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Labour Market Institutions and Unemployment in OECD Countries

Stephen Nickell*

The average unemployment rate in Europe in 2001 was 7.6 percent. This is higher than in any of the developed countries of the OECD outside Europe.[1] So, in this average sense, there is a European unemployment problem. But averaging in this way is silly. Europe, by which we mean Western Europe, consists of fifteen countries (we omit Luxembourg) with fifteen more or less independent labour markets. As we shall see, it is how these labour markets operate which determines unemployment over the longer term. And by 2002, nine of these fifteen labour markets were operating well enough to produce unemployment rates *lower* than in any of the non-European developed OECD countries including the US. So why is average unemployment in Europe so high? The answer is that unemployment is high in the four largest economies of Continental Western Europe, namely France, Germany, Italy and Spain, henceforward referred to as the Big Four. Exclude these four countries and the famous European unemployment problem more or less disappears.

In what follows, we pursue these issues. In the next section, we discuss how we might explain large secular shifts in unemployment and the circumstances in which changes in the operation of the labour market would provide such an explanation. In Section 2, we summarise some of the evidence on this issue. Finally, in Section 3, we look at what has actually happened to labour market institutions in the last four decades in our group of OECD countries. Then we see whether we can explain the significant differences in unemployment performance across Europe since the early 1980s.

Explaining Secular Shifts in Unemployment

Before discussing how we might explain why unemployment changes such a lot over time, we start with a general picture of the period from 1960 presented in Table 1. Note that in this table, the numbers for Germany refer to West Germany and the numbers for Italy have been subject to some correction described in the table. Both these changes have been made to try and ensure some degree of consistency over time. Looking at the table, we see that unemployment was very low in the 1960s with the notable exceptions of Canada, Ireland and the United States. Today, there is only one country with unemployment lower than in the early 1960s, namely Ireland, although Austria, Netherlands, Norway, Switzerland and the US have seen very small increases over what were very low levels in the case of the first four countries. By contrast, the Big Four have unemployment today far in excess of its level in the early 1960s. Like most countries, their unemployment rates took off in the late 1970s and early 1980s but unusually they have remained high ever since. These patterns are the main focus of our interest, so how might this be explained?

Some Basic Analysis

The level of employment, and hence unemployment, is determined by aggregate demand.[2] This is influenced by many factors, mostly outside the direct control of policy makers. Monetary policy is, however, directly controlled by policy makers and has a significant impact on aggregate demand. These days, monetary policy tends to be set in

* Stephen Nickell is a member of the Bank of England Monetary Policy Committee and the London School of Economics.

[1] Australia, Canada, Japan, New Zealand, US.

[2] There is obviously some short-run slippage between aggregate demand and employment accounted for by variation in inventories and the intensity of work by employees. This is not germane to the main thrust of the argument in the text.

Table 1

Unemployment (Standardised Rate) %

	1960–64	1965–72	1973–79	1980–87	1988–95	1996–99	2000–01	Latest data
Australia	2.5	1.9	4.6	7.7	8.7	7.8	6.5	6.5
Austria	1.6	1.4	1.4	3.1	3.6	4.3	3.7	4.1
Belgium	2.3	2.3	5.8	11.2	8.4	9.2	6.8	6.9
Canada	5.5	4.7	6.9	9.7	9.5	8.7	7.0	7.5
Denmark	2.2	1.7	4.1	7.0	8.1	5.3	4.4	4.2
Finland	1.4	2.4	4.1	5.1	9.9	12.2	9.4	8.9
France	1.5	2.3	4.3	8.9	10.5	11.9	9.0	9.2
Germany (W)	0.8	0.8	2.9	6.1	5.6	7.1	6.4	6.8
Ireland	5.1	5.3	7.3	13.8	14.7	8.9	4.0	4.4
Italy	3.5	4.2	4.5	6.7	8.1	9.9	8.4	7.6
Japan	1.4	1.3	1.8	2.5	2.5	3.9	4.9	5.4
Netherlands	0.9	1.7	4.7	10.0	7.2	4.7	2.6	2.8
Norway	2.2	1.7	1.8	2.4	5.2	3.9	3.6	3.9
New Zealand	0.0	0.3	0.7	4.7	8.1	6.8	5.7	5.3
Portugal	2.3	2.5	5.5	7.8	5.4	5.9	4.1	4.4
Spain	2.4	2.7	4.9	17.6	19.6	19.4	13.5	–
Spain*						15.8	11.0	11.2
Sweden	1.2	1.6	1.6	2.3	5.1	8.7	5.5	5.0
Switzerland	0.2	0.0	0.8	1.8	2.8	3.7	2.6	2.6
UK	2.6	3.1	4.8	10.5	8.8	6.9	5.2	5.2
US	5.5	4.3	6.4	7.6	6.1	4.8	4.4	5.7

Note: As far as possible, these numbers correspond to the OECD standardised rates and conform to the ILO definition. The exception here is Italy where we use the US Bureau of Labor Statistics "unemployment rates on US concepts". In particular we use the correction to the OECD standardised rates made by the Bureau prior to 1993. This generates a rate which is 1.6 percentage points below the OECD standardised rate after 1993. The rates referred to in Spain* refer to recently revised ILO rates. For earlier years we use the data reported in Layard et al. (1991), Table A3. For later years we use OECD Employment Outlook (2002) and UK Employment Trends, published by the UK Department of Education and Employment. The latest data refer to the period between February and September 2002.

order to stabilise inflation at relatively low levels. Suppose, as a result of adverse shocks, aggregate demand is low, unemployment is high and the economy is in a recession. Then monetary policy will be loosened, aggregate demand will recover and unemployment will start falling. At some point in this recovery, the economy will run into labour shortages and inflationary pressure. In anticipation of inflation moving above target, monetary policy is then tightened. The key issue is how much unemployment remains before labour shortages become excessive and inflation starts to rise. This level of unemployment may be thought of as the equilibrium or sustainable rate at which there is no systematic tendency for inflation to rise or fall, (so it is also called the NAIRU).

Table 2

Macroeconomic Patterns in the Eurozone, 1994-2002

	94	95	96	97	98	99	00(i)	00(ii)	00(iii)	
Short-term interest rate (%)	5.3	4.5	3.3	3.3	3.5	3.0	3.5	4.3	4.7	
Final domestic demand contribution to growth (annual %)	1.5	1.7	1.5	1.7	3.1	3.6	3.1	3.5	2.6	
GDP growth (annual %)	2.4	2.2	1.4	2.3	2.9	2.8	3.8	4.2	3.2	
Unemployment Rate (%)	10.9	10.6	10.9	10.9	10.3	9.3	8.7	8.5	8.3	
Inflation (CPI)	2.8	2.6	2.3	1.7	1.2	1.1	2.1	2.1	2.5	
	00(iv)	01(i)	01(ii)	01(iii)	01(iv)	02(i)	02(ii)	02(iii)	02(iv)	03(i)
Short-term interest rate (%)	5.0	4.8	4.6	4.3	3.4	3.4	3.4	3.4	3.1	2.7
Final domestic demand contribution to growth (annual %)	2.2	2.0	1.4	1.1	0.7	0.2	-0.0	0.4	0.7	1.0
GDP growth (annual %)	2.7	2.4	1.5	1.3	0.5	0.4	0.7	0.9	1.3	0.9
Unemployment Rate (%)	8.1	8.0	7.9	8.0	8.1	8.1	8.2	8.3	8.4	8.6
Inflation (CPI)	2.7	2.3	3.1	2.5	2.5	2.5	2.0	2.1	2.3	2.4

Note: The quarterly annual growth rates are based on the current quarter relative to the same quarter one year earlier. Final domestic demand is C+I+G in obvious notation. The data for 2003(i) is preliminary. These data are from the Bank of England databank.

By and large, variations in this equilibrium rate of unemployment, through time and across countries, will lie behind the broad patterns of unemployment we observe in Table 1. So explaining the equilibrium rate is the key problem. Of course, aggregate demand determines unemployment, so variations in aggregate demand (relative to trend) will "explain" precisely the observed patterns of unemployment. But this is more of a tautology than an explanation. A country will suffer from persistently high unemployment, that is persistently "low" aggregate demand, if its equilibrium level of unemployment is high. Because then, any attempt to raise aggregate demand and hence lower unemployment will run into the inflation constraint.

An interesting example is the Eurozone in the late 1990s. The Eurozone is, of course, dominated in size by the big four Continental European economies, France, Germany, Italy and Spain. A picture of events for 1994 to 2002 is set out in Table 2. As a general rule of thumb, monetary policy, as captured by short-term interest rates, impacts on demand with a lag of about a year and on inflation in a further year. Early in the period, monetary policy was quite tight, domestic demand growth was relatively modest, unemployment was nearly 11 percent and the inflation rate was falling. Monetary policy was eased during the late 1990s, domestic demand growth expanded and unemployment started falling. However, by early 2000, inflation had started to move above the ECB target range[3] even though unemployment was still above 8 percent. As a consequence, monetary policy was tightened throughout 2000. Despite subsequent easing, particularly in late 2001, domestic demand fell rapidly from the second half of 2000 and unemployment started to rise from a low point of 7.9 percent in mid-2001.[4] Despite this, inflation remains above the ECB target range. The lesson from this episode appears to be that in the Eurozone, the reduction in unemployment generated by monetary policy easing in the late 1990s hit the inflation constraint in 2000 and monetary policy had to be tightened to stop inflation rising further. This prevented Eurozone unemployment falling much below 8 percent. On the basis of this example, it is hard to see how average equilibrium unemployment in the Eurozone can be below 8 percent, a relatively high level, particularly as unemployment in most of the small Eurozone countries has been well below this level for many years.

Can Unemployment Deviate from its Equilibrium Level for Long Periods?

This is a typical example of how actual unemployment fluctuates around its equilibrium level. But it is not always like this. On some occasions, countries may suffer from high levels of unemployment for long periods of time either because they experience an overwhelming adverse demand shock from which it takes a very long time to recover or because macroeconomic policy is persistently perverse. In the former case, we may observe unemployment well above its equilibrium rate, although falling back towards it. In this case inflation may not fall, although unemployment is above its equilibrium rate, because the very fact that unemployment is falling will itself typically generate upward inflationary pressure. This offsets the downward inflationary pressure produced by the high *level* of unemployment.[5] In the latter case, unemployment which is kept above its equilibrium rate will tend simply to generate falling inflation. Good examples of these two cases are provided by Finland and Japan. In Finland, a combination of poor policy decisions including a mishandled deregulation of the financial sector produced a huge adverse demand shock in the early 1990s which was reinforced by the collapse of trade with the Soviet Union. Consequently, as we can see in Table 3, unemployment rose from 3.2 percent to 16.4 percent in three years. From 1994 onwards, unemployment has fallen steadily without any serious inflationary consequences. This is a good example of unemployment being above the equilibrium rate for a decade but steadily falling back, simply as the consequence of an enormous adverse demand shock.

The example of Japan is different. From 1990 on, unemployment has been rising throughout and, with a brief hiccup, inflation has been falling, turning negative in 1999. This suggests that unemployment has been above the equilibrium rate for a long time which equally suggests that something has gone wrong on the macro policy front.

[3] 2 percent is at the top of the ECB target range.

[4] Of course, the US economy turned down in 2001 and this would have had some additional impact on the Eurozone. However, looking closely at the data, we see that in 2000/2, GDP growth has exceeded the growth of final domestic demand in every quarter, indicating a positive contribution of net trade (plus inventories) throughout. Furthermore, from the peak of GDP growth [2000 (ii)] to the trough [2002 (i)], GDP growth fell by 3.8 percentage points and the final domestic demand contribution fell by 3.3 percentage points. So the vast majority of the fall arises domestically.

[5] This is a standard consequence of hysteresis in the unemployment process. There is a discussion on p.382 of Layard et al. (1991).

Table 3

Examples of Unemployment and Inflation Patterns

	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02
Finland *u*	5.0	4.5	3.2	3.2	6.6	11.6	16.4	16.7	15.2	14.5	12.6	11.4	10.2	9.7	9.1	9.1
p	3.6	4.7	6.5	6.1	4.1	2.6	2.2	1.0	1.0	0.6	1.2	1.4	1.2	3.4	2.5	1.8
Japan *u*	2.8	2.5	2.3	2.1	2.1	2.2	2.5	2.9	3.1	3.4	3.4	4.1	4.7	4.7	5.0	5.4
p	0.1	0.7	2.3	3.1	3.2	1.8	1.2	0.7	-0.1	0.1	1.8	0.6	–0.3	–0.7	–0.7	–0.9

u is the ILO unemployment rate. – p is the CPI inflation rate.

Aside from these types of exceptions, the longer-term patterns of unemployment tend to be dominated by shifts in the equilibrium rate. So what determines this rate? There are innumerable detailed theories of unemployment in the long run. These may be divided into two broad groups, those based on flow models and those based on stock models. Pissarides (1990) and Mortensen and Pissarides (1999) provide good surveys of the former model type. Blanchard and Katz (1999) presents a general template for the latter models. Fundamentally, all the models have the same broad implications. The equilibrium level of unemployment is affected first, by any variable which influences the ease with which unemployed individuals can be matched to available job vacancies, and second, by any variable which tends to raise wages in a direct fashion despite excess supply in the labour market. There may be variables common to both sets. Most of these variables reflect labour market institutions such as unemployment benefits or unions. So in the next section we consider some of the evidence in favour of this overall framework.

Labour Market Institutions and Unemployment Patterns

The purpose of this section is to consider whether it has proved possible to explain the unemployment patterns shown in Table 1 by variations over time and across countries in labour market institutions. Cross-country variation in post-1980s unemployment is easy enough to explain by cross-country variation in labour market institutions (see, for example, Layard et al. 1991, p. 55; Scarpetta 1996; Nickell 1997, Elmeskov et al. 1998; Nickell and Layard 1999). More interesting and more tricky is to explain the time series variation from the 1960s onward.

There are several different approaches that have been used. First there is a basic division between studies that use econometric techniques to fit the data and those which use calibrated models which typically distinguish between a stylised "European" economy and a stylised "United States" economy. Second there is another division between those which focus on changes in the institutions and those which consider "shocks" or baseline factors which shift over time and are typically interacted with average levels of institutional factors.

Looking first at panel data econometric models which interact stable institutions with shocks or baseline variables, good examples include Layard et al. (1991), Chapter 9 (pp. 430–37), Blanchard and Wolfers (2000), Bertola et al. (2002) and Fitoussi et al. (2000). All these focus on the time series variation in the data by including country dummies. Layard et al. (1991) present a dynamic model of unemployment based on annual data where the baseline variables include wage pressure (a dummy which takes the value one from 1970), the benefit replacement ratio, real import price changes and monetary shocks. Their impact on unemployment differs across countries, since it depends on time invariant institutions, with different sets of institutions affecting the degree of unemployment persistence, the impact of wage pressure variables including the replacement rate and import prices, and the effect of monetary shocks. The model explains the data better than individual country autoregressions with trends.

Blanchard and Wolfers (2000) use five year averages to concentrate on long-run effects. The shocks or baseline variables consist of the level of TFP growth, the real interest rate, the change in inflation and labour demand shifts (essentially the log of labour's share purged of the impact of factor prices). With the exception of the change in inflation, these "shocks" are not mean reverting which is why we prefer the term baseline variables. These variables are driving unemployment, so that, for

example, the fact that annual TFP growth is considerably higher in the 1960s than in the 1990s in most countries is an important reason why unemployment is typically higher in the latter period. Quite why this should be so is not wholly clear. Many mechanisms are discussed in Saint-Paul (1991) but there is no evidence that they are important or robust in Bean and Pissarides (1993) for example. Nevertheless, interacting these observed baseline variables with time invariant institutional variables fits the data well. In an alternative investigation, Blanchard and Wolfers replace the observed shock variables with unobserved common shocks represented by time dummies. As a consequence, the explanatory power of the model increases substantially.

The basic Blanchard and Wolfers model is extended in Bertola et al. (2002) who include an additional baseline variable, namely the share of young people (age 15 to 24) in the population over 15 years old. The model explains a substantial proportion of the divergence between US and other countries unemployment rates (48 to 63 percent) over the period 1970 to 1995, although an even higher proportion is explained when the observed baseline variables are replaced by time dummies.

Fitoussi et al. (2000) proceed in a slightly different way. First they interact the baseline variables with country dummies and then investigate the cross-section relationship between these and labour market institutions. The baseline variables include non-wage support (income from private wealth plus social spending) relative to labour productivity and the real price of oil as well as two in common with Blanchard and Wolfers (2000), namely the real rate of interest and productivity growth. In all these four papers, the explanation of long-run changes in unemployment has the same structure. The changes depend on long-run shifts in a set of baseline variables, with the impact of these being much bigger and longer-lasting in some countries than others because of stable institutional differences. The persuasiveness of these explanations depends on whether the stories associated with the baseline variables are convincing. For example, the notion that a fall in trend productivity growth, a rise in the real price of oil or a downward shift in the labour demand curve leads to a *permanent* rise in equilibrium unemployment in one which many might find unappealing.

An interesting alternative, still in the context of the institutions/shocks framework is the calibration analysis discussed in Ljungqvist and Sargent (1998). The idea here is that in "Europe", benefits are high with a long duration of eligibility whereas in the "United States", benefits are modest and of fixed duration. In a world where turbulence is low, the probability of large skill losses among the unemployed is low and the difference in the unemployment rates in "Europe" and the "United States" is minimal, because the chances of an unemployed person in "Europe" finding a job with wages exceeding the benefit level are high. In a world where turbulence is high, the probability of large skill losses among the unemployed is high. As a consequence the high level of benefits relative to past earnings and hence the high reservation wage in "Europe" now bites and unemployment is much higher than in the "United States". So we have a situation where the relevant institution, namely the benefit system, remains stable but the consequences are very different in a world of high turbulence from those in a world of low turbulence.

While this model captures a particular feature of the situation, in order for it to be a persuasive explanation of recent history it must pass two tests. First, we need evidence that turbulence has indeed increased and second it must explain why many countries in Europe now have relatively low unemployment. Indeed the variation in unemployment (and employment) rates across European countries is far larger than the difference between Europe and the United States. To justify the assumption of increasing turbulence, Ljungqvist and Sargent point to the increasing variance of transitory earnings in the United States reported by Gottschalk and Moffitt (1994). There has also been a rise in the transitory variance in the UK, noted by Dickens (2000). However these facts hardly add up to a full empirical test of the theory. For example, in Europe, TFP growth has been much lower since 1976 than it was in the earlier period and we might expect TFP growth to be positively associated with turbulence. Indeed, the *fall* in TFP growth is one of the main factors generating a rise in unemployment in Blanchard and Wolfers (2000). Furthermore, there is no evidence of any significant changes in the rates of job creation and job destruction over the relevant period (see Davis and Haltiwanger 1999). Finally, no evidence is presented which explains why the various European countries have such widely differing

unemployment patterns. So while the Lungqvist/Sargent model may capture an element of the story, it hardly comes close to a full explanation.

Turning now to studies which simply rely on changing institutions to explain unemployment patterns, notable examples include Belot and Van Ours (2000, 2001) and Nickell et al. (2002). The former papers provide a good explanation of changes in unemployment in eighteen OECD countries, although in order to do so they make extensive use of interactions between institutions, something which has a sound theoretical foundation (see Coe and Snower 1997, for example). Their model is, however, static like that of Blanchard and Wolfers. The model developed by Nickell et al. (2002) uses annual data and since they explain actual unemployment, they include in their model those factors which might explain the short-run deviations of unemployment from its equilibrium level. Following the discussion in Hoon and Phelps (1992) or Phelps (1994) these factors include aggregate demand shocks, productivity shocks and wage shocks. More specifically, they include the following:

i money supply shocks, specifically changes in the rate of growth of the nominal money stock (i.e. the second difference of the log money supply);
ii productivity shocks, measured by *changes* in TFP growth or deviations of TFP growth from trend;
iii labour demand shocks, measured by the residuals from a simple labour demand model;
iv real import price shocks, measured by proportional changes in real import prices weighted by the trade share;
v the (ex-post) real interest rate.

With the exception of the real interest rate, these variables are genuine "shocks" in the sense that they are typically stationary and tend to revert to their mean quite rapidly. This distinguishes them from the "baseline variables" used in Blanchard and Wolfers (2000), for example. On top of these variables, Nickell et al. (2002) then use such time series of the institutional variables as are available including employment protection, the benefit replacement rate, benefit duration, union density, co-ordination and employment taxes. These variables are there to explain equilibrium unemployment. Using a dynamic panel data model, the time series patterns of unemployment are well explained. Based on dynamic simulations keeping institutions fixed at their 1960s values, it is found that the institutional variables which are included explain about 55 percent of the individual country changes in unemployment from the 1960s to the early 1990s. This is reasonable, particularly as the early 1990s was a period of deep recession in much of Europe.

Overall, therefore, there is some evidence that the sort of labour market institutions discussed in the previous section made a significant contribution to explaining the patterns of unemployment reported in Table 1. So, as a final step, let us see how these institutional variables have changed over time and what these changes can tell us about why the European Big Four countries have performed less well than most other countries on the unemployment front in the 1990s.

Changes in Labour Market Institutions and their Impact

In this section we look at changes in benefit systems, wage determination, employment protection and labour taxes in the last decades of the 20th Century and see what they can tell us.

The Unemployment Benefit System

There are four aspects of the unemployment benefit system for which there are good theoretical and empirical reasons to believe that they will influence equilibrium unemployment. These are, in turn, the level of benefits[6], the duration of entitlement[7], the coverage of the system[8] and the strictness with which the system is operated.[9] Of these, only the first two are available as time series for the OECD countries. The OECD has collected sys-

[6] A good general reference is Holmlund (1998). A useful survey of micro studies can be found in OECD (1994), Chapter 8. Micro evidence from policy changes is contained in Carling et al. (1999), Hunt (1995) and Harkman (1997). Cross-country macro evidence is available in Nickell and Layard (1999), Scarpetta (1996) and Elmeskov et al. (1998). The average of their results indicates a 1.11 percentage point rise in equilibrium unemployment for every 10 percentage point rise in the benefit replacement ratio.
[7] There is fairly clear micro evidence that shorter benefit entitlement leads to shorter unemployment duration (see Ham and Rea (1987), Katz and Meyer (1990) and Carling et al. (1996)).
[8] Variations in the coverage of unemployment benefits are large (see OECD 1994, Table 8.4) and there is a strong positive correlation between coverage and the level of benefit (OECD 1994, p.190). Bover et al. (1998) present strong evidence for Spain and Portugal that covered workers exit unemployment more slowly than uncovered workers.
[9] There is strong evidence that the strictness with which the benefit system is operated, at given levels of benefit, is a very important determinant of unemployment duration. Micro evidence for the Netherlands may be found in Abbring et al. (1999) and van Den Berg et al. (1999). Cross country evidence is available in the Danish Ministry of Finance (1999), Chapter 2 and in OECD (2000), Chapter 4.

Table 4

Unemployment Benefit Replacement Ratios, 1960-95

	1960–64	1965–72	1973–79	1980–87	1988–95	1999
Australia	0.18	0.15	0.23	0.23	0.26	0.25
Austria	0.15	0.17	0.30	0.34	0.34	0.42
Belgium	0.37	0.40	0.55	0.50	0.48	0.46
Canada	0.39	0.43	0.59	0.57	0.58	0.49
Denmark	0.25	0.35	0.55	0.67	0.64	0.66
Finland	0.13	0.18	0.29	0.38	0.53	0.54
France	0.48	0.51	0.56	0.61	0.58	0.59
Germany (W)	0.43	0.41	0.39	0.38	0.37	0.37
Ireland	0.21	0.24	0.44	0.50	0.40	0.35
Italy	0.09	0.06	0.04	0.02	0.26	0.60*
Japan	0.36	0.38	0.31	0.29	0.30	0.37
Netherlands	0.39	0.64	0.65	0.67	0.70	0.70
Norway	0.12	0.13	0.28	0.56	0.62	0.62
New Zealand	0.37	0.30	0.27	0.30	0.29	0.30
Portugal	–	–	0.17	0.44	0.65	0.65
Spain	0.35	0.48	0.62	0.75	0.68	0.63
Sweden	0.11	0.16	0.57	0.70	0.72	0.74
Switzerland	0.04	0.02	0.21	0.48	0.61	0.74
UK	0.27	0.36	0.34	0.26	0.22	0.17
US	0.22	0.23	0.28	0.30	0.26	0.29

* This number refers to the »mobility« benefit, paid to those who become unemployed as a result of a collective layoff. Most Italian unemployed do not fall under this category.

Source: OECD. Based on the replacement ratio in the first year of an unemployment spell averaged over three family types. See OECD (1994), Table 8.1 for an example.

tematic data on the unemployment benefit replacement ratio for three different family types (single, with dependent spouse, with spouse at work) in three different duration categories (1st year, 2nd and 3rd years, 4th and 5th years) from 1961 to 1999 (every other year). (See OECD 1994, Table 8.1 for the 1991 data.) From this we derive a measure of the benefit replacement ratio, equal to the average over family types in the 1st year duration category and a measure of benefit duration equal to [0.6 (2nd and 3rd year replacement ratio) + 0.4 (4th and 5th year replacement ratio)] ÷ (1st year replacement ratio). So our measure of benefit duration is the level of benefit in the later years of the spell normalised on the benefit in the first year of the spell. A summary of these data is presented in Tables 4 and 5.

The key feature of these data is that in nearly all countries, benefit replacement ratios have tended to become more generous from the 1960s to the late 1970s, the exceptions being Germany, Japan and New Zealand. Italy had no effective benefit system over this period for the vast majority of the unemployed. After the late 1970s, countries moved in different direc-tions. Italy introduced a benefit system and those in Finland, Portugal and Switzerland became markedly more generous. By contrast, benefit replacement ratios in Belgium, Ireland the UK have fallen steadily since the late 1970s or early 1980s.

It is unfortunate that we have no comprehensive time series data on the coverage of the system or on the strictness with which it is administered. This is particularly true in the case of the latter because the evidence we possess appears to indicate that this is of crucial importance in determining the extent to which a generous level of benefit will actually influence unemployment. For example, Denmark, which has very generous unemployment benefits (see Tables 4, 5), totally reformed the operation of its benefit system through the 1990s with a view to tightening the criteria for benefit receipt and the enforcement of these criteria via a comprehensive system of sanctions. The Danish Ministry of Labour is convinced that this process has played a major role

Table 5

Unemployment Benefit Duration Index, 1960-95

	1960–64	1965–72	1973–79	1980–87	1988–95	1999
Australia	1.02	1.02	1.02	1.02	1.02	1.00
Austria	0	0	0.69	0.75	0.74	0.68
Belgium	1.0	0.96	0.78	0.79	0.77	0.78
Canada	0.33	0.31	0.20	0.25	0.22	0.42
Denmark	0.63	0.66	0.66	0.62	0.84	1.00
Finland	0	0.14	0.72	0.61	0.53	0.63
France	0.28	0.23	0.19	0.37	0.49	0.47
Germany	0.57	0.57	0.61	0.61	0.61	0.75
Ireland	0.68	0.78	0.39	0.40	0.39	0.77
Italy	0	0	0	0	0.13	0
Japan	0	0	0	0	0	0
Netherlands	0.12	0.35	0.53	0.66	0.57	0.64
Norway	0	0.07	0.45	0.49	0.50	0.60
New Zealand	1.02	1.02	1.02	1.04	1.04	1.00
Portugal	–	–	0	0.11	0.35	0.58
Spain	0	0	0.01	0.21	0.27	0.29
Sweden	0	0	0.04	0.05	0.04	0.02
Switzerland	0	0	0	0	0.18	0.31
UK	0.87	0.59	0.54	0.71	0.70	0.96
US	0.12	0.17	0.19	0.17	0.18	0.22

Source: OECD. Based on [0.06 (replacement ratio in 2nd and 3rd years of a spell) + 0.04 (replacement ratio in 4th and 5th year of a spell)] ÷ (replacement ratio in 1st year of a spell).

Table 6
Index of the Strictness of Work Availability Conditions, Mid-1990s

Australia	3.6	Japan	–
Austria	2.3	Netherlands	3.7
Belgium	3.1	Norway	3.3
Canada	2.8	New Zealand	2.7
Denmark[a]	3.0	Portugal	2.8
Finland	2.7	Spain	-
France	2.7	Sweden	3.7
Germany	2.6	Switzerland	–
Ireland	1.7	UK	2.6
Italy	–	US	3.3

[a] This refers to 1998. In the early 1990s, the corresponding number was 2.3.

Source: Danish Ministry of Finance (1999), *The Danish Economy Medium Term Economic Survey*, Figure 2.4 d.

in allowing Danish unemployment to fall dramatically since the early 1990s without generating inflationary pressure (see Danish Ministry of Finance 1999, Chapter 2). Just to see some of the ways in which systems of administration vary across countries, in Table 6 we present indices of the strictness of the work availability conditions in various countries. These are based on eight sub-indicators referring to the rules relating to the types of jobs that unemployed individuals must accept or incur some financial or other penalty. We can see that countries with notable lax systems in the mid-1990s include Austria, Finland, France, Germany, Ireland and the UK, although Ireland and the UK have significantly tightened their benefit operations since that time.

A further aspect of the structure of the benefit system for which we do not have detailed data back to the 1960s are those policies grouped under the heading of active labour market policies (ALMP). We do, however, have data from 1985 which we present in Table 7. The purpose of these is to provide active assistance to the unemployed which will improve their chances of obtaining work. Multi-country studies basically using cross section information indicate that ALMPs do have a negative impact on unemployment (e.g. Scarpetta 1996; Nickell 1997; Elmeskov et al. 1998). This broad brush evidence is backed up by numbers of microeconometric studies (see Katz 1998, Martin 2000 or Martin and Grubb 2001 for useful surveys) which show that under some circumstances, active labour market policies are effective. In particular, job search assistance tends to have consistently positive outcomes but other types of measure such as employment subsidies and labour market training must be well designed if they are to have a significant impact (see Martin 2000, for a detailed analysis).

Turning to the numbers, we see that, by and large, the countries of Northern Europe and Scandinavia devote most resources to ALMPs. It might be hypothesised that they do this because high expenditure on ALMPs is required to offset their rather generous unemployment benefit systems and to push unemployed individuals into work. Such additional pressure on the unemployed is not required if benefits are very low relative to potential earnings in work.

Table 7
Expenditure on Active Labour Market Policies (%GDP)

	1985		1989		1993		1998	
Australia	0.42	(0.051)	0.24	(0.039)	0.71	(0.065)	0.42	(0.053)
Austria	0.27	(0.075)	0.27	(0.084)	0.32	(0.080)	0.44	(0.098)
Belgium	1.31	(0.12)	1.26	(0.16)	1.24	(0.14)	1.42	(0.15)
Canada	0.64	(0.062)	0.51	(0.068)	0.66	(0.058)	0.50	(0.052)
Denmark	1.14	(0.13)	1.13	(0.12)	1.74	(0.17)	1.66	(0.32)
Finland	0.90	(0.18)	0.97	(0.26)	1.69	(0.10)	1.40	(0.12)
France	0.66	(0.065)	0.73	(0.078)	1.25	(0.11)	1.30	(0.11)
Germany	0.80	(0.11)	1.03	(0.18)	1.53	(0.19)	1.26	(0.14)
Ireland	1.52	(0.087)	1.41	(0.096)	1.54	(0.099)	1.54	(0.21)
Italy	–	–	–	–	1.36	(0.13)	1.12	(0.095)
Japan	0.17	(0.065)	0.16	(0.070)	0.09	(0.036)	0.09	(0.022)
Netherlands	1.16	(0.11)	1.25	(0.15)	1.59	(0.24)	1.74	(0.42)
Norway	0.61	(0.23)	0.81	(0.17)	1.15	(0.19)	0.90	(0.27)
New Zealand	0.90	(0.25)	0.93	(0.13)	0.79	(0.083)	0.63	(0.084)
Portugal	0.33		0.48		0.84	(0.15)	0.78	(0.15)
Spain	0.33	(0.015)	0.85	(0.050)	0.50	(0.022)	0.70	(0.037)
Sweden	2.10	(0.88)	1.54	(1.10)	2.97	(0.34)	1.97	(0.24)
Switzerland	0.19	(0.079)	0.21	(0.12)	0.38	(0.095)	0.77	(0.22)
UK	0.75	(0.067)	0.67	(0.093)	0.57	(0.054)	0.34	(0.054)
US	0.25	(0.035)	0.23	(0.044)	0.21	(0.030)	0.17	(0.038)

(In brackets, we present the figure normalised on the percent unemployment rate)

Source: OECD Employment Outlook, 2001, Table 1.5.

Table 8

Collective bargaining coverage (%)

	1960	1965	1970	1975	1980	1985	1990	1994
Austria	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	99	99
Australia	85	85	85	85	85	85	80	80
Belgium	80	80	80	85	90	90	90	90
Canada	35	33	36	39	40	39	38	36
Denmark	67	68	68	70	72	74	69	69
Finland	95	95	95	95	95	95	95	95
France	n.a.	n.a.	n.a.	n.a.	85	n.a.	92	95
Germany (W)	90	90	90	90	91	90	90	92
Ireland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Italy	91	90	88	85	85	85	83	82
Japan	n.a.	n.a.	n.a.	n.a.	28	n.a.	23	21
Netherlands	100	n.a.	n.a.	n.a.	76	80	n.a.	85
New Zealand	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	67	31
Norway	65	65	65	65	70	70	70	70
Portugal	n.a.	n.a.	n.a.	n.a.	70	n.a.	79	71
Spain	n.a.	n.a.	n.a.	n.a.	68	70	76	78
Sweden	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	86	89
Switzerland	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	53	53
UK	67	67	68	72	70	64	54	40
US	29	27	27	24	21	21	18	17

These data were collected by Wolfgang Ochel. Further details may be found in Ochel (2001).

Systems of Wage Determination

In most countries in the OECD, the majority of workers have their wages set by collective bargaining between employers and trade unions at the plant, firm, industry or aggregate level. This is important for our purposes because there is some evidence that trade union power in wage setting has a significant impact on unemployment.[10] Unfortunately, we do not have complete data on collective bargaining coverage (the proportion of employees covered by collective agreements) but the data presented in Table 8 give a reasonable picture. Across most of Continental Europe, including Scandinavia but excluding Switzerland, coverage is both high and stable. As we shall see, this is either because most people belong to trade unions or because union agreements are extended by law to cover non-members in the same sector. In Switzerland and in the OECD countries outside Continental Europe and Scandinavia, coverage is generally much lower with the exception of Australia. In the UK, the US and New Zealand, coverage has declined with the fall in union density, there being no extension laws.

In Table 9, we present the percentage of employees who are union members. Across most of Scandinavia, membership tends to be high. By contrast, in much of Continental Europe and in Australia, union density tends to be less than 50 percent and is gradually declining. In these countries there is, consequently, a wide and widening gap between density and coverage which it is the job of the extension laws to fill. This situation is at its most stark in France, which has the lowest

Table 9

Union Density (%)

	1960–64	1965–72	1973–79	1980–87	1988–95	1996–98	Extension laws in place (a)
Australia	48	45	49	49	43	35	✓
Austria	59	57	52	51	45	39	✓
Belgium	40	42	52	52	52	-	✓
Canada	27	29	35	37	36	36	X
Denmark	60	61	71	79	76	76	X
Finland	35	47	66	69	76	80	✓
France	20	21	21	16	10	10	✓
Germany (W)	34	32	35	34	31	27	✓
Ireland	47	51	56	56	51	43	X
Italy	25	32	48	45	40	37	✓
Japan	33	33	30	27	24	22	X
Netherlands	41	38	37	30	24	24	✓
Norway	52	51	52	55	56	55	X
New Zealand	36	35	38	37	35	21	X
Portugal	61	61	61	57	34	25	✓
Spain	9	9	9	11	16	18	✓
Sweden	64	66	76	83	84	87	X
Switzerland	35	32	32	29	25	23	✓ (b)
UK	44	47	55	53	42	35	X
US	27	26	25	20	16	14	X

Notes:

(i) Union density = union members as a percentage of employees. In both Spain and Portugal, union membership in the 1960s and 1970s does not have the same implications as elsewhere because there was pervasive government intervention in wage determination during most of this period.

(ii) (a) Effectively, bargained wages extended to non-union firms typically at the behest of one party to the bargain.
(b) Extension only at the behest of both parties to a bargain. For details, see OECD (1994), Table 5.11.

Source: Ebbinghaus and Visser (2000).

[10] See the discussion in Nickell and Layard (1999), Section 8 and Booth et al. (2000) (particularly around Table 6.2) for positive evidence.

Table 10

Co-ordination Indices (Range 1-3)

	1960–64		1965–72		1973–79		1980–87		1988–95		1995–99
	1	2	1	2	1	2	1	2	1	2	2
Australia	2.25	2	2.25	2	2.25	2.36	2.25	2.31	1.92	1.63	1.5
Austria	3	2.5	3	2.5	3	2.5	3	2.5	3	2.42	2
Belgium	2	2	2	2	2	2.1	2	2.55	2	2	2
Canada	1	1	1	1	1	1.63	1	1.08	1	1	1
Denmark	2.5	3	2.5	3	2.5	2.96	2.4	2.54	2.26	2.42	2
Finland	2.25	1.5	2.25	1.69	2.25	2	2.25	2	2.25	2.38	2.5
France	1.75	2	1.75	2	1.75	2	1.84	2	1.98	1.92	1.5
Germany (W)	3	2.5	3	2.5	3	2.5	3	2.5	3	2.5	2.5
Ireland	2	2	2	2.38	2	2.91	2	2.08	3	2.75	3
Italy	1.5	1.94	1.5	1.73	1.5	2	1.5	1.81	1.4	1.95	2.5
Japan	3	2.5	3	2.5	3	2.5	3	2.5	3	2.5	2.5
Netherlands	2	3	2	2.56	2	2	2	2.38	2	3	3
Norway	2.5	3	2.5	3	2.5	2.96	2.5	2.72	2.5	2.84	2
New Zealand	1.5	2.5	1.5	2.5	1.5	2.5	1.32	2.32	1	1.25	1
Portugal	1.75	3	1.75	3	1.75	2.56	1.84	1.58	2	1.88	2
Spain	2	3	2	3	2	2.64	2	2.3	2	2	2
Sweden	2.5	3	2.5	3	2.5	3	2.41	2.53	2.15	1.94	2
Switzerland	2.25	2	2.25	2	2.25	2	2.25	2	2.25	1.63	1.5
UK	1.5	1.56	1.5	1.77	1.5	1.77	1.41	1.08	1.15	1	1
US	1	1	1	1	1	1	1	1	1	1	1

Note: The first series (1) only moves in response to major changes, the second series (2) attempts to capture all the nuances. Co-ordination 1 was provided by Michèle Belot to whom much thanks (see Belot and van Ours 2000, for details). Co-ordination 2 is the work of Wolfgang Ochel, to whom we are most grateful (see Ochel 2000). Co-ordination 1 appears in all the subsequent regressions.

union density in the OECD at around 10 percent, but one of the highest levels of coverage (around 95 percent). Outside these regions, both density and coverage tend to be relatively low and both are declining at greater or lesser rates.

The other aspect of wage bargaining which appears to have a significant impact on wages and unemployment is the extent to which bargaining is co-ordinated.[11,12] Roughly speaking, the evidence suggests that if bargaining is highly co-ordinated, this will completely offset the adverse effects of unionism on employment (see Nickell and Layard 1999, for example). Co-ordination refers to mechanisms whereby the aggregate employment implications of wage determination are taken into account when wage bargains are struck. This may be achieved if wage bargaining is highly centralised, as in Austria, or if there are institutions, such as employers' federations, which can assist bargainers to act in concert even when bargaining itself ostensibly occurs at the level of the firm or industry, as in Germany or Japan (see Soskice 1991). It is worth noting that co-ordination is not, therefore, the same as centralisation which refers simply to the level at which bargaining takes place (plant, firm, industry or economy-wide). In Table 10, we present co-ordination indices for the OECD from the 1960s. The first index (co-ord 1) basically ignores transient changes whereas the second (co-ord 2) tries to capture the various detailed nuances of the variations in the institutional structure. Notable changes are the increases in co-ordination in Ireland and the Netherlands towards the end of the period and the declines in co-ordination in Australia, New Zealand and Sweden. Co-ordination also declines in the UK over the same period but this simply reflects the sharp decline of unionism overall.

Employment Protection

Employment protection laws are thought by many to be a key factor in generating labour market inflexibility. Despite this, evidence that they have a decisive impact on overall rates of unemployment

[11] See the discussion in Nickell and Layard (1999), Section 8, Booth et al. (2000) (particularly around Table 6.1) and OECD (1997), Chapter 3.

[12] One aspect of wage determination which we do not analyse in this paper is minimum wages. This is for two reasons. First, the balance of the evidence suggests that minimum wages are generally low enough not to have much of an impact on employment except for young people. Second, only around half the OECD countries had statutory minimum wages over the period 1960 to 95. Of course, trade unions may enforce "minimum wages" but this is only a minor part of their activities. And these are already accounted for in our analysis of density, coverage and co-ordination.

[13] The results presented by Lazear (1990), Addison and Grosso (1996), Bentolila and Bertola (1990), Elmeskov et al. (1998), Nickell and Layard (1999) do not add up to anything very decisive although there is a clear positive relationship between employment protection and long-term unemployment.

Table 11

Employment Protection (Index, 0-2)

	1960–64	1965–72	1973–79	1980–87	1988–95	1998
Australia	0.50	0.50	0.50	0.50	0.50	0.50
Austria	0.65	0.65	0.84	1.27	1.30	1.10
Belgium	0.72	1.24	1.55	1.55	1.35	1.00
Canada	0.30	0.30	0.30	0.30	0.30	0.30
Denmark	0.90	0.98	1.10	1.10	0.90	0.70
Finland	1.20	1.20	1.20	1.20	1.13	1.00
France	0.37	0.68	1.21	1.30	1.41	1.40
Germany (W)	0.45	1.05	1.65	1.65	1.52	1.30
Ireland	0.02	0.19	0.45	0.50	0.52	0.50
Italy	1.92	1.99	2.00	2.00	1.89	1.50
Japan	1.40	1.40	1.40	1.40	1.40	1.40
Netherlands	1.35	1.35	1.35	1.35	1.28	1.10
Norway	1.55	1.55	1.55	1.55	1.46	1.30
New Zealand	0.80	0.80	0.80	0.80	0.80	0.80
Portugal	0.00	0.43	1.59	1.94	1.93	1.70
Spain	2.00	2.00	1.99	1.91	1.74	1.40
Sweden	0.00	0.23	1.46	1.80	1.53	1.10
Switzerland	0.55	0.55	0.55	0.55	0.55	0.55
UK	0.16	0.21	0.33	0.35	0.35	0.35
US	0.10	0.10	0.10	0.10	0.10	0.10

Note: These data are based on an interpolation of the variable used by Blanchard and Wolfers (2000), to whom we are most grateful. This variable is based on the series used by Lazear (1990) and that provided by the OECD for the late 1980s and 1990s. Since the Lazear index and the OECD index are not strictly comparable, the overall series is not completely reliable. The 1998 number is taken from Nicoletti et al. (2000), Table A3.11 (1st col. rescaled).

is mixed, at best.[13] In Table 11, we present details of an employment protection index for the OECD countries. Features to note are the wide variation in the index across countries and the fact that, in some countries, the basic legislation was not introduced until the 1970s.

Labour Taxes

The important taxes here are those that form part of the wedge between the real product wage (labour costs per employee normalised on the output price) and the real consumption wage (after tax pay normalised on the consumer price index). These are payroll taxes, income taxes and consumption taxes. Their combined impact on unemployment remains a subject of some debate despite the large number of empirical investigations. Indeed some studies indicate that employment taxes have no long run impact on unemployment whatever whereas others present results which imply that they can explain more or less all the rise in unemployment in most countries during the 1960 to 1985 period.[14] In Table 12 we present the total tax rate on labour for the OECD countries. All countries exhibit a substantial increase over the period from the 1960s to the 1990s although there are wide variations across countries. These mainly reflect the extent to which health, higher education and pensions are publicly provided along with the all-round generosity of the social security system. Some countries have made significant attempts to reduce labour taxes in recent years, notably the Netherlands and the UK.

Labour Market Institutions and the Successes and Failures of the 1990s

Having looked at some of the key factors which the evidence suggests have some impact on equilibri-

Table 12

Total Taxes on Labour

Payroll Tax Rate plus Income Tax Rate plus Consumption Tax Rate

Total Tax Rate (%)

	1960–64	1965–72	1973–79	1980-87	1988-95	1996–2000
Australia	28	31	36	39	–	–
Austria	47	52	55	58	59	66
Belgium	38	43	44	46	49	51
Canada	31	39	41	42	50	53
Denmark	32	46	53	59	60	61
Finland	38	46	55	58	64	62
France	55	57	60	65	67	68
Germany (W)	43	44	48	50	52	50
Ireland	23	30	30	37	41	33
Italy	57	56	54	56	67	64
Japan	25	25	26	33	33	37
Netherlands	45	54	57	55	47	43
Norway	–	52	61	65	61	60
New Zealand	–	–	29	30	–	–
Portugal	20	25	26	33	41	39
Spain	19	23	29	40	46	45
Sweden	41	54	68	77	78	77
Switzerland	30	31	35	36	36	36
UK	34	43	45	51	47	44
US	34	37	42	44	45	45

Note: These data are based on the London School of Economics, Centre for Economic Performance OECD dataset.

[14] A good example of a study in this latter group is Daveri and Tabellini (2000) whereas one in the former group is OECD (1990, Annex 6). Extensive discussions may be found in Nickell and Layard (1999), Section 6, Disney (2000) and Pissarides (1998).

Table 13

From the Early 1980s to the Late 1990s
"Policy" Changes

	Replacement Rate	Benefit Duration	Benefit Strictness	ALMP	Union Coverage	Union Density	Co–ordination
Europe							
Austria	X	–	–	–	–	√	X
Belgium	√	–	–	–	–	–	X
Denmark	–	X	√	√√	–	–	X
Finland	X	–	–	–	–	X	√
France	–	X	–	√	X	–	X
Germany	–	X	–	√	–	–	–
Ireland	√	X	–	–	?	√	√
Italy	X	–	–	–	–	–	√
Netherlands	–	–	√	√	–	–	√
Norway	X	X	√	√	–	–	X
Portugal	X	X	–	√	–	√√	–
Spain	√	–	–	–	X	–	–
Sweden	X	–	–	–	–	–	X
Switzerland	XX	X	–	√	–	–	X
UK	√	X	√	X	√√	√	–
Non–Europe							
Australia	–	–	√	√	–	√	X
Canada	√	X	–	–	–	–	–
Japan	X	–	–	–	–	–	–
New Zealand	–	–	–	X	√√	√	XX
US	–	–	√	–	–	–	–

	Employment Protection	Labor Taxes	Total		Unemployment		Unemploy–ment Change
			√	X	1980–87	2000–01	
Europe							
Austria	–	X	1	3	3.1	3.7	0.6
Belgium	√	–	2	1	11.2	6.8	–4.4
Denmark	√	–	4	2	7.0	4.4	–2.6
Finland	√	–	2	2	5.1	9.4	4.3
France	X	–	1	4	8.9	9.0	0.1
Germany	√	–	2	1	6.1	6.4	0.3
Ireland	–	√	4	1	13.8	4.0	–9.8
Italy	√	X	2	2	6.7	8.4	1.7
Netherlands	√	√	5	0	10.0	2.6	–7.4
Norway	√	–	3	3	2.4	3.6	1.2
Portugal	√	–	4	2	7.8	4.1	–3.7
Spain	√	–	2	1	17.6	13.5	–4.1
Sweden	√	–	1	2	2.3	5.5	3.2
Switzerland	–	–	1	4	1.8	2.6	0.8
UK	–	√	6	2	10.5	5.2	–5.3
Non–Europe							
Australia	–	?	3	1	7.7	6.5	–1.2
Canada	–	X	1	2	9.7	7.0	–2.7
Japan	–	–	0	1	2.5	4.9	2.4
New Zealand	–	?	3	3	4.7	5.7	1.0
US	–	–	1	0	7.6	4.4	–3.2

Notes:
(i) √ implies "good" shift, X implies "bad" shift.
(ii) See Table 4. Replacement rate change (1980–87 to 1999) greater than 0.04 implies X, less than –0.04 implies √. Double X or √ for changes in excess of 0.25. The latter does not apply to Italy because the figure in the 1999 column refers to so few people.
(iii) See Table 5. Duration index change (1980–87 to 1999) greater than 0.1 implies X, less than –0.1 implies √. Double X or √ for changes in excess of 0.5.
(iv) See Table 6 and the discussion in OECD (2000), Chapter 4. Author's judgment based on this information.
(v) See Table 7. Change (1985/9 to 1993/8) greater than 0.2 implies √, less than –0.2 implies X. Double √ or X for changes in excess of 0.5. Bracketed amount must move in the same direction by 0.05.
(vi) See Table 8. Coverage change (1980 to 1994) greater than 0.1 implies X, less than –0.1 implies √. Double X or √ for changes in excess of 0.3.
(vii) See Table 9. Density change (1980–87 to 1996–8) greater than 0.1 implies X, less than –0.1 implies √. Double X or √ for changes in excess of 0.3.
(viii) See Table 10. Co-ordination (Type 2) change (1980–87 to 1995–99) greater than 0.5 implies √, less than –0.5 implies X. Double X or √ for changes in excess of 1.0.
(ix) See Table 11. Employment protection change (1980–87 to 1998) greater than 0.2 implies √, less than –0.1 implies X.
(x) See Table 12. Taxes and change (1980–87 or 1988–95 to 1996–2000) greater than 0.07 implies X, less than –0.07 implies √.

um unemployment, let us see how changes in these variables over the last two decades can contribute to our understanding of unemployment changes over the same period. In Table 13, we provide a picture of changes in the relevant variables with a tick referring to a significant move which will tend to reduce unemployment and a cross for the reverse. Double ticks and crosses reflect really big moves. A dash implies no significant change. Of course, this is a pretty crude business and a proper panel data analysis is arguably preferable. However, here we are able to take account of variables where we are unable to obtain long time series. Readers who prefer panel data analysis can consult the papers discussed in the second section.

So we can ask the question, do the ticks and crosses bear any relationship to the unemployment changes reported in the final columns of the table 1. If we regress the unemployment change from 1980/81 to 2000/01 on the number of ticks and crosses we obtain:

$$\text{Unemployment change (\%)} = \underset{(3.1)}{0.25} - \underset{(2.2)}{1.25}\ \text{ticks} + 1.21\ \text{crosses} \qquad \begin{pmatrix} R^2 = 0.51 \\ N = 20 \end{pmatrix}$$

or, in restricted form,

$$\text{Unemployment change (\%)} = \underset{(4.3)}{-0.42} - 1.24\ (\text{ticks-crosses}) \qquad \begin{pmatrix} R^2 = 0.51 \\ N = 20 \end{pmatrix}$$

The restriction is easily accepted. So the number of ticks and crosses explains about half the cross-country variation in unemployment changes from the early 80s to the present day. We may reasonably conclude that the countries which had very high unemployment in the early 1980s and still have high unemployment today simply have too few ticks and/or too many crosses.

Summary and Conclusions

Average unemployment in Europe today is relatively high compared with OECD countries outside Europe. The majority of countries in Europe today have lower unemployment than any OECD country outside Europe, including the US. These two facts are consistent because the four largest countries in Continental Western Europe namely, France, Germany, Italy, Spain, (the Big Four), have very high unemployment and most of the rest have comparatively low unemployment. This variability is highly informative because the fifteen European countries which we consider have more or less independent labour markets in practice, despite "free" movement of labour. Using this information we see how changes in the structure of the various labour markets explain a substantial proportion of the secular fluctuations in unemployment in the various countries. In particular, we pin down some of the particular factors which enable us to understand why some European countries have been able fully to recover from the unemployment disasters of the early 1980s whereas some have not.

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