this it can be seen that private sector employment growth has averaged only 1,067 persons annually since 1974 compared with the average annual growth in the previous fourteen years of 13,429. Similarly annual public sector employment growth averaged 2,020 in the last five years compared with growth in the previous three years averaging 11,633 and growth in the twelve years prior to that averaging 4,325. While the public sector's employment growth in the final five years has not been as great as in previous periods this follows a three year period in which its growth was extraordinary by historical standards so that public sector staff levels by 1980 were of a size that could reasonably have been expected had the growth rate of the 1960s been maintained steadily throughout the 1970s. It is private sector employment growth, then, that has undergone the greatest shift and has had the more influential effect on unemployment.

Growth in output is a major determinant of employment growth and the exceptionally high private sector output growth in 1973 and 1974 (10.3 per cent and 5.4 per cent respectively) appears to have been a key ingredient in the employment increases of those years. At the same time real company profits (i.e. the value of profits deflated by output prices)[1] reached their highest level ever in 1974 so that companies were encouraged to employ more labour and their cash flow positions were such that they could finance the increase in employment.

Real company profits fell after 1974, however, so that in the following three years they average only 92 per cent of their 1974 level while in the 1978-80 period they averaged only 82 per cent of that level. Econometric evidence from research carried out in the Bank[2] suggests that this 18 per cent fall in profitability between 1974 and 1980 may have induced a 3 per cent decline in private sector employment which would have reduced employment in 1980 by approximately 19,000 jobs (or 40 per cent of the unemployment level in that year).

Furthermore, output also decreased after 1974 and by 1980, despite some growth since 1977, private sector output remained 1.9 per cent below its 1974 peak thus inducing a further 1.5 per cent reduction in employment (approximately 9,500 jobs) according to the econometric evidence already cited. There is, however, a two-way interaction between employment and outputs so that if desired employment levels decline so too will output, so that the decreased output levels since 1974 may have been a result, rather than the cause, of decreased employment levels.

The fall in real profits is already shown to have been a likely cause of decreased employment. Increased real wages are likely to have contributed also to decreased output via two mechanisms. The first of these is the effect that increased real wages have in increasing the wage share (i.e. the proportion of gross domestic product distributed as wages and salaries) and thus reducing the profit share, which in turn induces an employment and output decline. The second, more direct, effect is due to the wage rate being the price of labour which is compared by the firm to the cost of alternative inputs (e.g. capital) and to the price received for output. If the wage rate rises relative to these other prices, firms will substitute capital for labour or, if the level of prodution is no longer economically viable (i.e. wages rise relative to output prices), employment and production will decrease to the level where production is again profitable.

Real wages as a cost to the employer (i.e. wage payments per employee deflated by output prices) increased by 30 per cent between 1969 and 1974. The level has decreased thereafter, but the 1980 real wage level remained 24 per cent higher than in 1969. Productivity, meanwhile, had grown by only 10 per cent in the intervening period.

The effect of this growth in real wages has been to reduce the demand for labour. The econometric evidence suggests that if 1980 real wages were only 10 per cent higher than their 1969 level (i.e. if real wage growth had just kept pace with productivity growth throughout the 1970s) then employment would have been 8.5 per cent higher in 1980 than was in fact the case so that 54,000 more people would have been employed. This total exceeds the registered unemployed total for 1980 by 7,400 and demonstrates the vital role that real wage changes have probably played in determining recent levels of unemployment.

An examination of the paths of real wage changes and employment growth since 1974 is instructive in demonstrating the important link between the two series. The 17 per cent increase in real wages in 1974 appears to have significantly affected employment growth as despite the abnormally large increase in both output and profits, employment growth in that year was marginally below the average growth since 1961. Furthermore, private sector employment actually fell in 1975 possibly following some lagged reaction to the wage rises of the preceding year which were only partially offset (by 3 per cent) in 1975. Real wages fell sharply (by 10 per cent) in 1976, while employment increased by 2,300. But with the real wage increase of 5.4 per cent in the following year, employment once again fell by 10,100. Real wages in 1978 and 1979

1. It should be noted that this figure refers to conventional profit figures and not to profits calculated using inflation adjusted accounting procedures. The fall in profits discussed in the article would be shown to have been even more severe if such procedures were adopted.

2. *Employment and other private investment*: RBNZ discussion paper G81/4, A. Grimes.

declined again (averaging 8.1 per cent below their 1977 level) and employment in those years increased by 11,000 and 8,800 respectively. The 10.9 per cent increase in real wages in 1980 had the effect of limiting the employment increase in that year to just 600. While profits, output and other factors have undoubtedly also played major roles in determining employment fluctuations during this period, the evidence suggests that real wage levels have been an important determinant of employment and their effect has probably predominated over the other factors.

The cause of this real wage growth will be examined in the following section but before turning to this a clarification of the nature of 'real' wages should be made. When discussing real wages in this section output prices have been used as a deflator for nominal wages as it is the relationship between nominal wages and output prices that is of concern to the employer. To the employee, however, the relationship between nominal wages and consumer prices is of more relevance while the effect of taxation changes on disposable income is also of importance. If, therefore, a deviation between output and consumer price inflation emerges, or if taxation rates increase there exists a likelihood that employers and employees will desire different rates of wage increase to maintain their previous position. The effect that this factor has had on wage determination in New Zealand is discussed below.

WAGE DETERMINATION

Wage inflation is not necessarily detrimental to employment unless it exceeds the combined rate of output price inflation and productivity growth. Most research into domestic wage determination procedures suggests, however, that while productivity may be taken into account, consumer prices predominate over output prices as a determinant of wage inflation. Discussion of wage determination is complicated by the existence of different measures of wages with data for award wage rates (i.e. legal minimum hourly wage rates set by arbitration for industries and occupations), prevailing wage rates (i.e. actual wage rates paid per hour) and earnings (i.e. wage payments per week, month, etc.) being available. Of these, earnings data may be subject to the influence of fluctuations in hours worked per week, while award wage rates are not necessarily adhered to except to provide a floor below which wages cannot fall, so that the most reliable measure of wage rates is given by prevailing wage rates. Evidence suggests, however, that award rates do play an important part in determining prevailing rates and so it is important to examine both the determinants of award wages and their relationship to prevailing wages.

In an econometric examination of wage inflation over the period 1962-1979[3], the alternative influences of consumer and output prices on aggregate award wages were tested together with the influence of taxation, profit and productivity changes. In addition the level of unemployment and strikes were considered as possible influences as were incomes policies, equal pay legislation and the rewriting of awards (so as to bring award wages into line with prevailing wages) in the early 1970s. Of these only four variables were found to have significantly affected award wage rates. The rate of consumer price inflation (but notably not the rate of output price inflation), productivity changes, the implementation of equal pay and the rewriting of awards were found to have determined the path of award wage rates with award wages incorporating the total amount of consumer price inflation plus 70 per cent of the change in productivity. The implementation of equal pay had the effect of adding 1.7 percentage points to the annual wage inflation rate between 1974 and 1977 while the rewriting of awards led to an increase in award wages of 13.2 per cent in 1971 and 72. Incomes policies, strikes, the level of unemployment and profits were found to exert no significant influence on award wage inflation.

Inflation in prevailing wage rates, in turn, was found to incorporate all award wage rate inflation (except for 3.2 per cent of the award wage increase attributed to the rewriting of awards) plus an additional productivity effect together with increases sufficient to fully compensate for taxation increases. These additional effects, in conjunction with award wage inflation, resulted in prevailing wage inflation being determined by the full amount of consumer price inflation, slightly more than the full amount of productivity changes, the full amount of taxation increases plus the effects of the rewriting of awards and the implementation of equal pay. Thus for the employee, real disposable income rose throughout the period at a rate equal to or slightly in excess of productivity growth with a boost of approximately 10 per cent from the award rewriting and an additional increase in the mid-1970s for female employees.

For employers, however, not only did these final two factors increase wage rates above their equilibrium level (i.e. the level that would sustain employment), but also the incorporation of taxation increases into wages and the implicit indexation of wages to consumer prices during a period of terms of trade decline led to wage rates in excess of equilibrium. While the effect that increased taxation rates have in creating a wedge between employers' and employees' desired wages is clear, the terms of trade effect is less obvious. It stems from the greater impact of export prices on output relative to consumer prices and the greater impact of import prices on consumer relative to output prices. With a terms of trade decline either export prices decline, in which case output prices decline relative to consumer prices, or import prices rise, in which case consumer prices rise relative to output prices. Either or both of these occurrances therefore cause employers to desire a rate of wage increase (equal to output price increase) that is less than the rate of consumer price increase. Given the terms of trade decline faced by New Zealand since 1974 therefore, the apparent indexation of wages to consumer prices has caused wages to increase at a rate incompatible with the maintenance of full employment.

At the individual industry level there is also evidence to suggest that wage determination procedures have been such that equilibrium wage rates are not the principal guide to the setting of actual wage rates. A disaggregated analysis shows that instead of economic conditions within the particular industry being the major determinant of wage inflation in that industry, wage rates in most industries have been determined principally through relativities with other industries, with the metal industry appearing to be a key industry in terms of establishing a benchmark for others to follow. On dividing the economy into seventeen industrial groups and calculating correlation coefficients between the wage rate of each industry with that of each other industry for the 1960-1979 period it was found that the

3 *Wage inflation a New Zealand perspective*. RBNZ discussion paper G81/26, A. Grimes.

lowest correlation coefficient between any two industries for prevailing wage rates was 0.993 while for award wages the lowest correlation coefficient was 0.995. (A coefficient of unity implies perfect correlation between the two series while a coefficient of zero implies no correlation.)

Perhaps of even more significance was the high correlation of inflation rates between industries with the correlation coefficients for prevailing wage inflation between industries ranging from 0.708-0.988 with a mean value of 0.901. Similarly the correlation coefficients for award wage inflation averaged 0.909. It appears at the industry level, therefore, that relativities exert a major influence on wage determination with the majority of industries following the wage increases of key industries which in turn appear to set their wage increases in terms of the aggregate influences of consumer price, productivity and taxation changes.

The implication of both the aggregate and the disaggregated results is that the wage determination system in New Zealand does not in practice accord the equilibrium wage rate, that is the wage rate that will balance the demand for labour with the available supply of labour, a significant role in setting wage rates. Instead institutional considerations predominate with the result that relativities are maintained between industries (thus causing employment decreases in industries that are not as profitable as the leading industries) while in the aggregate, wages increase at a rate desired by employees even though this has been at the expense of employment. This analysis therefore suggests that if there is a desire to return to full employment then some alterations to the present wage determination system will be required. In particular there appears to be a need to introduce procedures to ensure that future wage increases do not outstrip the rate of increase warranted by productivity and output price increases.

POLICY OPTIONS

An alternative approach to solving the unemployment problem that is often advocated involves using aggregate demand management policies. In a study of labour market policy options conducted using an extended version of the Reserve Bank's econometric model[4], fiscal policy alternatives were compared with alternative wage reduction policies to examine their relative effectiveness in boosting employment and reducing unemployment. As the effectiveness of the various policies are not directly comparable (as the relative sizes of a particular fiscal policy and a particular wage policy cannot be compared) the effectiveness was measured by the number of extra jobs created relative to any change in the balance of payments.

The first fiscal policy examined was the effect of increasing real non-wage government expenditure by 5 per cent (between 1974 and 1979) while holding government employment constant. The model results suggested that such a policy could increase employment by approximately 5,000 (i.e. a 0.8 per cent increase in employment) after five years but this increase would only be achieved in conjunction with an increase in the inflation rate and a worsening in the balance of payments equivalent to a foreign exchange outflow of almost $30,000 per annum per extra person employed. In the light of the considerable balance of payments constraint that New Zealand faces such a policy is therefore unlikely to be acceptable. If it was adopted it would have the effect of constraining employment in the future as the increased overseas debt position would produce a need for further domestic restraint than would otherwise be necessary. Such a policy can therefore only be considered a short-term measure that is likely to cause further hardship (in terms of unemployment) in the future.

An alternative fiscal policy was examined in which increased government expenditure was directed to increasing the public sector workforce by 5 per cent (although an assumption was also included that government capital and works expenditure would have to be increased in proportion with the workforce so as to provide materials and equipment for the extra employees to use). This policy was shown within the model to increase employment throughout the economy by approximately 11,000 over the following five years at a foreign exchange cost per annum of approximately $7,000 per extra employee. Hence while the foreign exchange cost might still be of a magnitude that precludes adoption of such a programme there is a clear indication, as may be expected, that direct government employment programmes are a very much more effective method of increasing employment with minimum harm to the balance of payments than increasing other forms of government expenditure.

Examination of various policies involving wage reduction showed employment benefits emerging from a wage reduction and, except in one case (which also involved fiscal stimulation), achieved the employment increases at a lesser foreign exchange cost than policies involving fiscal stimulus. A 2 per cent nominal wage reduction was estimated to increase employment by approximately 3,000 over five years at an average annual foreign exchange cost of $4,800 per job and notably, after three years, the current account is improved so that in the longer term there may be no adverse foreign exchange effect stemming from such a policy. An experiment in which the policy was supplemented by an exchange rate devaluation showed an even further improved balance of payments position throughout the first five years and indicated that the current account could even be improved at the same time as employment was increased with this policy mix.

Examinations of the effect of reducing income tax rates by 5 per cent while at the same time reducing wages so as to leave real disposable wage rates unchanged, depended for their effectiveness on whether or not the taxation reduction was matched by a government expenditure decrease. In the case where existing levels of government expenditure were maintained the policy induced an employment increase of 6,800 but each extra job incurred an average annual foreign exchange cost of $15,000 making it a relatively expensive method of boosting employment. The alternative case in which government expenditure was reduced by the amount of the taxation reduction indicated a lesser employment response of approximately 4,000 but this was accompanied by an annual foreign exchange outflow of only $5,500 per job making it similar in many respects to the wage reduction example. Instead of wage earners receiving a reduction in their real disposable incomes, however, this example probably implies a reduction in living standards for some recipients of government transfers so that in either case the living standards of one or more sections of the population probably need to

4. *A model of the New Zealand labour market.* RBNZ research paper No 33, A Grimes.

be reduced if employment is to be inceased without a greatly increased balance of payments deficit.

Apart from wage and fiscal policies, there is a body of opinion that believes that monetary expansion (and hence inflation) can decrease unemployment. The well-known Phillips Curve in which an inverse relationship was shown to exist historically between inflation and unemployment is an example of this. The relationship appears no longer to operate in the current inflationary environment, however, and theoretical and empirical work both in New Zealand and overseas appears to show that inflation either in the price level or in the money supply has little short run and no long run effects on unemployment. This is due to the public forming an increasingly accurate expectation of the rate of inflation so that increases in nominal values equal to the expected rate of inflation are seen to be the result of inflationary forces rather than representing movements in demand for real goods and services. Consequently economic agents will not alter their behaviour in the face of price movements that are expected although they are likely to respond to changes in nominal values that are not equal to the expected inflation rate. A test[5] of the links between inflation and unemployment in New Zealand discovered no influence of expected monetary expansion on the rate of unemployment while unexpected expansion of the money supply was found to have had only a small short run influence on the unemployment rate with no long run influence. This study instead estimated the major determinants of unemployment to be the terms of trade and the taxation rate on salary and wage earners thus confirming the previous evidence that these factors had been the major causes of the adoption of disequilibrium wage rates and hence of the reduction in private sector employment.

Overall this body of research suggests that overvalued real wage rates are a major cause of New Zealand's current unemployment. While the influences of greater natural increase in the working age population and in labour force participation rates have been important developments in recent years, these factors have been largely offset by increased migration outflows. The solution to New Zealand's unemployment problem therefore appears largely to depend on achieving some reduction in real wages so as to induce an increase in employment both directly, owing to the decreased price of labour relative to capital and output prices, and indirectly, by encouraging higher profits and output growth. Clearly such a solution may not be easy to implement, since it is likely to involve a reduction in living standards for at least some section of the population, but the alternative may be the even less attractive prospect of the long-term maintenance of high rates of unemployment.

5. *New Zealand's natural rate of unemployment*. Paper presented to the February 1982 conference of the NZ Association of Economists, Wellington, A. Grimes.