

# **Labour Market Flexibility in the US and the UK: Evidence at the Local Area Level**

**Paul Ormerod**

**Volterra Consulting**

**November 2006**

[pormerod@volterra.co.uk](mailto:pormerod@volterra.co.uk)

## ***Abstract***

*In recent decades, unemployment has been seen, both by academic labour market economists and policymakers, as a short-run disequilibrium phenomenon. Policy has been aimed at increasing the 'flexibility' of the labour market, at removing obstacles to the workings of the market, which would ostensibly restore equilibrium in the labour market.*

*In this paper, I examine the correlations over time of relative unemployment rates at the detailed level of both US counties and UK local authority areas. The average level of employment in each is of the order of 50,000.*

*The US and to some extent the UK are held up as examples of the more 'flexible' labour markets to which other countries should aspire. But even over a fifteen year period, 1990-2005, there is strong persistence in relative unemployment rates at local area levels in both countries, and especially the UK. This result extends to counties and local authority areas within individual states and regions. Local areas with high (low) unemployment in 1990 are likely to have high (low) unemployment in 2005.*

*The findings call into question the efficacy both of policies designed to increase flexibility and to improve the relative performance of the regions*

## **1. Introduction**

Most labour economists think of unemployment as a short-term disequilibrium phenomenon, which can be solved within the labour market by an adjustment of the price of labour, the real wage. Persistence over time in unemployment, according to this approach, is caused principally by rigidities in institutions associated with the labour market which prevent appropriate adjustment of the real wage. The solution is therefore to be found in de-regulation and increasing 'flexibility'.

Econometric results obtained in the 1980s and early 1990s appeared to give support to this view. A prominent example is the work of the LSE-based researchers Layard, Nickell and Jackman<sup>1</sup>.

These concepts moved rapidly into the policy arena. A very influential report, for example, was the OECD *Jobs Study* of 1994 which urged member countries to reform unemployment benefit systems to ensure that they did not "impinge" on the functioning of labour markets; to modify employment security provisions that "inhibit" employment expansion; eliminate "impediments to, and restrictions on, the creation and expansion of enterprises"; to increase "flexibility" of working time regulations; and, most importantly, to take action toward making "wage and labour costs more flexible by removing restrictions that prevent wages from reflecting local conditions and individual skill levels, in particular of younger workers."

This view continues to motivate a great deal of policy in the Western economies. The United States is held up as the main example of a desirable system in this respect, and the unemployment experience of America is contrasted frequently with the more 'sclerotic' major economies of Continental Europe. The United Kingdom, the European economy most closely resembling the US, is also regarded favourably by advocates of such policies.

In this paper, I examine the extent to which unemployment persists at local area levels in the two main Anglo-Saxon economies, the US and the UK over periods of five, ten and fifteen years. In other words, the extent to which, for example, local areas with relatively high rates of unemployment in a particular year tend to have relatively high rates in five, ten and fifteen years time. The less is the persistence, the more flexible is the economy, and the more it conforms to the theoretical ideal of the labour market adjusting to equilibrium.

The geographical unit chosen is the smallest for which data is readily accessible, namely the county in America and the local authority in Britain. In both cases, the average level of employment is of the order of 50,000. I examine the correlations

---

<sup>1</sup> For example R Layard, S Nickell, R Jackman, *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford, Oxford University Press, 1991

between unemployment rates at these local levels over five, ten and fifteen year horizons. Section 2 describes the data, section 3 sets out the results, and section 4 discusses them.

## **2. The data**

### *2.1 Description*

The American data is the Bureau of Labor Statistics estimates of the unemployment rate by county, where the unemployment rate is defined as unemployment in a county divided by the sum of employment and unemployment. It is available for all counties in the 50 US states plus Washington DC<sup>2</sup>, giving a total of 3140 observations in each year.

The counties are on a geographically consistent basis back to 1990. Data for 1990 is therefore chosen as the base year, and is compared with data for 1995, 2000 and 2005.

The UK data is more complicated to explain for two reasons. First, there has been considerable changes in the boundaries of local authorities over the 1990-2005 period. However, data on a consistent geographic basis is provided by the Office for National Statistics (ONS)<sup>3</sup>. There are 416 local authority areas on this basis.

Second, and more importantly, the British data has two possible ways in which to measure the unemployment rate at a local authority level. As part of the denominator in the calculation of the rate of unemployment, with one measure the working age population resident in the area is used, and with the other the level of employment in the area. The latter is directly comparable with the unemployment rate calculated using US data.

As it happens, there is a strong correlation between the two UK measures in any given year. The correlations of the two estimates of the unemployment rate areas of the

---

<sup>2</sup> Data for Puerto Rico is also available, but this is excluded from the analysis

<sup>3</sup> Except for Northern Ireland

UK are 0.88 for 1990, 0.79 for 1995, 0.88 for 2000 and 0.87 for 2005<sup>4</sup>. The qualitative nature of the results is not affected by which series is used, but for completeness and replicability of the results, a fuller description of the data is given in Appendix 1.

### *Basic characteristics of the data*

On average, UK local authorities and US counties are of a similar size in terms of employment. In 2000, for example, the average number of people employed per US county was 42920 and for UK local authorities 61820.

There is considerably more variation in size across the US counties, with the 1<sup>st</sup> and 3<sup>rd</sup> quartiles being, respectively, 4891 and 28720, whereas for the UK areas they are 31390 and 71500. The maximum value for the UK is 565300, but for the US there is a small number of very large counties, the biggest (Los Angeles) having 4,425,000 employed in it.

The key feature of the analysis in this paper is not the aggregate unemployment rate but its distribution across local areas. However, information on the overall rate may be of interest. In fact, the rates in the years 1990, 2000 and 2005 are broadly comparable, though in 1995 the UK rate was certainly higher. In America, the rate was, in 1990, 1995, 2000 and 2005 respectively, 5.6, 5.6, 4.0 and 5.1, and in Britain, 6.9, 8.8, 5.6 and 4.7.

The distribution of the data across the US and UK is very similar. Using the US definition (i.e. using employment in the area rather than resident working population), summary statistics for the unemployment rate in the two countries for 2000 are set out below

---

<sup>4</sup> The City of London is excluded. It is a most unusual area, having employment of over 250,000 but a tiny resident population of only some 5000 in total, so on the second definition the unemployment rate is close to zero

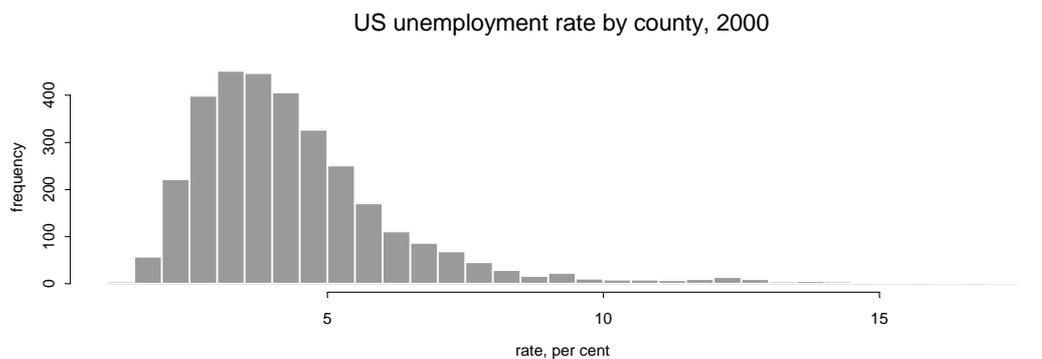
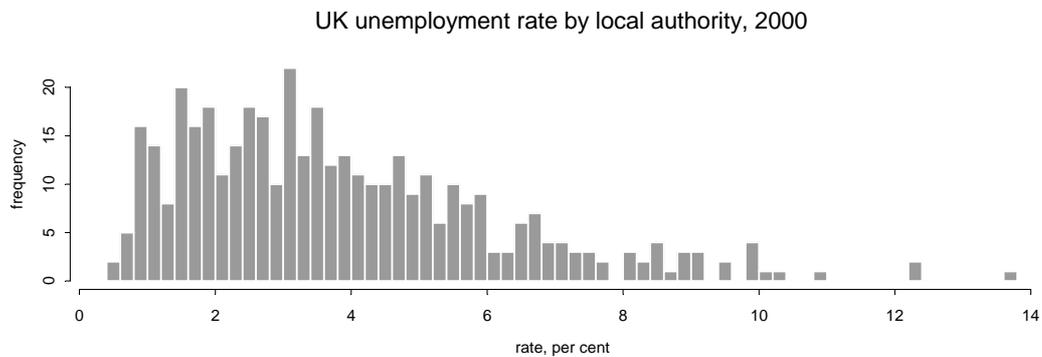
**Table 1 Summary statistics for local area unemployment rates, US definition, 2000**

	Minimum	1 <sup>st</sup> quartile	Mean *	3 <sup>rd</sup> quartile	Maximum	Variance
US	1.30	3.20	4.51	5.20	17.5	2.04
UK	0.50	2.06	3.85	5.09	13.79	2.31

\* *Note:* the (unweighted) mean of the rates across the local areas is not exactly the same as the rate across the whole country

There is somewhat more variability in the UK data, the coefficients of variation being 0.45 and 0.60 for the US and UK respectively.

These data are plotted in Figure 1 below.



An important feature of the distribution of the data in both cases is that it does not follow a normal distribution. The null hypothesis that the data are normally distributed is rejected on a Kolmogorov-Smirnov test at a p-value of 0.00 for both countries for all four years in the sample and for both definitions of UK unemployment.

The right-hand tail of the distribution is too ‘fat’ for this to be the case. In other words, there are considerably more areas which exhibit high unemployment than would be the case if the unemployment rates were distributed normally. The generalized presence of fat tails in the distribution implies considerable structure in the underlying dynamics. More specifically, fat tails are a sign of some underlying correlating mechanism, which one would rule out if unemployment events were normally distributed, small, and independent.

### **3. The results**

In both countries, across counties and local authority areas, unemployment rates show strong persistence over time.

The correlations between unemployment rates in 1990 and 1995, 1990 and 2000, and 1990 and 2005 are set out in Table 2.

**Table 2            Correlations over time between unemployment rates in US counties and in UK local authorities**

<b>Period</b>	<b>US</b>	<b>UK definition 1</b>	<b>UK definition 2</b>
1990-1995	0.81	0.83	0.84
1990-2000	0.72	0.93	0.92
1990-2005	0.65	0.85	0.83

*Note:* US and UK definition 2 of unemployment rate: unemployment in an area divided by employment in the area plus unemployment; UK definition 1: unemployment in an area divided by resident population of working age of the area

So even over a period of fifteen years, 1990 to 2005, the correlation between the unemployment rates of US counties is as high as 0.65. But at least it is falling over time, the five year correlation being 0.81 and the ten year one 0.72.

Over a period of five years, the correlation between unemployment rates in the UK local authority areas is very similar to that of the US at 0.83 or 0.84 depending on the definition used. But the correlations show no signs at all of diminishing over time.

Even with the American data over a fifteen year period, the persistence of relative unemployment rates at local areas levels is very strong.

This strong persistence and lack of strong equilibrating factors might be thought to be due to problems specific to particular regions. The North East of England, for example, has experienced relatively low rates of new job creation over many years. So the possibility exists that the persistence of relative unemployment rates across the countries as a whole may be because of problems specific to some regions rather than a more general phenomenon.

However, similar strong persistence is observed in the correlations of unemployment rates over time between counties *within* the same state and local authority areas *within* the same region.

There is a small number of US states with 10 or fewer counties<sup>5</sup> and correlations may be distorted here by small sample issues. So we consider the correlations between unemployment rates in counties within each of the remaining 45 states. In the UK regions, the small sample problem does not arise, and all 11 regions can be used<sup>6</sup>.

---

<sup>5</sup> Connecticut, Delaware, DC, Hawaii, New Hampshire, Rhode Island

<sup>6</sup> Wales and Scotland are described as 'regions' for these purposes

Table 3a sets out information on the range of correlations of unemployment rates in counties within individual states.

**Table 3a Summary statistics for the correlations over time of unemployment rates of counties within individual US states**

<b>Period</b>	<b>min</b>	<b>1<sup>st</sup> quartile</b>	<b>mean</b>	<b>3<sup>rd</sup> quartile</b>	<b>max</b>
1990-1995	0.56	0.75	0.81	0.87	0.98
1990-2000	0.28	0.70	0.75	0.83	0.97
1990-2005	0.10	0.61	0.69	0.78	0.97

*Note:* the mean value is not exactly the same as the correlation across all counties taken together because it is the average of the correlations within individual states.

There is a wide range of experience within individual US states. The correlation between unemployment rates in counties within a state can be as low as 0.10 after 15 years, but equally it can be as high as 0.97. Within the inter-quartile range, however, the correlations are all high, and only a small number of states exhibit the flexibility usually attributed to the US labour market.

**Table 3b Summary statistics for the correlations over time of unemployment rates of local authority area within individual UK regions**

**Definition 1**

<b>Period</b>	<b>min</b>	<b>1<sup>st</sup> quartile</b>	<b>mean</b>	<b>3<sup>rd</sup> quartile</b>	<b>max</b>
1990-1995	0.88	0.92	0.94	0.97	0.98
1990-2000	0.82	0.90	0.91	0.94	0.98

1990-2005	0.83	0.90	0.92	0.95	0.96
-----------	------	------	------	------	------

**Definition 2**

<b>Period</b>	<b>min</b>	<b>1<sup>st</sup> quartile</b>	<b>mean</b>	<b>3<sup>rd</sup> quartile</b>	<b>max</b>
1990-1995	0.79	0.90	0.92	0.95	0.97
1990-2000	0.79	0.84	0.89	0.93	0.97
1990-2005	0.72	0.81	0.84	0.88	0.92

So even *within* every single UK region, very strong levels of persistence of relative unemployment rates at local authority level are observed.

## **4 Discussion**

In this paper, I have the simple aim of describing the persistence or otherwise of unemployment at very local levels in both the US and the UK.

There is, of course, a long list of possible reasons why unemployment may persist in local economic areas. Many focus directly on the labour market and include those cited above in the OECD study. Others relate to the willingness and ability of workers to migrate if an area receives an adverse shock specific either to the area itself or in addition to its immediate neighbours.

The striking feature of the results is the strength of persistence over time in patterns of relative unemployment rates at local area levels. Even in the United States over a 15 year period, a county which had an unemployment rate which was high (or low) relative to the national average in 1990 was likely to have a relatively high (or low) one in 2005. For the UK, the persistence is even stronger.

Persistence of relative unemployment patterns is not just a feature of data across the two countries as a whole, but within individual states and regions. Counties or local authority areas within any given state or region which had a high (low) rate of unemployment relative to the average of that state or region in 1990 are likely to have a high (low) one in 2005.

The labour market flexibility of the theorists, beloved by policymakers, appears to be at odds with reality. This is especially the case for the United Kingdom, where relative unemployment rates at local area levels persist very strongly over long periods of time.

The findings certainly call into question the efficacy both of policies designed to increase flexibility and to improve the relative performance of the regions.

## **Appendix 1**

In the ONS estimates of unemployment rates by local authority area, the unemployment rate is calculated as the unemployed (on a claimant count basis) in a local authority area divided by the estimated working age population resident in that area. For 1995 and 2000, both the unemployment and population data refer to that year. For 2005, the unemployment data are for 2005, but the population data are for 2004. For 1990, unemployment data are available for that year, but not population data, and we use 1995 population as a proxy.

We also estimate the unemployment rate on the same definition as the US data, in other words unemployed in an area divided by employed in the area plus unemployed in the area. The data is taken from ONS sources, but this definition is not calculated officially by the ONS. Data for 2000 for both unemployment and employment by local authority area are available for this year. For 2005, claimant unemployment is available for the same year, but employment estimates are only available for 2004, so this year is used to calculate the 2005 rate. Prior to 1998, a different method of estimating employment was used (the AES compared to the present ABI), and the data have been re-scaled by the ONS to make them comparable to the present method. Prior to 1995, the employment data were only estimated bi-annually. Given that a major economic recession developed in the UK during 1990, we use an average of 1989 and 1991 to estimate employment in 1990.