

Full Employment

Whence It Came & Where It Went

by Simon Chapple



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AUTHOR: Dr Simon Chapple is a Senior Research Economist at the New Zealand Institute of Economic Research.

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FULL EMPLOYMENT

Whence It Came & Where It Went

Simon Chapple
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I am responsible for any remaining errors.

CHAPTER ONE: IT WENT THAT AWAY...

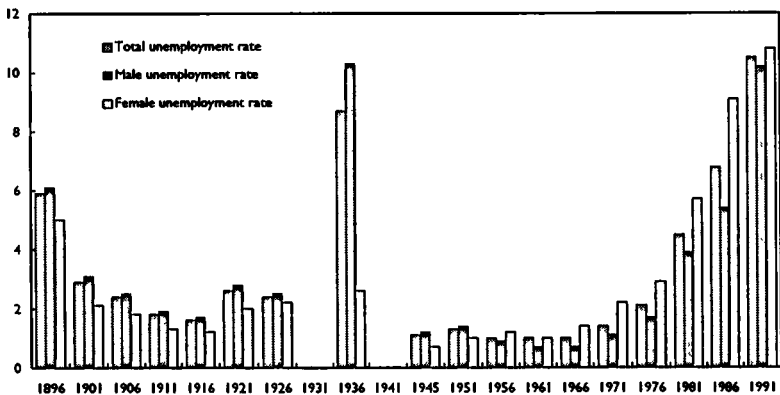
The story is often told that during the golden post war years of low unemployment the Minister of Labour knew the unemployed by name. It may have been so. In March 1956 five unemployment benefits were paid. Between about 1938 and 1980, New Zealand maintained a half-forgotten economic miracle - an unemployment rate the envy of other OECD countries. After nearly 40 years of low unemployment the system fell apart, with major rises in unemployment during the early 1980s and from 1987 to 1992. By June 1993, 170,339 unemployment benefits were paid, a remarkable 34,000% increase from the lows of the 1950s.

The last decade and a half is not the first time New Zealand has experienced high unemployment. The only unemployment measure available over a lengthy time period is from the five yearly census, but unfortunately the data is not fully consistent across censuses. Nevertheless, Figure 1.1 gives a broad brush picture of the evolution of unemployment in New Zealand over the last 100 years. Unemployment has been high in three periods - the late 1890s, the 1930s and from the mid 1980s. Female census unemployment was relatively low compared to male rates during the 1930s, but higher during the 1970s and early 1980s. However, census figures also demonstrate that high unemployment is reversible. The following generalisations can be drawn. First, over very long periods of time the unemployment rate does not follow an upward time trend. Second, periods of both high and low unemployment persist for considerable periods. Any explanation of New Zealand's unemployment rate should be able to explain these stylised facts.

Figure 1.2 shows a more detailed picture of the post war unemployment rate using a quarterly Household Labour Force Survey

(HLFS) measure of unemployment.¹ After being less than 1% of the labour force until 1967, unemployment then took a small step upwards. Between 1968 and 1980 unemployment fluctuated about a higher plateau but never got above 2%. The 2% mark was breached in 1981 with unemployment peaking at over 5% in 1984. While falls in unemployment occurred in 1984 and 1985, lower unemployment never became established. From 1988 on unemployment rose steeply, peaking at over 11% of the labour force. Since 1992 unemployment has fallen equally strongly, but remains at historically high levels in early 1996 of around 6%.

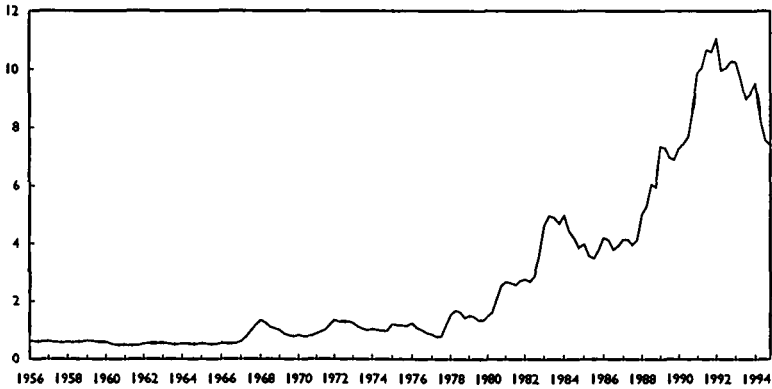
Figure 1.1 Three periods of high unemployment
Census unemployment rates. Percent



Source: *New Zealand Official Yearbook 1994*

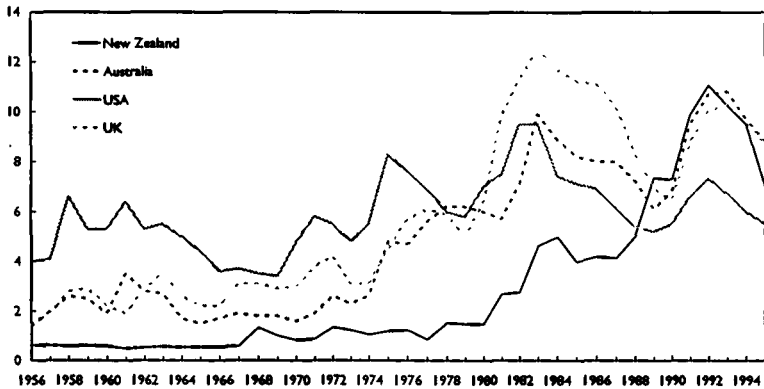
¹ Prior to 1986, the exercise involved backdating Household Labour Force Survey numbers. These are provided on an annual March year basis for men and women in the appendix. Details of the data construction can be found in my "Household Labour Force Survey Consistent Labour Market Data", NZIER Working Paper WP 94/16.

Figure 1.2 The fall of full employment
New Zealand's post war unemployment rate. Percent



Source: *Household Labour Force Survey* and Chapple (1994B)

Figure 1.3 The fall of full employment in international perspective
Percent



Source: *OECD Main Economic Indicators*, *Household Labour Force Survey* and Chapple (1994B)

New Zealand's post war unemployment experience has been different from other developed economies. Figure 1.3 shows New Zealand's unemployment rate relative to comparable rates for three other developed countries. Figure 1.3 illustrates a general point: most developed economies have had a worsening of their average unemployment rate from the 1980s onwards. It also illustrates New Zealand's deterioration in the rankings from star performer up to about 1980 down to one of the also-rans by the early 1990s. Of particular interest, given similarities in culture, institutional structures and the inter-connectedness of the two labour markets, is the comparison between New Zealand and Australia. Up until the mid 1980s New Zealand's unemployment rate averaged half that of Australia.²

The issue of New Zealand's post World War Two unemployment experience is one this monograph seeks to address. The pathology of the post war unemployment experience gives rise to at least three big questions:

- what factors created such low unemployment?
- why did full employment break down?
- Why did unemployment rise so steeply over the 1987-1992 period?

The monograph seeks to analyse post war unemployment in terms of the creation, breakdown and destruction of full employment from an economist's perspective. As the subject of this book is of general

² This observation should be a caution to those who view New Zealand's current unemployment rate (6%) relative to Australia's (between 8% and 9%) as *prima facie* evidence for the success of economic policies followed over the previous decade.

public interest, I have aimed to make it as accessible as possible to those who have only a basic background in economics. To aid accessibility I have removed as much jargon as possible and have endeavoured to provide clear explanations of what remains. At the same time, I have tried to avoid the opposite pitfalls of over-simplification and excessive sensationalism. I also hope that the study will be of interest to economists. In general, I have taken my cues from Stephen Jay Gould's admirable recommendations for scientists writing for non-specialists:

The rules are simple: no compromises with conceptual richness; no bypassing of ambiguity or ignorance; removal of jargon, of course, but no dumbing down of ideas (any conceptual complexity can be conveyed in ordinary English).³

Some of these more important labour market concepts of economics are reviewed below.

What is unemployment and the unemployment rate? Roughly speaking, the unemployed are those who do not have a job but are available for work. It is relatively simple to observe if someone does not have a job and therefore meets the first criteria for being unemployed. However, what actually constitutes availability for work is far less distinct. In practice, different measures of unemployment are due to differing definitions of what constitutes availability for work.

There are at least four possible measures of unemployment available in New Zealand. Three have already been mentioned: the census measure, the Household Labour Force measure, and the number of people receiving unemployment benefits. There is a fourth measure, the number of people registered at the Labour Department as unemployed. The numbers unemployed by the various measures differ considerably. The numbers unemployed by these four definitions in March 1991 were:

³ Stephen Jay Gould (1991), *Bully for Brontosaurus*, Penguin, p. 13.

- **Household Labour Force Survey** 160,400
- **Census Unemployment** 148,487
- **Registered Unemployment** 184,008
- **Unemployment Benefit** 153,259

The official internationally comparable measure of New Zealand's unemployment, the Household Labour Force Survey measure, is derived from a randomly chosen sample of New Zealand households. These households are asked about their employment and unemployment experiences. From the sample, numbers are rated up to the total population. Employment is defined as working an hour or more per week in a paid job. Unemployment is defined as those out of work who have actively sought work in the past four weeks. Actively seeking work is tightly defined, excluding those who merely looked at job advertisements in the newspaper. The Labour Force is derived by adding the number of people employed to the number unemployed. Thus the HLFS does not measure the amount of under-employment, - for example, people who are working part time but want a full time job. In addition, because of the narrow definition of seeking work, it does not take into account those who would take a job, but are not actively seeking work because they make a rational decision not to search as no jobs are available.

Rather than taking a sample and generalising this for the population, the census questions all New Zealanders about their labour market status, removing one possible source of error. Increasingly, the census has moved towards the HLFS definition of unemployment. The great weakness of the census is that it is taken only once every five years. Quinquennial data is too infrequent for many purposes. In addition, census unemployment definitions change subtly and censuses have not always been taken at the same time every year, meaning that different

seasonal factors may be clouding the data. Finally, before 1951 census unemployment data did not include Maori.

The registered unemployment figure measures those registered at the Department of Labour as being unemployed. The numbers actually registering depend on the incentives to register. For many, being on the register is a means of looking for a job through the New Zealand Employment Service, which means numbers will - to some extent - reflect chances of finding work through such channels. Being on the register is also a requirement for eligibility for the unemployment benefit. In addition, some who are on the register will have found jobs or will not be looking for work and have, consciously or unconsciously, forgotten to inform the Employment Service. In addition, various offices of the Employment Service periodically update their database, removing the names of those no longer entitled to be on the register. Lastly, for many years married women could not register as unemployed. Thus changes in the register will at times reflect administrative changes and shake-outs rather than economic changes.

The unemployment benefit numbers, a sub-set of the Department of Labour register, measure those in receipt of an unemployment benefit. To be in receipt of the unemployment benefit requires one to be ready and willing to work in the view of the NZ Income Support Services (Department of Social Welfare). Unemployment benefit numbers are useful as a measure of the direct cost to government of supporting the unemployed but, given they can change for a similar set of non-economic reasons to the register, have little other use as an economic indicator.

No measure of unemployment is perfect for all purposes and under all circumstances. Each measure will be subject to error of different sorts. Each definition of unemployment necessarily embodies society's value judgments about what constitutes unemployment. As society and economic structures change, relevant definitions about what is unemployment may also change. However here, unless otherwise stated, this study uses the HLFS definition of unemployment.

So much for unemployment. The unemployment rate is derived from dividing the total number of people unemployed by the total number of people employed plus the total number unemployed (i.e. the labour force). Another important labour market concept expressed as a rate is the participation rate. The labour force participation rate is the proportion of the working age population actually participating in the labour force (employment plus unemployment).

One well known fact regarding unemployment is that it is not distributed evenly across the population. If someone is young, has low formal educational qualifications, is of Maori or Pacific Island descent, or lives in certain regions they are much more likely to be unemployed. Why this is the case is a question in urgent need of further investigation. Because this study focuses on unemployment in aggregate, it can only note these issues in passing.

Why should we be concerned about unemployment? During the 1980s it became fashionable in some circles to downplay unemployment and its costs. This fashion, I believe, was misplaced as unemployment appears to impose major direct and indirect financial and social costs on individuals, families (both nuclear and extended) and society. This study is not about these costs, which have been listed and analysed (but in many cases not well measured) elsewhere. The existence of these costs and a belief that they are significant provides my motivation for better understanding of New Zealand's post war unemployment experience. This improved understanding can then contribute to better policy formation in dealing with unemployment.

The title of this study refers to full employment. What is this? A number of definitions have been suggested. During the 1950s and 1960s Wolfgang Rosenberg argued that full employment should be defined as zero registered unemployment. William Beveridge, the English author of *Full Employment in a Free Society* (1944) which laid the foundations for the British post war welfare state, defined full employment as the point at which the number of people unemployed exactly matched the number of vacant jobs. Other economists have argued that full employment is achieved where actual unemployment

comprises simply those people temporarily choosing to be unemployed while they search for jobs.

For much of the period up until the late 1970s, the number of surveyed job vacancies exceeded the number of people unemployed. New Zealand exceeded Beveridge's definition of full employment. The consistent existence of vacancies in excess of unemployment until the recession of 1967/68, when the barrier was breached for the first time, led some New Zealand economists to talk loosely of "over-full" employment. After 1968 the difference between unemployment and vacancies varied somewhat, balancing out on average around zero. From around 1978, even during booms, New Zealand has been increasingly incapable of reaching Beveridge's definition of full employment.

My definition of full employment is purely practical and looser than that of Beveridge. It uses "full employment" as a short hand expression for that period in New Zealand's economic history where unemployment was maintained at exceedingly low levels. For practical purposes, using the HLFS data presented above, full employment covers the period from 1956 to 1980, when unemployment rose over the 2% mark. This rough and ready definition also broadly corresponds with the breakdown in full employment using Beveridge's definition.

My argument is developed along the following lines. Whether one is explicit about it or not, all discussions of unemployment involve some sort of theory about why people are unemployed. Chapter Two considers the evolution of a range of theories advanced internationally since the Great Depression of the 1930s by economists to explain unemployment in industrialised economies. These economists have also advanced their own specific explanations of New Zealand's unemployment, drawing in part on the theories considered in Chapter Two. New Zealand economists' explanations are discussed in Chapter Three. How well do the various predictions of these theories stack up against the empirical record? Some of the problems inherent in this question as well as an assessment of many of the theoretical predictions are offered in Chapter Four. In the ultimate chapter, Chapter Five, the

strands of the argument are pulled together and an explanation of the rise and fall of full employment in New Zealand is offered.

CHAPTER TWO: THEORIES OF UNEMPLOYMENT & INFLATION

Economists try and make sense of the economic world around them by constructing models - simplified pictures of the essential forces which they believe drive the world. In this sense an economist's model is much like a geographer's map. In the same way as a map, a model represents a simplification of reality as a means towards understanding. Like a map, a model is strictly speaking both unrealistic and false. Think of a street map or a topographical map - neither accurately depicts reality. Yet, as English economist Joan Robinson has pointed out, to criticise a model for being unrealistic is like criticising a map-maker for not drawing a map which corresponds to the world on a one-to-one basis. A one-to-one scale map is both intractable and tells us nothing about the world which we did not already know. Like maps, part of the art of economics lies in knowing which is the appropriate map, or set of simplifications, for a particular set of purposes.

This chapter looks at the maps which economists have used to try and understand unemployment over the last six decades. These maps have their roots in historical experiences of mass unemployment of up to a quarter of the labour force in industrial economies during the Great Depression of the 1930s. As shall be shown, theories of unemployment have been frequently connected closely with theories of inflation.

The terrain which is covered in considering what economists have had to say about unemployment is no more than a sketch of what I believe to be the essential elements. There is much sophistication that, for reasons of space, has had to be left out. I hope what remains is a reasonable summary of how economists' thinking has developed.

By and large the prevailing economic wisdom prior to the Great Depression was that unemployment was due to temporary disturbances in particular markets and was not worthy of much theoretical attention. Otherwise, the “invisible hand” of Adam Smith's *Wealth of Nations* (1776) - the notion that through the twin forces of self interest and price competition, unfettered markets generally result in socially desirable outcomes, one of which is minimal unemployment - held sway in the mainstream. In the underworld of economics, these views were challenged, but challengers were generally dismissed by mainstream economists as dangerous radicals or mad cranks. However, the prevailing wisdom was left in tatters by the nasty empirical fact of persistent mass unemployment in the major industrialised economies from the late 1920s onwards.

2.1 THE KEYNESIAN THEORY OF UNEMPLOYMENT

The new theory of unemployment arising out of the Depression is usually known as the Keynesian theory, named after John Maynard Keynes (pronounced Kains), Professor of Economics at the University of Cambridge. Keynes developed this theory in his book *The General Theory of Employment, Interest and Money* (1936). Yet the essentials of Keynesian theory, like the theory of calculus and the theory of evolution, were simultaneously discovered - in the case of Keynesian theory by other economists during the 1930s, including Gunnar Myrdal and Bertil Ohlin (Sweden) and Michal Kalecki (Poland). Bearing this in mind, let us consider the essentials of the Keynesian theory of unemployment, since much of what came later was either a reaction to or development of Keynesian theory.

Imagine, as a thought experiment, the New Zealand economy is growing steadily. All work places are operating at their planned capacity, order books are full, and all those who want a job have one. The small remaining margin of unemployment is made up of those who are between jobs and those who choose to be unemployed.

Now add some grit into the cogs of our well oiled economy. Suppose that total spending on New Zealand goods, or aggregate demand as the Keynesians call it, contracts. In an economy like New Zealand aggregate demand includes the sum of consumption spending (both public and private), investment spending (again both public and private and including the accumulation of stocks), and spending by foreigners on our goods - exports. To get final aggregate demand, from this must be subtracted imports, which are - as economists put it - a leakage from spending on domestic goods.

Aggregate spending could contract because households, for some reason, feel less confident about their future economic circumstances. As a result they try and save more. Their consumption drops. Or business firms feel less confident about their future profitability and

hence curtail their investment spending. Alternatively, the demand by foreigners for the goods New Zealand exports may decline, either because the rest of the world tightens its belt and reduces its spending on our goods (this is one way unemployment can be transmitted from one country to its major trading partners) or our exchange rate appreciates, raising prices of exports overseas and so reducing the amount purchased.

The initial contraction in aggregate demand, whatever the cause, like a stone thrown into a pond has a ripple effect across the entire economy. The reason for this is that one person's reduction in spending is another's income loss. They in turn, faced with lower income, spend less and the effect ripples throughout the economy. As spending and income decline, people are thrown out of work. However, Keynes showed that the process of declining income and rising unemployment will not continue indefinitely. In the absence of any other changes in expenditure, the economy will stabilise at a lower level of economic activity with a higher level of unemployment. This Keynesians describe as a state of unemployment equilibrium.

Why won't the downward domino process continue indefinitely? The answer to this puzzling question is simple, but remains one of Keynes's enduring contributions to our understanding of unemployment. Keynes's insight is best illustrated by means of a simple example. Suppose I reduce my spending by \$100. Suppose in addition that everyone spends half of any rise or fall in their income on domestically produced goods and services. The first round effect is naturally a reduction in my spending of \$100 - say at the greengrocer's. This reduces my greengrocer's income by \$100, causing her to spend \$50 (half of \$100) less at the hardware store. The hardware store's income declines by \$50, causing the proprietor to cut his spending on fish and chips by \$25 (half of \$50). The fish and chip shop owner's income drops by \$25, leading to a reduction in her spending at the races of \$12.50 (half of \$25). Lower income of \$12.50 at the TAB causes a reduction in spending of \$6.25 elsewhere and so on. Thus, to summarise:

Reductions in spending

my initial reduction	\$100
the greengrocer's	\$50
the hardware shop's	\$25
the fish and chip shop's	\$12.50
TAB's	\$6.25

and so on down the line.

Thus one can see that the spending ripples get smaller as they widen across the economic pond. After half a dozen more spending rounds the ripples will quickly become so small as to be safely considered as zero. The economy wide total of the reductions in spending can be shown to be:

$$\text{Total reduction in spending} = \$100 / (1 - 1/2) = \$200$$

In words, the total reduction in spending is equal to the initial change in spending of \$100 divided by one less the proportion (1/2) spent on domestic goods and services. This ripple process is known as the Keynesian multiplier, as it measures the extent to which changes in spending are multiplied or magnified by the fact of economic interdependence.

Note that in the example above the first five ripples of spending reductions account for a high proportion, \$193.75 out of \$200 or almost 97%, of the total spending reduction.

Why isn't the increase in my savings corresponding to the reduction in my spending simply recycled through the banking system, with higher savings lowering interest rates, encouraging spending elsewhere and hence maintaining total demand? The answer is that total saving has not increased. While I have increased my savings by \$100, others' incomes have fallen by \$200. Since one-half of incomes are saved, this reduces

savings elsewhere by \$100. Total savings (my increase of \$100 less others' decrease of \$100) remain the same and there is no direct downward pressure on interest rates which would offset the spending reduction.

For the reduction in spending to translate into a real fall in economic activity and rise in unemployment rather than simply a fall in prices, requires there to be some stickiness in prices and wages, something getting in the way of Adam Smith's invisible hand which suggests prices adjust rapidly to changes in demand and supply. When my spending at the greengrocer falls by \$100, she does not automatically cut her prices. This price stickiness may appear so intuitively obvious as not to require justification, but the lack of a persuasive Keynesian theory of why prices and wages were slow to change when spending altered became the theory's Achilles heel.

2.2 THE BIG TRADE-OFF: THE PHILLIPS CURVE THEORY OF UNEMPLOYMENT AND INFLATION

Keynesianism had a revolutionary impact on the economics profession and by the early 1950s had become established as the new economic orthodoxy. However, the mainstream Keynesian model assumed that all wages and prices remained unchanged up to the point at which full employment (where unemployment is made up of those that did not want to work or were between jobs) was achieved. Inflation (or changes in prices) was only a problem when the economy was operating at maximum capacity. The problem for Keynesians was that they did not have a good explanation of why prices and wages might increase before the full employment point was reached.

The Keynesian dilemma was solved during the late 1950s by a New Zealander, Bill Phillips, who was working at the London School of Economics.⁴ In plotting over a hundred years of data of unemployment and wage increases for the British economy he noticed that high levels of unemployment tended to be associated with low rates of wage increase and low unemployment with high rates. Phillips used statistical techniques to calculate a curve which best fitted these points. It was this curve that was christened with Phillips's name.

On the assumption that wage increases are rapidly converted into price increases, a simple equation can be written for the Phillips curve. In words, the Phillips curve equation suggests that inflation or the growth rate of prices (represented by the symbols ΔP) depends on the difference between the full employment level of unemployment (represented by the symbol U^*) and the actual unemployment rate (represented by the symbol U). A simple version of the Phillips curve equation is:

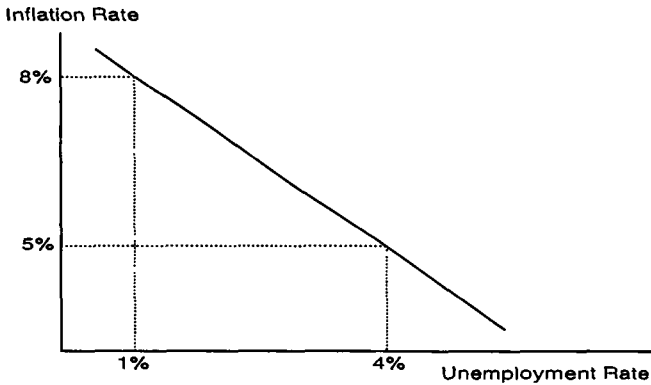
⁴ However, as with the Keynesian model, Phillips's curve was discovered by others around about the same time. His name, not theirs, has stuck.

$$\Delta P = a(U^* - U) = -aU + aU^*$$

where a is some constant factor.

Readers may perhaps recognize in this simple equation the standard equation for a straight line, $y = mx + c$, where c is a constant and m the slope. In our Phillips curve y is inflation, the constant c is aU^* and the slope, $-a$, is negative, reflecting the negative trade-off between inflation and unemployment. For those readers not comfortable with algebra, the Phillips curve can be represented graphically, as in Figure 2.1. In this hypothetical example, if an unemployment rate of 1% is required, this requires inflation of 8%. However, if unemployment is at 4%, inflation falls to 5%. High unemployment means low inflation. High inflation means low unemployment.

Figure 2.1 A hypothetical Phillips curve



Keynesians rapidly saw in the Phillips curve an answer to their missing theory of inflation. Instead of having to assume that prices and wages were constant up to full employment, it would generally be the case that prices and wages were changing. By manipulating aggregate demand (via government spending and taxation or via changing interest rates or the exchange rate), government could determine the level of unemployment, which then carried with it a certain amount of inflation. The Phillips curve suggested that governments faced a stable trade-off between unemployment and inflation. Governments could choose the level of unemployment, or the level of inflation, but not both. Liberal governments would choose low unemployment and hence would accept the undesirable outcome of higher inflation while conservative governments would not tolerate inflation and hence maintain higher unemployment rates. It was then up to voters to decide at which point of the Phillips curve they wanted the economy to be.

The theory behind the Phillips curve was not well developed. In particular, in what was eventually to contribute to its downfall, it was not well related theoretically to assumptions about the rationality of

individual behaviour that mainstream economics prefers to build its models or maps on. Rather, the Phillips curve was more a statistical law emerging from real world inflation and unemployment data in search of economic foundations.

2.3 THE BIG TRADE-OFF IS ONLY TEMPORARY: ENTER MILTON FRIEDMAN

The Phillips curve rapidly crossed the Atlantic and a minor North American industry emerged estimating the size of the inflation-unemployment trade-off or the steepness of the curve in Figure 2.1. By the late 1960s it was becoming apparent that all was not well with the Phillips curve. Empirically it appeared to break down. The curve predicted that rising unemployment would be associated with falling inflation and vice versa. However, the early 1970s saw the emergence of a new and troubling economic phenomenon with the ugly name of stagflation - simultaneous increases in both inflation and unemployment. Once again, real world events were the stimulus for changes in the dominant theory of unemployment and inflation.

A few years earlier, a University of Chicago economist, Milton Friedman had argued, using a standard economists' assumption that individuals are rational and self-interested, that there was no long run trade-off between inflation and unemployment as implied by the Phillips curve.⁵ Furthermore, Friedman's model, unlike Phillips's simple curve, predicted that under some circumstances one might observe both rising unemployment and rising inflation. From a political point of view, Friedman's theory yielded the conservative insight that government policy to influence aggregate demand could have no long run effect on unemployment.

How does Friedman's theory work? The idea is straight forward. The simple Phillips curve had argued that wage inflation depended only on the difference between actual unemployment and what Friedman rather disingenuously called the natural rate of unemployment (i.e. that level of unemployment where those unemployed were made up solely

⁵ Readers by this stage will not be surprised to know that at about the same time, with less fanfare, a Columbia University economist, Edmund Phelps, developed a similar theory to Friedman's.

of people who were either temporarily between jobs or chose not to work, in short our U^*). To this Friedman added the assumption that wage earners were rational and self-interested and would also take into account expected inflation as well as the state of the labour market (summarised by the unemployment rate) in deciding by how much their wages should increase. That is to say, irrespective of what the level of unemployment was, one of the factors to be considered in rational wage bargains was the *expected* rate of inflation. To round out his model, Friedman then argued that workers' expectations about what inflation was going to be were dependent on what inflation had been in the past. Since dependence of inflation expectations on past inflation means that expectations adapt only slowly to a higher level of actual inflation, Friedman's theory became known as one of adaptive expectations.

Let us set Friedman's model to work to investigate its properties. Start from a position of full employment where the actual level of unemployment is equal to its natural rate of (say) 4%. In addition, assume that inflation last year was 2%. Now this year, assume the government, a firm believer in the simple Phillips curve, tells the central bank to lower interest rates to stimulate aggregate spending and lower unemployment. The Keynesian multiplier spreads the ripples of spending across the economy and activity expands. Unemployment falls from 4% to say 2%. The government's belief in the Phillips curve appears vindicated. But is it?

What happens next is best illustrated by means of the simplest numerical example. Suppose a pig-headed government stubbornly persists in believing in a simple Phillips curve story of a long run inflation and unemployment trade-off. Assume that expected inflation is equal to last year's inflation (the simplest form of Friedman's adaptive expectations model). In addition assume for simplicity the response of inflation to unemployment is equal to one ($a = 1$). This gives Friedman's model of inflation and unemployment as follows:

$$\Delta P = U^* - U + \Delta P_{-1}$$

In words, this equation indicates that this year's inflation rate is negatively related to current unemployment U and positively dependent on last year's inflation ΔP_{-1} .

Year one

In year one the natural and actual rates of unemployment are 4% and last year's inflation is 2%. Thus, plugging the numbers in the model of inflation and unemployment gives:

$$\text{inflation} = 4\% - 4\% + 2\% = 2\%$$

Year two

Government expansion of aggregate demand lowers unemployment to 2%. Expected inflation is equal to inflation in year one of 2%. Thus this year's inflation rises:

$$\text{inflation} = 4\% - 2\% + 2\% = 4\%$$

Year three

Now, at this point our government, believing in a simple Phillips curve, observes a rise in inflation between years one and two from 2% to 4% and believes that this higher level of inflation is the price to pay for a 2% reduction in unemployment. However, according to Friedman, not so! Expected inflation in year three is now equal to inflation in year two of 4%. Thus inflation begins to rise further:

$$\text{inflation} = 4\% - 2\% + 4\% = 6\%$$

Year four

Our government is stubborn and persists in trying to maintain unemployment at 2%. The inflation outcome is now:

$$\text{inflation} = 4\% - 2\% + 6\% = 8\%$$

Inflation keeps rising as long as the government tries to maintain unemployment below its natural rate.

Friedman's model of unemployment is one where unemployment can only differ from the natural rate if inflation is rising or falling. To see this, the simple version of Friedman's equation can be rearranged to show that:

unemployment = natural rate of unemployment - the change in inflation⁶.

Thus if inflation is rising so the change in inflation is positive, unemployment is less than its equilibrium. If inflation is falling so the change in inflation is negative, unemployment exceeds equilibrium.

Friedman's theory can also be put into reverse to demonstrate how the process of reducing inflation creates temporary unemployment. Suppose that the natural and actual rates of unemployment are 4% as in the previous example. However, inflation is initially at 10%. Suppose government wishes to reduce inflation to 2%. In other words, think of New Zealand around 1985!

Year one

In year one the natural and actual rates of unemployment are 4% and last year's inflation is 10%. Thus:

$$\text{inflation} = 4\% - 4\% + 10\% = 10\%$$

Year two

To reduce inflation, the government tightens monetary policy, pushing up interest rates. Aggregate spending falls in response to higher interest

⁶ Since $\Delta P = U^* - U + \Delta P_{.1}$, rearranging this in terms of the unemployment rate gives $U = U^* - (\Delta P - \Delta P_{.1})$.

rates, the Keynesian multiplier creates ripple effects throughout the economy and unemployment rises to 8% of the workforce. Expected inflation is equal to inflation in year one of 10%. Thus higher unemployment causes actual inflation to fall as follows:

$$\text{inflation} = 4\% - 8\% + 10\% = 6\%$$

Year three

Government maintains high interest rates to keep the maximum downward pressure on inflation. Expected inflation has now fallen to 6%. The 2% target for inflation has been achieved, but unemployment is still high:

$$\text{inflation} = 4\% - 8\% + 6\% = 2\%$$

Year four

Since expected inflation is now in line with the government's target, monetary policy can now be loosened to expand aggregate demand and reduce unemployment back to its natural rate without stimulating a rise in inflation. The inflation outcome is:

$$\text{inflation} = 4\% - 4\% + 2\% = 2\%$$

Thus the process of reducing inflation creates unemployment, but once inflation has been reduced to its new lower level unemployment returns to the rate from which it started. The crucial conclusion of Friedman's model is that there is a short term trade-off between inflation and unemployment, but no long term trade-off. Governments can use policy to change inflation in the long run, but not unemployment.

Acceptance of Friedman's theory does not necessarily mean that there is no role for government in controlling unemployment via manipulation of aggregate spending. Recall that Friedman's theory indicates there is only a short run and no long run trade-off. However in terms of actual calendar time the length of these runs is undefined. If unemployment

only deviates from the natural rate for six months, there is little role for government to manipulate aggregate spending to keep unemployment low. If unemployment can deviate from the natural rate for a short run of six years, then the long run becomes relatively unimportant or, as Keynes picturesquely put it, "in the long-run we are all dead". Between six months and six years lies a fair amount of ground for debate and disagreement regarding the worthiness of government policy to alter aggregate spending to control unemployment.

When Governor of the Reserve Bank Dr Don Brash addresses Chambers of Commerce or writes articles in the newspapers arguing that the Bank cannot use monetary policy to alter unemployment in the long run he is in part drawing on Friedman's theory of inflation and unemployment. In addition, by pursuing a policy which concentrates solely on inflation, one can interpret the Reserve Bank Act which binds the Governor as implicitly assuming the short run is relatively short in terms of calendar time.

Why does Friedman's map predict rising inflation and unemployment? Again, a simple example using the same assumptions of a 4% natural rate of unemployment and 2% inflation can illustrate. Suppose government decides to expand aggregate spending this year. Again, the Keynesian multiplier ripples the increase in spending across the economy, lowering unemployment to 2%.

Year one

Expected inflation is equal to inflation last year of 2%. Thus this year:

$$\text{inflation} = 4\% - 2\% + 2\% = 4\%$$

Year two

The government stimulus to aggregate demand remains constant this year. However the rise in inflation from 2% to 4% chokes off aggregate demand from another direction, perhaps by stifling export sales to

foreigners and increasing imports as the economy becomes less internationally competitive. The reduction in aggregate demand ripples through the economy, raising unemployment to 3%. Expected inflation is now equal to inflation in year two of 4%. Thus this year:

$$\text{inflation} = 4\% - 3\% + 4\% = 5\%$$

Year three

The rise in inflation from 4% to 5% further reduces aggregate demand, raising unemployment back to 4%. Expected inflation is now equal to inflation in year two of 5%. Thus this year inflation is:

$$\text{inflation} = 4\% - 4\% + 5\% = 5\%$$

Between years one and two Friedman's model shows stagflation - inflation increasing (4% to 5%) and unemployment rising (2% to 3%). It was in part his prediction of stagflation which persuaded many economists to abandon the simple Phillips curve and accept Friedman's model of unemployment and inflation as these problems jointly emerged in the early 1970s.

2.4 THERE IS NO BIG TRADE-OFF: RATIONAL EXPECTATIONS

Some economists have gone beyond Friedman and Phelps in their analysis of unemployment and inflation. Recall that in Friedman's map there remains a Phillips curve trade-off between unemployment and inflation that government can exploit in the short run, but in the long run any attempt to stimulate aggregate demand to permanently lower unemployment will cause ever increasing inflation. Some economists, known as rational expectations macroeconomists or new classical macroeconomists, have gone so far as to deny the existence of any exploitable inflation-unemployment trade-off even in the short run.

How does this theory work? New classical economists like Nobel Prize winner Robert Lucas, also from the University of Chicago, agreed with Friedman that on the assumption that workers are rational and self-interested, wage inflation should depend on expected inflation. Instead of arguing that expectations of future inflation were based on past inflation Lucas and his fellow new classical economists took homo economicus one logical step further. Rather than use a simple non-rational rule of thumb that expected inflation always equals past inflation, rational self interested workers are assumed to use all possible information to form their inflation expectations.

If a government tries to increase aggregate demand in an effort to lower unemployment, well informed rational workers immediately raise their inflation expectations to anticipate the rise in spending. Since prices and wages rise immediately, no increase in activity and reduction in unemployment take place. The only way that governments can reduce unemployment is to try and keep information regarding their spending plans secret, thus surprising workers. Even if governments achieve surprise, workers quickly adjust to the new higher level of spending once it becomes apparent. Unemployment differs from the natural rate only when workers make mistakes forecasting inflation and workers, being rational and self interested, do not make persistent

mistakes. Thus deviations of unemployment from the natural rate tend to be random and are rapidly eliminated by wage and price changes.

While consistent with mainstream economists' axioms of rational self interested behaviour, rational expectations theory has great difficulty in explaining persistent periods of mass unemployment like the Great Depression.

Another related theory coming out of the United States, known as real business cycle theory, took a slightly different tack to explaining unemployment. Real business cycle theory explains variations in economic activity by variations in productivity. Productivity may vary for a variety of reasons, including climate variations and technological change. People make rational decisions to work more when productivity is high relative to average, since their pay will be higher than average, and decisions not to work when their productivity and pay is low relative to average. Recessions and unemployment are a rational response to temporary set backs in productivity. Unemployment of the Great Depression is simply explained by large numbers of people choosing to take a ten year holiday because their productivity and pay was, for reasons unexplained, temporarily low.

2.5 EXPLAINING EQUILIBRIUM UNEMPLOYMENT

Unsurprisingly many economists find neither rational expectations nor real business cycle theories of unemployment especially plausible. Furthermore, Friedman's theory of the short run and long run Phillips curve seemed to be based on a picture where actual unemployment fluctuated around a relatively constant natural - or to use less value-laden terms, equilibrium - rate of unemployment.⁷ This model seemed to be relatively good for describing the US post war unemployment experience, which was essentially one of fluctuations around a fairly stable long term average unemployment rate but less satisfactory as an explanation for upwardly trending average European unemployment rates. An explanation was required for changes in the equilibrium rate of unemployment to be added to the theory of deviations from the equilibrium rate that Friedman had provided.

An explanation was provided by a group of British economists, mostly working at the London School of Economics. Remarkably for an economic theory, it is broadly accepted across a wide range of economists with otherwise divergent views, ranging from Marxist-influenced economists like Bob Rowthorn, Professor of Economics at Cambridge University to Professor Patrick Minford, one-time economic adviser to Margaret Thatcher.

This model explains equilibrium unemployment as the outcome of competing claims over who gets what by workers on one hand and firms (employers) on the other. Workers make claims on a share of output produced via their real wage demands. Firms make claims on a share of output by the profit margins they place on costs when setting prices. With higher unemployment, competitive pressure from the unemployed lowers the percentage of output that workers bid for.

⁷ Also known as the NAIRU, Non-Accelerating Inflation Rate of Unemployment. Since the term is awkward and a misnomer, I prefer equilibrium unemployment.

Symmetrically, the higher unemployment, the greater spare capacity firms are faced with, and lower the percentage of output firms feel able to claim through their profit margins. There is clearly some level of unemployment and excess capacity where excess capacity and unemployment provide a market discipline to ensure that the percentage of competing claims on shares of the product add up to exactly 100%. This level of capacity utilisation and unemployment gives the equilibrium rate of unemployment.

Suppose unemployment is low and capacity utilisation high. As a result, workers in aggregate set their wages to demand 80% and firms in aggregate set their profit margins to demand 40% of what is produced. Total claims are 120% of existing output. Excessive claims cause wages and prices to leap-frog. Inflation rises. As inflation increases, aggregate spending declines, because rising inflation reduces exports and encourages imports as the domestic economy becomes less internationally competitive. The Keynesian multiplier or ripple effect takes hold and unemployment and excess capacity start to rise. Let us say the rise in unemployment forces workers to reduce their claims to 75% of output and rising excess capacity means firms can only demand 35%. Total claims, at 110% of output, are still in excess of what is available. Inflation keeps rising, aggregate demand falling and unemployment and surplus capacity increasing. Finally a point is reached where workers' claims are 70% and firms' claims are 30%, adding up to 100%. Inflation stabilises, aggregate demand stops falling and unemployment and capacity utilisation have reached their unique equilibrium values.

Now suppose unemployment is high and there is much spare capacity. As a result of the pressures of unemployment and spare capacity workers set their wages to demand 60% and firms set their profit margins to demand 20% of what is produced. Total claims add to only 80% of output. The short fall in claims causes inflation to fall. As inflation declines, aggregate spending is pushed up, because falling inflation encourages exports and discourages imports. The Keynesian multiplier or ripple effect takes hold and unemployment and excess capacity fall. Say falling unemployment and reductions in spare capacity

push workers' claims to 65% and firms to 25%. At 90% of total output, total claims still fall short. Inflation keeps falling, aggregate demand rising and unemployment and surplus capacity declining. Finally, again a point is reached where workers' claims are 70% and firms' claims are 30%, adding up to 100%. Inflation stabilises, aggregate demand stops rising and unemployment and capacity utilisation have reached equilibrium.

Thus, as in Friedman's map of unemployment, actual unemployment is made up of two components, the equilibrium rate, now explained in terms of the competing claims of workers and firms, and a disequilibrium component, associated with rising or falling inflation. If inflation is falling, the disequilibrium component of unemployment will be positive and vice versa for rising inflation.

Now, what causes changes in the equilibrium rate of unemployment? Since equilibrium unemployment is the outcome of mediating the claims of workers and firms by altering the level of unemployment and spare capacity, any change in the ability of workers or firms to make claims on shares of output at a given level of unemployment will alter the equilibrium rate of unemployment. Changes in the equilibrium unemployment rate therefore reflect changes in product and labour market power.

Consider the issue of labour market power and how changes in this can change equilibrium unemployment.

One factor which can change the equilibrium rate of unemployment is changes to the level and administration of unemployment benefits and attitudes to taking benefits. A rise in benefits relative to wages means that some of the unemployed will stop actively looking for a job. Since the effective pool of workers unemployed and looking for work has declined, this raises the bargaining power of those who have jobs, who can then push for a greater share of output. In order to restrain their claims, a larger pool of unemployed is needed and the equilibrium unemployment rate increases. Similar stories could be told for more

relaxed benefit administration and greater social acceptance to living on benefits.

Another factor which can alter labour market power is structural change in the economy. Structural change can make a higher level of unemployment compatible with the same claims on the share of output by workers. A high degree of structural change raises unemployment without putting downward pressure on workers' bargaining power in aggregate. Such unemployment is known as *structural* or *mis-match* unemployment. Newly unemployed workers may be in the wrong place (*regional mis-match*) or have the wrong skills for the available work (*occupational mis-match*).

A third factor effecting the equilibrium rate of unemployment is changes in the degree of employment protection. Increases in employment protection, for example laws impacting on hiring and firing, tend to raise the power of workers, thus requiring a higher level of unemployment to keep their percentage claims consistent with those of firms. Equally, under some circumstances greater trade union power may raise the power of workers and hence require a higher level of unemployment to ensure that their percentage claims are kept in line.

Now consider the product market power of firms and how changes in product market power can change equilibrium unemployment.

The claims of firms on output are reflected in the profit margins they set. Profit margins desired by firms may change as competitive conditions in product markets change. Increases in barriers to entry, created by firms themselves, technology or government protection, push up firms' percentage claims on output. Hence higher unemployment and greater excess capacity is required for percentage claims to add up.

Furthermore, in an open economy firms' claims may change because the exchange rate alters. A lower exchange rate means that firms face fewer pressures from overseas competitors and are in a position to increase their claims by raising margins.

Finally, where interest rates are high, there may be upward pressures on firms' margins to try and recover these higher financing costs or fixed capital charges. This too raises equilibrium unemployment.

2.6 THE BIG TRADE-OFF STRIKES BACK? STICKY PRICES AND WAGES AND THE CONNECTION BETWEEN UNEMPLOYMENT AND TYPEWRITERS

Over recent years in academic circles there has been a quiet revival of Keynesian theories of unemployment and recession. This has been almost invisible to economic journalists and commentators, largely because the Keynesian revival has not been influential in policy debates.

These new Keynesian ideas, as they have become known, have tried to find rational explanations for why prices and wages may be sticky, that is to say unresponsive to changes in aggregate demand. Hence they can explain why unemployment may result when aggregate demand changes.

New Keynesians have argued that it is in fact irrational to behave in the perfectly rational fashion that some economists believe humans behave. People are near rational - in many cases the effort of being perfectly rational does not justify the costs. They employ simple rules of thumb which are approximately right when making economic decisions. An economy where people are nearly rational behaves far more like Keynesian economics predicts.

Why do all prices and wages not immediately fall when aggregate spending declines? In his book *Peddling Prosperity* new Keynesian economist Paul Krugman provides a nice example which I shall adapt here. A simple answer is that sellers don't want to cut prices. Yet this does not go nearly deep enough. When demand for wool falls, farmers prefer that wool prices do not fall, but they can do little to avoid it. Why then is it that prices of most goods, such as houses, don't immediately decline when demand for houses fall? Why do we observe many unsold and empty houses (and other goods and services including labour) for some time when the economy goes through a recession?

The answer is, that unlike wool, houses are not identical goods. Each house is differentiated at least in terms of location, but also typically in

terms of many other factors, from any other house on the market. The higher the price demanded for the house, the longer it can be expected to remain on the market unsold. At the same time, someone might just come along who likes the particular characteristics of the house enough to buy at the higher price. Even if price were lowered, there is no guarantee that the house would immediately sell. Even more worrisome, the cut in price of the house may be interpreted by buyers as an indication that something is wrong with the house, and thus have the perverse effect of discouraging rather than encouraging a sale.

A farmer who holds out for a wool price 5% above the quoted price is being wildly irrational, and such behaviour is therefore highly unlikely. However, a house seller who is holding out for 5% above the price which optimises the trade-off between selling high and selling fast may (1) be making only a small error, (2) be making no error, because the costs of pinpointing the exactly optimal price may be too costly, (3) having realised the initial price was too high, be fearful of cutting it because this may send an adverse signal about the quality of the house to buyers.

Thousands of such near rational decisions by house sellers during a recession can add up to a total outcome that looks wildly irrational - thousands of empty or unsold homes. Highly irrational market outcomes like unemployment may be caused by the interactions between imperfectly competitive markets (markets like that for houses or labour where the characteristics of each house or worker differ, even if only slightly) and near rational individual decisions.

The second major contribution of new Keynesian economics to understanding unemployment has been to introduce the notion of path dependence. Recall Friedman's theory of unemployment is based on the idea of a long term equilibrium rate of unemployment which is a centre of gravity, continually pulling the actual rate of unemployment towards it. Equilibrium unemployment remains steady as a rock in the absence of any underlying changes in its determinants.

Instead of arguing that actual unemployment follows the equilibrium rate of unemployment around, some new Keynesians have turned the theory on its head and argued that in fact the opposite is true. They have suggested that the equilibrium rate is actually influenced by where the actual unemployment rate is. In the extreme, they have argued that the equilibrium rate of unemployment is entirely dependent on actual unemployment. In this case the good old Phillips curve re-emerges: a change in the inflation rate can cause a permanent change in the rate of unemployment.

How does this relate to typewriters? As Krugman points out, early typewriters had an ungainly layout of the keys designed to slow typists down because high speed caused the machines to jam. Technology improved, so jamming became a thing of the past. But because everyone - typists and manufacturers alike - was so used to the QWERTY keyboard (so named because of the order of the first six letters at the top left of the keyboard) an inefficient keyboard layout became locked in by historical accident. In the same way, new Keynesians argue that an economy may get locked in to a high level of unemployment for a long period of time by adopting policies that create a high level of unemployment in the short run. This path dependent process is known in the jargon as hysteresis.

So far so good, but why might the actual rate of unemployment have an influence on the equilibrium rate? A number of explanations have been offered by economists, and two of the most plausible will be considered here.

The first explanation argues that workers who have jobs are in a strong bargaining position because they have skills and knowledge specific to the firms they work for that unemployed workers, or workers in other jobs, do not possess. In other words, because of their knowledge of specific skills and work routines, workers, like houses, are not homogenous. Workers with these jobs and skills, so-called insiders, are interested only in keeping their jobs and getting higher wages. They have no interest in jobs for the unemployed. Path dependence arises out of this as follows. If employment is high, workers have an incentive

not to push too hard in their claims for a share of output because they wish to maintain their jobs. If aggregate demand falls, workers are laid off and the now smaller number of insiders have little incentive to cut wages to provide employment to previously employed workers.

The second explanation argues the equilibrium level of unemployment will be pulled around by the actual unemployment rate because of changes in the make-up of the unemployed. Again the phenomenon arises because of a lack of homogeneity, this time of unemployed workers. Suppose there is a reduction in aggregate demand which, as it spreads its ripples across the economy, raises unemployment in Keynesian fashion. As unemployment rises during a recession, the time people remain unemployed lengthens, in much the same way as a recession causes houses to stay unsold on the market for longer. The longer people remain unemployed, the less effective they become in keeping wages in check. Why is this so? The longer term unemployed lose skills and motivation and find means of coping with being unemployed that make them less competitive in restraining claims on shares of output by the employed. Thus the equilibrium rate of unemployment shifts up.

2.7 OTHER THEORIES OF UNEMPLOYMENT

There are a number of popular theories of unemployment which by and large lie outside the mainstream of economic thought which has been considered here.

The first, which can be briefly mentioned, is only because it has a long history, lurking crimplene-clad in the undergrowth of New Zealand economic thinking, is the Social Credit theory. Where it is right (which is not often) it resembles a crude version of Keynesianism (without a multiplier) in so far as it attributes unemployment to a lack of purchasing power or, as Keynesians would put it, aggregate demand. However, it argues that such a lack of purchasing power is a chronic flaw in capitalist economies due to banks under issuing credit that can only be made up by the State pumping out endless supplies. Social Crediters evidently see no inflationary dangers inherent in continuing mass injections of credit into the economy.

Another popular theory attributes unemployment to machines displacing people, or technological unemployment. There is no doubt that improvements in technology have the ability to destroy jobs. And technological theories of unemployment were proposed by several credible economists last century. 19th century economist David Ricardo, a strong supporter of the market system, famously recanted his earlier position in the third edition of his *Principles of Political Economy and Taxation* (1819) to declare that improvements in technology could create unemployment. Basing himself on the work of Ricardo but coming from a different ideological position, Karl Marx advanced a theory of the growth and eventual downfall of the capitalist system on the basis of the inter-relationships between profits, wages, technological change and unemployment.

The technological theory of unemployment runs into problems on a number of fronts. First, it is implicitly based on what economists call "the fixed lump of output fallacy". If we produce a given amount of output, technological change reducing the number of workers employed will certainly raise unemployment. However, these extra

workers are then freed up to expand output in other directions. Only if output is fixed will unemployment necessarily result. In this case an explanation is needed regarding what is preventing output expanding: this is the true cause of the unemployment. Second, the world has experienced an incredible growth in mechanisation over the past several hundred years. Yet there is no evidence of any steady corresponding upward trend in (the admittedly incomplete) unemployment data which one would predict if technological change creates unemployment in the long run.

At best, technological change may help to explain surges of structural unemployment in particular industries. At their worst, technological theories of unemployment, signalling the end of work as we know it, have more in common with biblical prophecies of imminent apocalypse - remotely possible but highly unlikely - than they do serious economic analysis.

CHAPTER THREE: EXPLANATIONS OF NEW ZEALAND'S UNEMPLOYMENT EXPERIENCE

A variety of explanations have been advanced over time by economists and others for New Zealand's remarkable post war unemployment experience. These explanations drew in part or in whole on theories of unemployment imported from overseas. The skeleton of these theories of unemployment has been established in the previous chapter. This chapter places flesh on the bones by looking at how unemployment has actually been explained in a New Zealand context. It examines what New Zealand economists have said about full employment in New Zealand, why full employment broke down and why unemployment rose so steeply afterwards. Consideration of these questions allows a distillation of the collective wisdom of previous thinkers on full employment. In addition, it generates a set of hypotheses on full employment and its breakdown. These predictions can then be examined empirically in Chapter Four.

As in Chapter Two, my survey is representative rather than comprehensive. In considering the work New Zealand economists have done on unemployment there is considerable overlap of themes, ideas and explanations. Adopting a representative approach eliminates unnecessary repetition.

3.1 BACKGROUND

Along with the rest of the industrialised capitalist world, New Zealand experienced a deep and protracted slump in economic activity between 1929 and 1933. Estimates vary, but money incomes may have contracted by up to 36%. As activity fell, unemployment appears to have risen strongly from 1929 onwards, probably peaking in 1933. Benefiting from a recovering world economy, the first New Zealand Labour government embarked on monetary, fiscal and wage policies designed, in a Keynesian fashion, to expand aggregate demand. Expansion of aggregate demand seems to have caused unemployment to drop rapidly. However by 1938, aggregate demand expansion began to suck in increasing amounts of imports, creating a balance of payments deficit. As reserves of foreign exchange rapidly drained and fears of instability grew, a foreign exchange crisis arose. Import and capital controls were imposed. Then by 1939 New Zealand was at war.

Accurate unemployment figures for the Great Depression are hard to come by, but it has been suggested that by the beginning of 1938, with only 8,000 people on the unemployment register, full employment was, if not achieved, at least in sight. War mobilization soon mopped up any remaining unemployment.

After the war fears were held regarding the arrival of another depression, but post war reconstruction and the Korean War boom enabled the New Zealand economy to maintain high levels of activity and low unemployment. Thus by 1953 the New Zealand economy had experienced full employment for nearly 15 years.

3.2 EARLY EXPLANATIONS OF FULL EMPLOYMENT DURING THE 1950s AND 1960s

The earliest attempt to explain New Zealand's post depression unemployment performance can be found in an academic article by Ruth (1950), who argued that full employment was achieved due to government manipulation of the supply and demand for labour. Since unemployment is simply the labour supply (those employed plus those without jobs who want work) less labour demand (those employed), simple arithmetic suggests that a reduction in labour supply and an increase in labour demand can reduce unemployment. In a nutshell, Ruth believed that full employment was the outcome of three pieces of legislation by the first Labour government - the Social Security Act, the Education Act and the 40 hour week. The provision of age related benefits by the first Labour government through the Social Security Act led to a rising trend of early retirements, reducing labour supplied by elderly people. Government also legislated rises in the school leaving age under the Education Act, reducing labour supplied by younger people. On the labour demand side, the government legislated for a 40 hour week, thus spreading the available work around more people, raising the numbers employed (if not total hours worked). As evidence for his contentions of a falling labour supply Ruth presented data showing lower male labour force participation in 1945 than in 1936. At the same time however, he ignored implications of rising female participation rate for labour supply and the fact that the 40 hour week was not an upper limit, rather it changed the cost of a 48 hour week.

Other attempts during the 1950s to explain New Zealand's post war experience of full employment drew more directly on relevant economic theory than Ruth's argument, based as it is on a simple accounting definition of unemployment as the difference between labour supply and demand.

An article in a 1953 book by Treasury official Henry Lang, later to be Secretary of the Treasury, is based upon the simple Keynesian aggregate demand model examined in the previous chapter to explain

full employment. However, the simple Keynesian model does not focus on foreign trade issues important to a small country like New Zealand, where the overseas economic breezes, blowing hot or cold, have a strong domestic influence. As a consequence, Lang supplemented the simple Keynesian model by bringing into the picture the impact of New Zealand's trade, providing an analysis of "the foreign exchange constraint".

The foreign exchange constraint arises as follows. New Zealand receives foreign dollars from selling exports to the rest of the world and uses those foreign dollars to buy goods - imports - from the rest of the world. Suppose government expands aggregate demand to push the economy to full employment. Higher levels of activity naturally suck in more imports. There is no guarantee that the amount of foreign dollars New Zealand gets from exports are sufficient to pay for all the imports demanded by fully employed New Zealanders. Indeed, in practice for New Zealand in the 1950s and 1960s, it was not. Imports exceeded exports. In this situation government may be forced to choose between full employment and a trade deficit (imports in excess of exports) on one hand, or unemployment and balanced trade on the other.

However, a country can only operate at full employment with a trade deficit (spending more foreign dollars on imports than it receives from selling exports) by running down reserves of foreign dollars or by borrowing foreign dollars from overseas. Reserves of foreign dollars soon run out and foreign debt quickly mounts. It appears that the foreign exchange constraint makes full employment in fact unsustainable.

How did New Zealand manage to get around this foreign exchange constraint problem in the early part of the post war period? This is the question which Lang addressed. As the level of aggregate demand required to maintain full employment created an excess of imports over exports and balance of payments difficulties, Lang argued that import controls could be used to ensure actual imports were in balance with foreign dollar earnings from selling exports. However, protection

created monopoly positions for domestic firms which then could push up their prices. Through the Arbitration Court system of wage setting, higher prices fed into higher wages. Thus in order to avoid a price-wage spiral Government had to step in to prevent exploitation of monopoly positions and control domestic prices.

The actual extent of price controls in New Zealand during the early 1950s is interesting to contemplate four decades later. In 1953 nearly two-thirds of consumer expenditure was subject to price control, via three major price control authorities. With regards to wage setting, 40% of workers' wages were determined under the umbrella of the Arbitration Court, setting minimum wage rates, while three other important tribunals - the Government Services Tribunal, the Government Railways Industrial Tribunal and the Waterfront Industrial Tribunal - set actual rates, generally following the Arbitration Court's minimum values.

Essentially Lang saw controls - of imports and of prices and wages - as a necessary factor allowing aggregate demand to expand to full employment without causing an unsustainable trade deficit. Controls are a method of allowing full employment and balanced trade simultaneously .

Cornelius Westrate's *Portrait of a Modern Mixed Economy*, published at the end of the 1950s devotes a considerable amount of space to the full employment issue. "The employment record for N.Z. during the post war decade", Westrate declared in recognising the unemployment miracle, "is unique, not only in the history of N.Z., but probably also in the history of capitalist and mixed economies generally. There is probably no other instance of such a long period of uninterrupted full employment". The parent of full employment to Westrate was the Great Depression. The Great Depression left its scars deep in the collective psyche, best summarised by the phrase "never again". Not only was "never again" burned in, the desire for full employment was embodied in acts of Parliament defining the formal institutional structure of the economy such as the Employment Act, the Department of Labour Act and the Reserve Bank Act. As Westrate argued, "even

the possibility of slight unemployment seems to frighten people and make politicians nervous." At the same time, he acknowledged the powerful impact of Keynesian ideas in the process, as "the opinion has become widespread that the Government is responsible for employment and has the power to do something about it."

Thus Westrate accorded both informal institutions, such as public attitudes, and formal institutions, like acts of Parliament, some role in creation and maintenance of full employment. However, unlike Lang, he placed little weight on formal institutions for wage setting and price controls in the achievement or maintenance of full employment. To a large extent full employment was a spontaneous coincidence that happened to accord with public desires. Westrate concluded "we can say that the Court's influence on the general level of wages has probably been only small, that of a temporary break, especially to falls in wages". And unlike Lang, Westrate was sceptical of the contribution of import controls to full employment.

Why then did full employment exist? Where did the big coincidence emerge from? Two possibilities were canvassed by Westrate. First, government fixed wages at a maximum below market clearing levels, as he argued that it did prior to 1950 under war-time controls. His second hypothesis was that wages lagged behind prices and lowered real wage costs for employers. Lower real wages meant employers hired more people. Full employment, according to Westrate, was the unintentional by-product of rising prices and lagging wages.

From the point of view of Friedman's adaptive expectations theory of inflation and unemployment, Westrate's argument implies workers were being constantly fooled by rising prices. To maintain unemployment at a rate lower than equilibrium, this implies constantly rising inflation under adaptive expectations. With the advantage of hindsight, rising inflation is not an adequate description of the New Zealand economy during the 1950s and 1960s.

3.3 ROSENBERG'S LEG IRON ECONOMY

Other contemporary explanations of full employment reverted to the basic Keynesian aggregate demand plus balance of payments map used by Lang. The most prominent and indeed prolific writer in this vein has been Wolfgang Rosenberg. Rosenberg's approach is the logical development of a strand of insulationism implicit in Lang's map. His basic model of the why's and how's of full employment is best articulated in his book *Full Employment. Can the New Zealand Economic Miracle Last?*, written at the dawn of the 1960s.

Rosenberg pointed out that the New Zealand economy had maintained full employment for 22 years. The New Zealand full employment experience therefore provides a unique model for eliminating unemployment in capitalist economies.

Seasonal unemployment in the building trades in New Zealand, Rosenberg argued, was low in relation to total unemployment, due to favourable climatic conditions for building during winter. Offsetting this, however, was the seasonal nature of much farm work. On balance, a well organised Department of Labour can provide an employment placement service and specific public works to absorb any seasonal surplus. In addition, Rosenberg believed that regional labour mobility is high in New Zealand and consequently structural unemployment from this source was low.

For Rosenberg, a prime reason for full employment during the 1950s and 1960s was the active use of fiscal and monetary policy along Keynesian lines to maintain aggregate demand at full employment levels. He gives a simplified account of how in a Keynesian model with fixed prices, fiscal and monetary policies can raise aggregate demand to push the economy to full employment.

The next question Rosenberg turned to was the foreign exchange conundrum which arises, as was usually the case in practice, when the full employment level of national income could only be achieved with a level of imports which exceeded exports. This is our old friend the

balance of payments constraint. In picturesque language, Rosenberg saw the foreign exchange constraint as a leg iron shackling the New Zealand economy.

Rosenberg argued that since a *laissez faire* government is unwilling to impose controls on imports to maintain full employment, they have little choice but to depress the economy so imports fall back into equality with exports. In addition, as long as free capital mobility is maintained, a trade deficit implies a drain on the domestic money supply. This is because more money is being spent on imports, flowing out, than is flowing in from selling exports. A lower money supply reduces lending for consumption and investment spending and thus aggregate demand. Thus, even in the absence of direct government deflationary policies, the system has a tendency to stabilise at a point where money stops leaking out - where exports equal imports - rather than at full employment.

However in addition to reiterating the simple Keynesian plus foreign exchange constraint map, there was an innovative element in Rosenberg's theory. A country has to generate foreign exchange not just to buy imports but also to pay interest and capital payments on outstanding net external debt:

Foreign investment (which is another expression for the less popular word "borrowing") is healthy for an economy only as long as it adds new resources to the country. When interest and other service payments on "foreign investment" are greater than the new inflow of capital, the rest of new "foreign investment" is merely to build up an increasingly crushing debt burden without direct benefit to the borrowing country. For in such a case a country borrows merely to pay interest and capital on an already existing debt. When the new loan is added, interest and capital grow pro tanto, and next year an even bigger loan will have to be contracted to pay for interest and capital on the already existing debt. (Rosenberg 1960, p. 28)

The requirement to service external debt tightens the external leg iron on the economy. Running a trade deficit and low unemployment

today, according to Rosenberg, implies higher unemployment tomorrow. How does this occur? Today's trade deficit raises foreign debt and tomorrow more foreign dollars are required to pay service interest on that higher debt. Higher debt servicing means less of the available foreign dollars earned from exporting are available to pay for imports. Thus aggregate demand must fall, reducing imports to be equal to the amount of foreign dollars available to pay for them.

New Zealand's practical solution to leg irons forged by the necessity to balance the supply of and demand for foreign exchange, Rosenberg argued, was import controls, reducing the demand for foreign exchange to pay for inessential imports. Controls allowed the government to maintain full employment levels of demand without running the external accounts into deficit.

One alternative policy response to the foreign exchange constraint could be devaluation. Devaluation increases exports, by lowering the New Zealand dollar price of exports relative to overseas prices, and reduces imports, by raising the price of imports relative to New Zealand prices. Thus devaluation does not create incentives for inefficient domestic production as does a system of import controls. However Rosenberg was not in favour of devaluation, believing that it reduced the real purchasing power of workers and thus their consumption and aggregate demand, raising unemployment via the Keynesian ripple or multiplier effect. The alternative to accepting this contraction, according to Rosenberg, was to raise wages to offset such contractionary effects. However, higher wages means that the impact of devaluation on competitiveness, encouraging exports and reducing imports, is negated by a rising domestic price level. Rosenberg's argument remains unconvincing. If devaluation is contractionary, the negative impact on consumption demand must be larger than the positive impact on the trade balance which raises aggregate demand. If contraction occurs because of devaluation, surely government can offset the negative impact on private consumption by some combination of fiscal and monetary policy? Alternatively, if workers resist real wage reductions when the exchange rate is devalued, why is there no real wage or political resistance when import controls are

imposed and either prices rise or goods are rationed? Rosenberg did not address these questions.

Rosenberg had little to say about trade unions and the wage fixing system in his work and how this interacted with full employment. His failure to address this issue suggests that he believed, unlike Lang but with Westrate, that formal wage setting institutions had little to do with full employment.

The most interesting element of Rosenberg's model is the inter-temporal constraint imposed by the net external debt accumulation condition. With the hindsight of modernity the major flaw of the model is a lack of explicit treatment of the labour market and its institutions. A second weakness is that his conceptual model, like the earliest of Keynesian models, does not account well for inflation as prices are assumed constant unless aggregate demand exceeds the full employment level of output.

3.4 THE ECONOMIC HISTORIANS HAVE THEIR SAY

Those writing on New Zealand's economic history have provided quite detailed explanations of New Zealand post war unemployment performance. There are two major contributions to New Zealand's post war economic history: John Gould's *The Rakes Progress* and Gary Hawke's *The Making of New Zealand*. Both these books were published on the cusp of change, before large rises in unemployment, but certainly after breakdown in the full employment society had begun.

Gould provided a series of inter-related explanations for New Zealand unemployment performance between 1945 and 1982. He first considered full employment over the period until 1951. Part of the success in maintaining steady inflation at very low rates of unemployment was put down to economic controls remaining from the war. However, he acknowledged their diminishing effectiveness. In addition, Gould pointed out that workers' real wages were steadily increasing and this helped keep higher nominal wage demands, and hence inflation, from accelerating. A further factor maintaining low unemployment and inflation was that, even if workers pushed for higher real incomes by raising their nominal wages, import controls meant that there was little to buy with any extra money.

To these causes, to which he attached lesser importance, Gould added two further factors. Under conditions of labour scarcity, a strong incentive existed in the private sector to hoard labour in times of slack demand. The expectation was that when the good times rolled again, as it was believed that they inevitably would, firms would not have to go to the expense of finding and re-hiring labour.

The second point made by Gould was that during this period the equilibrium rate of unemployment in New Zealand was very low. A number of reasons are offered for this pleasant state of affairs. Recall from Chapter Two that regional unemployment arises where there are

vacant jobs in one region and unemployed people in another. Because there are costs for people in moving to where vacancies are, unemployment persists. Gould argued that such regional mis-match of jobs and workers in the early part of the post war period was exceptionally low. In addition, he suggested that the rate of structural change was relatively slow, so few workers found they had the wrong sets of skills for the available jobs. Occupational mis-match was also low.

To explain the rise in unemployment during the 1970s, Gould reversed these advantages. Regional contributions to structural unemployment seemed to have increased. Slower population growth caused regions to experience falling rather than stagnating populations. Industries began to cater to national and export markets, increasing linkages which created instability. Industrial concentration also led to regional concentration of industries in the major centres. With the rate of technological change increasing, the structure of labour demand began to change and a more sophisticated and specialised range of skills was demanded. Hence significant occupational mis-match emerged between the skills in demand and the skills of the existing workforce.

Some of Gould's analysis is questionable. For example, there appears to be little evidence of an acceleration in technological change during the 1970s creating unemployment. Indeed, internationally the opposite is believed to be the case by many who point to a slow down in technological progress as one of the causes for poor economic performance over the 1970s and 1980s. In addition, little sophisticated empirical evidence is drawn on to support his views regarding rising occupational and regional mis-match pushing up the equilibrium rate of unemployment.

A different set of explanations of New Zealand's post war labour market performance is offered by Gary Hawke. Having outlined Rosenberg's leg iron map of unemployment, Hawke then suggested it was not an entirely suitable foundation for an adequate explanation of full employment and its breakdown.

His first criticism of Rosenberg's leg iron economic model was that controls were porous - they were much less effective in controlling imports than many believe. In addition Hawke argued that government did not run the deficits required to maintain aggregate demand at high levels. Hawke's arguments are not totally persuasive since he focuses on aggregate demand management via government deficit spending. He does not consider the role of monetary policy as an instrument both to manage aggregate demand and to directly relieve the balance of payments constraint by directing credit to exporters and away from consumers and importers.

Hawke placed some emphasis on government policies, thereby providing a guarantee to the private sector that aggregate demand would grow sufficiently to ensure investment was profitable. However, little or no attention is paid to wage setting mechanisms in terms of the achievement and maintenance of full employment.

Hawke explained part of the breakdown of full employment by a more rapidly growing labour force, part of which was due to women increasingly seeking jobs. The next part of his argument was that labour demand increased at a slower rate. Labour demand slowed partly because of the puncturing expectations of continued low unemployment, first occurring in 1967-8. As full employment was not expected to be maintained, employers no longer felt they had to keep the same number of workers on through bad times in case of future labour shortages. Slower labour demand growth was partly the result of rises in wage and other employment costs. These higher costs meant employers hired fewer workers. During the late 1970s the slowing in private sector demand for labour was also reflected in the public sector as government tried to control expenditures.

In addition, Hawke suggested that there was a structural worsening in the foreign exchange constraint as a result of the oil crisis. Adjusting to this shift in the balance of payments led to more contractionary fiscal and monetary policies and lower aggregate demand.

There were also changes in informal institutions - particularly government commitment to full employment as a policy goal. Hawke argued that as the 1970s dawned there was a greater willingness by government to accept that there could be a trade-off between full employment and economic growth. Increasingly, it was suggested that full employment directly reduced efficiency as workers with diminishing productivity were hired. Furthermore low unemployment played a weaker disciplinary function and encouraged workers to slack with little fear of the sack. In addition, high aggregate demand in the past had generated a trade deficit and a need for import controls to maintain external balance. Controls then begat inefficiency and slower short term growth.

3.5 SOME SEMI-OFFICIAL EXPLANATIONS

With rising inflation, increasing industrial strife, and an explosion of wage claims, registered unemployment had begun to edge up over the 1970s. As a result of growing concerns about the breakdown of full employment, a debate amongst New Zealand economists developed regarding the relationship between real wages and unemployment. In this section two semi-official explanations of unemployment are considered which were part of this debate, one from the Reserve Bank and the other from the 1988 Royal Commission on Social Policy. Both the Bank and Royal Commission's approaches reflect, to some degree, the influence of the competing claims or equilibrium theories of unemployment considered in the previous chapter.

In work undertaken under the auspices of the Reserve Bank, Arthur Grimes brought the issue of the relationship between real wages and unemployment to the fore. The stimulus for Grimes's work was to explain the strong post 1978 rise in New Zealand's unemployment and discuss the questions it raised for economic policy in general and the Reserve Bank in particular.

After much empirical study, Grimes concluded that wages in New Zealand were not influenced by unemployment. Thus, higher unemployment did not lower wages as the competing claims or equilibrium unemployment theory suggests. However, the wage setting system was such that higher taxes and higher import prices push wages upwards to compensate for any reductions in purchasing power. For Grimes, the reason for this was the protected nature of the New Zealand labour market. In terms of the competing claims explanation of equilibrium unemployment advanced in the previous chapter, Grimes introduced additional claimants on the national pie. These claimants are government through taxes and, through the need to pay for imports, the external sector.

Given that Grimes's research programme revealed that labour demand responds inversely to the cost of employing workers - or real wages - a

coherent explanation of unemployment emerges, backed up by a considerable degree of empirical work. What is this explanation?

The theory is simple. Suppose the average worker is paid \$10,000 gross per year and taxes are 25 cents in the dollar. The wage received by workers, or the *consumption wage*, is \$10,000 less \$2,500, the 25% paid in tax, or \$7,500. The wage cost facing employers is the \$10,000 they must pay to hire a worker, or the *product wage*. Note that there is a *wedge* between the consumption and the product wage of \$2,500 due to taxes. Suppose taxes increase to 30 cents in the dollar. The consumption wage falls to \$7,000. Workers, unconstrained in their wage bargains by unemployment, want to maintain their take home wage at \$7,500. To do so, they must push the gross wage from \$10,000 to \$10,714, since at a tax rate of 30 cents in the dollar this is sufficient to maintain take home pay at its previous level of \$7,500.

While workers have maintained living standards, the cost to firms of hiring workers has increased by 7.1% ($\$10,714/\$10,000 - 1$). If the Reserve Bank does not allow the money supply to increase, which gives scope for firms to increase prices to offset rises in labour cost, it would no longer be profitable to hire as many workers. Employment would drop and unemployment rise. If monetary expansion does occur the rise in unemployment would be avoided. However, inflation would continually increase since neither workers, employers nor government are prepared to reduce their real claims on output.

In terms of actually explaining unemployment, Grimes explained the importance of tax rates in wage determination as a function of "the monopolistic power of labour". Since the effective tax rate on wages and salaries rose from 13% to 26% between 1962 and 1979, his explanation of the rise in unemployment immediately emerges.

Grimes also argued that, in addition to tax rates, changes in the terms of trade - the price of exports relative to imports - also play a role in influencing unemployment. How does this mechanism operate?

In addition to taxes, workers take into account consumer prices in setting their wages. Consumer prices depend both on domestic prices and import prices. Suppose import prices go up by 10% and domestic prices, including the price of exports, remain constant. The terms of trade have worsened by 10%. If imports make up 30% of consumption, the consumer price index rises by 3% (10% multiplied by 30%). Before- and after-tax wages are pushed up by workers by 3% - from \$10,000 to \$10,300 and \$7,500 to \$7,725 respectively - to ensure living standards do not change. Firms face 3% higher wage costs while their prices are unchanged and changes in consumer prices relative to domestic producer prices drive a wedge between consumption and product wages. Higher real product wages reduce the amount of employment that can be profitably offered and raise unemployment.

Grimes neatly explained higher unemployment by rising import prices and rising taxes. While a proximate explanation of rising unemployment is offered in terms of rising tax rates on wages and salaries, an ultimate explanation requires an analysis of the forces pushing tax rates up. There are some problems with the completeness of his explanation. A detailed explanation of why tax rates rose from 13% to 26% was not undertaken. The high tax rates that Grimes pointed to as one of the two important *causes* may be to a large extent the *effect* of the breakdown of full employment. Why? Simply because higher unemployment means a lower tax take as fewer people are employed and greater welfare spending on unemployment benefits. A higher tax rate is therefore required to balance the government's books.

The Reserve Bank work swiftly entered the political arena, being picked up by the Employers Federation. The debate also moved directly into the public view, with the Minister of Labour supporting the Reserve Bank's policy recommendations to reduce real wages. Controversy also raged regarding the accuracy and reliability of Grimes's data and statistical techniques in various academic and semi-popular publications.

The debate continued into the late 1980s and 1990s gradually merging into debates regarding labour market flexibility. Implicit in the debate on labour market flexibility was the belief, related to Gould's story, that it was considerable structural change in the face of rigid industrial and occupational wage relativities that was creating unemployment in some sectors and hence increasing structural or mis-match unemployment.

Since the 1950s, New Zealand economists had recognised that full employment existed in a symbiotic relationship with the social welfare system. If full employment broke down, considerable fiscal pressures would be placed on the entire structure of social welfare. Therefore it is unsurprising that the Royal Commission on Social Policy addressed the issue of full employment. A sophisticated account of the rise and fall of full employment is developed by Deborah Mabbet for the Royal Commission. The work is less detailed and empirical than Grimes's, but ranges wider in a search for understanding and explanation.

Full employment was based on what Mabbet called "the bread winner model" whereby the system generated a family wage sufficient to keep women in the home. The bread winner model required high wage male jobs. Such high wage jobs were created in the sheltered sector of the economy through protection. The import licensing system, restricting import competition, generally supported male-dominated sectors. By contrast, protection to female-dominated industries like textiles and clothing Mabbet argued to be sporadic.

While border protection was initially used to maintain employment stability, the system of protection was increasingly seen as inefficient by Government. In addition, the margin for further extensions in import licensing was rapidly disappearing. The necessary minimum level of imports was fast being reached. Thus by the seventies employment protection involved growing industrial subsidies and direct public sector job creation, especially after the first oil shock, rather than reductions in imports. While most border protection didn't cost government much directly, Mabbet pointed out that industrial subsidies

and direct government job creation had a considerable direct spending cost.

In addition to the protective regime, Mabbett located the achievement of low unemployment firmly in the context of the New Zealand wage determination system. In the 1950s and 1960s the Arbitration Court system successfully maintained low inflation of wages and prices, despite low unemployment. In the 1970s the centralised system broke down. Local, or "second tier bargaining", became widespread, setting wages further above national award levels. Second tier bargaining greatly increased the inflation generated by the system at a given level of unemployment. The Arbitration Court, the Employers Federation and the Federation of Labour could not control second tier bargaining. The result was ineffectual, ad hoc Government-imposed wage controls through the 1970s.

Here Mabbett drew on ideas associated with the competing claims theory of unemployment. This work suggests that both a highly centralised and highly decentralised wage bargaining system results in lower wage pressures and lower unemployment than an intermediate degree of centralisation. High degrees of centralisation means that wage bargainers must take into account the implications for all workers of their wage bargains. As a result, wage pressures are lower. However, in a system with a high degree of union power but little effective central control, individual unions can push for high wages. These unions have little incentive to worry overmuch about the higher inflation or unemployment their actions may impose on others.

The beginnings of breakdown of the full employment system were located by Mabbett in the late sixties. According to her, the late sixties was the point at which major changes in the principle of protection occurred. From then onwards, there were reductions in protection, substitution of tariffs for quantitative controls on imports, and export diversification. Why did changes in the protective regime occur? And why did breakdown in full employment occur?

The main problem necessitating a change in the nature of protection was that import controls no longer sufficed to ease the foreign exchange constraint. The irreducible minimum of imports was close. At the same time wage setting institutions had evolved for a protected economy. Therefore, it was difficult to adapt them to a situation of export-driven growth. Furthermore, by 1968 the wage bargaining system had broken down and decentralised bargaining was on the rise. By the 1970s wage increases were beginning to squeeze the export sector. Thus, devaluation and subsidies were used to help exporters, leading to rising inflation and fiscal problems. These fiscal problems then provided an ultimate explanation of the rises in taxes that Grimes singled out as an explanation of increasing unemployment.

As suggested in earlier studies by Westrate and Hawke, Mabbet pointed out that supporting the wage determination system in achieving full employment during the 1950s and 1960s was solid government commitment to full employment, partly as a legacy of the depression in the minds of politicians and voters, and partly a result of new tools of economic management, influenced by Keynesian theories and the Fabian socialism of Beveridge and others. Full employment was an integral part of the welfare state, linking labour market policy to social welfare objectives.

At the same time, according to Mabbet, there was a sort of cyclical ratchet effect operating from high demands for labour back into labour supply:

The drive to expand the country's industrial base led the government to allow a level of investment and input importing in booms higher than was necessary to maintain male full employment. The excess demand was maintained by recruiting women and rural Maori into the labour force. In downturns labour demand had to be allowed to fall. Because immigration was cyclically responsive and women's unemployment largely unrecorded, this process did not lead to substantial registered unemployment until 1968.

There are problems with this explanation. First, increasing female participation probably had much to do with social changes only weakly connected to the demand side of the economy. Second, it is true that due to the criteria required to be on the unemployment register, it undoubtedly understates the degree of female unemployment. However, if one reconstructs unemployment using more accurate census numbers, female unemployment does not appear to be greatly in excess of male unemployment until the 1980s.

3.6 A MARRIAGE OF ECONOMICS AND SOCIOLOGY

There have been several attempts to cast the net wider than conventional economics to explain New Zealand's unemployment experience. One such attempt can be found in *Unemployment in New Zealand*, a book authored in 1990 by Ian Shirley, Brian Easton, Celia Briar and Srikanta Chatterjii. Another work in similar vein is a 1993 book by Mike O'Brien and Chris Wilkes, *The Tragedy of the Market*. One of the aims of *Unemployment in New Zealand* is to analyse the causes of unemployment in New Zealand. O'Brien and Wilkes attempted a more general explanation of New Zealand's development where issues of employment and unemployment play an important role.

In both, high employment rates through the 1950s and 1960s in the advanced capitalist economies, including New Zealand, are put down to a combination of Keynesian demand management and a post war social consensus regarding both the formal institutional structure and sets of explicit and implicit property rights which structured economic behaviour. Consensus led to high degrees of certainty and confidence and assisted in maintaining high rates of growth of output and employment.

Post war golden age capitalism is described as *Fordist*, based on mass consumption and production, a welfare state and low unemployment deriving from a historic compromise between the conflicting forces of capital and labour. The term Fordist is drawn from Henry Ford's innovative methods for organising the mass production of motor vehicles in the early part of this century. "Cars any colour you want", said Ford, "as long as they are black".

Breakdown of Fordism as a system occurred in the industrial economies during the 1970s. The particular timing of individual countries' breakdown varied, depending on specific circumstances. Why did breakdown generally occur across the OECD? Sustained rapid growth

led to a labour shortage. A shortage of labour caused real wages to rise, squeezing profits. Shrinking profits reduced incentives to invest and hence the rate of economic growth. Lower economic growth meant lower employment growth and a rise in unemployment. In addition, breakdown is also related to technological change induced by the profit squeeze. The breakdown was associated with a transition from a Fordist to a post Fordist economy (flexible production, differentiated patterns of consumption). The implication is that this transition created structural unemployment. Furthermore, because of the emphasis on flexibility and change in the post Fordist economy, it may require a greater margin of unemployment than Fordism.

The breakdown was handled in different ways by different countries. Those most successful in keeping unemployment low were those maintaining economic sovereignty, a secure domestic market and a policy commitment to low unemployment.

Essentially from the election of the first Labour government in 1936 until 1967, as a result of experiences of the Great Depression, economic policies were dominated by the goal of full employment. Various macroeconomic instruments were used to insulate the economy from fluctuations (including demand-management policy and the Arbitration Court system), provide a secure domestic market, and ensure New Zealand's economic sovereignty.

Both Shirley et. al. and O'Brien and Wilkes argued that a secure and prosperous market for primary products in Britain and a strong global economy were key factors in this set of institutional structures. When New Zealand's terms of trade turned down in 1967 and Britain entered the Common Market the economy could no longer generate sufficient foreign exchange to maintain full employment. Thus Lang and Rosenberg's foreign exchange constraint emerges as part of the argument.

However, from 1984 onwards, Shirley et. al. suggested that the rise in unemployment cannot be attributed to external factors, since the terms of trade were improving and the world economy was strong. Instead,

the rise in unemployment is attributed to a change in government economic policy away from full employment as an immediate (or even eventual) policy goal. After 1984 there is a decisive shift in the political culture away from emphasis on full employment towards controlling inflation and the end of the historic compromise between capital, labour and the state. A new definition of the role of the state evolves and there is a removal of structures consistent with the old set of institutions which supported workers and, to a lesser extent, employers.

Both these works have a common strength in their desire to see and explain a big picture. They also acknowledge the conflict inherent in employment relationships which is often glossed over in other accounts. Unfortunately it seems that taxonomy, in particular the use of the terms Fordist and post Fordist and the assertion that they comprise distinct forms of economy, becomes a substitute for ideas. A weakness of both books is tendency to romanticise the labour movement and the disadvantaged. The story told sometimes seems a too simple morality tale of a battle between the forces of good (workers and the unemployed) and evil (big business and their government minions).

3.7 THE POST OFFICE AND RAILWAYS EXPLANATION

A final explanation offered from the sharp rise in unemployment during the 1980s which deserves mention, for it is in danger of entering popular mythology through the utterances of various politicians and commentators, is what I describe as the Post Office and Railways argument. The theory, if one can call it that, is refreshingly simple. The suggestion is that large numbers of people were employed by inefficient government departments like the Post Office and the Railways. In effect, padded government departments meant high levels of disguised unemployment. When such trading departments were placed on a commercial footing or were privatised, jobs disappeared. Consequently structural unemployment is argued to have increased rapidly.

3.8 CONCLUDING THOUGHTS

This chapter has illustrated a concern by New Zealand economists to address the questions of why full employment was achieved, how it was maintained, how it broke down and why unemployment has remained at high levels ever since. Indeed, given the importance of employment in the society in which we live and the costs that unemployment places on ordinary people, it would be surprising if it were otherwise. Consideration of what they wrote provides a fertile array of hypotheses for examination, development, synthesis, and empirical examination.

CHAPTER FOUR: ASSESSING THE EXPLANATIONS

Having considered the variety of maps used to navigate the terrain, I am now in a position to test the various theories against the empirical evidence. In considering the empirical evidence, I am interested in whether the data allows us to rule out some explanations. Once this process is complete, a plausible story regarding the rise and fall of full employment can be developed in Chapter Five.

Before the data can be considered, the question of how evidence is to be assessed must be dealt with. Like a detective, social scientists are required to sift through mountains of sometimes conflicting evidence. Inevitably the evidence is not totally reliable or perfectly suitable for answering the questions being asked. Frequently even the degree of data unreliability is unknown to the investigator. Thus investigators are forced to place a subjective weighting (which may even rule out certain evidence as worthless or uninteresting) on often conflicting information. These weights are value judgments - informed value judgments to be sure, but value judgments nonetheless. These value judgments will be influenced by the researcher's experience, background, prior beliefs and ideological position. The influences on the value judgments used to weight evidence will themselves differ across researchers. Perhaps unfashionably, I believe that researchers should strive to be as objective as possible. At the same time, I recognise perfect objectivity, like Utopian dreams of paradise on earth, is unachievable.

Following a naive version of the work of philosopher of science Karl Popper, some have the idea that assessing theories is simply a matter of setting up a test of theory. If the theory can be shown to be false, or falsified, it can then be put aside. Unfalsified theories can be provisionally accepted, subject to possible future refutation. In this

version of Popper's views, we know what is wrong but not what is right.

There are a number of problems with naive falsification as a philosophy. First, what say more than one theory exists which cannot be falsified by the data? Then we have to draw on other unspecified criteria in order to favour one over the other. Equally, there is also the problem of what another philosopher of science Imre Lakatos engagingly termed "immunising stratagems". Any theory is subject to test along with a whole set of auxiliary hypotheses. Falsification of a theory may occur not because the theory is false but one of the assumptions underlying the test - auxiliary hypotheses - does not hold. A simple example can illustrate. Suppose I argue that unemployment has increased because trade union power has increased. Greater trade union power increases wage pressures. Higher wage pressure requires a rise in unemployment to keep these claims in check. Suppose someone then finds that the numbers of trade union members have fallen rather than risen when unemployment has increased. Is my theory decisively falsified? Of course not. An auxiliary hypothesis involved in this simple test is that the numbers of trade unionists measures union power. Other auxiliary hypotheses are that both union numbers and unemployment are measured accurately. An immunising stratagem avoiding falsification of the theory would be that trade union power depends on unobserved factors other than numbers. Alternatively, one could immunise by arguing that unemployment and union numbers are inaccurately measured.

In the end, conclusions are a matter of judgment, a matter of weighing up the evidence. This judgment will be influenced by a variety of factors, including the empirical evidence and an estimate of its plausibility and reliability, what evidence is looked at and the strength of the researcher's prior beliefs.

The chapter first considers labour supply and demand theories for the rise and fall of full employment in New Zealand. It canvasses the argument that faster labour force growth, particularly of women, was responsible for the breakdown of full employment. It also considers the

argument that labour demand fell short of labour supply because real wages rose, causing producers to demand fewer of the more expensive workers.

Discussions of simple supply and demand theories then feed into the rest of the chapter, which is structured around the competing claims model of unemployment. The second section looks at factors which could have influenced wage setting and issues of structural change causing unemployment. Price setting behaviour and unemployment is considered in section three, while sections four and five deal with aggregate demand shocks and the issue of the foreign exchange constraint.

4.1 LABOUR SUPPLY & DEMAND

The best way of moving into the empirical issues is to consider the evolution of labour supply and demand over the period. Recall that Ruth argued that full employment arose out of three Acts of Parliament during the mid 1930s that reduced labour supply through lower labour force participation and spread existing labour demand over a greater number of people. Given the paucity of reliable economy wide labour market data over the period, it is hard to accurately assess Ruth's claims. The only available data is from the 1936, 1945 and 1951 censuses.

Between 1936 and 1945 the censuses show a 1.4% decline in employment. Male labour force participation drops from 93% in 1936 to 80% in 1945 while the female rate rises only slightly from 25% to 26%. The 1945 census does not measure the 40,000 men overseas in the armed forces. Including these men would however push the male participation rate up only slightly to 81%. However, it must be remembered the 1945 census covered an economy just emerging from the unique event of world war and returning to civilian life. This fact makes it hard to draw conclusions regarding the labour market from its data.

Perhaps a better comparison would emerge from consideration of the 1936 and 1951 censuses. Over this period employment grows by 15%. The male participation rate drops to 85% while female participation is fairly stable at 25%. Certainly lower male participation rates in 1951 than in 1936 may have made some contribution to lower unemployment. However, to assume that if the male participation rate and the male labour force had been higher, unemployment would have increased by the amount of higher participation is to fall into the "lump of output fallacy" criticised in Chapter Two. A higher labour force allows an economy to expand output and employment in a non-inflationary fashion. If output and employment do not expand to employ the additional labour force, the reason why it does not expand is then the factor ultimately underlying unemployment, not expansion of the labour force as such.

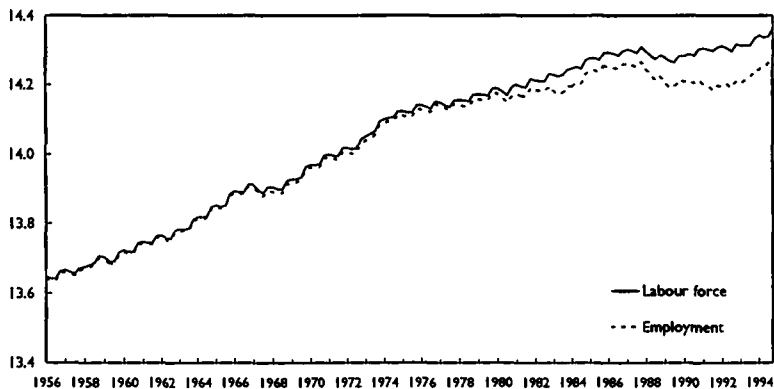
The jury is still out on the extent to which lower male participation rates from 1936 onwards helped create full employment. However, the notion that lower participation rates may facilitate lower unemployment does not sit well with economic theory.

Now consider the issue of labour demand and supply from 1956 onwards, a period for which better data is available. The labour force (labour supply) and employment (labour demand) are shown in Figure 4.1. The labour force (supply) and employment (demand) numbers are measured in natural logs on the vertical axis, which means the slopes of the graph can conveniently be interpreted as growth rates.

If excessive labour force growth was a factor causing the end of full employment, one would predict faster labour force growth during the 1980s and 1990s. From about 1975 there is a slowing in the rate of growth of the labour force compared to the fifties and sixties. Indeed the labour force actually declined during the late 1980s when unemployment was rising. While labour force growth resumed during the new decade, labour force expansion continued at lower rates than prevailed during the period of full employment. In addition to being vulnerable to the "lump of output fallacy", the story of the breakdown of full employment in terms of the emergence onto the labour market of a flood of post war baby boomers seems to be falsified by the empirical facts.

As has been shown in Chapter Three, Hawke suggested that growing numbers of women in the workforce may have contributed to the breakdown of full employment. Again, the suggestion is vulnerable to the "lump of output fallacy" criticism made at several points above. In addition, for the female participation story to be the case, one would predict a faster growth of the female labour supply during times of rising unemployment. Since male and female working age populations grow at very similar rates, rising female labour supply must arise from larger numbers of women participating in the workforce.

Figure 4.1 The labour force and employment
Household labour force figures. Natural logs



Source: *Household Labour Force Survey* and Chapple (1994)

Over the period male participation rates certainly fell from over 90% in 1956 to 74% in 1995, while female rates rose from 29% to 55%. However, the real question is: do female participation rates grow at a faster rate when unemployment is rising? If so, some causal connection is possible between rising female participation and unemployment. Most of the rises in female and aggregate participation rates occurred until 1975. Thereafter rates grow more slowly or stabilise. For example, between 1956 and 1975, female participation rates grew each year at an average of 0.7%. Between 1976 and 1984, this rate almost halved to 0.4%. Female participation growth between 1985 and 1994 then fell away to average 0.04% - almost nothing.⁸ There is no

⁸ There is the argument, occasionally encountered, that zero unemployment could be restored at a stroke by returning the female participation rate to some lower level attained in the past. While being adequate arithmetically, the argument is bad economics. To the extent unemployment has an equilibrium component, exclusion of women from the

empirical evidence in the data for the notion that full employment broke down because of rising female participation. There are no trend breaks in an upward direction in participation rates associated with unemployment increases. If anything, female participation changes appear to have cushioned rises in unemployment, especially post 1987. A second supply driven explanation sometimes offered for the breakdown in full employment is the arrival of the post war baby boomers on the labour market. Flooded by these additional workers, the labour market cannot cope and unemployment grows. However, baby boomer arguments are directly confounded by the data of Figure 4.1, which suggests lower - not higher - labour supply growth after 1975.

Now turn to the labour demand side of the equation. Unilateral real wage hikes in excess of labour productivity growth driven by trade unions and centralised wage bargaining structures have been seen by Grimes, amongst others, as a crucial factor underlying the rise in unemployment. A measure of the real product wage, proxying the cost to employers of hiring workers, can be constructed by dividing average ordinary time weekly earnings by the GDP deflator. Between 1956 and 1980 this measure of real wages grew on average by 2.6% each year. Between 1981 and 1994 real product wages fell on average by -0.03% each year. In 1994, real product wages were only 2.3% higher than in 1975, despite large gains in labour productivity.

The behaviour of real product wages makes it difficult to convincingly tell a simple real wage push/unemployment story with unions and workers unilaterally pulling real wages upwards and employers

workforce by fiat or returns to social attitudes of an earlier generation would merely cause inflation to rise, demand to contract and male unemployment to rise to offset the fall in female unemployment. Even if one ignores the inadequate economics, the argument also does not indicate why as a social group women should be singled out for exclusion. One might alternatively suggest achieving the same goal by excluding the blue-eyed, Aucklanders or the meek!

substituting away from more expensive workers towards capital and other inputs in terms of the production mix. A more sophisticated version of the real wage argument in terms of real wage pressures (rather than actual real wage increases) and the wedge between consumption and product wages is examined below. Some interesting differences can be observed in the behaviour of male and female labour demand. Male full time employment rose steadily until 1975, interrupted by short mild recessions in 1958 and 1967. After 1975 male full time employment hit a brick wall before falling into a steep decline from about 1987. Remarkably in March 1994, male full time employment was, at about 780,000, much the same as it was a quarter of a century ago. The wall reflects a tradition of male employment in the manufacturing industries, a sector which stagnated from the late 1970s onwards. On the other hand, female full time employment displays rather less extreme behaviour. A plateau in employment levels occurred in the mid 1980s. While the mild 1958 and 1967 recessions show up somewhat, there was no employment wall in 1975 and the impact of the post 1987 employment fall was much weaker than for males. The smaller and later female wall may reflect occupational segregation. Women are more likely than men to be employed in services and less likely to be employed in manufacturing. The relative output share of the service sectors has been growing and they suffered less during liberalisation in the 1980s than manufacturing. The differing behaviour of male and female full time employment, especially after the mid seventies, is intriguing and could repay further detailed study. An examination of the data suggests that implementation of equal pay for women from 1972, which pushed up relative female wages, does not appear to have had a strong impact on relative female full time employment prospects.

The final labour demand issue deserving an examination is the argument that it was massive shake outs in corporatised and privatised government departments that pushed unemployment to such heights. There is some support for such arguments. In 1987 Coalcorp, Electricorp, Forestrycorp, NZ Post, Railways and Telecom between them employed around 68,000 workers. In 1994 together they had reduced their combined pay roll to 24,000 workers. Labour demand

had apparently decreased by 44,000 jobs! At the same time unemployment rose by 94,000 people. Thus it is possible that a considerable component of the rise in unemployment - nearly half in fact - can be accounted for via corporatisation.

This argument, although attractive in its simplicity, is however subject to considerable qualification. First, most countries in the OECD experienced large rises in unemployment during the 1980s and 1990s without the massive corporatisation and privatisation experienced in New Zealand. This should make one suspicious of particular explanations for particular countries. In addition, the numbers focus on direct gross job destruction. Recall unemployment can be defined as:

$$\text{Unemployment} = \text{Labour Supply} - \text{Labour Demand}$$

Direct gross job destruction reduces labour demand by 44,000 in the industries considered and raises unemployment by an equal amount. However, there is also indirect job creation as a result of job destruction in one sector. In many cases those laid off (or not hired) will have been employed as contract labour. Jobs have not been destroyed overall but the boundary between firms and the market has shifted. Previously employed within the firm, workers are now hired in. Thus aggregate labour demand will not have dropped by the full 44,000 workers. Forestry is a good example of an industry where many workers were laid off often to allow them to be hired back on contract at a lower total cost. In addition, the availability of 44,000 freed up workers will create some jobs elsewhere in the economy. Other employers will find it easier or cheaper to hire than before, increasing employment. Furthermore, some of those laid off will use their redundancy or other money to go into business on their own account, again raising labour demand elsewhere. In addition, the loss of 44,000 jobs will probably also reduce labour supply. Some of those laid off will have migrated - to Australia or beyond. Others will have taken early retirement or otherwise exited the labour force.

If this structural change had been the driving force behind rises in unemployment, one would expect indicators of structural

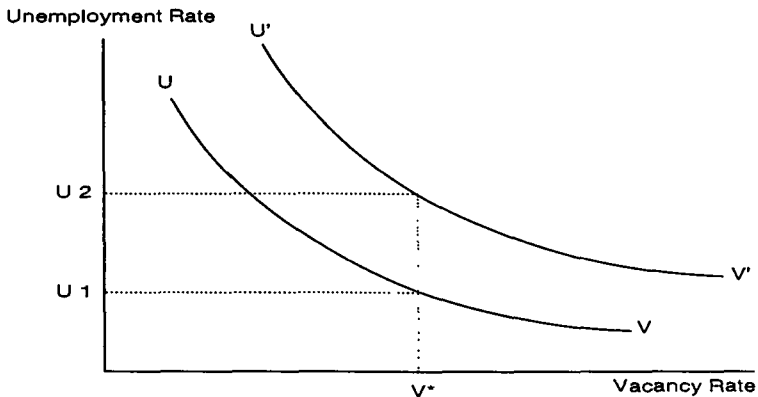
unemployment to increase when unemployment rose in the late 1980s and early 1990s. Discussion of these issues is considered below. However the above discussion should put a dampener on some of the more extreme claims suggesting rising unemployment was solely due to a shake out in a small number of former government trading enterprises.

4.2 WAGE SETTING & STRUCTURAL UNEMPLOYMENT

There are a variety of supply side factors in the labour market which influence wage setting behaviour and hence the equilibrium unemployment rate. These factors can be considered by examining their behaviour directly or examining their influence indirectly via a curve named after William Beveridge. The Beveridge curve shows a downward sloping relationship between unemployment and vacancies (UV in Figure 4.2). On the UV curve inflows to unemployment equal outflows: the level of the unemployment rate is not changing. To the right of the UV curve, vacancies are high relative to unemployment. It is relatively easy for workers to match themselves to jobs. More people leave unemployment than move in and unemployment falls back on to the UV curve. To the left of the UV curve, vacancies are low relative to unemployment. It is now relatively hard for workers to match themselves to jobs. The outflow from unemployment declines and unemployment rises back on to the UV curve.

Shifts in labour demand, reflecting disequilibrium changes in aggregate demand, or equilibrium factors like labour productivity, import prices (if labour and imports are complementary inputs in the production process), taxes and so on will shift the economy along a UV curve. However, anything reducing the ability of workers to match themselves to jobs will raise the unemployment rate at a given level of vacancies V^* , raising unemployment (from U_1 to U_2 in the example in Figure 4.2) and the Beveridge curve shifts outwards from UV to $U'V'$.

Figure 4.2 The Beveridge curve & structural unemployment



Factors which may cause matching to become more difficult include:

- 1) *workers becoming more choosy about taking jobs.* This may be because of rises in unemployment and other benefits relative to what can be earned in the labour market, relaxation in benefit administration by Social Welfare, or the public generally becoming more accepting of people living on welfare benefits.
- 2) *greater mis-match between workers and jobs.* Patterns of the sort of workers unemployed and the sort of jobs on offer may change. This makes it harder for the unemployed to match themselves to work. In terms of the pattern of jobs and workers, greater mis-match may be on a regional, skill or industrial basis. To provide some examples, for a given economy wide vacancy rate of 1%, as companies shift their operations northwards these vacancies may become increasingly available in Auckland. It becomes harder to match unemployed workers in Wellington or Christchurch to these jobs and unemployment increases. Changes in the sorts

of vacancies available, for a given total level of vacancies, or the skills of the workers unemployed, for a given level of unemployment, will also increase mis-match.

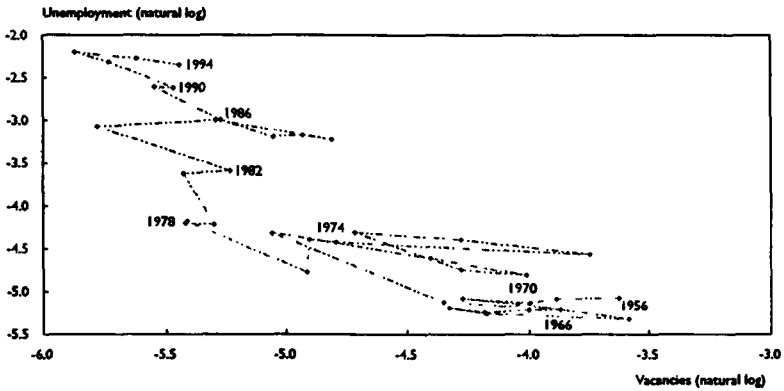
- 3) *employers may have become more choosy about hiring the available unemployed workers.* This may be due to employment protection legislation raising the costs of sacking workers.

Thus explanations which put the rise in unemployment down to (a) excessively generous benefit provision and administration, (b) any form of structural change and liberalisation (including the Post Office and Railways argument and the labour hoarding argument discussed earlier) and (c) more protective employment practices predict that the unemployment-vacancy relationship should shift outwards over time. However, finding an outward shift in the Beveridge curve does not enable a relative weight to be placed on the importance of the three potential causes.

Thus the mis-match explanation predicts an outward shift in the Beveridge curve relating unemployment to vacancies.

In conjunction with *Household Labour Force Survey* equivalent unemployment data, *Job Vacancy Survey* data was used to construct a scatter plot of vacancies relative to unemployment for the 1956-1994 period, shown in Figure 4.3. The scatter plot shows a favourable unemployment-vacancy trade-off over the 1956-1980 period at very low levels of unemployment and high but variable numbers of vacancies. From there on, unemployment rises steadily with smaller declines in vacancies. It is rather difficult to clearly observe a strong outward shift in the curve over this period with the eyeball. However the eyeball is less honest than using more sophisticated statistical techniques. Using both quarterly and annual data and more complex statistical techniques, no strong evidence could be found for any outward shift in the Beveridge curve over the period, despite strenuous efforts to do so (for full details of these statistical explorations see Chapple 1995B).

Figure 4.3 The New Zealand Beveridge curve



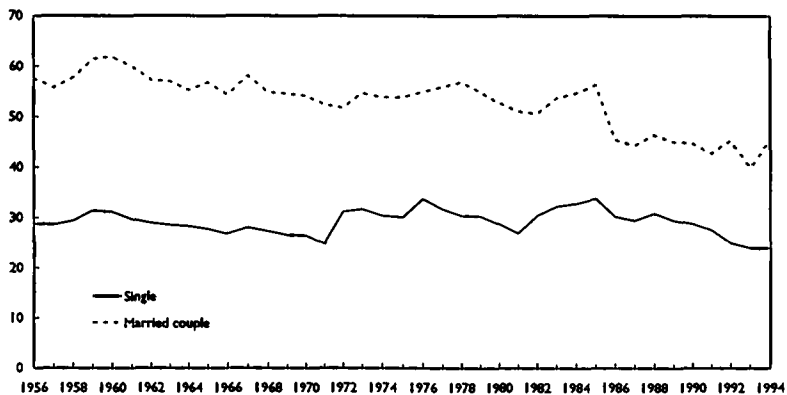
Source: Chapple (1995B)

While the analysis of New Zealand's Beveridge curve provides some evidence for ruling out choosy worker, choosy firm and mis-match explanations of the rise in New Zealand's unemployment rate it is indirect evidence. It does not directly consider whether workers have become more choosy, whether mis-match has grown or whether firms have become more choosy. These issues can, to some extent, be considered directly. If these results support the indirect evidence that there appears to have been no outward shift in the Beveridge curve, this would increase confidence in the interim conclusion that declining efficiency of labour market matching was not a major cause of the rise in unemployment.

Considering the choosy worker issue further is difficult. One can look at the monetary return to being on a benefit relative to that in work - what economists describe as replacement ratios. However, constructed replacement rates tend to be benefits relative to the average wage. In theory, the market wage used in construction of the replacement rate should be the wage at which those currently unemployed, or making decisions to become unemployed, can find a job. This may be considerably lower, and may evolve over a time in a quite different

way, than the economy wide average wage. Bearing these difficulties in mind, consider average replacement rates for the 1956-1994 period for a single person over 20 and for a married person. This information is shown in Figure 4.4. Average replacement rates decline rather than rise over the period. This is interesting in itself. For those countries, like the UK, where theories of benefit-induced unemployment have been popular, average replacement rates show strong rises from just a shade over 30% in 1950 to a little under 45% by 1970. Thereafter they decline somewhat but are still above 40% in 1985.⁹

Figure 4.4 Replacement rates
Unemployment benefits as a % of average weekly earnings



Source: Chapple (1994A)

In analysing whether workers have become more choosy about taking work relative to taking a benefit, one can also look at changes in benefit administration and in attitudes to living off a benefit. If benefit administration criteria were relaxed or public attitudes to being on a benefit had become more accepting, workers may become more

⁹ The UK numbers come from Richard Layard's *How To Beat Unemployment*, Oxford, Oxford University Press, 1986.

choosy about taking jobs. These issues are difficult to get a handle on. Even if it was found that the public was more accepting of those living on a benefit, a cause and effect problem would arise. The cause of the change in attitudes may have been the result of more people on benefits, not vice versa. Equally, relaxation in benefit administration may reflect the swamping of NZISS (Social Welfare) by large numbers of beneficiaries, rather than being the cause. Perhaps all one can say with confidence is that from December 1990 onwards benefit eligibility criteria have been tightened. Now consider the structural change and mis-match arguments. Particularly since liberalisation in 1984, New Zealanders have been frequently told by politicians and other commentators that we live in times of unprecedented structural change, particularly in the labour market. How accurate is this perception?

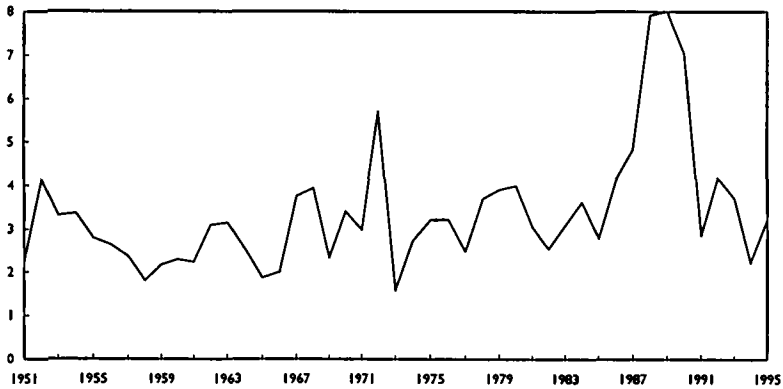
At a given point in time certain sectors grow faster, and others slower, than average growth in the economy as a whole. An increased degree of structural change in labour markets occurs when these sectoral differences in growth rates widen. This rising turbulence causes a higher average level of unemployment since faster growing sectors cannot get all the workers they want and slower growing sectors are shedding labour. Workers take time to make the switch from slow to fast growing sectors. The greater the dispersion between sectors, the more workers there are queuing up to make the switch.

Several indicators of this form of structural change in the labour market can be developed. One such is the Lilien index, named after its inventor, David Lilien.¹⁰ The Lilien index enables a number of interesting observations to be made. The first thing which catches the eye is an historically high period of structural change between 1988 and

¹⁰ The index measures the dispersion of sectoral job growth relative to the average. For example, for a given average economy wide level of job growth, the index will be higher the greater the divergence of growth of sub-sectors of the economy from this average.

1990, over which period unemployment rose from around 5% to 7.2%. However, between 1990 and 1992 there was an even larger rise in unemployment, while the indicators of structural change revert to around the long term historical average. Contrary perhaps to some perceptions, turbulence in the labour market between 1984 and 1987 seems to be similar to post war averages. Finally, there is no rise in the index through the early 1980s when unemployment rose from around 1.5% to 5%.

Figure 4.5 Structural unemployment?
The Lilien index of industrial turbulence



Source: Chapple (1995B)

Nevertheless, the association of high structural change during 1988-1990 and growing unemployment remains. However, the question is whether this high degree of structural change is the *cause* of some of the rise in unemployment or is a *consequence* of the share market crash, dis-inflation and contraction of aggregate demand. One way of distinguishing the competing hypotheses of aggregate demand versus the structural change argument is that the latter predicts increases in unemployment will be associated with increases in vacancies, while the former predicts increased unemployment will be associated with a reduction in vacancies.

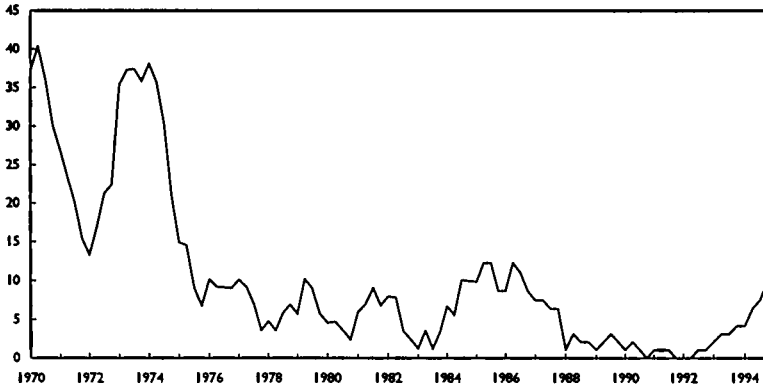
Over the period vacancies fell, rather than rose. This fall was from already historically low levels of 8,280 in March 1988 to 6,732 by March 1990 and 4,645 in March 1992. Thus vacancy data suggests that the rise in industrial turbulence during the late 1980s is due to aggregate demand influences, since there is no concomitant rise in vacancies.

However, the structural unemployment hypothesis can be examined even more directly. If structural unemployment was a principal cause of the rise in unemployment, using Walras's law¹¹ and assuming the sum of excess demands in all other markets is approximately zero, theory predicts rises in unemployment should be associated with the observation of growing excess labour supply in some sectors and growing excess labour demand in others. Overall one would predict that if increasing unemployment were due to rising structural unemployment, it should be correlated with an increase in the proportion of firms constrained from expansion by a shortage of labour for a given level of capacity utilisation (with excess demand for labour, the short side of the market - labour supply - will dominate). This prediction can be examined using *Quarterly Survey of Business Opinion* (QSBO) data on labour constraints. Figure 4.6 shows the ratio of the percentage of firms constrained from expansion by labour to capacity utilisation. It suggests the opposite of the structural unemployment hypothesis. First, the periods of high and rising unemployment have been periods where very few firms were constrained from expanding production by labour shortages. Second, the indicator of structural mis-match has been generally declining

¹¹ Walras's law states that if supply is equal to demand in all but one of the markets of the economy, it must be equal to demand in that remaining one market. It also suggests that if demand exceeds supply in some markets and falls short in others the sum of the excess of demand over supply in some markets is equal to the sum of the excess of supply over demand in the other markets.

rather than rising. Where it does bump up is during times where unemployment was at a local *low*, rather than a high.

Figure 4.6 Structural unemployment?
Labour constraints relative to capacity utilisation



Source: Chapple (1995B)

Furthermore, if rises in unemployment were due to increasing structural unemployment, theory would predict that labour constraints would rise sharply in some sectors of the economy (where there is excess demand) and fall sharply in others (where there is excess supply) as unemployment rises. Again using QSBO data, four sectors of the economy can be identified where data is available on labour constraints: Manufacturers, Builders, Merchants and Services. The spread (as measured by the standard deviation) of the percentage of firms in each sector with a labour constraint falls as unemployment rises rather than vice versa, contradicting the structural unemployment hypothesis. The trend is generally down until 1993, apart from a blip for the 1985-1986 *decline* in unemployment. Simply speaking, the data shows no support for the structural change or mis-match explanation of the rise in unemployment. However, this finding could be because these QSBO sectors are not the appropriate “mis-match clusters”, rather than because a structural change story is wrong.

If the rise in unemployment during the 1980s and early 1990s was caused by mis-match, again using data from the QSBO, one might predict that it would become increasingly difficult through the period to find skilled workers relative to unskilled workers. This hypothesis was tested by comparing the ratio of the difficulty of finding skilled and unskilled workers until 1980 with that thereafter. Rather than finding that skilled workers were relatively more difficult to recruit post 1980, as the mis-match explanation predicts, the opposite was the case. During the 1987-1995 period it was much easier, relatively speaking, to find skilled workers than previously. The QSBO data on the difficulty of finding skilled and unskilled workers is consistent with skilled workers being in short supply while unskilled workers remain plentiful at the top of a boom. As aggregate demand contracts (say through the 1982/3 recession or the 1988-1992 contraction) unskilled workers remain easy to recruit and skilled workers become increasingly easy to hire.

A final cut on the mis-match explanation can be obtained by using disaggregated *Job Vacancy Survey* data and information on the registered unemployed to construct indices of occupational and regional mis-match. Data is only available for constructing indices of regional and occupational mis-match for short periods during the 1980s. In addition, the highly imperfect nature of the registered unemployment series should be borne in mind in the conclusions which follow. However, only the register contained information on the occupational and regional characteristics of the unemployed that could be matched to vacancies. The percentages of total registered unemployment accounted for by occupational and regional mis-match are shown in Table 4.1.

The indices of mis-match unemployment indicate, at least for the register, that mis-match makes up a considerable *share* of unemployment. The data shows a rise in the percentage of unemployment accounted for by regional mis-match, peaking in 1986 at 14% and then falling back down to historically average levels by the late 1980s. At the same time there appears to have been some mild rise in the percentage of unemployment accounted for by occupational mis-

match, rising from an average of around 5% in the early 1980s to around 9% in 1989. However, total mis-match peaks in 1986, when unemployment rates were still around 4%, and thereafter declines as unemployment rises. The only other analysis of New Zealand's structural unemployment by Hicks, using unemployment register data from the 1970s, shows on average the percentage contributions of occupational and regional mis-match ("structural unemployment") to unemployment as a whole was far greater than during peak levels reached in 1986.

*Table 4.1 Percentage of registered unemployment
accounted for by regional & occupational mis-match*
Percent

Year	Occupational mis-match	Regional mis-match	Total mis-match
1981	4.1		
	5.6		
1982	3.7		
	5.2		
1983	5.2		
	5.2		
1984	3.5		
	4.7	5.2	9.9
1985	3.1	2.8	5.9
	6.4	8.9	15.1
1986	6.5	7.2	13.7
	8.4	14.5	22.9
1987	5.6	10.7	16.3
	8.3	12.7	21.0
1988	6.2	8.6	14.8
	9.5	7.0	16.5
1989	N/A	4.6	N/A
	9.4	6.0	15.4
1990	9.0	4.0	13.0

Source: Chapple (1995B)

Finally, the choosy employer hypothesis is difficult to examine directly. Whether employees had greater protection during the periods of rising unemployment is a moot point. In addition, rises in employee protection will have an ambiguous impact on total employment. Theoretically they will reduce hires, as they raise the cost of hiring, but also reduce firing, since those costs are commensurably raised.

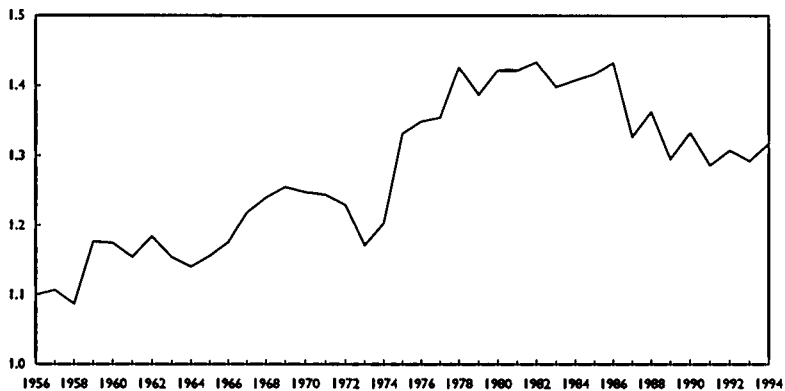
Structural unemployment issues have been examined. Now consider other factors behind wage fixing behaviour. The following wage setting factors may impact on the equilibrium rate of unemployment:

- a rise in the wedge between consumption and product wages
- changes in industrial militancy
- union membership

If the wedge was behind rising unemployment, one would expect strong rises in the wedge at times where unemployment rose. Figure 4.7 graphs a measure of the wedge between consumption and product wages. This measure incorporates consumer prices relative to the GDP deflator, average income tax rates on wages and salaries, and employment taxes.¹² Until 1978 the wedge shows a strong rising tendency, with a sharp increase between 1973 and 1978. It is this rise that Grimes associates with increasing unemployment. However, post 1978 the wedge stabilises, declining from 1985 onwards when unemployment grew strongly. The wedge would have to have very long lagged effects to account for any rise in unemployment from the late 1980s.

¹² Employment taxes are assumed to be made up from ACC levies.

Figure 4.7 The wedge between consumption and product wages



Source: Chapple (1994A)

Strong labour productivity growth due to technological change is sometimes considered to be a factor behind rising unemployment. On the other hand, others suggest that a slowdown in the rate of productivity growth during the 1970s is sometimes seen as a cause of the rise in unemployment. A falling level of productivity growth squeezes the size of the product available and thus, especially in the short run, may require a rise in unemployment to ensure firms' and workers' claims add up. Table 4.2 presents some data on average growth rates of labour productivity per full time equivalent worker.¹³

While there appears to be a slowdown in productivity during the late 1970s and early 1980s, there appears little or nothing exceptional about productivity growth during the 1985-1994 period. There seems to be little major change, in either direction, in the trend rate of labour

¹³ This is calculated as full time workers plus half part timers.

productivity growth which could explain a large and rapid rise in unemployment.

Table 4.2 Average labour productivity growth

1956-94	1.1
1956-64	2.0
1965-74	1.2
1975-84	0.4
1985-94	1.5

Source: Chapple (1994A)

Industrial militancy, a multi-dimensional concept, is notoriously hard to measure. Union density (the proportion of unionists to full time equivalent employment), excluding state sector unionism, was around 38% of full time equivalent employment in March 1960. This fell to 34% in 1970 but rose to 39% in 1980. It again fell to 35% in 1985. Including the state sector, workers gave union density of 48% in March 1989, falling to 45% in 1991. Recent estimates of union density by industrial relations experts at Victoria University suggest that union density has fallen further to 34% in December 1993. Although the data cannot give a clear picture, it seems highly unlikely that growth in union power as a result of strong rises in union density was an important factor behind the breakdown in full employment and the growth in unemployment. However, it should be noted that union density is not necessarily an accurate measure of trade union militancy.

4.3 PRICE SETTING

While changes in wage setting behaviour have frequently been focused on as causes of rises in unemployment, particularly as part of the real wage debate of the early to mid 1980s, there has been far less focus on price setting behaviour. Yet the competing claims model of unemployment suggests that wage and price setting behaviour are equally important in the determination of equilibrium unemployment. Why? This section considers price setting behaviour. In particular, it focuses on profit margins.

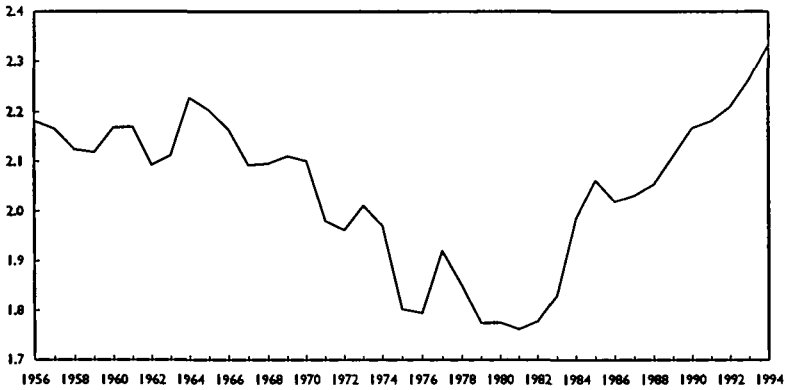
The higher the profit margins, the greater are firms' claims on output and the higher is equilibrium unemployment, all other things being equal. An indicator of domestic profit margins can be constructed by dividing an index of average labour productivity (constructed by dividing HLFS full time equivalent employment by real GDP) by index of average weekly earnings deflated by the GDP deflator.¹⁴

Between 1956 and the mid 1960s margins rose mildly. If the competing claims model is correct, this would have placed some minimal upward pressures on equilibrium unemployment. The turning point for a very steep fall in margins was around the mid 1960s. Firms' claims on the product fell by 20% until 1981. This reduction in firms' claims would have worked to keep equilibrium unemployment lower than otherwise. From 1981 onwards there was an equally strong recovery in margins, which theoretically would have put upward pressure on the

¹⁴ This will be a good measure of profit margins if average unit costs are linearly related to marginal costs (the case of the Cobb-Douglas production function), or by arguing that marginal cost curves are relatively flat in most sectors and therefore approximate average costs. If marginal cost is not approximately constant or the production function does not approximate Cobb-Douglas, movements in the measure of the markup may reflect the elasticity of substitution between capital and labour in the production process rather than changes in price setting.

equilibrium unemployment rate, associated with a very strong rise in actual unemployment.

Figure 4.8 Profit margins in New Zealand



Source: Chapple (1994A)

It is beyond the scope of this exploratory treatment to examine in great detail why margins took on this pattern. However, some elements of this issue can be tentatively considered. Margin squeeze was probably some combination of domestic price setters being caught between increasing wage pressures and price controls at home, foreign competition abroad and low real interest rates. Post 1981 rises in margins could be put down to an easing of wage pressures, the wage freeze, the eventual removal of price controls and strong rises in real interest rates.

The large fall in margins over the 1972-1975 period can be put down to a large extent to the form of price controls operated by the third Labour Government. The government believed that inflation could be restrained without a rise in unemployment by a combination of price controls, higher productivity growth and increased subsidies. It is likely that the margin decline was due to replacement of the Stabilisation of Prices Regulations in the 1973 budget with a new policy. Unlike earlier

price controls, when examining cost justifications for price increases the new price controls directed pricing authorities to ignore all wage and salary increases over a certain government set guideline (5% in 1973). Since in practice the wage guideline was seen as a floor, effective price control squeezed profit margins. Measures to control profit margins were also enforced by the National government until the early 1980s.

In June 1982 the government announced a comprehensive freeze on wages and prices, initially for a year but later extended until February 1984. There is evidence to suggest that the price freeze was considerably weaker than the wage freeze, reflected in a sharp recovery in margins through this period. Exemptions from the freeze could be granted by the Pricing Authority where a business suffered a serious loss in financial or economic viability and "limited ability" was available to recover government charges and imported costs.

Liberalisation of the economy from 1984 led to passing of the 1986 Commerce Act as the main means of regulating prices. However, the philosophy had changed from direct regulation, which had characterised price control since the war, to indirect regulation. Competition was to be the vehicle to deal with issues previously dealt with by regulation. Residual price controls that remained thereafter were phased out.

The consequences of price control on unemployment are complex. Within the competing claims model of unemployment, a number of factors merit consideration. If State intervention in price setting was effective, it would create lower profit margins and prices and hence deliver a lower equilibrium rate of unemployment by reducing firms' claims on the product at a given rate of unemployment. However, it is often argued that price-fixing gave rise to a "cost-plus" mentality, thus reducing margin flexibility in response to variations in capacity utilisation. Within the competing claims model, this implies that a shock to wage setting behaviour would have a greater impact on equilibrium unemployment than otherwise. International evidence suggests that margins tend to be relatively inflexible regardless of

government intervention. Shifts away from government intervention in price fixing may well have little overall impact on margin flexibility. Finally, State intervention in price setting could have altered the degree of nominal price rigidity and hence influence the mechanisms by which fluctuations in aggregate demand were transmitted into disequilibrium unemployment. Which direction nominal rigidity would have been pushed is hard to decide a priori.

It is the case that margins rise strongly when unemployment rises. Thus a possible cause of the breakdown in full employment is rises in firms' profit margins. Product market behaviour, as much as labour market forces, may be a contributor to rising unemployment.

4.4 AGGREGATE DEMAND

The aggregate demand explanation leads to a fertile range of testable empirical predictions. First, it suggests that the unemployment rate should be negatively associated with the vacancy rate. Periods of rising unemployment should be periods of falling vacancies and vice versa. In addition, models of unemployment which rely on a Phillips curve and some sort of expectations error predict contractions in aggregate demand and rises in unemployment will be associated with expectations in excess of actual inflation and vice versa. The aggregate demand explanation would also predict that rising unemployment will be associated with increases in the number of firms which report they are constrained from expanding their production because of a shortage of demand. Finally, for aggregate demand explanations to work, sticky wages and prices are necessary. Thus evidence of sticky wages and prices is supportive of an aggregate demand explanation for unemployment.

The relationship between unemployment and vacancies has already been considered when discussing structural unemployment issues. Observations are consistent with predictions of the aggregate demand explanation: there appears to be a negative relationship between the unemployment rate and the vacancy rate. On the basis of standard statistical tests, this negative relationship is significant.

One method of getting a handle on aggregate demand developments and their influence on unemployment is to begin with Friedman's model of adaptive expectations, considered in Chapter Two. Friedman's model of adaptive expectations suggests aggregate demand changes will be reflected in the difference between expected and actual inflation. If the simplest version of Friedman's expectations theory is considered, changes in aggregate demand will be reflected in changes in the annual rate of inflation. Falling inflation will be associated with a higher level of unemployment and vice versa.

Figure 4.9 graphs data on annual inflation rate changes on a quarterly basis over the post war period. It is worth noting the following

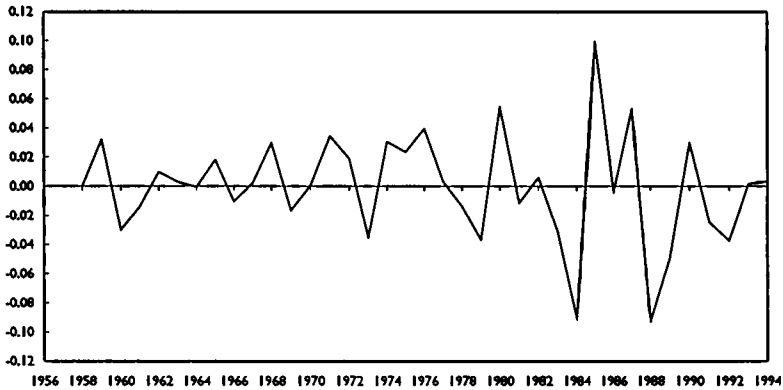
features, all of which are consistent with predictions of the aggregate demand explanation:

- 1) through the full or near full employment period of 1956-1979 the average demand shock was generally expansionary at 0.5%.
- 2) from 1980 onwards when unemployment levels rose considerably, the average shock was on average contractionary at -0.8% per annum.
- 3) the post 1981 period stands out in having the three sharpest contractions in aggregate demand as gauged by this measure - 1983/84, 1986/87 and 1987/89. These are all periods of rising unemployment (albeit only marginally through 1986/87)
- 4) the longest contractionary period for aggregate demand was through the nine quarters of early 1990s. The two next longest periods of contraction are seven quarters, both during the 1980s. All were periods where unemployment jumped upwards.

It should be noted that the introduction of GST in 1986 and the 1989 rise in GST are likely to have caused at least some of this additional volatility.

Using changes in inflation to proxy changes in aggregate demand is restrictive. It is based on a particular assumption about the way expectations are formed. Thus other methods of generating information on errors in expectations should be used as a cross check. The problem with such methods is that information on inflationary expectations is only available over a part of the period of interest.

Figure 4.9 Aggregate demand
The change in inflation

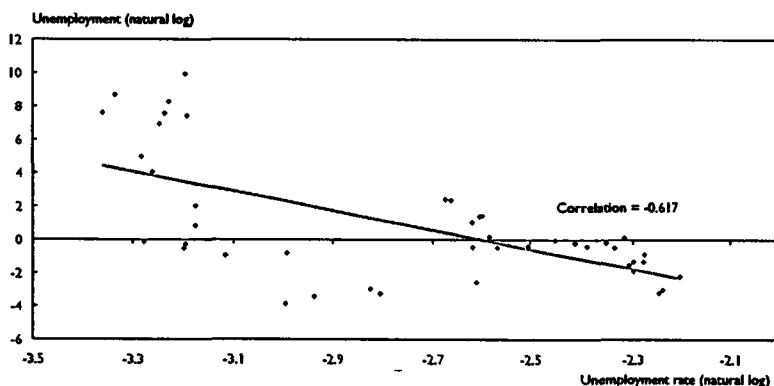


Source: Chapple (1994A)

The National Bank has collected a series on inflation expectations from 1984. The Reserve Bank has been collecting such a survey since 1988. The National Bank survey is less scientific than that of the Reserve Bank. The National Bank series was used to backdate the Reserve Bank series to 1984.¹⁵ The resulting inflation expectations series was then used to generate a series for inflation errors which is graphed against the log of the unemployment rate in Figure 4.10. As the aggregate demand hypothesis predicts, the relationship is negative. When inflation is under-predicted, unemployment is low and when inflation is over-predicted, unemployment is high.

¹⁵ The approach to backdating was regressing the Reserve Bank's series on that of the National bank and then employing the estimated equation on the National Bank Series. The equation was $RBNZ = -0.099 + 0.718NB$. The fit was 0.934.

Figure 4.10 Inflation expectation errors and unemployment
1984-1994



Source: Chapple (1994A)

Another way of obtaining information on changes in aggregate demand is to use data collected from the Institute's *Quarterly Survey of Business Opinion* to construct measures of actual and expected output price inflation (rather than consumer price inflation) for Manufacturers and Builders, Services and Merchants.¹⁶ The data broadly confirms that the post 1980 period of the breakdown in full employment was one where negative demand shocks predominated. Pre 1980 for Manufacturers & Builders the average error was -0.11%, while after 1980 it rose to -0.86%. For Services, the average error pre 1980 was 0.00%, which rose to -0.18% post 1980. For Merchants, the average pre-1980 error was 0.80%, while post 1980 the average error was -0.80%. In all cases, inflation was on average much more likely to be over-predicted after the 1980s. Negative demand shocks were more common during the 1980s and early 1990s.

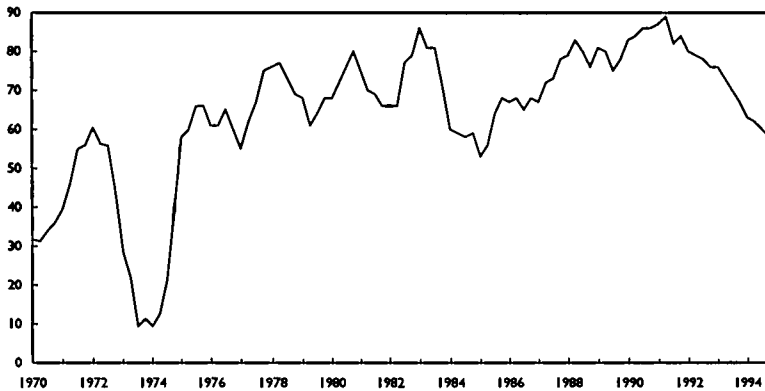
¹⁶ Data for Manufacturers and Builders goes back to the early 1960s. Services and Merchants data goes back to the late sixties and early seventies respectively.

These negative aggregate demand shocks would have caused the economy to shift down a short run Phillips curve. Sluggish adjustment in the labour market would have ensured that the impact of the shock persisted for some time. In addition, rising rates of long term unemployment may well have created a degree of hysteresis in the labour market so that the level of unemployment had a low or even non-existent impact on wage inflation.

All of the above analysis of changes in aggregate demand is based on the hypothesis that aggregate demand changes are reflected in inflation forecasting errors. However, following both new and old Keynesian models, inflation surprises may be less than fully adequate to capture the full set of quantity changes which prevent firms from expanding output. One way of trying to capture these quantity constraints is to consider the number of firms hampered from expanding production by a lack of demand using economy wide data from the Institute's *Quarterly Survey of Business Opinion*.

The average number of firms constrained by sales in the low unemployment period between 1970 and 1979 was 50%. Between 1980 and 1994 when low unemployment breaks down this average rises by almost 50% to 74%. The periods where unemployment takes a step upwards (1982/83, 1987-1991) are periods where the number of sales constrained firms generally increases and the post 1992 period when unemployment falls is associated with a declining percentage of sales constrained firms. The fall in unemployment during 1984/85 coincides with a fall in the number of firms constrained by sales. All this information is consistent with predictions of Keynesian theory.

Figure 4.11 Keynesian constraints?
% of firms constrained from expanding by a lack of demand



Source: NZIER *Quarterly Survey of Business Opinion*.

Using more sophisticated statistical techniques indicates that, in addition to falling inflation or price surprises, the Keynesian constraint significantly impacts on unemployment. The best model suggests that a story of the causes of rising unemployment based on contractions in aggregate demand (including both price surprises and quantity constraints) combined with factors causing high unemployment to persist may be better than a supply-driven explanation of New Zealand's unemployment rate. Persistence mechanisms may have something to do with the supply side of the labour market but it would seem the shocks raising the level of unemployment have come from the aggregate demand side. It is very hard to find any statistical significance in the supply variables (turbulence, wedge, and so on). A strong impact of the sales constraint on unemployment suggests some support for the new Keynesian hypothesis that near rational behaviour at a microeconomic level can cause large undesired outcomes at an aggregate level.

The Keynesian explanation for the rise in unemployment relies on sticky wages and prices. What evidence is there that firms' prices and workers' wages are sticky? Data on the number of individual wages which remain stable on a year by year basis suggests considerable stickiness in money wages. In the year to March 1989, wage and salary levels in 30% of jobs surveyed by Statistics New Zealand did not change. In the year to March 1990 the figure was 20%, rising to 25% in March 1991 and 58% in March 1993. Typically money wages very rarely fall. Reserve Bank work on prices also suggests consumer prices are sticky and *Quarterly Survey of Business Opinion* data suggests a sizeable number of firms maintain constant prices on a quarter by quarter basis. In short, there is certain direct evidence regarding pricing behaviour which suggests the economy will respond in Keynesian fashion.

Where did these contractions in aggregate demand occur and why?

First consider private consumption. Private consumption depends largely on consumers' disposable income after the paying of taxes. To a certain degree consumption may also depend on privately owned wealth. Unsurprisingly, people with high incomes and high wealth tend to spend more. Average tax ratios grew over the period from 30% of GDP in March 1985 to about 34% of GDP in July 1992. Higher taxes reduce disposable income and hence also consumption demand. At the same time, the stock market crash of 1987 impacted adversely on consumers' wealth and hence consumption. In the early 1990s, a further negative aggregate demand shock was caused by falling disposable income as a consequence of the government's programme of benefit cuts.

Now consider government consumption relative to potential output. At the peak of actual relative to potential output in 1985, government

consumption absorbed 17% of potential output.¹⁷ By 1992, when actual output was at its lowest in relation to potential, government consumption absorbed only 15% of potential output. While government investment absorbed a smaller amount of potential output than consumption, 7% in 1985, this fell by a greater amount, to 4% in 1992.

Private investment will be influenced partly by anticipated profits and partly by expected real interest rates. Low actual to potential output will tend to discourage investment as productive capacity is relatively abundant, lowering anticipated profits. High real interest rates (roughly nominal interest rates less expected inflation) will tend to reduce investment as borrowing to finance growth becomes more costly.

There is much controversy about the strength of the relationship between real interest rates and investment. In addition there may be a lag between high interest rates and investment. Current investment may not respond to current interest rates since it has already been planned. However, future investment plans will be shelved and as a result actual investment may fall several years down the track, depending on planning and implementation lags. Certainly real interest rates were higher, in the upper single digits during the mid to late 1980s, than they were during the seventies, when they were often zero or negative. However, they were at their highest in 1985 (around 10.9 for 90 day bank bills, assuming expected inflation was simply equal to annual inflation lagged by one quarter) and fell somewhat to 6.4% by 1992.

Through the late 1980s and early 1990, weak capacity utilisation, low profit expectations and possibly the lagged effect of high interest rates would have impacted adversely on private sector investment.

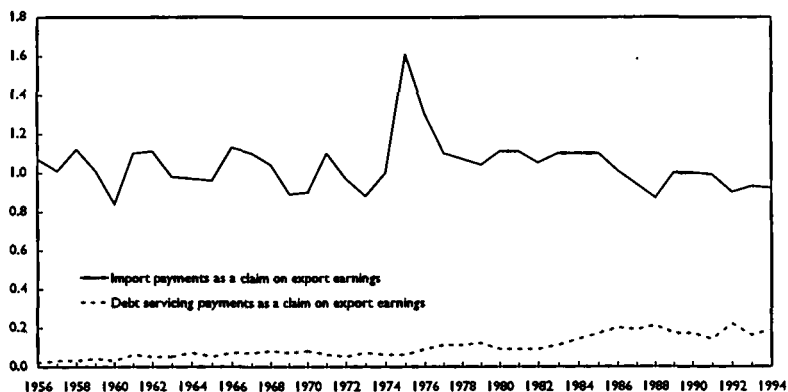
¹⁷ Potential output was simply constructed by assuming that productive potential grew at the economy wide average GDP growth rate between 1983 and 1988 of 2.7% per annum.

The contribution of the trade balance to aggregate demand, exports less imports, will be influenced by growth in world incomes and by competitiveness relative to our trading partners. One measure of competitiveness is our labour costs per unit of output relative to our competitors, adjusted to take into account changes in the exchange rate. This measure can be expressed as an index number. If the index takes on a value of 100 in 1985, our real unit labour costs rise relative to those of our trading partners by 24% by 1992. This deterioration in competitiveness would reduce exports and encourage imports, all other things being equal, reducing aggregate demand. At the same time, the concurrent removal of much import protection will have encouraged importing, further reducing aggregate demand.

4.5 THE FOREIGN EXCHANGE CONSTRAINT

The final argument to examine is the issue of the foreign exchange constraint. This argument predicts that rises in unemployment should be associated with rises in debt servicing relative to export earnings. As a consequence imports have to be reduced as a share of exports earnings in order to compensate. Imports are reduced by contracting aggregate demand, which has been discussed above.

Figure 4.12 Foreign claims on domestic incomes
Percent



Source: Chapple (1994A)

As Figure 4.12 shows the ratio of imports to exports fluctuates roughly around one. However, between 1980 and 1994 debt servicing claims on export earnings rise considerably. After some time lag, from about 1986 onwards, imports begin to fall relative to exports as the economy contracts. Thus the behaviour of imports and debt servicing is broadly consistent with rising net external debt, tightening the foreign exchange constraints and necessitating a contraction in aggregate demand to ensure debt servicing to export earnings does not continue to grow past unsustainable levels.

The correlation between debt servicing and unemployment is high (80%). However, in statistical investigations the debt servicing variable added little to the explanation of unemployment when aggregate demand variables were included. Thus it is possible that increased debt servicing was being directly reflected in lower aggregate demand in order to ensure a sustainable balance of payments position.

Before concluding this chapter, some have seen the long term decline in New Zealand's terms of trade (export relative to import prices) as being a primary factor in the breakdown of full employment. Lower terms of trade tend to reduce aggregate demand as the value of exports rises relative to the value of imports, as well as tightening the foreign exchange constraint. Certainly it is the case that there has been a general tendency for the terms of trade to decline over the post war period. Between 1956 and 1980 this decline averaged 1% per annum. However, from 1981 to 1994 - the period of breakdown of full employment - the terms of trade have been much more buoyant. Improvement in the terms of trade from 1982 has been at a healthy rate of 1.5% per annum on average. Indeed, in 1994 our terms of trade were at around the same level as they were in 1959 and in 1970. Therefore to place the causes of the breakdown in full on the terms of trade does not appear to be consistent with its behaviour during the period of rising unemployment. Indeed, one might say the terms of trade have been a factor mitigating the rise in unemployment that did occur. Had New Zealand not had the terms of trade improvement that it did during the late 1980s and early 1990 unemployment would have peaked at a considerably higher level.

CHAPTER FIVE: AN EXPLANATION OF FULL EMPLOYMENT AND ITS BREAKDOWN

Economists, like most other scientists, are trained to be sceptical. Every conclusion is conditional on the likelihood of new evidence and different ways of thinking about the problem. In Chapter Four I have tried to place together pieces of imperfect empirical evidence within an evolving framework of theory with the aim of coming up with a consistent conditional story. As an economist, one cannot help but notice that this scepticism sometimes sits uneasily with the general public and those who help them interpret the world, journalists and politicians. It would fly in the face of the historical evidence for me to assume that this monograph is anything like the last word on the rise and fall of New Zealand's full employment society. However, having considered theories of unemployment and some of the predictions of these theories in light of the data, I can now set out my answers to the three questions posed in the introduction.

Before so doing, what explanations have I been able to rule out?

First, all explanations of the breakdown of full employment which rely on slow labour force growth during the 1950s and 1960s and faster growth thereafter have no support in the empirical record. Thus explanations of rising unemployment in terms of post war baby boomers flooding on to the market or more rapidly increasing female labour force participation as social attitudes changed during the seventies must be discarded. Such explanations are empirically untenable.

Next, the breakdown in full employment cannot readily be attributed to an increasingly financially generous unemployment benefit system during the 1980s and 1990s. Over the post war period as a whole, the ratio of unemployment benefits to average wages has fallen or remained stable. Nor can it easily be put down to a greater reluctance on the part of workers to take work when offered. There is no hard evidence of a sufficiently substantial outward shift in the New Zealand Beveridge curve consistent with such an explanation. In addition, empirically there does not seem to be sufficient changes in mis-match at a regional, occupational or industrial level to suggest structural unemployment has played more than at most a minor role in rises in unemployment.

This evidence against structural explanations of the rise in unemployment offers little support to those who seek to explain the end of full employment by employment shake-outs from previously heavily padded government trading departments.

To some these conclusions, particularly that regarding structural unemployment, will appear unpersuasive. However, one should state that unemployment proximately caused by restructuring must not be confused with structural unemployment. In the first instance, for a given configuration of wages and prices, workers thrown out of jobs in government corporations may just as readily be considered unemployed due to a lack of demand as long as the rise in unemployment occurs with no concomitant rise in vacancies elsewhere in the labour market. Since rises in unemployment from the mid 1980s onwards were associated with indicators of falling excess demand in the labour market (falling vacancies and falling numbers of firms constrained from expanding by labour shortages), it is difficult to interpret rises in unemployment as structural unemployment. Rather such unemployment rises are consistent with the explanation that there was a failure of aggregate demand to expand at a sufficient rate to absorb increasing potential output.

Finally, explanations of rising unemployment due to substantial rises in the wedge between consumption and product wages are not

particularly plausible in view of developments in the wedge during the 1980s and early 1990s. The lagged responses which are required - ten years or more - seem too long to be readily acceptable as explanations.

Given the above explanations have little hard empirical support, what sort of persuasive story can be told on the basis of the remaining explanations?

Drawing on the work of Westrate, Hawke, Mabbet and others whose work was examined in Chapter Three, it can be argued that formal institutional foundations for low unemployment were laid during the Great Depression in terms of a scarring experience of high unemployment and the construction of a set of formal and informal institutional structures to try and ensure it would not happen again. A certain consensus was forged partly by the Depression but also by conditions of economic management during the war. War time controls showed full employment could be created, albeit at the cost of possible static and dynamic micro-inefficiency in resource allocation. At the same time, new economic theories developed, not unconnected with the experience of the Great Depression, which provided a new model for macroeconomic management. Strong overseas markets during and immediately after the war for New Zealand's primary products allowed repayment of considerable overseas debt, reducing the demand for foreign exchange for debt servicing. These lower real claims of the external sector then allowed the economy to operate at lower unemployment rates and maintain constant inflation.

An explanation for full employment during the 1950s and 1960s can be found in the "social contract" between government, employers and workers exercised through a variety of informal and formal institutions, the latter including the Arbitration Court and associated wage setting institutions. The social contract, partly explicit and partly implicit, was founded on the following set of trade-offs regarding income distribution and economic policy. In the first place, via their participation in the Arbitration Court and acquiescence to the decisions of other wage setting tribunals, workers gave up some of their power to press for a greater share of total national income. As a result, this

provided the government the ability to keep the economy running at lower levels of unemployment. Governments, both National and Labour, operated macroeconomic policies which placed considerable weight on avoiding contractionary aggregate demand shocks. The attendant problem of the external deficit could then be solved by import protection. Indeed, via the Reserve Bank Act and the Department of Labour Act, the government was officially committed to full employment. At the same time, government used evolving methods of price control to try and ensure that producers did not take advantage of the stronger market position that import controls afforded to increase profit claims on output. Employers gained from this system through the greater profits generated by operating at capacity levels of activity. At the same time, part of the implicit contract underpinning high profits was a maintenance of private rates of capital accumulation which would increase productivity and hence raise workers' real wages on an ongoing basis.

Via a tight set of occupational relativities, the New Zealand bargaining system was effectively quite centralised. Recent work on corporate-style economies suggests that a centralised wage bargaining system may, under certain circumstances allow internalising of a whole set of externalities. Where wage fixing is centralised, unions must take into account the impact of their actions for inflation, for employment and for taxes. If they set wages too high, inflation will grow, employment will fall, and taxes will rise in order to pay for the additional unemployment benefits. All of this directly impacts on those who the centralised bargainers represent. As a consequence they take them into account.

However, if bargaining occurs on an industry by industry basis the system may generate more inflationary pressures. Each industry sees itself as adding little to overall inflation when it puts its prices up. In addition, since the products of each industry only weakly compete with those of another, the employment losses arising when an industry union pushes up wages are likely to be small. Thus each individual industrial union will tend to push up their own wages, little worrying what impact this will have on overall inflation and knowing it will have at

best a minor impact on unemployment of their members. The outcome will be less wage restraint and higher inflation. A higher inflation rate would then lead the government to contract aggregate demand, raising unemployment.

Centralisation and the negotiation of an implicit incomes policy through the Arbitration Court was aided by the small and homogenous nature of the New Zealand economy and society, general acceptance of controls carried over from the war period and perhaps a set of attitudes to employment deriving from the Great Depression. At the same time, the defeat of militant labour by a combination of the Government and the Federation of Labour in the 1951 Waterfront strike and the domineering personality of the Federation's president F.P. Walsh, meant maintenance of a relatively centralised labour movement capable of centralised coordination.

A set of global institutions supporting full employment in New Zealand involved a relatively strongly growing world economy and stable exchange rates under the Bretton Woods international payments system.

This centralised agreement regarding income distribution began to fray in the 1960s. High and uneven labour demand, compression of wage differentials under centralised bargaining, growing world inflation, disappearing memories of the Waterfront Strike and the death of Walsh led to effective decentralisation via growth of second tier wage bargaining at a regional or plant level. Second tier bargaining meant the system began to generate higher inflation, both spontaneously and in response to rising world inflation. A set of harmful effects previously internalised by centralisation began to emerge.

The big breakdown in the Arbitration Court system occurred in 1968 with the famous nil wage order, soon overturned by workers and employers acting in concert. The breakdown of the Arbitration Court preceded further growth in second tier bargaining throughout the 1970s. The inability of the Federation of Labour to enforce a

centralised wage path was exposed and distributional conflict, rather than consensus, increasingly manifested itself.

However, to a large extent the breakdown in the consensus regarding income distribution and economic policy was hidden, first by the commodity price boom in the early 1970s, second by rising government spending and subsidies and large current account deficits, and third by direct governmental price and wage controls. Essentially distributional conflict was overcome, or more accurately postponed, in part via borrowing resources from abroad. Unfortunately, given that borrowers had to be paid interest in the future, conflict today was traded for increasing conflict tomorrow. Borrowing loosened the foreign exchange constraint when it occurred, but drew the noose tighter in the future, as a greater proportion of export receipts would have to go to paying overseas creditors interest rather than purchasing imports to allow the expansion of production.

Distributional conflict was also reflected in the strong squeeze in profit margins which took place during the 1970s, which was also manifest in rising inflation. Employers were finding their share being directly squeezed. In part, some tenuous peace in the battle of the income shares was bought by government price controls, particularly under the second Labour Government, which enabled workers to raise their wages without prices fully adjusting to compensate.

In short, by the 1970s the system's success had begun in part to undermine it from within. Attitudes to and structures of price and wage setting were changing in direction favourable to higher equilibrium unemployment. At the same time the economy experienced external shocks in 1967/68, 1973/74 and 1978/79 which placed downward pressures on output.

Major changes in the dominant economic philosophy of the policy-making elites occurred in 1984. The reasons for this change are complex. They were undoubtedly related to the distributional problems thrown up by the existing institutional arrangements, sluggish economic growth, the intellectual decline abroad of ideas which

buttressed the full employment society, and the corresponding growth of ideas more sympathetic to market solutions. Unlike previous governments, both National and Labour, the fourth Labour government lacked a firm commitment to full employment and were relatively unconcerned about the direct employment consequences of pursuing a contractionary fiscal and monetary policy. The economy experienced a series of negative aggregate demand shocks which pushed up unemployment. At the same time, squeezing inflation out of the system drove up the real exchange rate and led to further accumulation of external debt. Higher net external debt then tightened the balance of payments constraint.

Why the rise in over-kill unemployment from the late 1980s onwards? Policy makers had decided that economic liberalisation and a reduction of inflation was the desirable solution to problems of slow growth, high inflation, growing indebtedness and upward pressure on unemployment. Liberalisation and market forces, rather than forms of incomes policy, were to moderate distributional conflict and hence substantially lower unemployment.

A critical factor behind rises in over-kill unemployment was the contraction in aggregate demand engineered to reduce New Zealand's inflation rate from about 18% in the mid 1980s to almost zero by 1992. Dis-inflation, resulting high real interest and exchange rates, and contractionary fiscal policies meant that aggregate demand did not expand sufficiently rapidly. As unemployment rose, the proportion of longer term unemployed grew. As they lost skills and habits conducive to work, the longer term unemployed became increasingly ineffective in keeping wage setting behaviour in check, contributing to both the level and persistence of disequilibrium unemployment.

While it appears that the proximate shocks raising unemployment were to a degree demand- rather than supply-side (apart from perhaps profit margins), the explanation offered here of the breakdown of full employment does not rule out the indirect importance of changes in the supply-side of the economy. Nor can it ignore the possible role of supply-side factors in explaining the persistence of unemployment.

Supply-side changes occurring during the 1970s ensured that the system generated more inflation internally and responded less well to imported inflation.

An interesting question arises regarding the cause of the hysteresis effects, or what caused unemployment to persist beyond the original aggregate demand shock. These effects have been considered in Chapter Two. A variety of factors, many of which are only imperfectly understood by economists, ensure that labour and product markets adjust only sluggishly to changes in demand. This means that the impact of changes in aggregate demand persists in the economy for considerable periods of time. In addition, persistent unemployment can arise out of a variety of other sources. Attitudes to work may change. Unemployment may act as an adverse signal to employers. Skills may decay while workers are unemployed, reducing returns in the labour market relative to benefits, reducing the incentive to find work. There may be insider-outsider problems. All these explanations have a degree of plausibility but it is difficult to differentiate between them here.

Both the descriptive analysis and the econometric results suggest that the key shocks to New Zealand's unemployment rate over the reform period were caused primarily by shocks from aggregate demand. These shocks were transmitted through sticky wages and prices to produce rising inflows and falling outflows from unemployment. Unemployment persistence was then generated primarily through changes in the duration composition of the pool of unemployed.

At the beginning of this project, my belief was firmly that structural shocks, initiated by the process of liberalisation, would be found to be a significant factor behind New Zealand's recent unemployment experience. After examining the data, I have been somewhat surprised to find little evidence that liberalisation played any role at an aggregate level. This does *not* mean, however, that liberalisation necessarily played no role. The Lilien index does show a steep rise in mis-match during the late 1980s. This, and the available data on labour shedding due to corporatisation and privatisation, are the strongest evidence in favour of the liberalisation hypothesis.

Against this, however, there is a number of other important indicators which work against the structural change story, including estimates of the degree of mis-match and information from the Beveridge curve. It may be that I have simply been unable to find a sufficiently accurate measure of structural change to incorporate into the analysis. The challenge is now up to those who believe that liberalisation-induced structural change played a more important role to provide more tangible support for that hypothesis.

In terms of the lessons that one can learn from New Zealand's post war unemployment experience, I believe the following are relevant. First, the New Zealand labour market was either better able to adjust to structural change than many thought, or else the degree of structural change occasioned by liberalisation was somewhat less than many contemporary commentators believed.

The second lesson is an old one, but worth repeating. Stabilisation policies place important and drawn out real costs on an economy in terms of unemployment. In the New Zealand case, these costs turned out to be larger and more enduring than many observers and policy makers anticipated. By 1995, New Zealand's unemployment rate had fallen considerably from a peak of over 11% in 1992 to around 6%. This is a positive outcome. Yet according to the consensus views of economic forecasters, both government and private, 1995-96 is the peak of the current business cycle. At the peak of the last business cycle in 1985, just as we were beginning the reform decade, unemployment was under 4%. Despite over 10 years of stabilisation, liberalisation and labour market reform, it should be a source of some discomfort to economists that these changes have yet to be reflected in an unemployment rate lower than when the reforms began.

In addition, it is worth pointing out again that the conditions creating and reinforcing low unemployment did not provide unmitigated benefits. The question of whether they conferred a legacy of either low levels or sluggish growth rates of productivity remains unresolved, with views on either side.

Finally, this is one story of New Zealand's unemployment experience. Others will disagree, in part or in whole, with my arguments. This is natural. Nevertheless, my hope also is that this work will act as a sufficient irritant to produce the pearls of others interested in the area.

APPENDIX:
HOUSEHOLD LABOUR FORCE
EQUIVALENT DATA

This appendix contains Household Labour Force equivalent employment March year data created for this project. Details of data methods can be found in my "Household Labour Force Consistent Labour Market Data", NZIER Working Paper 94/16.

Table A1 Working age population

Year	Male	Female
1956	703,300	722,200
1957	716,700	735,100
1958	730,700	748,700
1959	743,800	760,600
1960	752,800	771,700
1961	765,800	784,000
1962	785,100	801,000
1963	802,100	821,100
1964	818,400	839,300
1965	835,600	856,800
1966	852,700	874,000
1967	869,100	891,200
1968	878,000	905,600
1969	887,400	918,500
1970	902,200	933,300
1971	923,900	952,100
1972	943,100	972,300
1973	969,400	998,000
1974	998,400	1,026,100
1975	1,027,500	1,054,900
1976	1,050,700	1,079,400
1977	1,065,500	1,094,500
1978	1,076,900	1,107,000
1979	1,083,700	1,116,700
1980	1,092,700	1,127,200
1981	1,103,000	1,138,900
1982	1,116,000	1,155,400
1983	1,137,800	1,178,000
1984	1,115,200	1,199,100
1985	1,173,100	1,216,500

Table A2 Full time employment

Year	Male	Female
1956	626,100	177,200
1957	636,200	182,600
1958	635,300	188,400
1959	656,100	191,400
1960	667,400	196,400
1961	675,400	205,800
1962	684,800	211,400
1963	695,900	216,800
1964	713,100	228,500
1965	731,600	239,000
1966	751,000	252,000
1967	756,200	259,300
1968	746,600	253,000
1969	756,500	261,600
1970	774,500	275,600
1971	785,500	284,600
1972	793,900	288,900
1973	813,400	300,400
1974	836,400	323,200
1975	849,500	332,300
1976	859,800	340,500
1977	859,400	346,700
1978	854,600	342,200
1979	852,200	355,200
1980	859,300	366,800
1981	848,000	366,600
1982	854,900	373,600
1983	841,800	377,600
1984	847,100	391,700
1985	866,100	423,300

Table A3 Part time employment

Year	Male	Female
1956	7,600	28,600
1957	8,200	29,000
1958	8,800	31,000
1959	8,600	31,000
1960	9,100	33,000
1961	9,500	38,500
1962	9,200	39,400
1963	8,800	41,400
1964	8,900	46,600
1965	9,300	51,100
1966	10,800	61,000
1967	11,100	67,200
1968	11,400	68,200
1969	13,000	76,200
1970	15,300	91,600
1971	17,000	103,600
1972	17,500	106,700
1973	19,400	116,400
1974	20,000	133,800
1975	22,300	138,300
1976	22,900	142,500
1977	24,700	151,800
1978	26,800	158,800
1979	29,200	169,900
1980	30,100	175,000
1981	32,600	181,000
1982	34,900	181,300
1983	37,400	182,900
1984	41,100	180,700
1985	46,300	187,300

Table A4 Unemployment

Year	Male	Female
1956	3,900	1,400
1957	4,000	1,300
1958	3,800	1,300
1959	4,300	1,300
1960	4,000	1,300
1961	3,300	1,300
1962	3,500	1,400
1963	3,800	1,600
1964	3,500	1,800
1965	3,600	2,000
1966	3,600	2,300
1967	3,900	2,600
1968	10,400	4,200
1969	7,100	4,100
1970	5,700	3,900
1971	6,100	4,300
1972	10,600	5,800
1973	9,400	6,200
1974	7,800	6,000
1975	9,800	6,400
1976	10,000	7,000
1977	7,000	4,800
1978	13,600	7,800
1979	13,500	7,800
1980	14,300	7,100
1981	24,100	15,100
1982	22,300	18,500
1983	40,200	29,600
1984	42,000	36,700
1985	30,400	32,600

SELECTED READING

Rather than give a bibliography in the conventional academic sense, I have decided to present a set of selected readings. The basis of my work is a set of New Zealand Institute of Economic Research working papers, available on request from the Institute. Those interested in a more conventional bibliography are urged to consult my NZIER Working Papers, which have full bibliographies and citations. These are as follows:

"Full Employment: Whence It Came and Where It Went", NZIER Working Paper 94/26. (Chapple 1994A).

"HLFS Consistent Labour Market Data", NZIER WP 94/16. (Chapple 1994B).

"The Layard and Nickell Model of Unemployment and Some Issues of Adapting it to New Zealand" (with Brian Silverstone), NZIER WP 94/28. (Chapple and Silverstone 1994).

"Before and After the Fall: New Zealand Economists on Full Employment and Its Breakdown", NZIER WP 95/5. (Chapple 1995A).

"Scepticism on NAIRU-based Explanations of New Zealand's Unemployment", NZIER WP 95/8. (Chapple 1995B).

The following is background material by chapter.

CHAPTER ONE

Employment, The Issues, the 1994 booklet produced by the Prime Ministerial Taskforce on Employment, particularly Chapter One,

contains a broad overview of the issue of unemployment in New Zealand.

CHAPTER TWO

The best introduction to Keynes's theory of aggregate demand can be found in *Introduction to the Theory of Employment*, published in 1937 by MacMillan, and written by Joan Robinson, one of Keynes's intellectual associates at Cambridge University.

Most standard intermediate economic texts, for example Paul Wooding's *Macroeconomics: A New Zealand Introduction*, Prentice Hall, New York, have accounts of the Phillips curve and adaptive and rational expectations.

Friedman's theory of adaptive expectations, rational expectations and real business cycle theory, as well as New Keynesian ideas are well presented in readable fashion in a US context in Paul Krugman's 1994 *Peddling Prosperity*, W.W. Norton, New York.

In addition to the neat account of QWERTY in Krugman's book, Stephen Jay Gould's book *Bully for Brontosaurus* contains a good discussion of the accidental history of the typewriter keyboard.

"A Child's Guide to Rational Expectations", by Michael Carter and Rodney Maddock, published in the 1982 *Journal of Economic Literature*, volume 20, (March) discusses rational expectations and Keynesian theory in the form of a university cafe dialogue between two students, one a Keynesian, the other leaning towards rational expectations.

Richard Layard's 1986 *How to Beat Unemployment*, Oxford University Press, Oxford, contains a well structured and accessible account of the explanation of the determination of equilibrium unemployment and deviations from this equilibrium.

Chapple and Silverstone (1994) considers the pros and cons of the equilibrium theory of unemployment in some detail.

CHAPTER THREE

This chapter draws heavily on Chapplé (1995A).

N. Ruth's short article "Full Employment in New Zealand" can be found in the *Economic Record*, volume 26, on pages 98-103.

Henry Lang's Keynesian-influenced "Price and Wage Policy", can be found in R.S. Parker (ed) *Economic Stability in New Zealand*, New Zealand Institute of Public Administration, Wellington, 1953.

Cornelius Westrate's (1959), *Portrait of a Modern Mixed Economy*, is published by Sweet & Maxwell, Wellington (second edition 1966).

Wolfgang Rosenberg's 1960 book *Full Employment. Can the New Zealand Economic Miracle Last?*, published by A.H. & A.W. Reed, Wellington, to my mind his best, it still worth reading.

Of the economic histories, John Gould's stimulating 1982 book *The Rake's Progress? The New Zealand Economy Since 1945*, was published by Hodder & Stoughton, Auckland. Gary Hawke's comprehensive 1985 book, *The Making of New Zealand*, was published by Cambridge University Press, Cambridge.

In "The Wage Under Pressure", Gordon Campbell gives an account of the public controversy about the relationship between real wages and unemployment in *The Listener*, 1983, February 12: 17-8.

The most accessible pieces of work by Arthur Grimes are his 1983 article "Wages: A Response to Critics" in the *National Business Review*, April 11, p. 7 and his 1988 "Employment, Wage and Monetary Policy Linkages", published in the *Reserve Bank Bulletin*, 51 (3): 184-187. See also Reserve Bank of New Zealand (1982),

"Unemployment: Causes and Policy Options", *Reserve Bank Bulletin*, 45 (5): 199-203.

Deborah Mabbet's contributions can be found in two chapters, "Wage Determination" and "Labour Market Policy and New Zealand's Welfare State", in *The April Report, Volume III, Future Directions, Report of the Royal Commission on Social Policy*, Royal Commission on Social Policy, Wellington.

Shirley et. al. (1990), *Unemployment in New Zealand*, Dunmore Press, Wellington and Mike O'Brien and Chris Wilkes (1993), *The Tragedy of the Market*, published by Dunmore Press, Palmerston North, mix economic and sociological perspectives.

The "Post Office and Railways" explanation is presented by Paul Wooding in his macroeconomics textbook mentioned above.

CHAPTER FOUR

John Hicks (1984), "Unemployment in New Zealand: A Background to the Problem", Massey Economic Papers No. C8409, September and John Hicks and Fong Mee Chin (1984), "The Relationship Between Unemployment and Vacancies in New Zealand", Massey Economic Papers No. B8405, March articles were helpful, especially in the context of the Beveridge curve and unemployment.

Numbers on the employment impact of corporatisation and privatisation of government trading departments were taken from Ian Duncan, Alan Bollard, Dianne Buchan and Mary-Jane Rivers's "Corporatisation and Privatisation - Welfare Effects", NZIER Working Paper 94/19.

Chapple (1995B) contains the results of my statistical explorations into the Beveridge curve and documents the data sources. In addition, it contains statistical analysis of determinants of the unemployment rate. For further statistical evidence on the issue see my "Unemployment"

(written with Richard Harris and Brian Silverstone), in *A Study of Economic Reform: The Case of New Zealand*, edited by Alan Bollard, Brian Silverstone and Ralph Lattimore, North-Holland, Amsterdam, forthcoming 1996.

The chapter also draws on Chapple (1994A) for both arguments and data.

For evidence on sticky wages and prices in New Zealand see Enzo Cassino's 1995, "Distributions of Wage and Price Changes in New Zealand", Reserve Bank of New Zealand Discussion Paper G95/6.

CHAPTER FIVE

In addition to drawing heavily on material used in compiling Chapters Three and Four, in terms of telling a story about New Zealand's unemployment experience, I have found Steve Broadberry (1994), "Why Was Unemployment in Post War Britain So Low?", *Bulletin of Economic Research*, 46 (3): 241-261, very useful.

I also found helpful Tony Endres's two pieces of work on full employment: "The New Zealand Full Employment Goal", *New Zealand Journal of Industrial Relations*, volume 9, 1984 and "Perceptions of 'Full Employment' in Relation to Other Major Policy Goals, 1984-1988", in *The Making Of Rogernomics*, edited by Brian Easton and published by Auckland University Press, 1989.

In terms of the centralisation of wage bargaining, the crucial survey reference is Lars Calmfors, "Centralisation of Wage Bargaining and Economic Performance - A Survey", *OECD Economic Studies*, 21 (Winter), 1993.

