

Why aggregate demand matters for understanding unemployment

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Centre of Full Employment and Equity

Working Paper No. 02-01

**Why aggregate demand matters for understanding
unemployment**

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1. Introduction

This paper elaborates on Mitchell (2001a) who opened with the statement: “the unemployed cannot find jobs that are not there!”. It presents a critique of the policy practice conditioned by the NAIRU approach that has led to high costs in terms of persistent unemployment. At the macroeconomic level, the dominant economic theory has, since the mid-1970s, cajoled policy makers to follow policies that have deliberately and persistently deflated their economies under the false impression that the role of policy is to ensure the economy is operating at the natural rate of unemployment. The profession seems to have become obsessed with supply side remedies to the high unemployment, despite the fact that most economies have failed to generate sufficient jobs over the last 25 years to match the growth in their labour forces. The costs of unemployment have seemingly been ignored (Watts and Mitchell, 2000). There is now considerable evidence that rises in unemployment are highly persistent and cumulative and permanent costs are incurred if active policy does not seek to reduce it quickly (Mitchell, 1993, 2001). There is also mounting evidence against the dynamics implied by the NAIRU approach (Chang, 1997; Fair, 2000; Akerlof *et al*, 2000, Mitchell and Carlson, 2001).

Modigliani, who introduced the term NAIRU to the economics profession (Modigliani and Papademos, 1975), has recently argued that

Unemployment is primarily due to *lack of aggregate demand*. This is mainly the outcome of erroneous macroeconomic policies... [the decisions of Central Banks] ... inspired by an obsessive fear of inflation, ... coupled with a benign neglect for unemployment ... have resulted in systematically over tight monetary policy decisions, apparently based on an objectionable use of the so-called NAIRU approach. The contractive effects of these policies have been reinforced by common, very tight fiscal policies (Modigliani, 2000: 3, emphasis in original)

We examine the evidence needed to support this statement from Modigliani, by comparing the experience of the Australian economy to that of the Netherlands over the last 30 odd years. We show that in particular misguided government policy has been responsible for the persistently high unemployment and the cumulative and permanent losses to social and economic well-being entailed.

The comparison between Australia and the Netherlands is interesting because they share many features yet in other ways are quite distinct. Both are relatively small, highly developed open economies with a well-developed system of social security.

However, Australia relies on exports of primary commodities, whereas the Netherlands due to the more diverse nature of its exports enjoys a more stable terms of trade. The feature of the Dutch economy that separates it from others, including Australia, is that it forms a transport hub for major trade in Europe and beyond. Moreover, the Netherlands has experienced robust employment growth of 2.9 per cent per annum over the period 1995–2000, whereas the corresponding figure for Australia was 1.6 per cent. As a consequence the rate of unemployment in the Netherlands in 1999 was 3.3 per cent, compared to 7.2 per cent in Australia. However, the apparent success in combating unemployment in the Netherlands is partly clouded by the huge increase in inactivity since the early 1980s. While there were 267 thousand persons officially unemployed in 2000, the number of disabled workers entitled to benefits was recorded to be over 900 thousand! In terms of the labour force, this group (including sickness benefits recipients) has more than doubled. The percentage in terms of the labour force rose from 9 percent in 1970 to 20 percent in 1980. It remained at that level more or less ever since. This feature induced, for instance, OECD (1998) to report that, when defined in a “broad” sense, unemployment in the Netherlands would reach around 25 percent of the labour force (see also Muysken, 2001).

Section 2 challenges the view held by Layard, Nickell and Jackman (LNJ) (1991), among others, that the rise in unemployment can be attributed to reducing search effectiveness among the unemployed. According to this view, search effectiveness has declined as welfare benefits have risen. We argue that jobs have to exist before search can be effective. Moreover, job growth is determined by aggregate demand. Section 2 thus outlines the direct effects on unemployment of adverse shocks in aggregate demand. Section 3 analyses the indirect effects through hysteresis in unemployment. Using attractor analysis in an unemployment-vacancies context we show that adverse demand shocks have increased unemployment in both countries through hysteresis. Section 4 digresses into the supply side explanations of unemployment to show that they lack explanatory credibility. Section 5 shows how deficiencies in both fiscal and monetary policy and in business investment go a long way to explaining the deficiency in aggregate demand that has generated the unemployment. We also challenge the view that the private sector are able to produce enough jobs if they are less constrained by regulation. Concluding remarks follow.

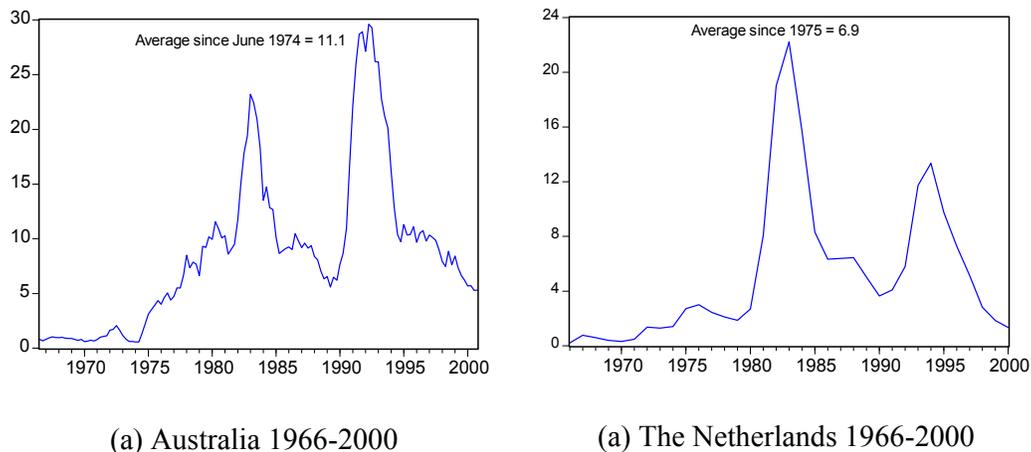
2. Unemployed need jobs and jobs need aggregate demand

Over the last 25 years, as unemployment has risen and persisted at high levels, orthodox economists have concentrated on the supply side of the labour market, hypothesising that full employment now occurs at much higher unemployment rates than in the past. Piore (1979: 10) reminds us that:

Presumably, there is an irreducible residual level of unemployment composed of people who don't want to work, who are moving between jobs, or who are unqualified. If there is in fact some such residual level of unemployment, it is not one we have encountered in the United States. *Never in the post war period has the government been unsuccessful when it has made a sustained effort to reduce unemployment.* (emphasis in original)

Figure 1 plots the UV ratio for Australia from September 1966 to December 2000 and for the Netherlands (using annual data) from 1966 to 2000. Notwithstanding sectoral variations, at first blush, we are dealing with heavily demand-constrained economies. Since the mid-1970s there were on average 11 unemployed for each vacancy in Australia, and 7 unemployed in the Netherlands.¹ We repeat Mitchell's (2001a) opening sentence: The unemployed cannot find jobs that are not there!

Figure 1 UV ratio for the Australia and the Netherlands, 1966-2000



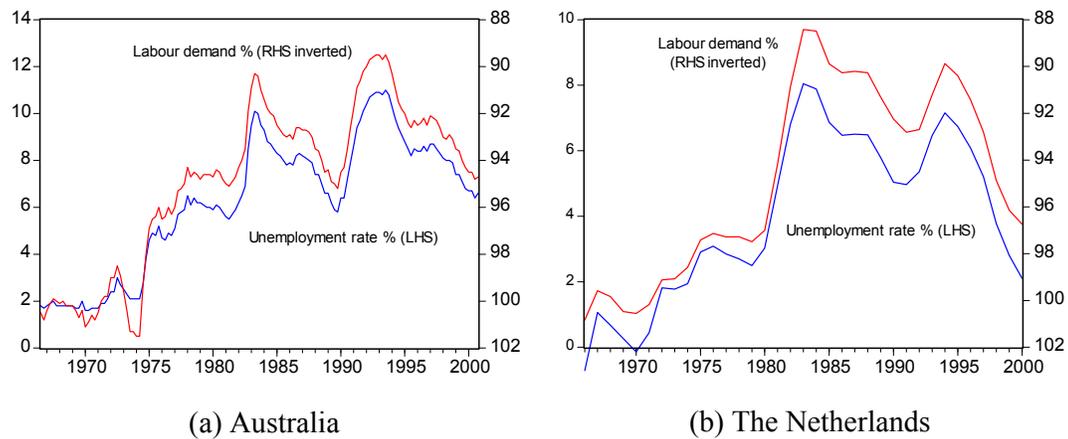
Source: Australia, ABS AUSSTATS, NIF current series data. Netherlands CPB (2001) and Muysken *et al.* (1994) and Ministry of Social Affairs (2001). The ratio is total unemployed (000's) to unfilled vacancies (000's). Australian data is quarterly, whereas the Netherlands is annual.

Figure 2 shows the unemployment rate on the left hand scale plotted against the sum of employment and vacancies (as a percentage of the labour force) as a measure of labour demand on the right hand scale (inverted). The correspondence between the

two series is striking and a major part of the variation in the unemployment rate appears to be associated with the evolution of demand.

Modigliani (2000) has presented similar graphs for France, Germany, and the United Kingdom, which shows that as job availability declines the unemployment rate rises, with the concomitant outcomes that the search process lengthens, as does the average duration of unemployment. Modigliani (2000: 5) concluded, “Everywhere unemployment has risen because of a large shrinkage in the number of positions needed to satisfy existing demand.”

Figure 2 Labour demand and unemployment, Australia and the Netherlands, 1966-2000



Source: see Figure 1.

In Mitchell and Muysken (2002) we show in line with Modigliani (2000) that the level of aggregate demand rather than the labour force (supply) determines the level of employment. For both Australia and the Netherlands the major shifts in employment fortunes are closely related to similar directional shifts in real demand. Real demand growth was subdued in Australia following the 1974 recession, which in relative terms was not as severe as the two later recessions (1982 and 1991). The same holds for the Netherlands after the 1981 recession.

We also show that the rise in unemployment was associated with a marked deficiency in aggregate demand. Had aggregate demand not fallen in the mid-1970s and remained well below the 1960s levels for the next decade, the unemployment rate would not have risen significantly in Australia. The severity of the demand restraint meant that the unemployed pool rose far beyond what could be absorbed in any normal recovery. A similar case applies for the Netherlands, where aggregate demand

fell sharply in the early 1980s.² We elaborate these notions when we discuss the GDP-gap further on.

3. Recession-driven hysteresis in unemployment

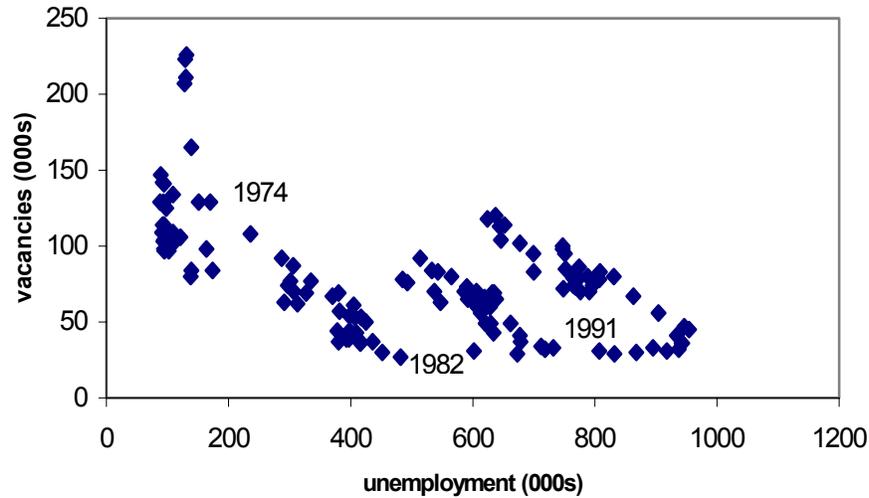
Part of the upward movement in unemployment could also be explained from shifts in the unemployment-vacancy (UV) relationship, the so-called Beveridge curve. Much has been made of the shift in this relationship over time. Figure 3 plots the vacancies (thousands) against unemployment (thousands) for both Australia and the Netherlands from 1966 to 2000. The outward shifts are clearly shown. The three noticeable outward shifts in the Australian Beveridge curve occurred in 1974, 1982, and in 1991. Similarly a minor outward shift occurred in the Netherlands in 1975 followed by a strong outward shift in 1981. It is no surprise that these shifts are driven by cyclical downturns rather than any autonomous supply side shifts. Mitchell (1987) has previously shown that structural imbalances (supply constraints) can be the result of cyclical variations and can be resolved, in part, by attenuating the amplitude of the downturns.

LNJ (1991: 4, 38) argue that these shifts are due to a failure of the unemployed to seek work as effectively as before. They explain the outward shift in the European Beveridge curve by “a fall in the search effectiveness ...among the unemployed” (1991: 38). LNJ (1991: 268) also claim that the UV shift has been due to “rise in long-term unemployment, which reduces search effectiveness...” What does this mean? LNJ (1991: 38) offer the following explanation: “Either the workers have become more choosy in taking jobs, or firms become more choosy in filling vacancies (owing for example to discrimination against the long-term unemployed or to employment protection legislation.)” They suggest that the first reason dominates.

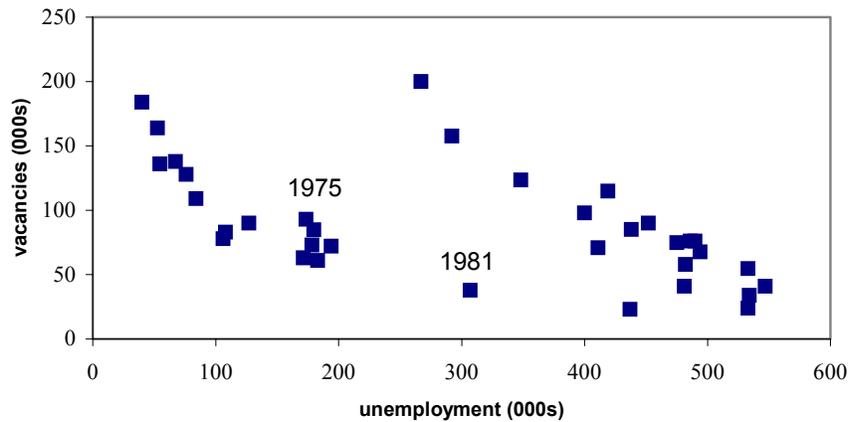
There is clearly an observational equivalence problem in attempting to test for this. Search time will lengthen when there are large cyclical downturns and the probability of gaining a job decreases. With UV ratios averaging 11.1 or 6.9 unemployed persons per vacancy over the last 26 years, it is a fallacy of composition to conclude that if all individuals reduced their reservation wage to the minimum (to maximise supply-side search effectiveness) that unemployment would significantly fall (given the small estimated real balance effects in most studies). Further, unless growth in labour requirements is symmetrical and labour force growth steady on both sides of the

business cycle, the pool of unemployed can rise and remain persistently high (Mitchell, 2001a).

Figure 3 Beveridge curve, Australia and The Netherlands, 1966-2000



(a) Australia 1966-2000



(b) The Netherlands 1966-2000

Source: see Figure 1.

3.1 The impact of recessions and long-term unemployment

To examine the impact of recessions on the UV relationship and look for the impact of rising long-term unemployment we ran a simple regression. We use the proportion of long-term unemployed to total unemployment (PLTU) as the “search effectiveness” variable as suggested by LNJ (1991). We show below that this variable is itself affected by recession, which has significant implications for the credibility of

the supply side story. We also include dummy variables: for the Netherlands *Recession_1* (zero until 1975, unity thereafter) and *Recession_2* (zero until 1981, unity thereafter), and for Australia *Recession_2* (zero until March 1983, unity thereafter) and *Recession_3* (zero until March 1991, unity thereafter).³ They are included as intercept dummies and are allowed to interact with the vacancy rate to test for slope changes. The dependent variable is the log of the Vacancy Rate (LVR).⁴

Table 1 reveals that the UV relationship is displaced by the rise in long-term unemployment, but the recessions exacerbate the outward shift. All recessions appear to have worsened the trade-off between unfilled vacancies and unemployment.

Table 1 Beveridge curve regression, Australia and the Netherlands

Variable	Australia		The Netherlands	
	Coefficient	t-Statistic	Coefficient	t-Statistic
Constant	1.47	(27.3)	1.10	(16.2)
LVR	-0.09	(2.11)	-1.03	(15.4)
PLTU	0.02	(9.13)	0.01	(4.28)
RECESSION_2			0.25	(2.14)
RECESSION_3	0.04	(2.03)		
RECESSION_1*LVR			0.62	(6.98)
RECESSION_2*LVR	-0.21	(4.26)		
R-squared	0.83		0.98	
S.E. as % of mean LUR	3.88		8.37	

Source: See Figure 1. The regression for Australia uses quarterly data from March 1978 to June 2000. The regression for The Netherlands uses annual data from 1966 to 2000. The dependent variable was the log of the unemployment rate. VR is the log of the vacancy rate, PLTU is the proportion of long-term unemployment.

To summarise this recession-driven outward shift in the UV relationship, we calculated the rate of unemployment at which unemployment would equal vacancies. The results are summarised in Table 2 and clearly illustrate the outward shifts of the UV curve after each recession. This evidence is strongly supportive of the hysteresis hypothesis, since each recession shifts the UV-curve outward.

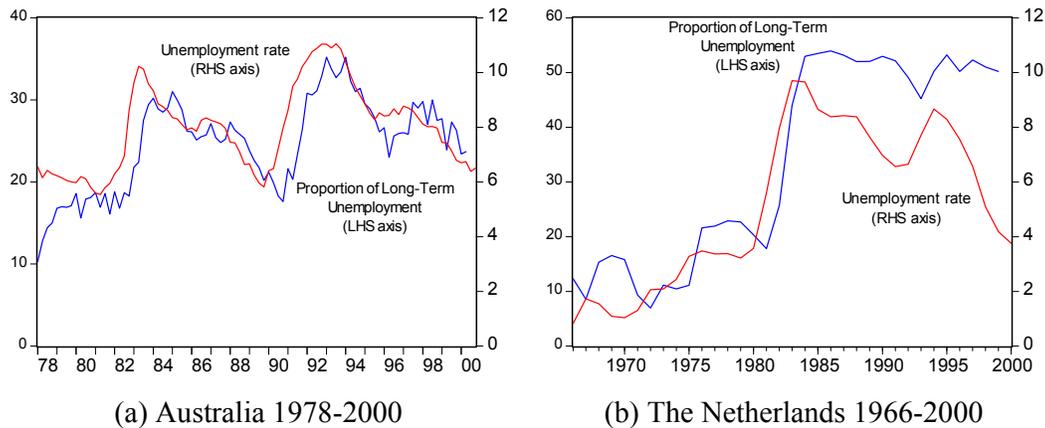
Table 2 Rate of unemployment equal to vacancies, Australia and the Netherlands⁵

	Australia	The Netherlands
Pre Recession 1	0.87	1.90
Recession 1	4.53	2.64
Recession 2	5.06	4.22

Source: Table 1.

Figure 4 shows that the relationship between long-term unemployment and the unemployment rate is very close. As unemployment rises (falls), the proportion of long-term unemployed rises (falls) with a lag. Several studies have formally examined this relationship. Chapman *et al.* (1992), EPAC (1996), and Mitchell (2000b, 2001a) have all found that a rising proportion of long-term unemployed is not a separate problem from that of the general rise in unemployment in Australia. However, it is remarkable that the proportion of long-term unemployment is much higher in the Netherlands, compared to Australia, and hardly falls when unemployment falls, a characteristic common across most European countries. The notion that a relatively more generous welfare system in Europe may explain the latter phenomenon, motivated the supply-side policy emphasis that OECD governments have adopted over the last two decades.

Figure 4 Proportion of LTU and unemployment rate, Australia and the Netherlands



Source: For Australia ABS AUSSTATS database, The Netherlands CPB (2001) and Muysken *et al.* (1994).

However, unemployment tripled in two years in the Netherlands, starting from an unprecedented height already in 1981, and that also provides a plausible explanation for the surge in long-term unemployment. The persistence then can be explained by the observation that it is very hard for an economy to absorb such a large number of long-term unemployed people. As is reported in Muysken (2001) the strong job growth in the Netherlands was mainly favourable to new entrants to the labour market. So while LNJ (1991) may claim search effectiveness declines and this contributes to rising unemployment rates, it is highly probable (as shown in Figure 2) that both are caused by insufficient demand for labour. The policy response then is entirely different.

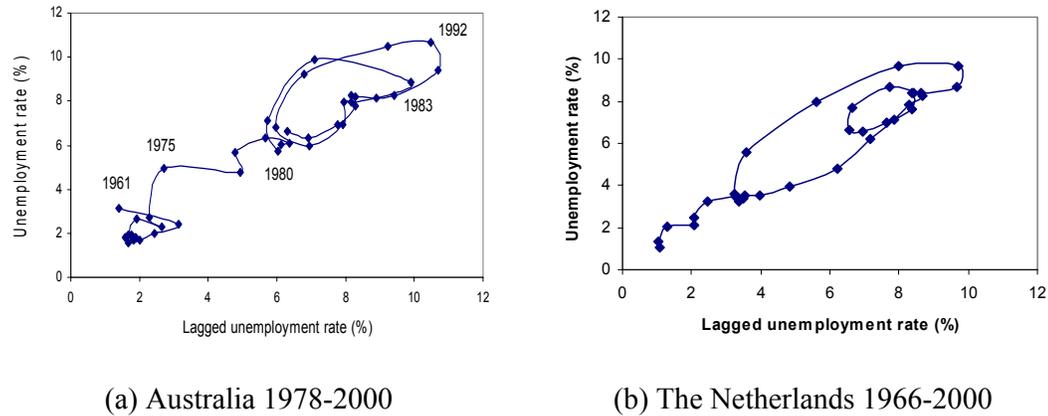
3.2 Phase diagrams of unemployment and vacancies

Figures 5 and 6 represent phase diagrams for the unemployment rate and the vacancy rate, respectively (see Ormerod, 1994; Mitchell, 2001c). The current values of the respective time series are plotted on the y-axis against the lagged value of the same series on the x-axis. The years noted refer to the current year's unemployment rate. For example, from Figure 5, Australia went from an unemployment rate of 1.4 per cent in 1960 to 3.1 per cent in 1961. We can look at these scatter plots in four distinct ways. First, the charts provide information on whether cycles are present in the data. Second, the presence of "attractor points" (Ormerod, 1994: 154) can be determined. The points might loosely be construed as the "centre of the ellipses traced out in such a plot" (Ormerod, 1994: 154). Third, the magnitude of the cycles can be inferred by the size of the cyclical ellipses around the attractor points. Fourth, the persistence (strength) of the attractor point can be determined by examining the extent to which it disciplines the cyclical observations following a shock. Weak attractors will not dominate a shock and the relationship will shift until a new attractor point exerts itself.

Figure 5 reveals disparate unemployment behaviour between the two countries. Australia shifted its attractor in the 1974-76 period outwards, and the two subsequent recessions have oscillated around this higher point with varying cyclical magnitude. The explanation for Australia's persistently high unemployment rate revolves around the factors that generated the shift. It is also clear that the economy takes several years to recover from a large negative shock even if the attractor remains constant. The

Netherlands also shifted its attractor outwards after the mid-1970s. In the early 1990s, the Dutch labour market oscillated rather tightly around this new attractor but in recent years has shown signs of moving towards a new, lower attractor. If the Dutch economy does establish a new low attractor then this would represent a clear difference from Australia, which appears to be stuck at the higher level.

Figure 5 Unemployment rate relationships, Australia and The Netherlands

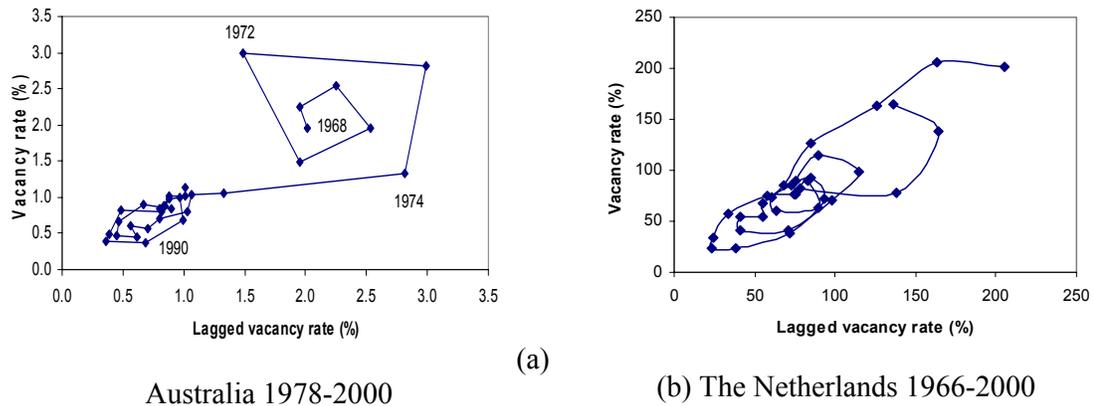


Source: ABS Job Vacancies, CPB Netherlands.

Figure 6 shows vacancy rate relationships. The 1974-75 disturbances in the unemployment rate attractor in Australia also promoted a shift in the vacancy rate attractor, although in this case the movement was downwards. The supply-side analysis interprets the unemployment shift in Figure 5(a) as a decline in labour market efficiency. But the shift in Figure 6(a) using the same logic would be interpreted as increasing matching efficiency. Clearly, both states cannot hold. A consistent interpretation can be found in the view that the Australian economy has been demand constrained as a result of a regime shift in government policy in the mid-1970s. The rapid rise in unemployment in 1974 was so large that subsequent (lower) growth with on-going labour force and productivity growth could not reverse the stockpile of unemployed (Mitchell, 2001a). The endogenous supply effects that may have occurred in skill atrophy and work attitudes, if any, were not causal but reactive.

A similar story can be told for the Netherlands after the mid-1970s. Figure 6(b) shows an adverse shift when compared to Figure 5(b), and the same holds for the movement in the late 1990s.

Figure 6 Vacancy rate relationships, Australia and The Netherlands



Source: ABS Job Vacancies, CPB Netherlands.

Two conclusions can be drawn from the attractor analysis. First, the shifts in the attractors coincide with recessions. Second, the economy tends to oscillate around these attractors once they are established. This implies that adverse demand shocks have a strong negative impact on unemployment through hysteresis. The role of demand shocks is also highlighted by the opposite movements of the attractor points in vacancies after the demand shocks.

Thus demand shocks have an adverse impact on unemployment both through the direct effects on job creation, as highlighted in the previous section, and indirectly through hysteresis, as highlighted in this section.

3.3 Exploring the non-linearity further

If we view the shifts in attractor points in the phase diagrams as endogenous events then they depict non-linear time series behaviour. For a linear AR(1) the cyclical ellipses would be clustered around the constant mean. Mitchell (2002) explores this theme further by testing a range of hypotheses concerning the non-linearity of the unemployment rate behaviour in Australia, Japan and the USA. In this paper, we use the Current Depth of Recession (CDR) approach, introduced by Beaudry and Koop (1993), to test one aspect of this non-linearity – the asymmetry in the response of the unemployment rate to negative and positive shocks, specifically, that negative shocks impact more strongly than positive shocks (see Mitchell, 2002 for further discussion).

Beaudry and Koop (1993) constructed the CDR variable as the difference between the previous maximum value for GNP minus the current value. We follow Parker and Rothman (1998) who construct the CDR for the unemployment rate as:

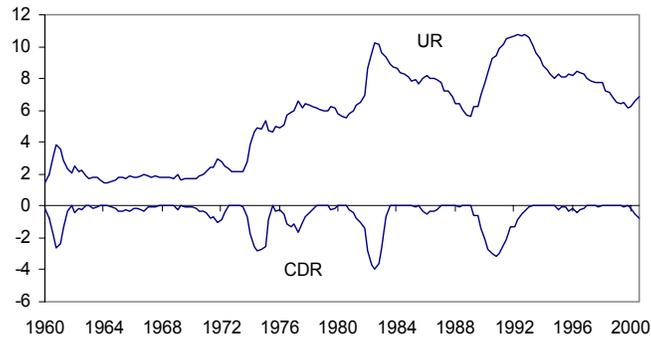
$$CDR_t = \min\{U_{t-s}\}_{s=0,\dots,5} - U_t$$

The differences between this approach and the Beaudry and Koop (1993) construction reflects the fact that the unemployment rate is a cyclical variable with no evidence of a strong trend. Accordingly, we define the minimum as the lowest value for the last 6 quarters (a local minimum). CDR is then the difference between this value and the actual unemployment rate. When the unemployment is above this local minimum, the CDR variable is negative and measures the depth of recession.

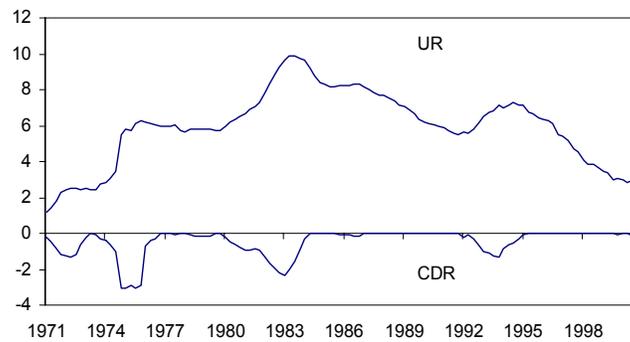
Figure 7 compares the unemployment rate and the CDR variable for each country. The comparison is interesting and shows that both labour markets went through similarly dated recessions. But the crucial 1975 recession impacted for longer in Australia than in the Netherlands. Figure 8 juxtaposes the CDR for Australia directly on the CDR for the Netherlands to further highlight the differences in the 1975 period. The depth of the 1975 recession was similar in both countries but the Dutch economy was better able to absorb the negative shock. The Australian economy briefly recovered from the oil shock-induced stagflation but then a sustained period of tight macroeconomic policy settings forced the economy back into a prolonged downturn. History tells us that the Australian labour market has never generated enough employment growth since 1975 to keep pace of the labour force and productivity growth and the stock-pile of unemployed that occurred in that period.

A further notable difference shown in Figure 8 is that the Dutch economy experienced smaller recessions (using the CDR as the indicator) in the early 1980s and the early 1990s. Once again, the Australian recovery in these latter recessions was retarded compared to the Netherlands. The downturn in the 1990s came much later for the Netherlands and was substantially more shallow. The Dutch labour market had less “stock” to move to reduce its unemployment rate compared to Australia.

Figure 7 Unemployment rates and CDR for Australia and the Netherlands



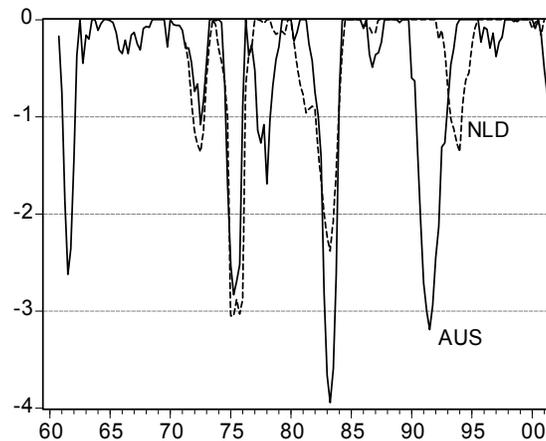
(a) Australia 1960(4) to 2001(2)



(a) The Netherlands 1971(2) to 2001(1)

Source: ABS, *The Labour Force*, 6203.0 and OECD, *Main Economic Indicators*.

Figure 8 CDR variable for Australia and the Netherlands



Source: see Figure 7

We then estimated the CDR effect in an autoregressive model (see Parker and Rothman, 1998). Full discussion of the results and the comparisons between the CDR

model and a linear AR model is presented in Mitchell (2002). In this paper, we present the results of the CDR regression and draw out the implications.

Table 3 presents the preferred equations for Australia and the Netherlands. In both cases, the lag order was determined by reference to AIC and the CDR model provides a reduction in residual variance compared to the tested-down linear AR model. The results confirm the presence of the CDR effect in both countries. The significant negative CDR coefficient indicates that the unemployment rate increases quickly in recessions, but declines relatively slowly during expansions. The coefficient magnitude measures the strength of asymmetry, which is similar in both countries. The results confirm that a negative shock imposes higher costs on the labour market being more persistent than the opposite shock. The results also show that the impact of the shock depends on the current state of the labour market. A depressed labour market that is then confronted with restrictive macroeconomic policy will be driven deeper into a sustained period of high unemployment.

Table 3 CDR regression results for Australia and the Netherlands.

	Australia	The Netherlands
Sample	1960:4 to 2001:2	1971:2 to 2000:2
Constant	0.058 (1.19)	0.060 (0.94)
UR(-1)	0.971 (124.3)	0.972 (98.6)
CDR	-0.245 (9.66)	-0.256 (9.68)
R^2	0.99	0.99
s.e.	0.284	0.217

t-statistics in parentheses.

4. A digression: supply side explanations of unemployment

The orthodox response may be that we are ignoring the role of labour costs in this analysis. In Mitchell and Muysken (2002), we analyse the so-called NAIRU-approach, derived from the LNJ (1991) framework, since this has been the dominant force in debates on policy measures to combat unemployment. In that approach, the NAIRU is affected by institutional factors like benefit ratios, minimum wages, bargaining coordination by unions, employment protection and labour taxes.

Additionally, commodity prices and skill mismatch can play a role. However, as a result of the assumed production structure – a Cobb-Douglas production function is used – and the assumption of a constant benefit rate, neither labour augmenting technological change, nor changes in the capital stock or costs of capital can impact on the NAIRU in this model. That is a serious shortcoming and maintains the earlier conceptions of the natural rate hypothesis where the steady-state unemployment rate is not affected by fiscal or monetary policy. No scope is given for aggregate demand, technological change or capital costs to impact on unemployment.

It is not surprising that the NAIRU-approach has been contested on precisely these grounds. Blanchard (1997) and Phelps (1994) argue for various reasons, that the NAIRU will increase with the real interest rate. This induced Phelps and Blanchard to argue that the high unemployment in Europe in the 1980s was caused by the high real interest rates.

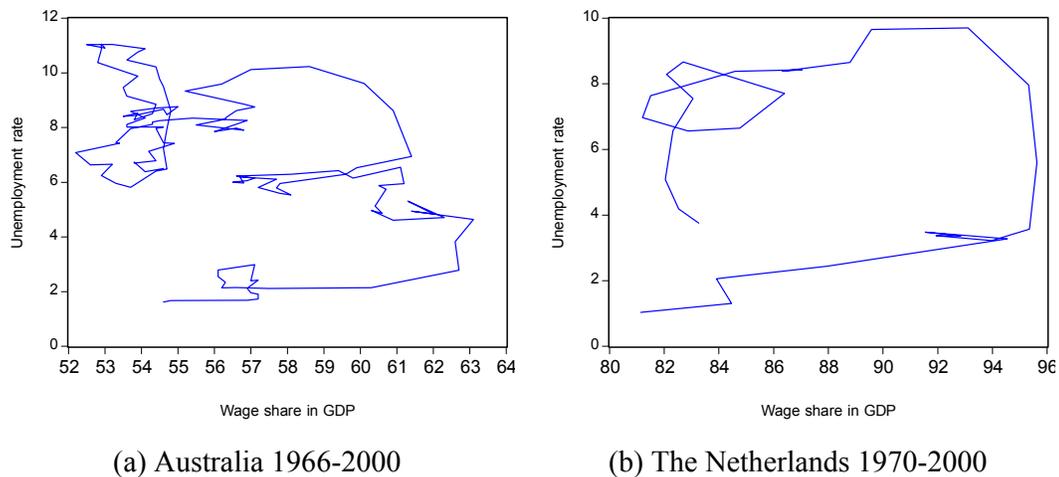
Ball (1999) develops a notion of hysteresis by assuming: “last fired, first rehired”.⁶ As a consequence the long-term unemployed do not put pressure on wages, although they can be reemployed if demand is sufficiently strong (see also Mitchell, 1987). This implies that the bargained real wage will increase if the share of long-term unemployment in total unemployment increases. And since this share tends to be positively related to total unemployment, the NAIRU will increase when unemployment increases.

In terms of the evolution of the NAIRU literature examined, Modigliani (2000) takes the most extreme position on the validity of the NAIRU-approach. His analysis of the causes of European unemployment in the 1980s bears similarity with the explanations offered by Blanchard and Ball presented above. An important difference, however, emerges in Modigliani’s focus on the role of monetary policy in generating higher unemployment. Blanchard (1997) stresses the indirect route through increases in the relative price of labour with respect to capital, which leads to substitution of labour for capital accompany by an inward shift in the demand for labour as a result of the decrease in capital stock. Ball (1999) argues that monetary policy impacts adversely on aggregate demand, which, in turn, has a negative impact on the NAIRU through hysteresis. Modigliani (200) stresses the direct impact of aggregate demand, triggered by a decline in investment. He claims that excessively tight monetary policy has induced a fall in investment below the ‘full employment investment ratio’. Then,

through conventional Keynesian multiplier mechanisms, aggregate demand has declined and unemployment increased.⁷ Moreover, the shortfall in investment has persisted because monetary policy has remained too tight, combined with a tight fiscal policy motivated by the Maastricht-criteria. The aberrant monetary policy has been driven by an “obsessive fear of inflation” coupled with a “benign neglect policy for unemployment”(Modigliani, 2000: 3), which has induced the Bundesbank and later the ECB to systematically overestimate the NAIRU.

Modigliani proposes a more expansionary monetary policy, “programmed in collaboration with the unions and the employers”(Modigliani, 2000: 14). Moreover, “rigidities in the labour market and poor work incentive designs” should be combated too, since these compound the effect of insufficient demand (Modigliani, 2000: 15).

Figure 9 Unemployment and wage share, Australia and The Netherlands



Source: Australia – ABS AUSSTATS database, The Netherlands – CPB (2001). Quarterly data was used for Australia and annual data for The Netherlands.

Our approach in this paper is highly sympathetic to Modigliani’s analysis. To provide a rough impression of the impact of labour costs on employment, we show in Mitchell and Muysken (2002) that there is no unique relationship between employment and real unit labour costs in Australia and the Netherlands. For instance the relation in the 1990s for both countries is virtually a horizontal line. From a similar perspective, Figure 9 presents the relationship between unemployment and the wage share for both countries. This figure clearly shows for both countries that the initial increase in the wage share was only associated with a relatively small rise in unemployment. Subsequently, the recessions of 1974 and 1982 in Australia were associated with

enormous increases in unemployment and hardly any change in the wage share. The same holds for the recession of 1981 in the Netherlands. When the wage share started to decrease in the mid-1980s in both countries unemployment was hardly affected. Finally, the wage share has hardly changed in both countries since the early 1990s but unemployment declined consistently in the Netherlands and fluctuated in Australia. All this illustrates that wage costs factors do not provide a consistently plausible explanation of the persistently high unemployment. We maintain our contention that demand factors largely explain the fluctuations in unemployment.

5. Deficiencies in aggregate demand

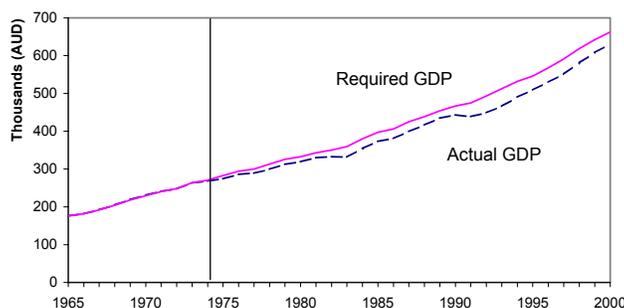
5.1 Not enough jobs have been created!

To reinforce the demand-side explanation for the rise in unemployment in both countries it is useful to compute the evolution of the GDP gap, which indicates the deficiency of aggregate demand. For the unemployment rate to remain constant, real GDP growth has to be equal to the sum of labour force and labour productivity growth, *other things equal*. In the midst of on-going debates about labour market deregulation, minimum wages and taxation reform, the most salient, empirically robust fact that has pervaded the last two decades is that the actual GDP growth rate has rarely reached this required rate. Figure 9 is derived from annual analysis of GDP gap components (Mitchell, 2001a).

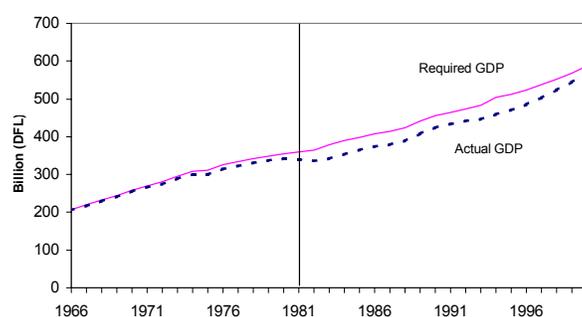
The results are clear. Prior to 1974, the growth rate of GDP was sufficient to match the required growth rate set by the growth of the labour force and labour productivity in Australia. After that point, GDP growth was never sufficient and unemployment rises and falls reflected the history of that deficiency. The same holds for the Netherlands after 1981, although the gap closed in the late 1990s which was reflected in the sharp decline in unemployment.

The GDP gap is influenced by three factors. First, investment, since fluctuations in investment typically drive the business cycle. In Mitchell and Muysken (2002) we show that the relationship between the investment shortfall and the unemployment rate is striking.⁸

Figure 9 GDP and Required GDP, Australia and the Netherlands, 1965-2000



(a) Australia



(b) The Netherlands

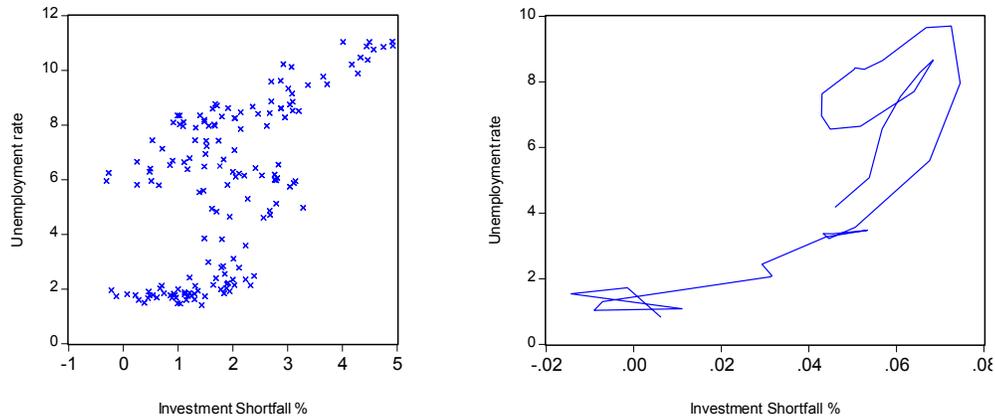
Source: Australia: ABS AUSSTATS Labour Force and National Accounts data. The Netherlands, CPB (2001).

Figure 10 shows that the crucial rise in unemployment Australia in 1974 was preceded by a large jump in the investment shortfall, and the same holds for the rise in unemployment in the Netherlands in 1981.

A second factor influencing the GDP gap is monetary policy through its impact on aggregate expenditures. Taking us through the Keynesian reasoning that investment affects aggregate demand, which in turn determines employment and unemployment, Modigliani (2000: 9) concludes, “We know from elementary economics that investments are affected by monetary policy (interest rates and credit availability). In fact as it is well known, this is the channel par excellence through which a Central Bank controls output and inflation. ... Indeed, there is no economics fundamental that can lead anybody to hold the view that money can directly affect inflation up or down except through raising or curbing aggregate demand and thus the demand for labor, wages and prices.” In Mitchell and Muysken (2002) we provide extensive evidence that over the past 25 years in both Australia and the Netherlands that the respective

Central Banks have acted in accordance with Modigliani's assessment above. For example, for Australia, sustained increases in short-term interest rates (driven by the Reserve Bank of Australia) occurred at times when a negative shock had already started to push the unemployment rate up (see Mitchell and Carlson, 2001; Mitchell and Muysken, 2002).

Figure 10 Investment shortfall and unemployment rate, Australia and the Netherlands



(a) Australia 1960-2000

(b) The Netherlands 1965-2000

Source: Mitchell and Muysken (2002).

Finally, the GDP gap is influenced by fiscal policy. One important aspect of the latter is public employment. Mitchell (2001b) argues that in the fifty years since the end of World War II, most OECD economies have gone from a situation where the respective governments ensured there were enough jobs to maintain full employment to a state where the same governments use unemployment to control inflation. A major aspect of this move has been the changes that have occurred in public sector employment. Many economies have undergone substantial restructuring of their public sectors with significant employment losses being endured. Table 4 shows that in Australia, the labour force has grown at an average compound rate of 1.87 per cent per annum since 1970. Over the same period, private employment has averaged 1.91 per cent per annum, whereas public employment has averaged a rate of growth of 0.64 per cent per annum (driven heavily by the growth in the 1970-75 period). Since 1990, the public sector has declined in absolute employment every year with a rapid -2.03 per cent per annum average decline since 1995.

Table 4 Growth rates in labour market aggregates, Australia and the Netherlands, 1970-1999

	Public Employment Growth	Private Employment Growth	Total Employment Growth	Labour Force Growth
Australia	0.64	1.91	1.67	1.87
The Netherlands	0.85	1.08	1.05	1.13

Notes: Growth rates are annual average compound rates for the periods shown.

Over the 30-year period from 1970, private employment growth in the Netherlands was 1.05 per cent per annum. Like Australia, it kept up with labour force growth of 1.13 per cent. Dutch public sector growth lagged behind with a growth rate of 0.85 per cent per annum. After an upsurge in growth until the mid-1980s, employment growth in the Dutch public sector was virtually flat over the 1990s. As a consequence, the share of public employment rose in the Netherlands from 11.1 per cent of total employment to 14.7 per cent in 1985. Afterwards it fell back to just below its initial level, 10.7 per cent in 1999. So the pattern is similar to Australia except that the public sector deficiency is less damaging because the Dutch labour force growth is substantially below that of Australia.

With private sector employment growing more or less commensurately with the labour force, the withdrawal of public sector employment has contributed significantly to the persistently high unemployment that Australia has experienced. As we have already indicated above, the Netherlands has partially eliminated this problem by shifting a large number of workers into the disabled category. That is, they do not show up in the official unemployment figures. If the governments expected the private sector to provide commensurately more jobs as public sector employment was cut, then they were wrong – in particular for Australia. The magnitude of private employment growth necessary to compensate for the public sector losses has been historically unattainable on any sustained basis. Mitchell (2001b) shows that a large reason why the U.S. has had a relatively low unemployment rate in the 1990s, is because public employment growth has kept pace with private employment growth and labour force growth. He shows that if the Australian public sector had have replicated the American behaviour over the 1970-2000 period, then Australia would have an unemployment rate below 1.5 per cent.

5.2 The impact of policy and business deficiencies on aggregate demand

In section 5.1 we showed the role the GDP gap had played in generating the sustained unemployment in Australia and the Netherlands. The importance of investment behaviour, monetary policy and fiscal policy was discussed. However, if the OECD Jobs Study (1994) model was convincing we should expect a host of supply side variables and others factors reflecting government regulations and transfer payments to be prominent in explaining the evolution of the GDP gap. To examine this further a simple dynamic regression modelling the GDP gap was run. The GDP gap was computed using the methodology outlined above and expressed in percentage form. We regressed the gap (as the dependent variable) on a range of variables, which capture various supply side, and/or demand side theories contained in the literature. We chose to represent the demand side by the measure of monetary policy (SPREAD) and the shortfall in investment spending (SHORTFALL) as depicted in Figure 9.⁹ In the Australian case, a range of supply side variables (including real wage costs measures and government benefits) was tried. None of the supply side variables were significant.¹⁰

Table 5 GDP Gap Regressions, Australia and the Netherlands

Regressor	Australia, 1960:4 to 2000:4		The Netherlands, 1975 to 1999	
	Coefficient	t-Statistic	Coefficient	t-Statistic
Constant	-0.00	(0.47)	-13.91	(0.88)
SPREAD(-4)	0.001	(4.45)	6.54	(2.94)
SHORTFALL	0.002	(4.12)	524.82	(1.81)
YGAP (-1)	0.93	(53.1)		
D753	-0.01	(2.59)		
D824	0.02	(3.99)		
R-squared	0.97		0.382080	
S.E. of regression	0.005		13.34824	
Mean dependent variable	0.033		8.379545	

Notes: D753 is unity in 1975:3 and zero otherwise. D824 is unity in 1982:4 and zero otherwise. t-statistics in parentheses. Both spread and shortfall in the Netherlands are delayed one year.

Table 5 reports the tested-down regression for Australia (1960:4 to 2000:4) and the Netherlands (1975 to 1999). There is some supportive evidence for The Netherlands, but given the limitations of annual data and the short sample available for the

SPREAD variable, we would not wish to put too much confidence in the results. For Australia, the diagnostics for the regression were sound. The regression forecasted satisfactorily out-of-sample over the 8 quarters. The results confirm that the shortfall in investment as a percentage of GDP was a key determinant of the GDP gap over the period examined. In addition, the era of tight monetary policy aimed at curbing inflation was also instrumental in maintaining the GDP gap.

6. Conclusion

We have demonstrated that employment and outcomes in both Australia and the Netherlands, are predominantly driven by aggregate demand. There is strong evidence to support this contention. The presence of hysteresis is also empirically founded and works to sustain negative shocks in the form of higher unemployment rates.

The robustness of the results is strengthened by the fact that the two countries exhibit considerable diversity in economic structure. Despite all the labour market and related supply-side reforms that have been introduced in Australia over the last 15 years, the unemployment rate persists at high levels due to demand deficiency. In the same way demand deficiencies can explain to a large extent the fluctuations in the Dutch unemployment rate. Moreover, the apparent Dutch success in combating unemployment is partly clouded by the huge increase in inactivity since the early 1980s. This demand deficiency is due to declines in the investment ratio, a deflationary monetary policy and declines in public sector employment. We have illustrated for Australia and the Netherlands that these factors have played an important role in the determination of aggregate demand. Finally we have argued that the conventional NAIRU approach tends to neglect the role of aggregate demand and focuses on the supply side. The empirical foundation of the NAIRU is, however, now seriously questioned.

The policy implications of the paper are clear. First, an inflation-first monetary policy tends to set interest rates too high due to an excessive fear of inflation. Second, the evidence suggests that aggregate policy must work to keep the economy at high levels of activity to ensure that negative shocks are absorbed relatively quickly. In the context of Section 3, a sharp exogenous positive shock is required to shift the attractor down. In the context of this paper, this shock should come from the demand side. After more than 25 years of supply-side policies, the attracters do not seem to be

reacting to restore full employment. Third, the role of public sector employment is also crucial given that the private sector is unlikely to grow at rates sufficient to absorb the available labour supply. We argue that to return OECD economies back to full employment, the public sector must take a more active role in employment creation. Mitchell (1998) has proposed that a Job Guarantee be introduced by the public sector as a permanent solution to unemployment.

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Notes

¹ The lower number for the Netherlands when compared to Australia is due to both the lower rate of unemployment in the Netherlands and the possible underreporting of vacancies in Australia: the Dutch vacancy figures are not based on voluntary reporting by firms, but on survey data.

² However, the recovery of unemployment was much better relative to the Australian experience. To a certain extent this apparent recovery is biased due to the enormous amount of inactivity in the Netherlands, noted in the introduction.

³ Note that due to limitations in the long-term unemployment data (starting March 1978) we have only been able to consider the last two recessions in Australia.

⁴ Taking unemployment as the dependent variable, reflects our contention that unemployment is determined by demand for labour. When interpreted in terms of the employment function, where employment is determined by demand and supply of labour simultaneously (Muysken *et al.*, 1994), this implies that we assume that demand for labour should follow supply of labour. Otherwise demand for labour is insufficient.

⁵ For Australia we ignored long-term unemployment in the first period, since it was negligible anyhow.

⁶ This is the way Nordhaus characterises Ball's analysis in his comment.

⁷ The multiplier mechanism is relevant in Europe because of the downward wage rigidity (Modigliani 2000: 4).

⁸ The shortfall refers to the extent to which the ratio of investment to full capacity income falls short of the full-employment investment ratio. See Mitchell and Muysken (2001) for further details.

⁹ SPREAD refers to the spread between the short-term and long-term interest rates.

¹⁰ The full data set for the Netherlands was not available on a quarterly basis and the annual data did not allow for a rich analysis of the evolution of the GDP gap for that country. The results for the Netherlands are at this stage experimental only.