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Employment is driven by aggregate demand

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1. Introduction

Freeman (2005: 138) provides an entrée into the rest of the paper:

> What explains strong adherence to a claim whose empirical support is 'fragile', 'mixed', 'contingent on factors that need to be clarified', and so on? The best interpretation I can give is that these economists come to the problem of explaining unemployment with the prior that markets work well absent interventions, and thus that the right place to look for causes of problems is at institutions that may impede the operation of the markets. They have fairly tight bands around this prior, so that it dominates weak evidence, and thus produces posteriors close to the priors, as in standard Bayesian inference.

In line with this observation, existing labour market policy has two main deficiencies. First, it overemphasises supply-side factors as the culprits in causing unemployment. Consequently, its attack on unemployment concentrates on supply-side policies with a disregard for demand side remedies. Second, following on from the supply-side emphasis and a related obsessive concern about inflationary expectations, much higher levels of unemployment are considered to be acceptable in present societies relative to what was tolerated during the 'full employment' period of strong economic growth between 1950 and the 1970s. From the perspective of the full employment period, it is totally inconceivable that situations with an unemployment rate 6 per cent would be considered 'normal' and that unemployment rates in the range 8–10 per cent would not call for immediate action. The fact we now tolerate the departures from full employment not only imposes social costs on the individuals concerned and society at large, but also systematically squanders income-earning opportunities due to the wastage embodied in the underutilised resources.

To counter the overemphasis on supply-side measures, which aim to eradicate 'institutional rigidities' in order to 'let the market work', we claim that unemployed can't find jobs that aren't there (Mitchell, 2001). The main thrust of this paper is to show that aggregate demand remains the important determinant of employment. Therefore stimulating aggregate demand and maintaining it at proper levels should be the starting point in fighting unemployment. To that end we present empirical evidence from different perspectives for eight, mostly major, countries (with Australia and the Netherlands included to reflect the authors' personal interests), which establishes an indisputable link between the aggregate demand movements on the one hand and employment or unemployment on the other. The tightness of these links is not sufficiently recognised in the current debate on the causes and cures of unemployment.

Section 2 documents the shift in sentiment which followed the introduction of reform measures in the mid-1990s inspired by OECD's 1994 Jobs Study. We show that the theoretical framework adopted in the Jobs Study does not enjoy strong empirical support and is not useful for policy purposes. There is a growing awareness that programs to promote employability cannot, alone, restore full employment and that sufficient aggregate demand is the key determinant of full employment. Section 3 presents stylised facts on the relationship between aggregate demand growth and both employment growth and unemployment (Okun's Law) and discusses the empirical literature. Section 4 uses stylised facts on the development of unemployment and vacancies for the eight countries to argue the importance of macroeconomic policy to match cyclical spending gaps.

Section 5 uses Canadian data on separations and hires to illustrate this point in line with similar findings for the U.S. Section 6 concludes.

2. The OECD bricks are crumbling

2.1 The 1994 OECD Jobs Study

In 1994 the OECD published the influential Jobs Study that was designed to provide a blueprint for the reform of economic policies in its member countries following the deep recession in 1991 that affected most member countries. Its theoretical foundations could be found in Layard, Nickell and Jackman (1991), LNJ for short. The OECD advocated extensive supply side reform with a particular focus on the labour market, because supply side rigidities were alleged to inhibit the capacity of economies to adjust, innovate and be creative (OECD, 1994: 43). The proposed reform agenda was variously adopted by many governments. It was introduced as monetary authorities increasingly adopted inflation targeting (formal and informal) which their policy on price level targets and used unemployment as the instrument to achieve these targets. It also was accompanied by growing fiscal conservatism, which in Europe has been expressed in the Maastricht Criteria and the Stability and Growth Pact. In Australia there has also been a major fiscal retreat, resulting in 10 years of Federal surpluses. For a critical discussion of these developments see Mitchell and Muysken (2006).

However, some 12 years after the OECD Jobs Study was released, the OECD economies still generate an unemployment rate of 6.2 per cent (down from 7.3 per cent in 1994) which is some 35 million job-seekers. The Euro area still generates an unemployment rate of 8.2 per cent (down from 10.5 in 1994) which is around 12.2 million job seekers (down from 13.9 million in 1994). Worse though is the fact that the official unemployment rate data significantly underestimates the extent of labour market slack. Since the 1991 recession, underemployment has risen in all OECD countries such that in Australia, for example, the Centre of Full Employment and Equity (2006) estimates some 9.5 per cent of willing labour are underutilised in various ways (unemployment, hidden unemployment and underemployment) despite the official unemployment rate being at 4.8 per cent. In Europe, for example, the ILO (2006) report that “In both France and Italy the rate of underutilised labour reached 21 per cent in 2004, up from 17 per cent in 1994 in France and 12 per cent in Italy.” France recorded an official unemployment rate in 2004 of 10.0 per cent (12.1 per cent in 1994) and Italy recorded an official unemployment rate in 2004 of 8.1 (10.9 per cent in 1993). So as the official unemployment rate has fallen, time-related underemployment has risen. The trend to part-time and casualised employment which fails to provide enough hours of work to match the preferences of the workforce is widespread throughout OECD countries.

It is thus difficult to agree with the OECD (2006: 12) position on the Jobs Study that “the record shows that those countries which implemented its recommendations outperformed those who did not.” Some proponents of the Jobs Study cite the Australian experience as evidence of its success as a strategy. The OECD (2001: 14) concludes that in terms of labour market policies Australia “has been among the OECD countries complying best” with the OECD Jobs Strategy. The reality is that the Federal government in Australia no longer ensures that employment growth matches labour force growth but focuses, instead, on making individuals ‘work ready’, should there be jobs available. Yet there is strong

evidence that the Australian economy has been demand constrained since 1975 and has failed to generate sufficient employment. There is also strong evidence to show that active labour market programs of the type praised by the OECD have been largely ineffective in reducing unemployment and improving the outcomes of the most disadvantaged workers in the labour market (Howell, 2005; Mitchell and Muysken, 2006).

Many academic studies have sought to establish the empirical veracity of the neoclassical relationship between unemployment and real wages and to evaluate the effectiveness of active labour market program spending. Freeman (2005: 135) concludes that "these analyses are akin to a prosecutor's case in a trial. They give the evidence that suggests the institutions are guilty but do not reflect on the weaknesses of that evidence. To reach a verdict, it is necessary to see the arguments by analysts who take the other side of the debate – the defence attorneys, as it were. These researchers give a different reading of what the data show and, most important, of the robustness of the case against labour institutions."

2.2 Winds of change

In recent years, partly in response to the reality that active labour market policies have not solved unemployment and have instead created problems of poverty and urban inequality, some notable shifts in perspectives are evident among those who had wholly supported (and motivated) the OECD approach. Layard (1997: 202) casts doubt on the supply-side labour market policies that he had earlier promoted and concludes that "If we seriously want a big cut in unemployment, we should focus sharply on those policies which stand a good chance of having a really big effect. It is not true that all polices which are good in general are good for unemployment. There are in fact very few policies where the evidence points to any large unambiguous effect on unemployment and … some widely advocated policies for which there is little clear evidence."

In the face of the mounting criticism and empirical argument, the OECD has begun to back away from its hardline Jobs Study position. In the 2004 Employment Outlook, OECD (2004: 81, 165) admits that "the evidence of the role played by employment protection legislation on aggregate employment and unemployment remains mixed." and that the evidence supporting their Jobs Study view that high real wages cause unemployment "is somewhat fragile."

The winds of change have strengthened in the recent OECD Employment Outlook entitled "Boosting Jobs and Incomes", which is based on a comprehensive econometric analysis of employment outcomes across 20 OECD countries between 1983 and 2003. The sample includes those who have adopted the Jobs Study as a policy template and those who have resisted labour market deregulation. The report provides an assessment of the Jobs Study strategy to date and reveals significant shifts in the OECD position. OECD (2006) finds that:

- There is no significant correlation between unemployment and employment protection legislation;
- The level of the minimum wage has no significant direct impact on unemployment; and

- Highly centralised wage bargaining significantly reduces unemployment.

This latest statement from the OECD confounds those who have relied on its previous work including the Jobs Study, to push through harsh labour market reforms retrenched welfare entitlements and attacked the power bases on trade unions (such as the widespread recent deregulation in Australia as a consequence of the WorkChoices and Welfare-to-Work legislation).

OECD (2006) finds that unfair dismissal laws and related employment protection do not impact on the level of unemployment, merely the distribution. Critics of the OECD approach have consistently pointed this out (Mitchell, 2001). In a job-rationed economy, supply-side characteristics will always serve to shuffle the queue.

Internationally, there is a growing sentiment that paid employment measures must be a part of the employment policy mix. The lack of consideration given to job creation strategies in the unemployment debate stands as a major oversight. There is growing recognition that programs to promote employability cannot, alone, restore full employment and that the national business cycle is the key determinant of regional employment outcomes (Peck, 2001).

In Australia, for example, the limited role of public sector job creation, and the withdrawal of the public sector from its historical role as a countercyclical employer have served to entrench high unemployment (Mitchell, 2001). By contrast, low unemployment countries such as the Ireland, Norway, Portugal and the United States have been very active in providing paid public sector employment. In a comprehensive analysis of public sector job creation programs in the United States, Ellwood and Welty (2000) found that while poorly designed public sector job creation programs can be inefficient and displacing, carefully designed and implemented programs increase employment, minimise displacement effects, raise the earnings of low-skilled workers and produce genuinely valuable output.

In the remaining sections of the paper, we consider some of the stylised facts and empirical issues that would lead us to conclude that mass unemployment is primarily a demand problem.

3. The impact of aggregate demand on employment

3.1 A stylised approach

The aim of this paper is to document some of the stylised facts that would lead one to conclude that aggregate demand is an important determinant of employment. For several reasons, we do not seek to present detailed econometric estimation results for various countries. First, we have already presented econometric evidence to establish aspects of this relationship in various papers (Mitchell, 2001; Mitchell and Muysken, 2004). Second, such structural models are difficult to construct and the available data is generally inadequate. Freeman (2005: 130) says “the cross-country aggregate data at issue is weak, too weak to decisively reject strong prior views or to convince those with weaker priors. Barring a Great Depression level collapse of the US or EU economies, I cannot imagine the aggregate evidence being so clear as to overwhelm strong priors.” Mitchell and Muysken (2002) sketched a structural Post Keynesian model where

investment asymmetries driven by product market shocks, interact with a segmented labour market. Asymmetries arise due to irreversibilities in capital outlays in an environment of endemic uncertainty. This model embraces demand deficiency as a cause of unemployment and explains the failure of some active labour market polices but is not yet a full working model. Furthermore, the estimation of such a model is very complicated – witness the practice of calibrating these models and simulating policy outcomes. However, the reduced-form of the model depicts a positive relationship between aggregate demand growth and employment growth.

A second approach would be to focus on that reduced form, or similar reduced forms, and present a detailed econometric analysis of the interrelationships. We propose this course of action in a related paper. In this paper, given the scarce empirical literature on the relationship between aggregate demand growth and employment growth we will document the stylised facts which are consistent with such reduced-forms, for eight, mostly major, countries.

3.2 Employment gaps that need explanation

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*. A simple way to document these relationships is to examine the evolution of the labour force and total employment. A necessary condition for full employment is that total employment must keep pace with the labour force. Figure 1 depicts this relationship for the eight economies under review. In the midst of on-going debates about labour market deregulation, minimum wages, taxation reform and worker attitudes, the most salient, empirically robust fact that has pervaded the last three decades (with country-specific) variations is that the actual employment has not been sufficient to meet the preferences of the labour force. The full employment era is starkly contrasted with the latter period where employment growth has been deficient. So what drives employment growth?

3.3 Employment growth and output growth

Figure 2 shows the annual percentage growth in GDP and employment from 1960 to 2006 for the eight OECD countries in our study as a way of appreciating the correspondence between demand dynamics and employment dynamics. One sees that the major changes in employment fortunes are closely related to similar directional changes in real demand. We acknowledge that it is hard to distinguish between cyclical fluctuations and structural changes. Mitchell (2001) established that cyclical changes have ‘structural’ consequences due to changes in labour market behaviour which are cyclically-reversible. In Section 4 on Beveridge curves we will demonstrate how cyclical events drive labour market dynamics that have been labelled structural by the orthodox literature but should correctly be interpreted as being cyclical.

To explore the structural developments, we note from Figure 2 that both GDP growth and employment growth were relatively high in the ‘golden’ 1960’s for all eight countries. The period after the first oil-crisis, which worsened the downturn in economic growth in the early 1970s, was followed by severe recessions in the early 1980s and early 1990s. The late 1970s and 1980s therefore were characterised by lower economic growth.

We summarise the average growth rates for both periods for each country in Figure 3. For most countries the strong fall in GDP growth was accompanied by declining employment growth.[2] This is consistent with the view that declining aggregate demand led to a fall in employment. For the 1990's the picture is more varied, given the diverse growth performance of the eight countries. First, GDP growth changes are modest compared to the earlier changes. Only the U.K. improves, although it had poor growth in the 1960s. Second, while Japan and Germany experience a further decline in GDP growth, growth in France and the U.S. remains more or less at its previous level. The other countries enjoy increasing GDP growth. For most countries employment growth reacts in the expected way – the exceptions are France, Canada and the U.S. The diverging developments in the 1990s are related to the weak recovery of aggregate demand, as we shall argue below. On the one hand, low GDP growth led to a structural decline in private investment, which was further weakened by a decline in public investment (see Section 3.5).

In conclusion, two points would appear to be irrefutable: (a) output growth has a direct and strong cyclical impact on employment growth; and (b) there is a clear structural link between output growth and employment growth, although the interaction between both becomes more complicated and other factors will also play a role.

3.4 Okun's law

Although Okun presented his now famous Law (rule of thumb) as a way to measure potential output, it is also often used to indicate the presence of cyclical or Keynesian unemployment. It goes beyond the relationship between aggregate demand and employment because it also includes the impact of labour supply. However, the notion of a positive relationship between demand growth and employment growth remains a central element. Compare for instance Solow (2000: 9-12), when he states: "In even more unfashionable words, I think that some part of European and German unemployment is 'Keynesian' in character and would respond to expansionary demand-side policy at a time when there is little inflationary pressure … The idea that I am trying out is based on what we call - maybe half-seriously - Okun´s Law: that the percentage gap between actual GDP and potential GDP is proportional to the difference between the current unemployment rate and some hypothetical 'neutral' unemployment rate."

Okun's Law is also frequently represented as the relationship between output growth and the change in the unemployment rate (Moosa, 1997). That is:

$$(1) \qquad \ln y_t - \ln y_{t-1} = -a\Delta u + b$$

where y is the GDP and Δu indicates the percentage point change in the unemployment rate. The Okun-coefficient a then indicates the amount of output growth necessary to reduce unemployment by 1 percentage point.

Much recent empirical research has confirmed the on-going usefulness of Okun's law as a rule of thumb, although Moosa (1997) and Sögner and Stiassny (2002) have established that the relationship can be subject to shifts or structural breaks. This is consistent with our findings in Figure 3 above. Finally Mitchell (2002) and Silvapulle *et al.* (2004) emphasise asymmetries in Okun's Law.

Figure 4 reproduces Okun's Law (Equation (1)) for the eight countries. While Okun's Law can be observed for these countries, there is some instability. For Canada, France, Germany and the Netherlands the relationship appears to have shifted inwards, which is consistent with lower economic growth and changes in unemployment in later periods. The latter is consistent with persistence in unemployment which we discuss in Section 4.2. Sögner and Stiassny (2002) allege that next to unemployment persistence labour market rigidities occur, which reduce the ability of employment to react to changes in aggregate demand. But their empirical evidence (correlation of their estimated coefficient values with an index of labour market protection) is very weak. Moosa (1997: 353) is much more careful in attributing differences in his estimated coefficients to country differentials, although he also concludes that "employment is more responsive to economic growth in the United States and Canada than in Europe and Japan."

We compare the results found by Moosa with those found by Sögner and Stiassny in Table 1. The ranking according to responsiveness is consistent with Moosa's observation. However, some interesting differences in findings are the difference in outcome for the United Kingdom and the changed positions of France and Germany relative to each other. Also the high coefficient found by Sögner and Stiassny for the Netherlands is surprising. These observations illustrate the difficulty of associating dfferences in measured responsiveness to institutional features of the labour market.

3.5 Investment shortfall and the unemployment rate

In his analysis of Europe, Modigliani (2000) emphasises the direct impact of aggregate demand on unemployment, triggered by a decline in investment. He claims that overcautious monetary policy induced a fall in investment below its 'full employment investment ratio' The initial decline in investment multiplied throughout the spending chain and unemployment increased. 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 European experience is common throughout the OECD. The overcautious monetary policy has been driven by an "obsessive fear of inflation" coupled with a "benign neglect policy for unemployment" (Modigliani, 2000: 3). Modigliani (2000: 14-15) proposes a more expansionary monetary policy, "programmed in collaboration with the unions and the employers … [and that] rigidities in the labour market and poor work incentive designs" should be combated too, since these compound the effect of insufficient demand. But it is important to note that labour market reform is only recommended in the context of an adequacy of paid employment opportunities.

Figure 5 illustrates how in the aftermath of the recession of the early 1970s the ratio of investment to GDP has decreased, in most countries, and has remained at a lower level ever since in Germany, Japan and the Netherlands. Moreover, a shortfall in investment induces a higher unemployment rate – we elaborate this notion more systematically in Mitchell and Muysken (2002). In countries where unemployment has fell the most in recent years (Australia, Canada, the United Kingdom and the United States) the investment ratio has grown significantly.

Table 2 reports the sample correlation coefficients for between the Investment/GDP and the unemployment rates for the samples shown. The data is supportive of the more detailed regression analysis in Mitchell and Muysken (2002) who demonstrate the clear link between measures of investment shortfall and unemployment for Australia and the Netherlands. They also find there is no clear (negative) relationship between employment and real unit labour costs in Australia and the Netherlands. An examination of the relationship between unemployment and the wage share, further suggests that factors other than unit labour costs caused the large rise in unemployment in both countries.

4. The movements in unemployment and vacancies

4.1 The Beveridge curve

A standard analytical framework for examining the dynamics of unemployment and vacancies is the Beveridge curve model, which is summarised in Figure 6. The diagram plots unfilled vacancies against unemployment both expressed as percentages of the labour force. The orthodox interpretation is that with constant matching effectiveness, a negative cyclical relationship exists between unemployment and vacancies (movements along a given UV curve). The entire function shifts when the matching effectiveness changes such that UV_1 is a more efficient matching state than UV_2. Consistent with the NAIRU orthodoxy, the shift is considered independent of the state of the cycle (see LNJ, 1991; OECD, 1994). The conventional analysis thus posits that a movement along the ray AE is according to this logic a mixture of structural deterioration and demand deficiency. The framework is thus used to distinguish between sectoral shocks (shifts in the UV curve) and aggregate shocks (movements along the UV curve).

LNJ (1991: 38) construe empirical shifts in UV curves in various countries since the 1970s as signifying a failure of the unemployed to seek work as effectively as before: “Either the workers have become more choosey in taking jobs, or firms become more choosey in filling vacancies (owing for example to discrimination against the long-term unemployed or to employment protection legislation.” Once we try to decompose the UV relationship into separable cyclical and structural components, problems arise. The problem is that this framework assumes that structural changes are orthogonal to the cycle. If hysteresis is present an initial move down a given UV curve can initiate labour market adjustments which would cause an outwards shift in the curve (Ball, 1999). And as Malinvaud (1986) among others argues, from the search-theoretical perspective the UV-curve shifts outwards when the exogenous rate of separations increases (and vice versa). Thus a reduction in aggregate demand would cause an outward shift of the UV-curve. Endogeneity of behaviour also poses the problem of observational equivalence. For example, search time will lengthen when there are large cyclical downturns and the probability of gaining a job decreases. It is hard to blame individuals for their labour market outcomes when the unemployment to vacancies ratio is averaging around 5 across the OECD (between 1998 and 2002) and is much higher in individual countries. It becomes a fallacy of composition to conclude that if all individuals reduced their reservation wage to the minimum (thus maximizing search effectiveness) unemployment would be significantly lower (given the small estimated real balance effects in most studies).

In seeking an explanation for the rise in unemployment from the 1970s, Ormerod (1994: 126) notes that "Actual unemployment in Europe has risen fourfold in the past twenty years, and most estimates of the 'natural rate' in the various countries have risen by a similar amount. Yet flexibility of labour markets … has not changed markedly over this period … [and has] … not been sufficient to account for the enormous rise in unemployment which Europe has experienced." Recent research finds strong empirical relationships between employment and vacancies growth and the inverse of the unemployment rate, and between investment to GDP ratios and the unemployment rate across many countries. They are difficult to interpret as being driven from the supply-side (Ball, 1999; Modigliani, 2000; Mitchell, 2001).

4.2 Shifting points of attraction in unemployment and vacancies

Mitchell (2001) analysed the cyclical movements in both unemployment and vacancies. He produces phase diagrams which plot current and lagged unemployment (vacancies) against each other, that reveal counter-clockwise (clockwise) fluctuations along the 45-degree line. Mitchell (2001: 9-10) observed that "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."

Figures 7a and 7b show phase diagrams for unemployment rates and vacancy rates, respectively for the study countries. Both illustrate the presence of (counter) clockwise cyclical movements and attractors for the eight OECD countries. These movements take place along the 45-degree line which indicates a strong persistence in both unemployment and vacancies. The Figures also show that the 'points of attraction' for unemployment and vacancies, u^* and v^*, respectively, have shifted over time.

In most cases, there have been large displacements in the attractor coinciding with major cyclical events (typically the 1970s OPEC oil shock, the 1981 recession and/or the 1991 recession). These major cyclical events tended to push the unemployment rate attractor out but pushed the vacancy rate attractor downwards.

From the previous section we know that the OECD Jobs Study approach interprets the outward unemployment shifts as a decline in labour market efficiency. But using the same logic, the downward shifts in the vacancy rate attractor would be interpreted as increasing matching efficiency. Clearly, both states cannot hold. A consistent interpretation can be found in the view being developed in this paper – that when demand constraints imposed by macroeconomic policy failing to match cyclical spending gaps drive unemployment up and vacancy rates down. If these cyclical episodes are so large then the subsequent economic growth with on-going labour force and productivity growth is typically unable to reverse the stockpile of unemployed. Whatever endogenous supply effects that may have occurred in skill atrophy and work attitudes were not causal but reactive (Mitchell, 2001).

5. The paradox of the quit rate

In the Classical model the real wage is considered to be determined 'in the labour market' at the intersection of the labour demand (L_d) function and the labour supply (L_s) function. The 'equilibrium' employment level is constructed as full employment because it suggests that every firm who wants to employ at that real wage can find workers who are willing to work and every worker who is willing to work at that real wage can find an employer willing to employ them. This concept of full employment is consistent with both ideas of equilibrium noted above being satisfied. Frictional unemployment is easily derived from the classical labour market representation, as is voluntary unemployment.

Holding technology constant (and hence the L_d curve fixed), changes in employment (and hence unemployment) are driven by labour supply shifts. Various theoretical constructs have been developed to explain how business cycles are driven by labour supply shifts. For example, the Friedman (1968) misperceptions hypothesis considers that workers possess less short-run information than the employers about the relationship between relative and absolute price levels. Accordingly, the workers can be induced to supply more labour than is optimal given their preferences for as long as they are confused about their real wage level. In other words, they believe that a nominal wage rise is a real wage rise and supply more labour accordingly. Once they learn the truth they withdraw this supply and equilibrium is restored. The essence of all these supply shift stories is that quits are constructed as being countercyclical despite all evidence to the contrary. This induces Thurow (1983: 1985) to ask "why do quits rise in booms and fall in recessions? If recessions are due to informational mistakes, quits should rise in recessions and fall in booms, just the reverse of what happens in the real world." If quits are not countercyclical then the orthodox labour market model that constructs unemployment as being a supply-side phenomenon is flawed.

One problem with testing the behaviour of separations formally is that data is rarely available. However in the U.S. and Canada, comprehensive data is available and has been examined. Davis *et al.* (2006: 19) produce compelling evidence for the U.S. covering a period from 1947 to 2005 (see their Figure 9) which "provides direct evidence on cyclical movements in the ratio of layoffs to separations … The figure shows a strong negative relationship between employment growth and the percentage of separations that take the form of layoffs. The fitted curves in Figure 9 also indicate that the layoff-separation ratio is more sensitive to employment growth at the margin when the percentage employment decline is larger."

Osterman (2001) also infers quits for the U.S. from the Employment and Earnings data by examining the fraction of the unemployed that became unemployed due to quits. He concludes that "it is no surprise that these data show a cyclical trend, with quits declining in bad times (in 1992 the unemployment rate was 7.0 per cent, compared to 5.4 per cent in 1989 and 4.3 per cent in 1999. It is also notable, that quits decline as a fraction of unemployment in 1999 compared to 1989, which implies greater caution on the part of the workforce."

Statistics Canada (1998) provides a valuable dataset covering 1978 to 1995 for separations and hires. The data covers hiring rates (number of all persons employed in a firm during a given year that were not with the firm the previous years expressed as a percentage of the number of persons employed in the firm at any time during the year)

and separation rates (the number of separations from the firm divided by the number of persons employed by the firm at any time during the year). Separations are divided into employee-initiated flows called quits and firm-initiated flows called layoffs. Figure 8 plots the hiring, quit and layoff rates. The shaded areas are approximately the GPD peak to trough years. The approximation arises because the exact turning points - 1981:2 (peak) and 1982:4 (trough) and 1990:1 (peak) and 1991:1 (trough) - cannot be delineated on a graph using annual flows data. Figure 8 supports one of the major conclusions drawn from the Canadian data is that "The overall rate at which workers permanently separate from their employers (through quits, permanent layoffs or separations for other reasons) has generally been stable since 1978, although it tends to fall in recessions, as quits fall more than permanent layoffs increase. However, there is a substantial change in the mix of separations by type over the business cycle. During recessions quits fall and permanent layoffs increase. For example during the 1992 recession quits fell 45% (between 1989 and 1992) and permanent layoffs increased by 21%" (Statistics Canada, 1998: 5).

We conclude along the lines of Thurow (1983) that the orthodox explanation of unemployment trips up at the most elementary level. Labour supply shifts do not explain shifts in employment and unemployment.

6. Conclusion

We have demonstrated that employment and unemployment in eight (major) countries are predominantly driven by aggregate demand. There is strong evidence to support this contention. The robustness of the results is strengthened by the fact that the eight countries exhibit considerable diversity in economic structure. Despite all the labour market and related supply-side reforms that have been introduced across the OECD countries over the last 15 years, the unemployment rate persists at high levels due to demand deficiency.

This demand deficiency reflects several factors: (a) declines in the investment ratio, (b) declines in public sector employment (Mitchell and Muysken, 2002). Both have been exacerbated by deflationary macroeconomic policy since 1975, which has ensured that the persistently high unemployment was inevitable. In that respect we fully agree with Modigliani, who has recently argued that (Modigliani, 2000: 3)

> 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 (emphasis in original)

We also have argued that the conventional NAIRU approach tends to neglect the role of aggregate demand and focuses on the supply side. However, it turns out that both employment and unemployment are very poorly correlated to wage costs, which are key factors in the NAIRU approach (see also Mitchell and Muysken, 2002).

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 public

sector should take a much 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.

While our empirical evidence is convincing, there is a need for further more rigorous research into the demand side determinants of unemployment. We hope that we will succeed in focusing the interest of the profession more in that direction.

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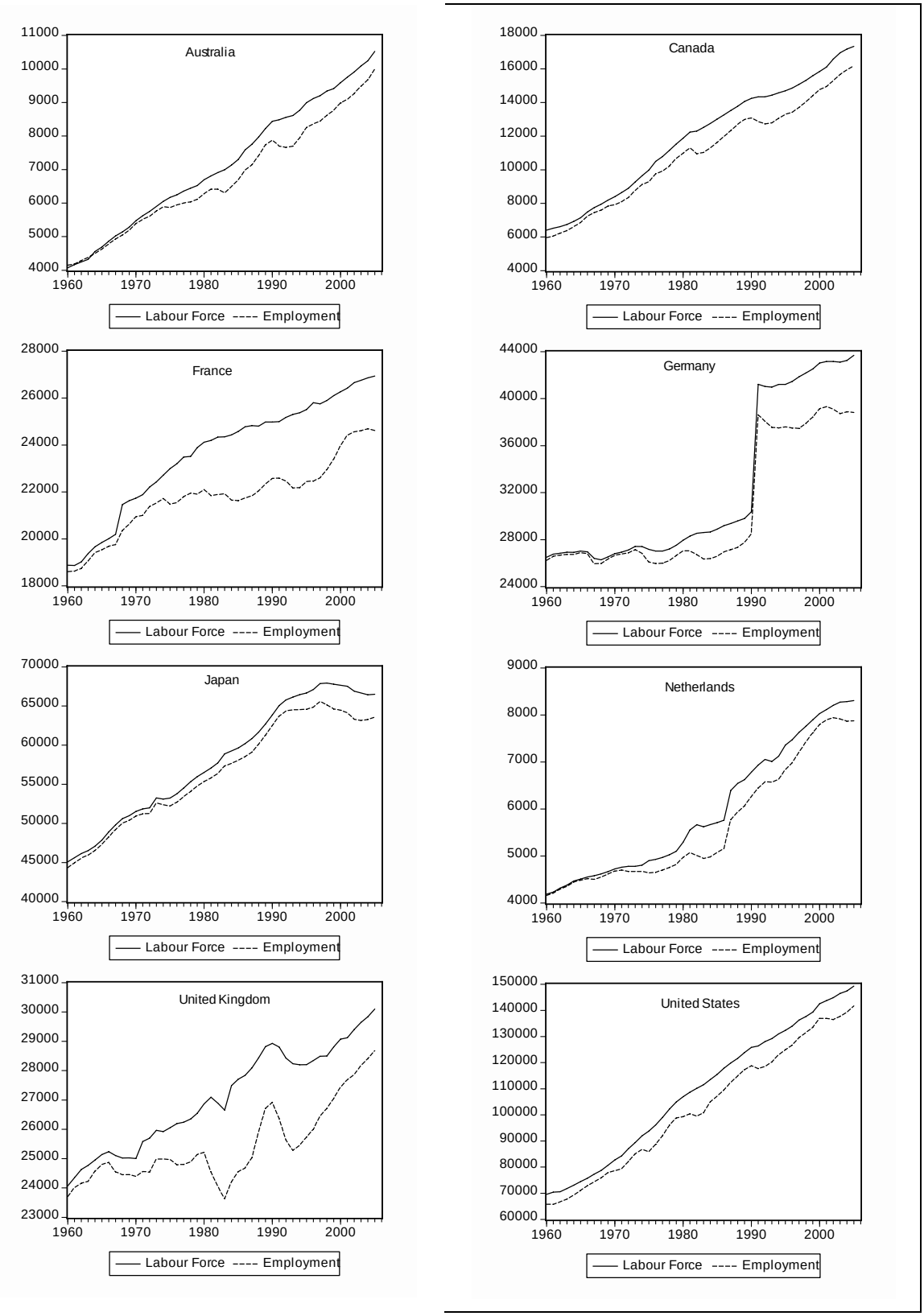
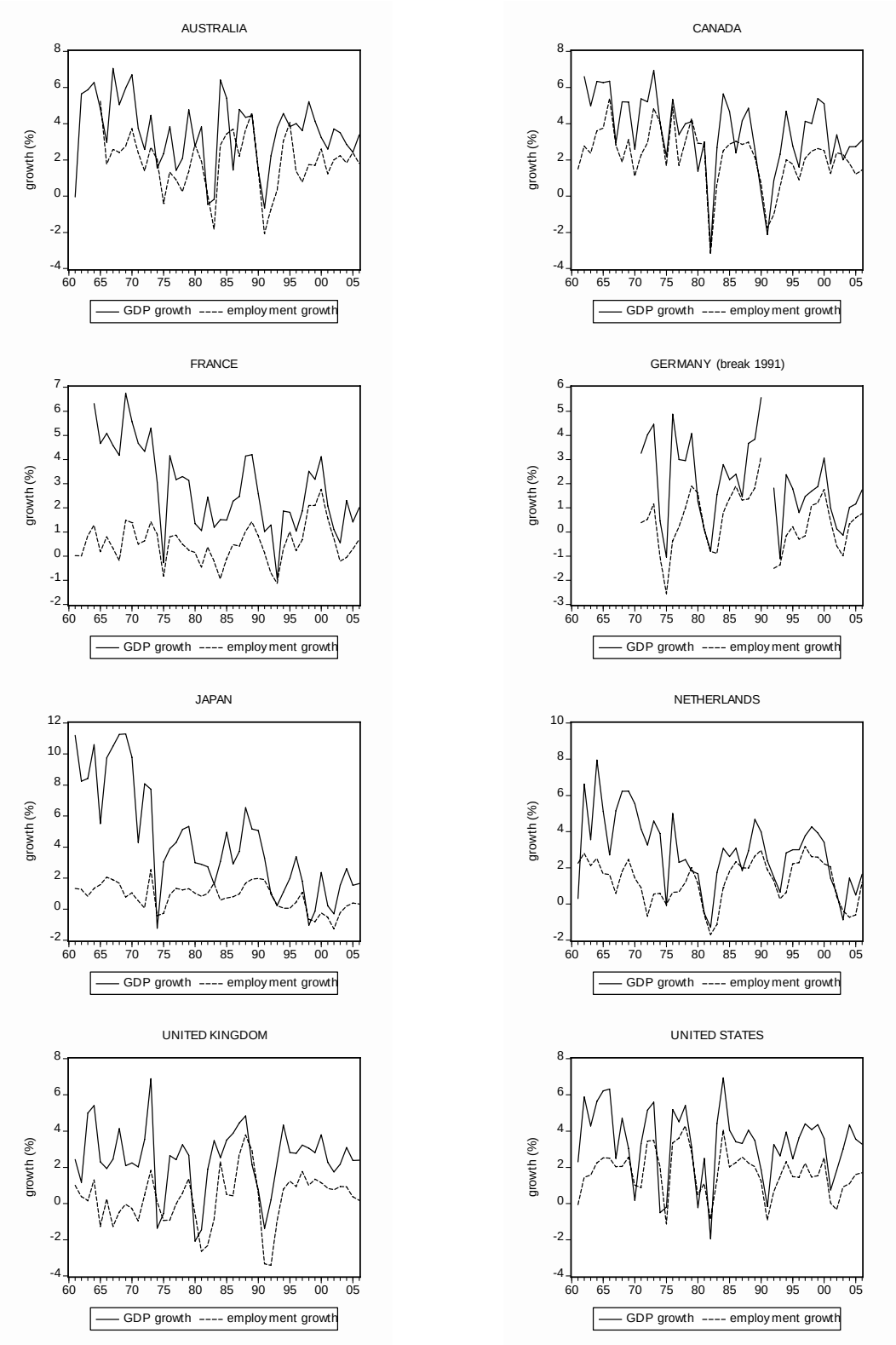
Figure 1 Employment gaps, 1960-2005, selected countries, thousands



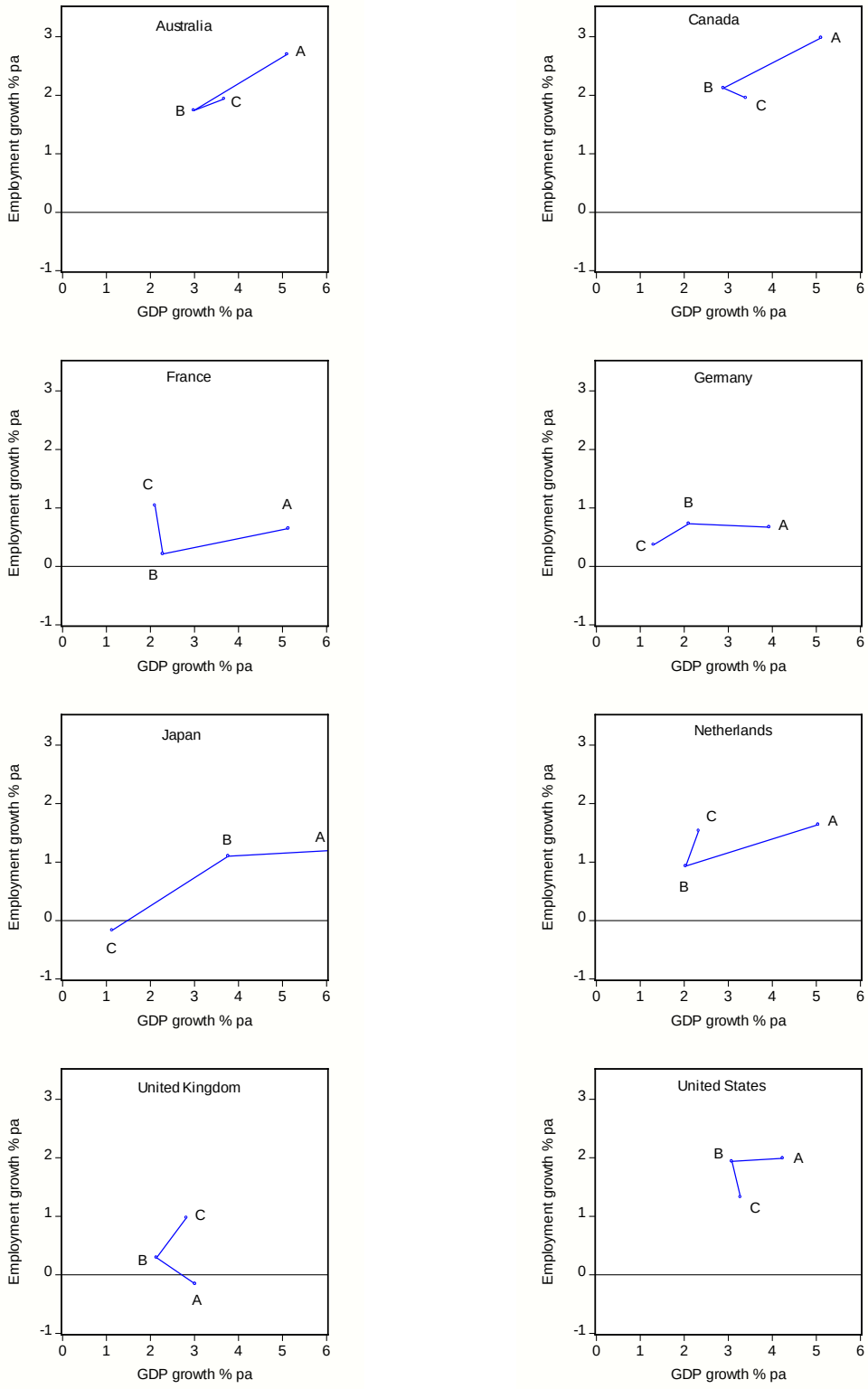
Source: Bureau of Labor Statistics, Comparative Labour Force data.

Figure 2 Employment growth and GDP growth for 8 OECD countries, 1960-2006



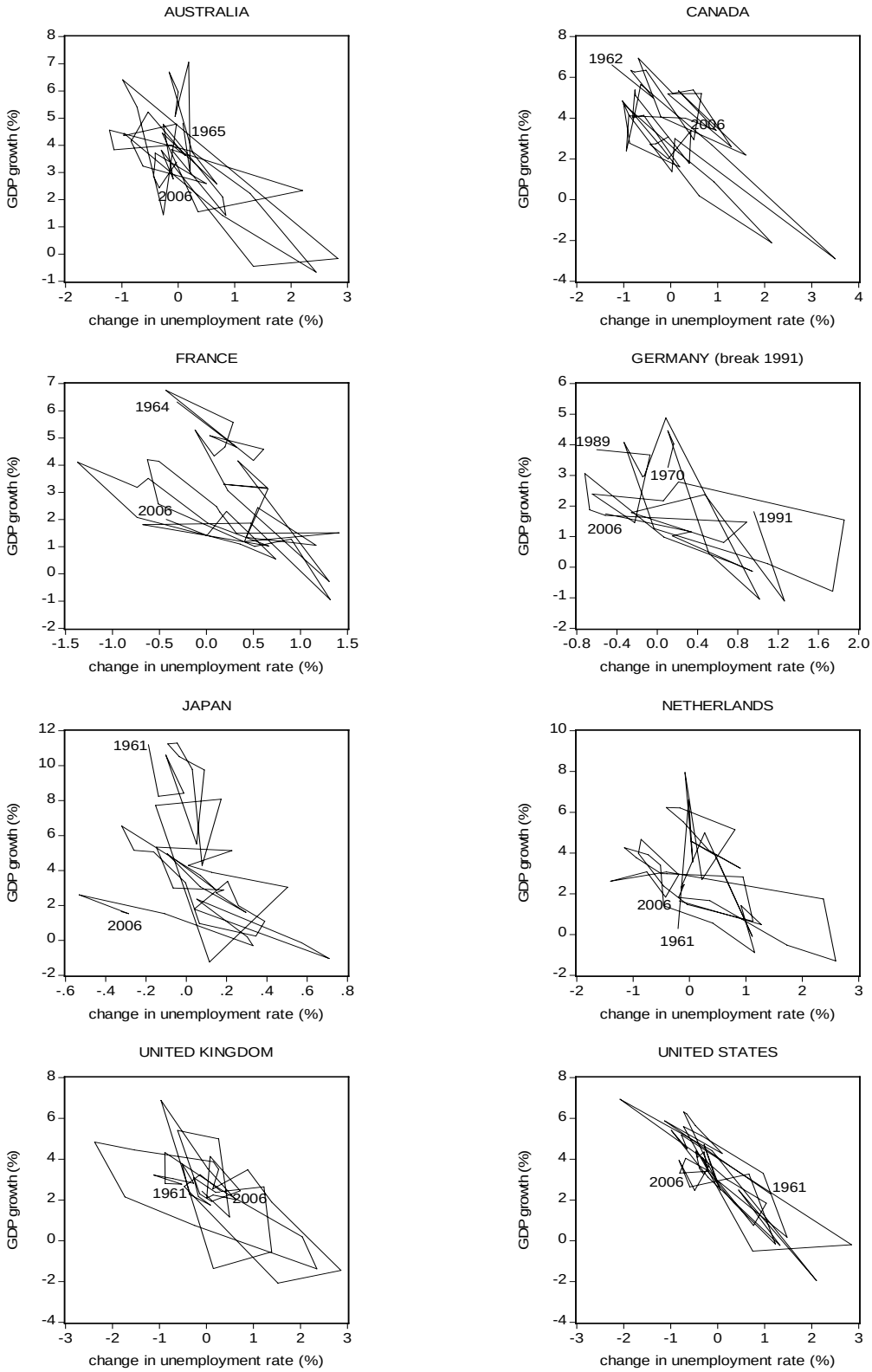
Source: OECD Economic Outlook database.

Figure 3 Changes in employment growth and GDP growth for 8 OECD countries, average for 1960:1 – 1973:3 (A), 1973:4 – 1991:4 (B), 1992:1 – 2006:1 (C)



Source: see Figure 2.

Figure 4 Okun's Law for 8 OECD countries



Source: OECD Economic Outlook database.

Table 1 Okun coefficients found in the literature

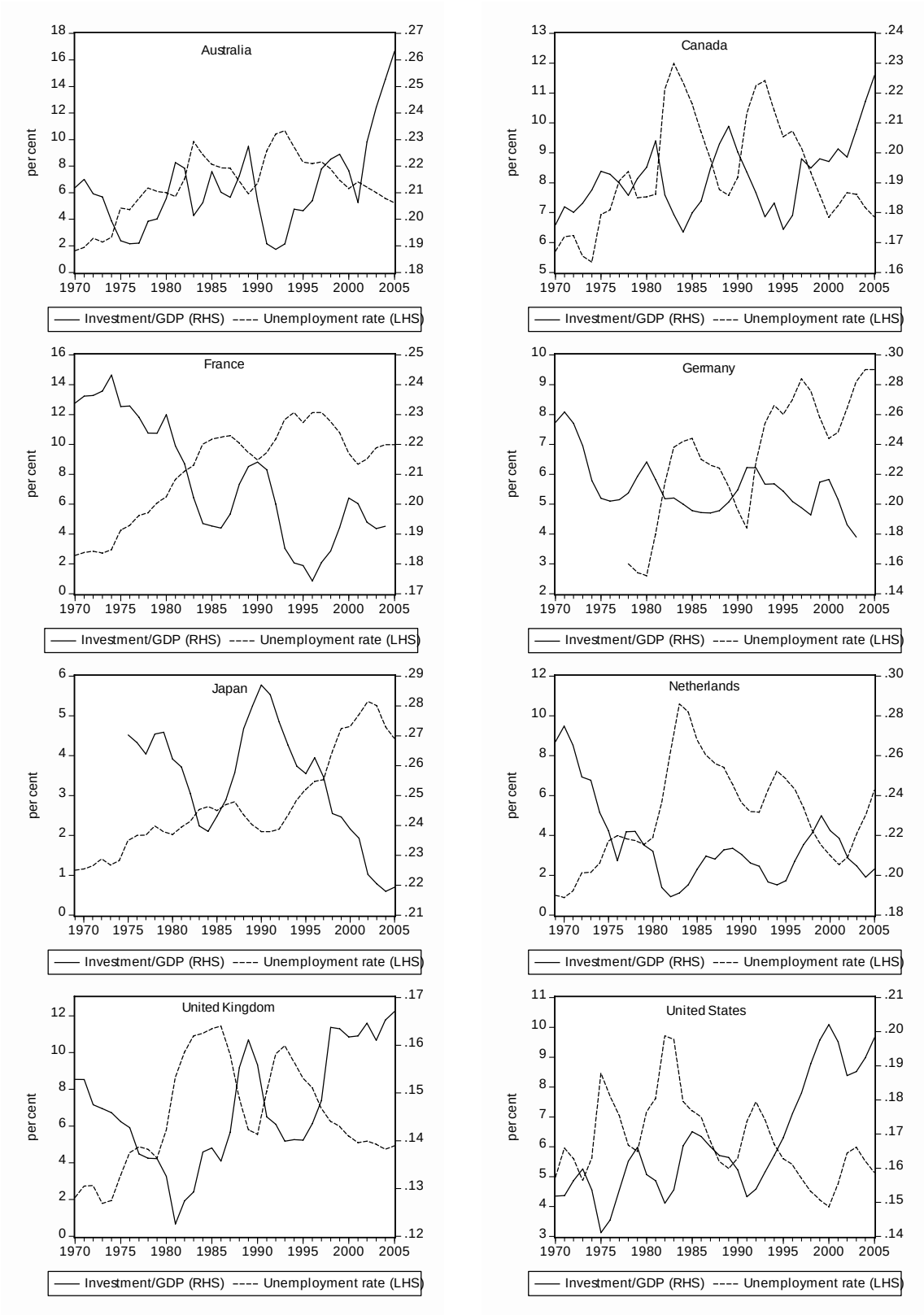
Country	Moosa (1997)	Sögner and Stiassny (2002)
Canada	-0.49	-0.60
USA	-0.47	-0.52
United Kingdom	-0.39	-0.58
Germany	-0.43	-0.38
France	-0.37	-0.43
The Netherlands		-0.82
Italy	-0.20	-0.21
Japan	-0.09	-0.12

Table 2 Sample correlations between Investment/GDP and unemployment

Country	Sample	Correlation
Australia	1960:1 to 2006:2	-0.201
Canada	1961:1 to 2006:2	-0.377
France	1978:1 to 2006:2	-0.612
Germany	1991:1 to 2006:2	-0.707
Japan	1994:1 to 2006:2	-0.856
Netherlands	2001:1 to 2006:2	-0.781
United Kingdom	1960:1 to 2006:2	-0.464
United States	1960:1 to 2006:2	-0.645

Source: OECD Main Economic Indicators

Figure 5 Investment/GDP and unemployment, various periods



Source: OECD Main Economic Indicators, IMF (France, Germany) and CPB (Japan, the Netherlands).

Figure 6 Unemployment and vacancies, sectoral and aggregate shocks

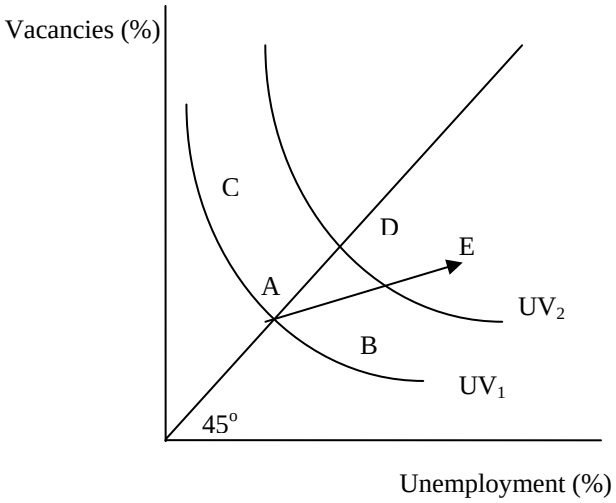
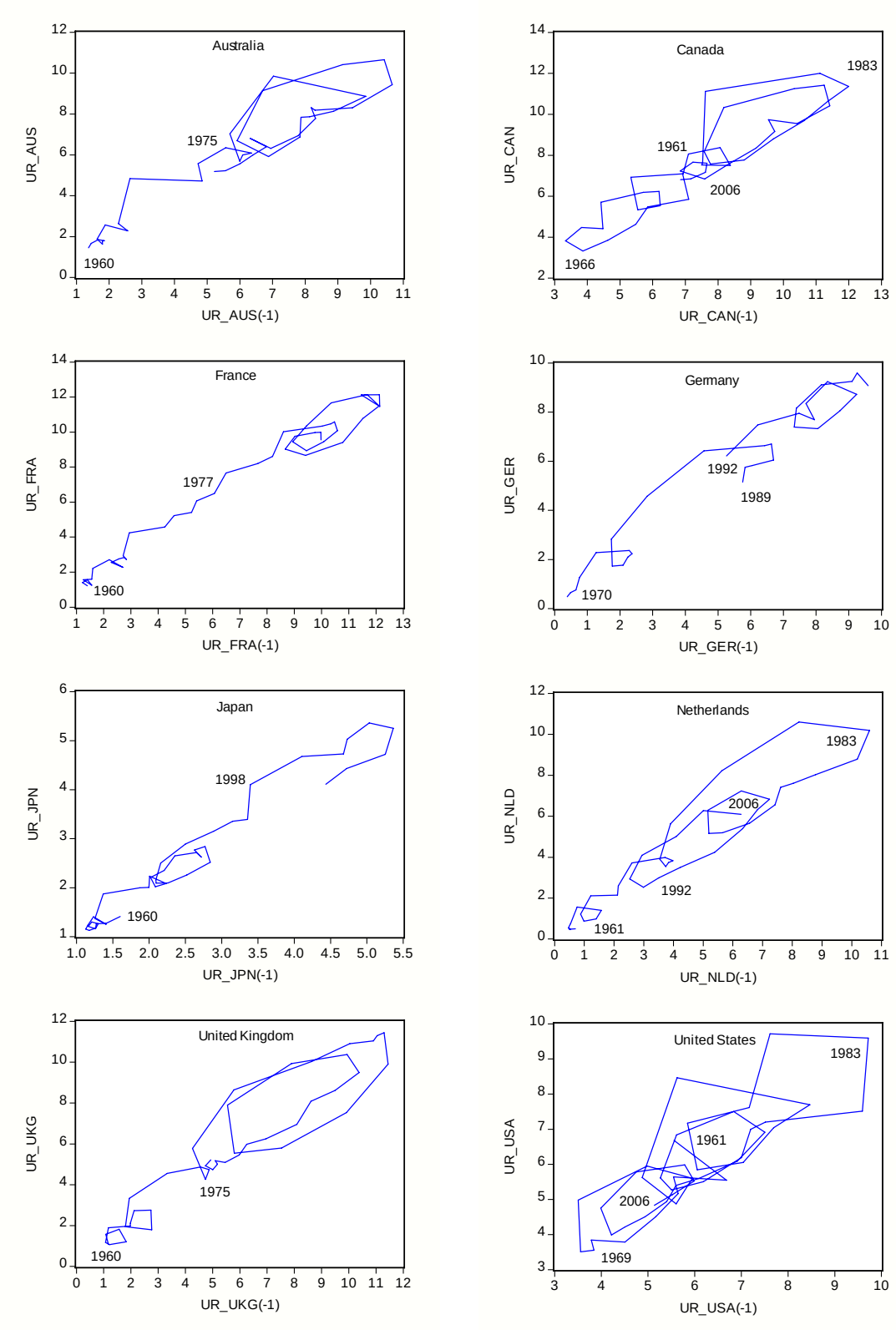
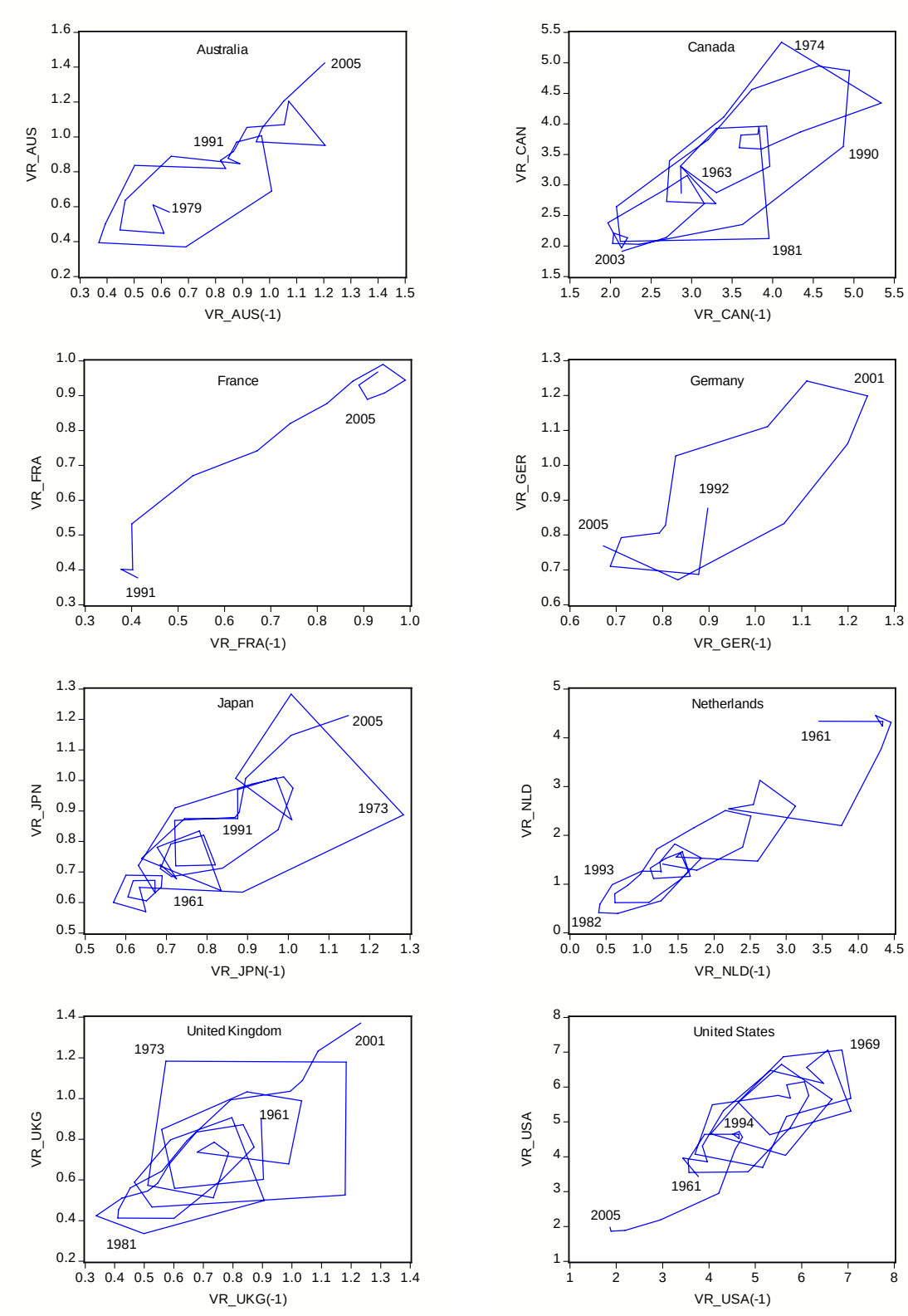


Figure 7(a) Current and lagged unemployment, 1960 – 2006



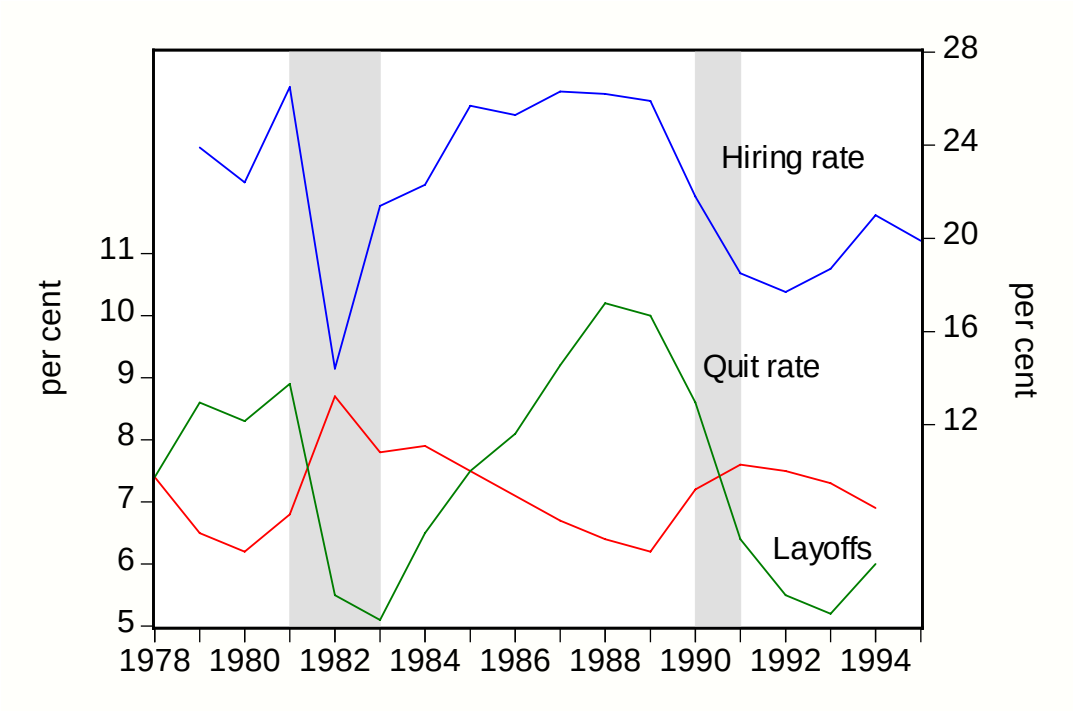
Source: OECD Economic Outlook database. The data for Germany starts at 1970.

Figure 7(b) Current and lagged vacancies, 1960 – 2006



Source: OECD Main Economic Indicators database.

Figure 8 Layoffs, quits and hiring rates, Canada, 1978-1994



Source: Statistics Canada (1998). The hiring rate is depicted on RH axis.

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[2] This does not hold for the United Kingdom, where employment started to decline in the mid-1960s, followed by a period of revival in the mid-eighties, and for Germany, which witnessed hardly any employment growth in the 1960s.