Regional labour markets in Great Britain

There has recently been renewed interest in the role of regional factors—most notably relative house prices—in determining national wage movements, and thus contributing to inflationary pressures.[1] Moreover, in some accounts financial factors, interacting with differential supply responses, play a part in the explanation of changes in regional relative house prices. This article[2] reports the results of some related background research which the Bank has undertaken on variations in wage rates and migration between regions. The variability of earnings is of importance since the more flexible are regional wages the smaller the effects on employment and unemployment for a given shift in demand. However, greater migration will also reduce regional variation in both unemployment and wages. Regressions are used to explore regional earnings growth and unemployment rates over the period 1971 to 1987.

Among the main points to emerge are:

● *The variation in regional unemployment rates appears to have been much greater than that of regional earnings.*

● *The growth of earnings within a region was highly correlated with the national growth rates of hourly earnings of those industries which comprised the region's employment structure.*

● *There did not appear to be a systematic relationship between relative house price increases and the rate of change of regional hourly earnings.*

Some recent trends in regional labour markets

For the period 1970 to 1987, data for Great Britain are readily available for ten mutually exclusive and collectively exhaustive geographical regions.[3] These are the South East, South West, East Anglia, East Midlands, West Midlands, Yorkshire and Humberside, North West, North, Wales and Scotland. In April 1974, border adjustments were made for the North, North West, Yorkshire and Humberside, the East Midlands and, to a much lesser extent, the South East and South West. Throughout this article these adjustments have been ignored because the effects are believed to be small. The term 'region' applies to an administrative area and regions may contain a number of relatively distinct labour markets, in terms of travel to work or catchment areas, within their boundaries. Conversely, a number of regions may share a labour market. Analysis at the regional level is therefore only an approximate guide to the behaviour of local labour markets.

Unemployment

In 1970, unemployment (excluding school leavers), as a percentage of the working population, ranged from 1.6% in the South East to 4.5% in the North. By 1987 the difference between the lowest and highest unemployment rate had increased to 7.4 percentage points, with the lowest being 7.1% (East Anglia) and the highest 14.5% (the North). The main feature of regional unemployment is not so much differences in unemployment rates as the persistence of high unemployment rates in certain regions. Thus, between 1970 and 1987 the North, North West, Wales and Scotland always had unemployment rates above the Great Britain average, while the South East and (with the exception of 1971) the East Midlands and East Anglia were always below the average. Indeed the South East had the lowest unemployment rate in all years, with the exception of 1987, while, with the exception of 1971 and 1972, the North always had the highest rate. There is a close correlation between the rankings of regional unemployment rates in 1970 and 1987.[4]

One reason for the maintenance of the broad pattern of rankings is that none of the regions' unemployment rates appears to be independent of the general level of unemployment. For example, unemployment rates fell in each region in 1973, 1974, 1979 and 1987 and in the majority of regions in 1978.[5] Although unemployment in each region generally rises in line with the general level of unemployment, some regions are more sensitive to such

(1) See, for example, O Bover, J Muellbauer and A Murphy 'Housing, Wages and UK Labour Markets', Centre for Economic Policy Research, Discussion Paper 268, July 1988.
(2) Written by D M Egginton in the Bank's Economics Division.
(3) Data limitations mean that Northern Ireland has to be omitted.
(4) The Spearman rank correlation coefficient is 0.80.
(5) In fact, the lowest correlation coefficient of the annual changes in unemployment rates between each region is 0.87 (between the South East and Scotland).

changes than others. For example, an increase in the UK unemployment rate by 1 percentage point seems to be associated with a rise in the unemployment rate of 1.4 percentage points in the West Midlands but with one of only 0.8 percentage points in the South East, with well over half of the difference in these estimates being due to differences in the industrial structure of the regions.[1] Furthermore, as the regions with the highest unemployment rates tend to be the most sensitive to changes in national unemployment, these findings are consistent with the increase in the range of regional unemployment rates as the general level of unemployment increases.

However, concentration simply on the range of unemployment rates ignores the information relating to the remaining eight regions. A more complete measure of the dispersion of regional unemployment rates is the coefficient of variation (the standard deviation of regional rates around the GB rate divided by the GB rate).[2] This is shown in Chart 1. The fall in the coefficient of variation since the early 1970s indicates that the spread of regional rates has risen less than the average (Great Britain) rate.

Chart 1
Coefficient of variation of regional unemployment rates

Per cent
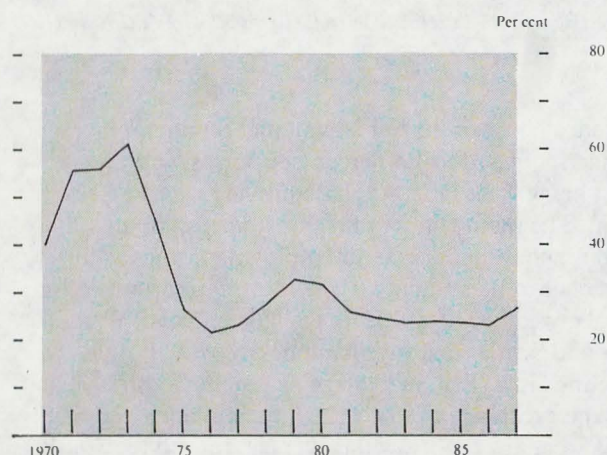
It may be suggested that the use of unemployment figures derived from claimants at Unemployment Benefit Offices may bias the figures if the propensity to claim varies across regions. However, the use of unemployment data from the 1981 Labour Force Survey, which is based on those seeking work regardless of whether or not they are claiming benefits, only reduces the coefficient of variation by 3 percentage points for that year. The use of aggregate

figures does, however, hide a substantial difference between the unemployment rates of manual and non-manual members of the labour force.[3]

Using the 1983 Labour Force Survey, the unweighted average non-manual unemployment rate was 4% while for manuals the corresponding rate was 15%.[4] These differences are also apparent in the respective coefficients of variation, which were 26% for manuals but 19% for non-manuals. Consequently the variation across regions for non-manual unemployment was rather less than that for manual (at least for 1983). This feature is discussed further below.

Earnings

Regional weekly earnings can be derived from the *New Earnings Surveys* (NES) for April of each year. Twelve earnings series are distinguished, namely average gross earnings of full-time employees for the whole economy, for manufacturing and for non-manufacturing, disaggregated by skill (manual, non-manual) and then subdivided by gender.[5] A number of general points can be made about the earnings series. First, for each year between 1970 and 1987, earnings in the South East were above the GB average for each of the twelve categories. The differences ranged from between 1% and 5% higher for male manual workers to between 9% and 16% higher for female non-manual workers. In none of the remaining nine regions were earnings consistently above the GB average for any of the earnings categories. Although the South East was consistently above the GB average, it has not always had the highest earnings. For example, throughout the first five years of the 1970s weekly earnings of manual males in the West Midlands were on

Table A
Whole economy earnings for 1970 and 1987: ranking by region

Region	Male Manual 1970	Male Manual 1987	Male Non-manual 1970	Male Non-manual 1987	Female Manual 1970	Female Manual 1987	Female Non-manual 1970	Female Non-manual 1987
South East	2	1	1	1	1	1	1	1
East Anglia	10	5	10	7	10	10	10	4
South West	9	10	8=	4	9	8	5=	6=
West Midlands	1	7	2	5	2	4	4	8
East Midlands	7=	6	7	9	3	7	5=	10
Yorkshire and Humberside	6	4	8=	6	7=	9	9	9
North West	4	3	3	3	4	2	3	3
North	5	2	5	10	7=	5	8	6=
Wales	3	8	6	8	6	3	2	5
Scotland	7=	9	4	2	5	6	7	2

1 = highest, 10 = lowest earnings in each year.

(1) These results were taken from D Forrest and B Naisbitt 'The Sensitivity of Regional Unemployment Rates to the National Trade Cycle'. *Regional Studies*, Vol 22, No 2, April 1988. The estimates were derived from a linear first difference model.

(2) The coefficient of variation was preferred to the standard deviation since it appeared that the variation was generated by a multiplicative rather than an additive process. A partial Box-Cox transform was calculated on the regional unemployment rates regressed against the GB unemployment rate. The log linear form was preferred in each case over a linear model, indicating that a multiplicative form is a better characterisation of the unemployment data than an additive formulation. The same result was found for weekly earnings for which coefficients of variation were also calculated. (See G S Maddala, *Econometrics*, McGraw-Hill 1977, for further details of the methodology.) The coefficient of variation has the added advantages that the variable is unit free, thus facilitating comparisons between different series, and that the multiplicative model upon which it is based ensures that the description of a region's unemployment rate does not encompass negative values. It may be thought that the multiplicative model would lead to the use of the standard deviation of the logarithms of unemployment rates and earnings but empirical investigation revealed that there were only minor differences between these variables and their corresponding coefficients of variation.

(3) Categorisation of unemployment rates by employment type is based on data for the claimant's previous job before becoming unemployed.

(4) The unweighted average is used to allow for the different sizes of the regions.

(5) However, at this level of disaggregation some data are inevitably not available and consequently the calculation of coefficients of variation has not been carried out for some groups.

average 2½% higher than the corresponding earnings in the South East. Second, excluding the South East, the majority of the earnings categories for non-manual workers were consistently below the GB average between 1970 and 1987.[1] For manual employees, however, there is less consistency, with only a minority of categories being always below the GB average. Three other points stand out from Table A: the downward slide of earnings in the West Midlands relative to the GB average; the movement of East Anglia from a low earnings area to, in general, the middle rank of earnings; and the relatively high earnings of employees in the North West despite high regional unemployment.

The information on the disparities of regional earnings can be summarised by calculating coefficients of variation for each year. These are reproduced for the categories which did not have missing data in Chart 2. Comparison of this chart with Chart 1 shows that the variation in earnings across regions is considerably less than the variation in unemployment. However, the coefficient of

Chart 2
Coefficients of variation of regional earnings

—·— Non-manual non-manufacturing
------ Non-manual all industries and services
— — — Manual non-manufacturing (males only)
——— Manual all industries and services
········ Manual manufacturing

Males   Per cent

Females

1970   75   80   85

variation in unemployment rates has tended to fall over time, while the variation in earnings, with the exception of those of manual males, has risen during the last decade.[2]

Among a number of interesting features of these dispersions, a comparison of manual earnings with those for non-manuals reveals that, on average, the coefficient of non-manual earnings is 2.6 percentage points higher than that for manuals. In addition, the coefficient of variation was slightly larger (by 1.1 percentage points) in non-manufacturing than in manufacturing and (by 0.4 percentage points) for males compared with females (although a large element of the latter is due to the difference (of 1.1 percentage points) in non-manual, non-manufacturing). It has already been noted that the coefficient of variation of unemployment was lower for non-manuals in 1983 and the finding for the coefficient of variation on non-manual earnings is consistent with the view that greater inter-regional variation in earnings reduces the disparity in regional unemployment rates. Both of these facts are also consistent with research which suggests that non-manuals are more likely to migrate than manual employees. These findings do not, however, allow the causal chain (if one exists) to be identified. It might be the case that non-manuals are more likely to move because the differences in their wages are larger and thus reduce the differences in regional unemployment rates. Alternatively, the variation in non-manual wages may reflect the inherent ability of each regional labour market to adjust to shocks, with the higher migration rates of non-manuals being a coincidence.[3]

A number of objections can be raised to the earnings data used to calculate the coefficients of variation—in particular, the use of weekly earnings ignores variations in hours of work per week, and differences in industrial structure between regions may bias the comparison of regional earnings. To overcome these objections, regional hourly earnings normalised for industrial structure ('normalised' earnings) were calculated, using the *New Earnings Surveys,* for full-time manual men. These illustrate what earnings in each region would be if full-time manual men in each industry in the region received the national average wage rate for their industry. Ideally these 'normalised' earnings would be compared with actual earnings to show the effect of regional variations in wage rates. Unfortunately, the *New Earnings Survey* does not report the number of employees for an industry where the sample is small or where the standard error of the estimate of regional earnings is large. Moreover, for some years the reported number of employees refers to weekly not hourly earnings and, consequently, the aggregate hourly earnings series published in the *New Earnings Surveys* cannot be replicated. To avoid possible bias from this source, an

---
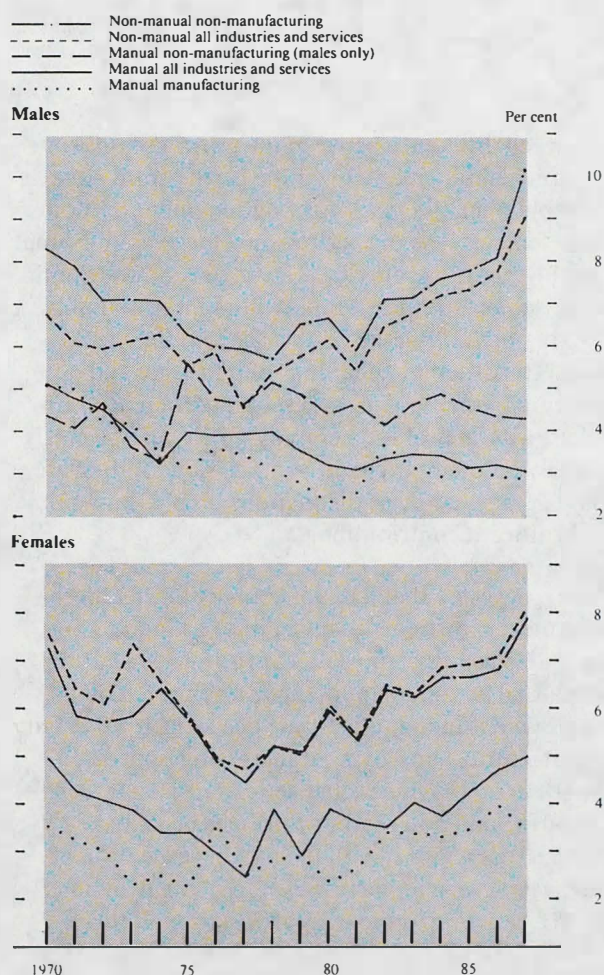
(1) This is partly because of the relative size of the South East, in terms of employees, compared with the other regions. In June 1987 the South East accounted for nearly 35% of all employees in Great Britain.

(2) Nearly half of the 2.3% increase in the coefficient of variation for male manual employees in non-manufacturing between 1974 and 1975 can be accounted for by the 43% increase in the earnings of employees in the mining industry following a strike. The coefficient of variation increased primarily because the South West and East Anglia, which were the regions with the lowest earnings in 1974, had a relatively small proportion of their workforce employed in the mining industry. Thus they gained relatively little from the increase in miners' pay and this increased the coefficient of variation in 1975.

(3) The higher migration rates of non-manuals compared with manual employees can partly be explained by the fact that a higher proportion of non-manual employees are owner-occupiers.

average hourly earnings series was constructéd by summing each region's own hourly earnings series, for each industry, weighted by the same regional employment rates as were used in the calculation of 'normalised' earnings. This series is termed 'adjusted' earnings.[1] A comparison of 'normalised' and 'adjusted' earnings does then show the effect of regional variation in hourly wage rates.

The 'normalised' and 'adjusted' hourly earnings series for full-time manual males can be used to examine whether or not the different industrial structures of the regions have had an effect on regional earnings relative to Great Britain as a whole. In Table B the ratio of actual to GB weekly earnings reflects both regional variations in rates of pay and regional industrial structures, whereas, as noted above, the ratio of 'normalised' to 'adjusted' earnings reflects only regional variations in pay rates. Comparison of these two ratios gives mixed results. In East Anglia and the South West the ratio of 'adjusted' earnings to 'normalised' earnings is about 2½% higher than the ratio of actual earnings to GB weekly earnings over the sample period, implying that these regions' industrial structures tend to reduce their average earnings. But in the North and in Yorkshire and Humberside the ratio is reduced by nearly 1%. Overall, however, the coefficient of variation calculated using 'adjusted' and 'normalised' hourly earnings is below that for actual earnings for every year between 1970 and 1987, with the average reduction being 0.9 percentage points. It is clear, therefore, that after allowing for differences in hours worked and industrial structure the dispersion of earnings across regions is exceedingly small as compared with the variation in unemployment.

Table B
Relative average earnings[a] by region

Region	Average ratio of actual to GB weekly earnings	Average ratio of 'adjusted' to 'normalised' hourly earnings
South East	103.7	104.1
East Anglia	94.5	96.9
South West	92.9	95.4
West Midlands	100.4	100.0
East Midlands	97.9	97.5
Yorkshire and Humberside	98.6	97.8
North West	99.0	99.0
North	100.8	100.1
Wales	99.6	99.5
Scotland	99.8	99.6
Great Britain	100.0	100.0
Average coefficient of variation 1970–87	3.7%	2.8%

(a) For male manual full-time employees for all industries and services for 1970 to 1987.

Employment

The coefficient of variation for regional unemployment rates has not been adjusted to allow for differences in industrial structure because of insufficient data. Instead an examination of employment growth is undertaken to ascertain the effects of industrial structure.

Table C shows a break-down of employment by region, differentiated by gender and part-time/full-time distinction for various dates. In each region, female employment increased between 1971 and 1987 but at vastly different rates. These ranged from 50% in East Anglia to 1% in the North West. In contrast, male employment fell in most regions over the same period, although the difference between regions was similar, ranging from a rise of over 20% in East Anglia to a fall of 28% in the North West. Regardless of gender there has

Table C
Regional employment growth by gender and part-time/full-time

Percentage changes

	June 1971 to June 1987			June 1971 to September 1984			
	Total	Male	Female	Male		Female	
				Full-time	Part-time	Full-time	Part-time
Region							
South East	1.5	−9.3	18.4	−12.3	35.6	0.8	30.2
East Anglia	31.5	20.4	50.4	7.5	23.8	22.1	56.0
South West	20.5	4.7	47.4	1.6	56.1	17.4	77.3
West Midlands	− 6.8	−16.4	9.7	−19.6	17.5	− 8.1	24.6
East Midlands	13.5	0.9	34.8	− 4.4	33.2	8.1	60.1
Yorkshire and Humberside	− 4.5	−16.9	16.9	−17.9	24.9	− 7.1	41.6
North West	−16.6	−27.7	1.0	−26.1	18.7	−16.9	29.4
North	−11.1	−22.6	9.2	−25.8	37.2	−15.0	42.2
Wales	−10.0	−23.2	15.0	−21.8	32.7	− 3.9	56.7
Scotland	− 5.6	−16.6	11.4	−15.2	32.2	−10.3	54.5
Great Britain	− 1.3	−12.7	17.5	−14.9	32.0	− 3.2	39.9

been a marked difference between the growth of full-time and part-time employment. Over the period from June 1971 to September 1984 part-time employment for both males and females rose in each region. However, full-time male employment rose only in East Anglia and the South West while female full-time employment increased only in these two regions and in the South East and the East Midlands. The different behaviour of part-time and full-time employment might suggest that differentials in regional growth rates of total employment could be partly explained by their employment composition. Shift-share analysis suggests that these distinctions do not, however, make a significant contribution.[2]

It has been suggested that a major source of differences in employment growth between regions lies in their different industrial structures. Between June 1971 and June 1987 total employment in Great Britain fell by 1%, with employment in manufacturing declining by 36% but non-manufacturing employment increasing by 19%. The pattern of employment change with respect to manufacturing and non-manufacturing is broadly consistent across regions, with the notable exception of East Anglia, where manufacturing employment actually grew by 8%. However, there is great variation in the regional employment growth rates, with East Anglia, the South West, the East Midlands and the South East experiencing rises in employment but the remainder experiencing falls.

(1) On average, over all time periods and regions in the sample, the 'adjusted' hourly earnings series would have been about 0.4% below the published hourly earnings series. The direction and magnitude of this bias vary both over time and across regions.

(2) There are numerous methods by which shift-share analysis can be carried out. The one used for this paper can be found in R J Dixon and A P Thirlwall, *Regional Growth and Unemployment in the United Kingdom*, Macmillan Press, 1975, equation 8.7, page 172.

Table D
Actual and 'expected' employment growth by region, 1971–87

Percentage changes

Region	Total Actual	Total 'Expected'	Manufacturing Actual	Manufacturing 'Expected'	Non-manufacturing Actual	Non-manufacturing 'Expected'
South East	1.5	5.4	−38.1	−35.8	18.5	23.0
East Anglia	31.5	−0.6	7.8	−35.0	42.3	15.2
South West	20.5	1.4	−12.5	−35.4	36.0	18.6
West Midlands	− 6.8	−9.4	−36.8	−37.2	23.7	18.6
East Midlands	13.5	−8.9	−17.5	−35.1	38.3	11.9
Yorkshire and Humberside	− 4.5	−6.2	−42.4	−35.6	22.1	14.4
North West	−16.6	−4.1	−46.8	−35.4	5.6	19.0
North	−11.1	−5.1	−40.5	−36.5	5.2	12.6
Wales	−10.0	−4.6	−36.3	−37.0	3.1	12.0
Scotland	− 5.6	−1.0	−41.4	−35.3	12.6	16.5

In order to gauge how much of the difference in the experience of employment growth can be attributed to the industrial composition of each region's workforce, 'expected' employment for each region was calculated for June 1987. This used each region's industrial employment in June 1971 multiplied by each industry's employment growth (between June 1971 and June 1987) for Great Britain.[1] The difference between the actual and 'expected' employment is a measure of the effects of non-compositional factors on each region's employment and includes the influences of such factors as regional policy and urban density. Table D summarises the results, distinguishing between manufacturing and non-manufacturing employment, and shows that of the four regions where total employment has increased, only the South East and the South West have had employment structures which were favourable to growth.[2] After allowing for differences in the industrial mix of employment it is noticeable that the South East has actually underperformed the GB average.[3] Although the West Midlands and Yorkshire and Humberside have recorded declines in their employment they have actually performed slightly better than their industrial structure would have suggested. Table D also reveals that the effect of non-compositional factors usually has the same sign in both manufacturing and non-manufacturing, although Yorkshire and Humberside did worse in manufacturing than 'expected' but better in non-manufacturing, while the converse was found for Wales.

The extent to which actual employment growth is different from 'expected' growth varies greatly, from 32% greater in East Anglia to 13% less in the North West. This suggests that even if an adjustment for industrial structure were to be made in the calculation of the coefficient of variation for unemployment rates (and allowance made for the different growth rates of the population of working

age) it is still likely that it would remain above the coefficient of variation for regional earnings.

There is evidence of a negative correlation between the average ratio of 'normalised' to 'adjusted' earnings and the difference between actual and 'expected' employment growth. In part, this may reflect the fact that in some regions high relative wages may directly discourage employment growth while in other regions the inability to attract labour, which hinders employment growth, may encourage firms to raise wages in order to recruit workers from other firms within the region. In this latter situation high relative wages are a symptom not a cause of low employment growth.

Migration

The above discussion of labour market trends suggests that the regions of Great Britain can be characterised by a simple model in which earnings are relatively inflexible between regions so that regional demand shocks are absorbed mainly by changes in employment. One route by which regional unemployment disparities may be reduced is by net migration, although the persistence of high unemployment rates in particular regions suggests that migration has been insufficient to reduce these disparities.

There were 657,000 inter-regional moves within the United Kingdom by persons of working age in 1985 and 725,000 in 1986.[4] All regions (including Northern Ireland) had both inward and outward migrants of working age. The North, Yorkshire and Humberside, the North West, Scotland, Northern Ireland and the West Midlands had net outflows in these years. The size of the net migration between regions was rather small, with the largest net flow being 1.3% of the population of working age (into the South West in 1986). Consequently, migration is unlikely to have had a major impact on reducing the differences in regional unemployment rates. But low migration rates may indicate not an immobile workforce but rather that current incentives to migrate are weak.

Research on the determinants of migration within the United Kingdom has yet to provide a consensus view. There is disagreement about whether or not high regional unemployment (relative to the other regions) or unemployment in itself encourages migration.[5] It has been suggested that there is a role for relative wage rates in encouraging migration but, as the differences in wage rates tend to be small relative to differences in unemployment rates, there is unlikely to be much migration associated with wage differentials. Research has also investigated the role of regional housing markets in discouraging

(1) Twelve categories were used, corresponding to SIC categories: 0 to 5, 61 to 63 and 64 and 65, 66 to 67, 7, 8, 91 to 92, 93 to 99.

(2) It should be noted that the relatively small number of employees in East Anglia and Wales means that these regions are rather more susceptible to the decisions of large individual employers than other regions.

(3) Data available since September 1981 show that this may have been due to employment growth in Greater London being sufficiently below its 'expected' growth to offset the better than 'expected' growth recorded in the rest of the South East.

(4) Working age is defined as 15 to 64 years for males and 15 to 59 for females. This does not imply that all of these migrants were necessarily members of the workforce. The sources for this data are *Regional Trends* 1987 and 1988.

(5) C A Pissarides and J Wadsworth report that 'Households with unemployed heads are more likely to migrate than similar employed men' in 'Unemployment and the Inter-Regional Mobility of Labour', Centre for Labour Economics, London School of Economics, Discussion Paper No 296, November 1987. On the other hand, G Hughes and B McCormick find that 'Unemployed individuals in a depressed area do not seem to have either higher actual or higher intended migration rates (and the evidence points to lower actual migration rates)' in 'Housing Markets, Unemployment and Labour Market Flexibility in the UK', *European Economic Review*, Vol 31, No 3, April 1987.

migration. Perhaps the most firmly established result in migration studies is that occupancy of council accommodation reduces the likelihood of inter-regional migration relative to other forms of tenure. The costs of migrating from owner-occupancy can be expected to be larger than those from rented accommodation, but this advantage appears to be more than offset by tenants' unwillingness to relinquish subsidised rents by moving (although this appears to be less true for tenants of unfurnished properties which also have rent controls). Research has also investigated the role of house price differentials in determining migration but as yet no consensus has emerged. Neither council house tenancy nor the possession of a relatively low priced house prevent movement. Rather they provide a disincentive to migration. Nevertheless, to the extent that house price differentials and council tenancy rates discourage migration, this may have an effect on regional wage and unemployment rates.

Recent trends in regional housing markets

Tenancy rates

Regional comparisons of council house tenancy rates show a large difference between Scotland, which had the highest rate throughout the period (1971 to 1987), averaging 53%, and the South West, which averaged 21%. Although the majority of regions had modest increases in tenancy rates over the 1970s, all regions have seen falls in council tenancy rates since the late 1970s and early 1980s. However, the recent declines have not been at the same rate across regions, with Scotland and the South East having smaller falls than Great Britain as a whole. Two reasons for the decline in council tenancy rates during the 1980s are the Government's programme of selling existing council houses to their occupants and the sharp decline in the public sector's share of new dwellings (from 46% of those completed in 1980 to only 16% in 1987).

There is less variation across the regions in private rented accommodation as a proportion of all dwellings. On average over the period 1971 to 1987 this proportion ranged from a maximum of 16% in the South East to a minimum of 11% in the West Midlands. As a proportion of all dwellings, private rented accommodation has fallen in each region and by 1987 it was around half its 1971 level. One reason suggested for this decline is that the various Rent Acts, which regulate private tenancies, have discouraged the construction of new properties for renting and encouraged the withdrawal of existing properties. The Housing Bill currently being debated in Parliament is an attempt to reverse these trends. The net effect of these changes in rented tenure rates has been a rise in owner-occupancy rates in each region since 1971, although there remain large differences in owner-occupancy rates between regions.

Although the decline in council tenancy rates might be expected to enhance migration, the decline in the private rental sector will to some extent offset this. Moreover,

council tenants tend to have personal circumstances which discourage migration and there may also be restrictions on resale of ex-council property. It is not clear that the changes in tenure rates seen since the early 1970s will have enhanced migration and, consequently, the reduction in the coefficient of variation of regional unemployment rates since the 1970s may not be related to these changes in tenure rates.

House prices

It has also been suggested that it is not only the type of tenure which determines migration but also the relative regional prices of owner-occupied housing. There are substantial differences in house prices between regions. For example, in mid-1988, house prices in the South East were 2½ times those of the North according to the Halifax Building Society while, in comparison, weekly earnings were only 22% greater in the South East in April 1987 (the latest date for which *New Earnings Survey* data is available). Moreover, the differential between the regions has grown over time. The annual rate of house price increases has been, on average, greatest in the South East, being 1.1% above the GB average, which itself averaged 14% per annum over the period 1970 to 1987. In East Anglia and the South West, house price increases were, on average, 0.5% above the GB figure while the remaining regions were below it by, on average, between 0.2% and 1.5%. Despite this pattern, over the period as a whole no region recorded annual increases consistently above or below the GB annual increase, although the West Midlands had house price increases which were below the GB average for each year between 1978 and 1987. For each region, house price increases are highly correlated with increases in other regions, with the lowest correlation coefficient, between Scotland and the South East, being 0.56.

However, if the increase in house prices less the unweighted average rise in house prices is used (to eliminate the common trend element) the picture is rather different. Not all of the correlation coefficients between the regions are now positive and this can be used to divide Great Britain into two groups: the 'periphery' regions (comprising Yorkshire and Humberside, the North West, the North, Scotland and Wales), all of which have positive correlation coefficients with each other but negative coefficients against the remaining regions, and the remaining 'core' regions, which comprise a second, much looser, grouping. Within this second group the East Midlands and West Midlands are positively correlated with each other and with the South West. The South West is, in turn, positively correlated with the South East and East Anglia, but the South East is not directly correlated with either of the Midland regions and East Anglia is also correlated with the East Midlands. Of course, these correlations may change over time; for example, the recent improvement of rail links between East Anglia and London may have caused prices in East Anglia to become more correlated with those in the South East than with the East Midlands. This could also lead to a closer correlation

Chart 3
'Core' house price increases and differential with the 'periphery'[a]

——— 'Core' house price increases
· · · · · Differential
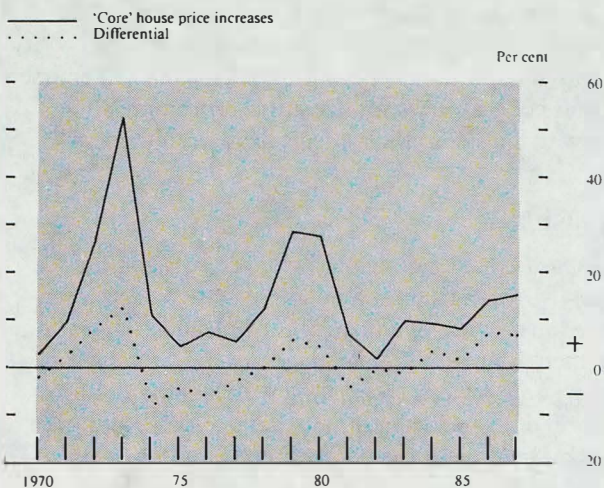
(a) The 'core' consists of the South East, East Anglia, the South West, the West Midlands and the East Midlands. The differential is the difference between the unweighted average growth rate of the 'core' and that of the remaining regions of Great Britain.

between the levels of house prices more generally and this might, in part, explain the rapid rise in East Anglia house prices recorded in the first half of 1988. It is highly likely that use of simple correlation coefficients overemphasises the cohesion between the 'periphery' regions so that, for example, the positive correlation between two regions may, to some extent, result from their mutual correlation with a third region. Nevertheless, the difference in average house price increases between the 'core' and the 'periphery' regions rises when the unweighted average rate of increase is high (see Chart 3). This implies that during periods of high aggregate house price increases, differences in the level of house prices will also increase between the 'periphery' and the 'core' regions.

Regressions of regional earnings and unemployment

This section reports the results of a regression analysis of regional hourly earnings and regional unemployment. The analysis is essentially descriptive, rather than behavioural, in that it brings together the strands from the earlier discussion of the labour and housing markets. For this reason no formal derivation of the behaviour underlying the regressions is provided. The central aim was to ascertain whether regional wages and unemployment are primarily described in terms of national or regional factors—in particular, to examine the role of relative council tenancy rates and the differential in house price inflation as measures of migratory ability, and that of unemployment (in the earnings equations) as a measure of flexibility in the labour market.

The dependent variable used in the earnings equations was the growth rate of 'adjusted' hourly earnings for

full-time male manual employees in all industries and services. Factors affecting all regions are assumed to be captured by using the annual growth rate of the 'normalised' hourly earnings variable described above. In fact, the estimated parameter on 'normalised' wages was statistically highly significant in each of the regressions and, with the exception of the regressions for the West Midlands and Scotland, the hypothesis that this parameter was unity could not be rejected.[1] The implication of this is that average earnings within a given region are closely related to the national earnings of the industries which make up that region's employment pattern. It is not possible to identify from these results whether or not this is because industries within each region react directly to national economic developments or because there is a centralised bargaining mechanism within each industry.

A particularly interesting question is whether higher unemployment rates are associated with a slower growth of earnings. As with nearly all investigations of regional wages, it proved difficult to identify a role for the differential between the region's unemployment rate and that of Great Britain as a whole. In a general specification, which also included 'normalised' earnings and the difference between each region's council tenancy and owner-occupancy rates and the respective GB rates, no statistically significant parameters (at the 5% level) were found on the unemployment term, and often the parameter was incorrectly signed. Experimentation with some alternative forms of unemployment variables indicated that in terms of producing negative and statistically significant parameters the best form was the first difference of the region's natural logarithm of male short-term unemployment rates relative to the same variable for Great Britain.[2]

Two housing market variables were hypothesised to affect regional hourly earnings; the logarithm of the ratio of house price increases for each region to house price increases in Great Britain and the logarithm of the ratio of the percentage council house tenancy rates in a region to the GB rate. It might be expected that the house price variable would have a positive coefficient but only for those regions where there has been net immigration— which may be taken as an indication that the region needs to attract workers—because, as house prices rise relative to the average, migrants are discouraged. However, the regression results (see Appendix B) do not bear this out. Positive and statistically significant parameters are found only for Scotland, the North West and the West Midlands and these regions probably did not have net immigration of population of working age over the period under consideration and certainly have not had in recent years. For Wales, which did experience net immigration of working age population in recent years, the parameter is negative and statistically significant at the 5% level. These

---

(1) It should be noted that in a model which included both the 'normalised' and the actual growth rates of hourly earnings for Great Britain the 'normalised' term was preferred in 80% of the regressions and for those regressions where it was not there was evidence of collinearity problems with the two earnings variables.

(2) The implication of this result is that if the unemployment rate in a region stabilises at a higher rate than the GB average this will not place downward pressure on the growth rate of earnings; nor will falls in relative unemployment lead to higher wage rises if they are due to falls in long-term unemployment.

results do not support the hypothesis that housing variables, by discouraging migration, affect regional hourly earnings. Of course, the house price inflation term does not rule out a cumulative deterioration in the incentive to migrate and this may be better measured by the logarithm of the ratio of the level of house prices in the region to the GB average.

The council tenancy variable might be expected to have the opposite effect, in that its parameter should be zero or negative for net immigration regions because council tenancy may not hinder internal moves within a region, and may help. However, the position in net emigration regions is not clear-cut. On the one hand, because council tenants are less mobile they may be less willing than owner-occupiers to push for higher wage settlements. Alternatively, however, the costs of unemployment perceived by council tenants may be lower than those perceived by owner-occupiers (in part owing to the operation of the social security system) and this may encourage larger wage claims. The results reported in Appendix B suggest that such offsetting has occurred in the past, with only Yorkshire and Humberside among the net emigration regions having a statistically significant parameter. Again, therefore, there is little evidence to suggest that council house tenancy rates, via their effect on migratory incentives, have had an effect on wage determination.

To examine the effects of migratory disincentives on regional unemployment rates the logarithm of regional council tenancy rates to the GB tenancy rate and the logarithm of the ratio of regional house price increases to the GB rate of increase were used. The logarithm of the ratio of the levels of 'adjusted' hourly earnings to 'normalised' hourly earnings and the logarithm of the ratio of regional GDP per head at current factor cost to the level of UK per capita GDP were included, the latter in order to capture demand influences.[1] Except for the East Midlands, the GDP variable had a negative coefficient, perhaps suggesting that higher per capita GDP relative to the UK average will tend to depress the unemployment rate relative to the GB rate. Alternatively, this may suggest that in regions where unemployment is relatively low companies may have to increase productivity rather than the workforce if they wish to increase output. For the remaining variables the regressions do not provide a consistent picture. The sign on the earnings term is equally divided between being positive and negative over the regions. Moreover, the parameters of one sign are not located solely in the net emigrant or net immigrant regions. Similar comments are applicable to the council tenancy ratio. In the case of the house price differential, each region, with the exception of

the East Midlands, had a positive coefficient. However, this finding was not very robust for alternative specifications and little reliance should be placed on it. No convincing role for either the earnings term or the housing variables within an explanation of regional unemployment rates has been found. This may, of course, be because of the very simple equilibrium framework within which tests for their effects have been made.

Conclusion

The disparity of economic performance between the regions of Great Britain is a potential source of concern because the absence of adjustment can lead to a situation where there is greater than average upward pressure on prices in some regions co-existing with less than full utilisation of resources in other regions. Such a situation implies an inefficient use of resources, and it is for this reason that successive governments have attempted to reduce the disparities in resource utilisation through various regional policies.

The findings presented above suggest that there is little variation in wages across regions relative to variation in the unemployment rates. Further, regional variation in industrial mix is a major factor affecting variation in regional earnings of male manual employees. The role that house prices and council house tenancy rates may play in deterring migrants was also investigated through the effects these were hypothesised to have had on earnings and unemployment rates. There was, however, little evidence of direct systematic effects from either the ratio of house price increases or relative council tenancy rates on either unemployment or earnings growth. This does not rule out the possibility that the use of other variables to capture the housing market effects on earnings and unemployment might be successful.

The limited flexibility of wages between regions has the result that shocks to regional labour markets are absorbed by changes in employment rather than in wages. If such regional shocks represent permanent changes in demand, regional unemployment disparities will be a permanent feature of labour markets unless migration of either firms or workers occurs. The consistency with which the same regions have unemployment rates which are above the national average over time may be taken as evidence that the migration of employees or firms has been insufficient to reduce these disparities. This may reflect a combination of the low inter-regional variation in earnings, in particular for manual workers where the differentials in unemployment rates are greater, while a lack of relevant industrial experience and training may also deter potential migrants.

---

(1) For a number of regions the Durbin Watson statistic is sufficiently low to cast doubt on the specification of the equation and attention is restricted to the parameter estimates even where first order autocorrelation is not believed to be a problem.

Appendix A: Regression results for 'adjusted' earnings

Region	Constant	Parameter on the growth rate of 'normalised' earnings	Standard error of equation	Mean of dependent variable	Durbin Watson statistic	$\overline{R}^2$
South East	0.4 *1.7*	0.976 *56.8*	0.45	12.67	1.99	0.99
East Anglia	1.1 *1.2*	0.942 *14.8*	1.60	12.97	2.43	0.93
South West	0.2 *0.3*	0.992 *22.6*	1.11	12.64	2.54	0.97
West Midlands	1.5 *2.0*	0.843 *15.1*	1.31	11.75	2.57	0.93
East Midlands	−0.3 *0.8*	1.025 *43.3*	0.64	12.62	2.02	0.99
Yorkshire and Humberside	−0.5 *1.4*	1.052 *41.7*	0.67	12.75	2.44	0.99
North West	0.0 *0.0*	1.001 *12.9*	0.59	12.60	2.15	0.99
North	−0.3 *0.5*	1.034 *26.3*	1.09	12.78	1.53	0.98
Wales	0.5 *1.0*	0.945 *28.3*	0.93	12.36	2.34	0.98
Scotland	−1.1 *2.2*	1.088 *30.8*	0.94	12.53	2.32	0.98

The dependent variable is the annual growth rate of 'adjusted' earnings.

The method of estimation was ordinary least squares over the period 1971 to 1987, using annual data: t-statistics in *italics*.

Appendix B: Regression results for the ratio of 'adjusted' to 'normalised' earnings

Region	Parameter estimates			Standard error of the equation	Durbin Watson statistic	$\overline{R}^2$
	E	F	G			
South East	0.02 *0.1*	0.17 *0.5*	−0.04 *0.7*	0.05	1.87	0.09
East Anglia	−0.62 *2.8*	−0.71 *1.4*	−0.25 *2.3*	0.09	1.60	0.33
South West	−0.24 *1.5*	−0.56 *1.4*	−0.04 *2.3*	0.08	2.81	0.12
West Midlands	−0.90 *10.1*	1.10 *3.2*	0.07 *0.3*	0.08	2.50	0.52
East Midlands	0.04 *0.1*	0.65 *0.9*	0.68 *2.2*	0.21	2.22	0.09
Yorkshire and Humberside	−0.55 *1.7*	−0.24 *0.7*	−1.34 *2.9*	0.14	2.48	0.17
North West	0.0 *0.0*	0.54 *2.4*	−0.16 *1.1*	0.13	2.31	0.13
North	−0.13 *0.7*	−0.33 *1.1*	−0.02 *0.2*	0.09	2.14	0.07
Wales	−0.25 *2.1*	−0.73 *2.2*	0.09 *0.4*	0.11	2.78	0.10
Scotland	−0.33 *2.0*	0.50 *2.6*	0.0 *0.1*	0.09	2.51	0.23

The method of estimation was seemingly unrelated regression over the period 1971 to 1987, using annual data: t-statistics in *italics*.

The model is:

ln ('adjusted' earnings/'normalised' earnings)=

$E.\ln ((UST/UST_{-1})/(USTGB/USTGB_{-1})) + F.\ln (HP/HPGB) + G.\ln (CT/CTGB)$

Where E, F and G are parameters.

UST is the male short-term (less than 26 weeks) unemployment rate (for the region and Great Britain respectively) for June of each year from various issues of the *Department of Employment Gazette*.

HP is the annual growth rate of house prices (for the region and Great Britain respectively) using the Department of the Environment mix-adjusted house price index centred on April.

CT is the percentage of households that live in council property (within a region and Great Britain respectively) centered on April: from *Regional Trends*, various issues.

The regressions reported in Appendix B have had the restriction that the coefficient on 'normalised' earnings is unity imposed. Only the regression for Yorkshire and Humberside rejects this restriction at the 5 % level of significance.