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THE SPATIAL PATTERN OF ECONOMIC ACTIVITY AND INACTIVITY IN BRITAIN: PEOPLE OR PLACE EFFECTS?

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ABSTRACT

The paper applies a decomposition analysis to statistically account for the part played by demographic factors, in differential rates of employment, unemployment, inactivity and recorded sickness, across NUTS level 2 areas. Spatial variation in long-term sickness and disability cannot simply be attributed to prevailing population structures. One interpretation is that the success of supply-side policies could be constrained by the concentration of Incapacity Benefit claimants in demand-deficient areas.

JEL Classification: J21

Keywords: Regions, inactivity, disability

La distribution géographique de l'activité et de l'inactivité économiques en Grande-Bretagne: des effets population ou des effets espace?

Little

L'article cherche à appliquer une analyse par décomposition afin de tenir compte statistiquement du rôle joué par des facteurs démographiques dans les taux différentiels de l'emploi, du chômage, de l'inactivité et l'absence pour cause de maladie à travers les zones NUTS 2. On ne peut simplement imputer la variation géographique de la maladie et de l'invalidité à long terme à la démographie actuelle. Une interprétation est la suivante: la réussite des politiques de l'offre pourrait être limitée par la concentration des demandeurs de la Incapacity Benefit (allocation d'invalidité) dans des zones où la demande est insuffisante.

Régions / Inactivité / Invalidité

Classement JEL: J21

Das räumliche Muster von wirtschaftlicher Aktivität und Inaktivität in Großbritannien: personelle oder räumliche Effekte?

Dr. Allan Little

ABSTRACT

In diesem Beitrag wird eine Dekompositionsanalyse angewandt, um die Rolle von demografischen Faktoren für die unterschiedlichen Quoten von Beschäftigung, Arbeitslosigkeit, Inaktivität und Krankschreibungen in den Gebieten der Stufe NUTS 2 statistisch zu berücksichtigen. Räumliche Abweichungen bei langfristigen Krankheiten und Behinderungen können nicht einfach nur auf die vorherrschenden Bevölkerungsstrukturen zurückgeführt werden. Eine Interpretation lautet, dass der Erfolg von Politiken auf der Angebotsseite durch die Konzentration der Bezieher von Erwerbsunfähigkeitsleistungen auf Gebiete mit mangelnder Nachfrage beeinträchtigt werden könnte.

JEL Classification: J21
Keywords:
Regionen
Inaktivität
Behinderung

El modelo espacial de la actividad económica y la inactividad en el Reino Unido: ¿Efecto personal o de ubicación?

Dr. Allan Little

ABSTRACT

En este artículo aplico un análisis de descomposición para explicar estadísticamente qué papel desempeñan los factores demográficos en las tasas diferenciales de empleo, desempleo, inactividad y enfermedad documentada en las áreas del nivel NUTS 2. La variación espacial en enfermedad e incapacidad a largo plazo no pueden atribuirse simplemente a las estructuras predominantes de la población. Una interpretación es que el éxito de las políticas de oferta podría estar limitado por la concentración de solicitantes de prestaciones sociales por incapacidad en áreas con deficiencias en la demanda.

Keywords:
Regiones
Inactividad
Discapacidad

JEL Classification: J21

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I INTRODUCTION

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Inactivity and labour market detachment has increasingly become the focus of attention, in national and supranational policy debates (OECD, 2003; Clasen, Davidson, Ganßmann and Mauer, 2006). In light of the Lisbon Strategy and European Employment Strategy (EES) , there has been growing recognition that an increase in labour force participation is a fundamental prerequisite to achieving the overall Lisbon employment objective (namely a 70 per cent employment rate).[ii] The revised EES has retained a priority to "reduce regional disparities in terms of employment" (European Commission, 2005a). The problems faced by those with long-standing health problems are also a common theme across the EU. Participation in the EU-25 is much lower for workers with an illness or disability (Dupre and K, 2003), and this group also spend the most time without work (European Commission, 2005b). Likewise Incapacity Benefit claimants are the primary target group in the UK Government's Welfare-to-Work strategy and their long-term aspiration to reach an 80 percent employment rate.

In considering some of the salient statistics on economic inactivity, the European Commission (2005b) called into question the "commonly held view that 'inactivity' is exclusively a 'supply-side' problem and that active labour market policies are the only relevant option to mobilise the inactive workforce" (p.211). Hence they recommended a more comprehensive set of policies that combine active labour market policies with measures to support the creation of opportunities for the inactive. However, in the recent Command Paper, *A New Deal for Welfare: Empowering People to Work* ('the Green Paper'; Department for Work and Pensions, 2006) it is clear that the

Government favours a nationwide, supply-side strategy. The policy approach to spatial disparities in inactivity has been described as one of 'levelling-up' (O'Leary *et al.*, 2005). The guiding principle is that national initiatives, aimed at increasing participation among poorly performing demographic groups, will have a greater impact on areas with a higher concentration of disadvantaged individuals.

With the Government's policy agenda in mind, the analytical framework adopted here is designed to assess the relative importance of 'people' and 'place' factors, in explaining spatial patterns of non-employment in Britain. A decomposition methodology is followed, in order to discern the extent to which regional disparities in employment, unemployment, inactivity and recorded sickness can be attributed to observable demographic differences on the one hand, and unobservable factors on the other. If the demographic component is large, this would support the case that a microeconomic, supply side strategy could be effective in tackling these regional imbalances.

A handful of studies have sought to disentangle the demographic and non-demographic components of the spatial variation in registered unemployment (including Pissarides and Wadsworth, 1992; Fieldhouse, 1996; Brown and Sessions, 1997). The present paper employs an Oaxaca-style decomposition, and extends the analysis to the inactive part of the labour market. In this respect, the forerunner to the present analysis is provided in a recent discussion paper by O'Leary, Murphy, Latreille, Blackaby and Sloane (2005). This paper decomposes the rates of employment, unemployment and inactivity at the broad regional level. In the present paper, we consider inactivity for reasons of long-term sickness and disability, as

distinct from other forms of inactivity. Hence we treat the rate of ill health in the region as a labour market outcome, rather than an exogenous regional endowment. We also perform the decomposition for thirty-six NUTS level 2 areas - a lower level of disaggregation than the analysis reported in O'Leary *et al*. (2005). These two developments prove to be informative, with significant differences in the results within each broad region, and between the two inactive sub-states.

The rest of the paper is organised as follows. Section II provides a selective review of the literature and outlines our motivation. Sections III and IV describe the data and decomposition method respectively. There follows a discussion of the results in Section V. Section VI provides a summary of the key policy implications, and Section VII summarises.

II REVIEW OF THE LITERATURE

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Spatial imbalances in non-employment are a cause for concern. Unemployment, whether overt or hidden, represents an under-utilisation of local labour resources. Joblessness is a major cause of low income and social exclusion (Goodman and Webb, 1994), and informs the way in which local areas see themselves, as either thriving or depressed (Beatty, Fothergill, Gore and Hetherington, 1997). In particular, long-term sickness or disability is thought to be one of the most important sources of 'hidden unemployment' in the Britain (Fothergill, 2001). Yet, unlike the ILO unemployed, disability benefit claimants are much more disconnected from labour force and much less likely to return to work (Little, 2007).

Cameron and Muellbauer (2004) commented that the "regional dispersion of employment rates remains a puzzle … the puzzle deepens when we see that no comparable rise in the regional dispersion of unemployment rates took place" (p14). Regional unemployment disparities widened during the late 1980s (Nickell and Bell, 1995) but have since returned to something like their "historic norms" (Dickens, Gregg, and Wadsworth, 2000). Indeed there has been further convergence in regional unemployment rates since the turn of the century. Britain's highest unemployment rate in 2001 was the North East, but the unemployment rate here fell from 7.4 to 6.4 percent of the working age population by 2005. In contrast, in the lowest unemployment region - the South East (excluding London) - the rate of unemployment rose from 3.0 to 3.7 percent (*Regional Trends*, 2006). Concomitantly, many commentators subscribed to the view expressed by Jackman and Savouri (1999) that "the regional problem is in essence a problem of unemployment" (p.32) and, given that "the traditional North-South unemployment divide has all but disappeared" (p.29), so has the regional problem. There has also been some convergence in employment and activity rates since 2000, around stable rates for Britain as a whole. Yet considerable spatial disparities in joblessness remain, manifested largely in non-participation, particularly among those with health problems. This points to discrepancies in the scale of so-called hidden unemployment across spatial areas.

Webster (2000) noted that regional differentials in economic inactivity actually worsened in Britain during the 1990s. Moreover, the geographical dispersion of inactivity mirrors the pattern of unemployment. For instance, Gregg and Wadsworth (1998) reported that, on average, an additional percentage point on the regional unemployment rate is associated with an additional two percentage points on the rate

of inactivity. In this context 'MacKay's law' states that the greater the degree of labour market disadvantage, the less appropriate are the ILO and claimant unemployment figures as a measure of labour market slack (Mackay, 1999).

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From a policy perspective, a key analytical problem is that these differentials in the incidence of hidden unemployment conflate two broad determinants. The first relates to spatial differences in demographic profile. Individual non-employment risk varies according to a range of personal, household and socio-economic characteristics (see, for example, Pissarides and Wadsworth, 1992; Brown and Sessions, 1997; Little, 2007). Axiomatically, spatial variations in non-employment could, in part at least, reflect a non-uniform geographical distribution of vulnerable workers. The second explanation relates specifically to the regional dimension, above and beyond the characteristic differences of the resident population. The underlying structure governing the operation of each local labour market could determine individual labour market outcomes.

The predominance of either explanation has implications for the appropriate policy response. In essence, a demographic explanation underpins current British labour market policy. The Government has emphasised that the geographical dimension of labour market disadvantage arises from the fact that "disadvantaged groups tend to be concentrated in the most disadvantaged areas" (p.18; HM Treasury and the Department for Work and Pensions, 2003). Specifically, the Government highlights the following groups as being at higher risk of non-employment and concentrated in poorly performing areas:

- Disabled people;

- Ethnic minorities;
- People aged over 50;
- People with low or no qualifications;
- People living in rented accommodation.
- Lone Parents

A purely demographic explanation would, however, ignore the historical context to spatial disparities in unemployment and inactivity, which is inexorably bound with the asymmetric effects of de-industrialisation across regions. Beatty and Fothergill (1996) reported that the rise in male inactivity represented the largest single adjustment to job losses in the UK coalfields and, moreover, the largest component of this rise in inactivity was accounted for by the incidence of recorded sickness. Similar adjustment processes have also been noted in Britain's cities (Turok and Edge, 1999) and depressed rural areas (Beatty and Fothergill, 1997).

The impact of de-industrialisation during the 1980s and 1990s remains relevant to the current spatial pattern of inactivity. Beatty *et al.* (2000) argued that the hidden unemployed (particularly older, male and ex-manufacturing workers) tend to fall to the back of the queue for jobs, and remain out of the labour market even when local economic conditions improve. Consequently, a high rate of inactivity can become locked-in to a local economy, even when the employment rate rises. Job creation in thriving industrial sectors has not provided an effective substitute for the disappearance of jobs in manufacturing and heavy industry, in terms of both "quantity and character" (Turok and Edge, 1999). Some empirical support for this view is provided in Little (2007), where the hidden unemployed were found to have a low

degree of attachment to the labour force in the period 1995 to 2004 - a period of rising employment rates.

IB claimants may also choose to live in areas of low labour demand (and thus lower wages), because these areas are associated with lower living costs, although many benefit claimants are likely to have relatively little choice over where they live. Given that the level of IB payments is the same across regions, the real value of their income is thus higher in areas of low employment. Hence poor local economic performance could also serve to attract IB claimants from high employment areas.

Hence both demographic and regional factors are likely to be important in explaining spatial patterns of non-employment, but the relative weight attached to each of these explanations is an empirical issue. Empirical studies have sought answers for the British case. Pissarides and Wadsworth (1992) used LFS data for the period 1979 and 1986 to estimate the extent to which regional unemployment differentials are due to differences in personal characteristics, the occupational distribution of employment, or 'unexplained' regional effects. They found that unemployment differentials are largely explained by observable factors, although there are significant regional effects in the North of England and Wales. Brown and Sessions (1997) followed the same methodology, using data from the British Social Attitudes Survey, for the period 1985 to 1991.[iii] Controlling for demographic differences, they found that the risk of unemployment in the northern regions is high relative to the South East, whereas high unemployment in London and Scotland was largely attributable to demographics. Fieldhouse (1996) considered variation in unemployment risk at the Sample of Anonymized Records (SARs) local district level. Residual differences in local

unemployment are reported, having first accounted for demographic composition and geographical contextual effects (i.e. industrial and occupational structure). Fieldhouse reported that, other things being equal, unemployment risk was higher in Wales and the northern regions of England.

Policy makers have also identified that decomposition analyses can be informative in identifying the potential effectiveness of labour market policy. The *London Project Report* (Prime Minister's Strategy Unit, 2004), for instance, raised important questions about the underlying reasons for lower employment rates in the capital. This report proposed that further investigation into the impacts on employment rates was needed on two main areas, resulting from (1) the characteristics of London's population; and (2) the operation of the London labour market (*London Project Report*, 2004). Two policy papers followed this report from the Greater London Authority (Meadows, 2006) and the HM Treasury (HMT, 2006), both of which decompose London's employment rate. Explanatory factors in these papers cover age, gender, ethnicity, qualifications, health status and country of birth. The GLA found that approximately 90 per cent of the difference in employment rates between London and the rest of the country could be explained by the concentration of several of these factors in the London population. HM Treasury's findings were broadly in line with the GLA, but with some differences. For instance, they found that a compositional explanation could account for about 9 percentage points of the difference between Inner London and the rest for the UK. The remaining 2.3 percentage point difference was found to be statistically significant. In Outer London, by contrast, lower employment rates are entirely accounted for by the characteristics of Londoners.

In each of the studies cited above, the empirical analysis concentrates on either employment or the registered unemployed. A more recent paper by O'Leary *et al.* (2005) decomposed regional variation in all three standard ILO states: employment, unemployment, and inactivity. The decomposition was based on multinomial logit regressions, both including and omitting a control variable for the proportion of individuals with work-limiting health conditions. They found that variation in the rate of inactivity was largely accounted for by unobservable 'structural' factors, rather than compositional differences, but the relative importance of the compositional component rose when regional differences in ill-health were accounted for. The analysis presented here builds on the decomposition of the inactive presented in this discussion paper, at a lower level of spatial disaggregation.

Essentially, the approach adopted by O'Leary *et al*. (2005) treated the proportion of workers with health problems as a demographic endowment of each region. However, in the Labour Force Survey, from which O'Leary *et al*. (2005) derived their measure of ill health, individuals may answer questions on incapacitating conditions in such a way as to avoid contradiction with their employment or benefit status. Currie and Madrian (1999) reviewed studies of various self-rated measures of ill health, and argued that these measures are "not strongly correlated with underlying health as it affects labor market status" (p.3315). For instance, Parsons (1980, 1982) noted that the probability of reporting poor health rises with the potential Social Security benefit level. Sickles and Taubman (1986) found that changes in Social Security benefits and eligibility for transfers influenced self-rated health, as well as the probability of withdrawal from the workforce. In the UK, there has been a significant increase in the number of people *reporting* chronic illness or disability (Faggio and Nickell, 2003),

coinciding with the increase in sickness benefit claims but unlikely to be *caused* by deterioration in health. Health indicators derived from the LFS could therefore be skewed according to the number of sickness benefit claimants in each region.

Unlike O'Leary *et al.* (2005), the analysis in this paper does not rely on the assumption that the rate of ill health is exogenously determined. Instead, the approach adopted here allows spatial variations in recorded sickness to be endogenously determined, both by regional and demographic factors. Job losses, which in Britain have been spatially concentrated, fall disproportionately on workers who suffer from ill health (Beatty *et al.*, 2000). Heavy industries are also known to be damaging to worker's health, such that a higher proportion of displaced workers in traditional industrial regions were eligible for sickness and disability benefits (*ibid.*). A further link can be made between the rate of recorded sickness and regional socio-demographic composition, given that some characteristic groups are more likely to be in poor health

Finally, it is worth noting that the international empirical research on economic inactivity is growing but, to the author's knowledge, does not extend to spatial decompositions of labour market outcomes across regions.[iv]

III DATA

We pool data from seven cohorts of the QLFS for Great Britain, covering the period from March 2003 to February 2005. The sample period is restricted by the availability of sub-regional identifiers, which are unavailable in earlier cohorts. The working-age

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sample comprises 244,687 male and 248,158 female observations, who are not in full-time education. It should be noted that, by pooling the QLFS data in this way, some individuals contribute more than one observation to the sample. Using the pooled data has the benefit of boosting the sample, but it is important to test whether this panel element makes a significant difference to the results reported here. We thus replicate the analysis using a sample that is restricted to the first interview for each respondent. The decomposition results from this cross-sectional data are reported in the Appendix. The results are not markedly different.

Future research could extend the type of analysis undertaken here by applying panel data methods, such as fixed or random effects. The advantage of the panel would lie in the ability to control for unobservable heterogeneity at the individual level. Multi-level modelling might also allow unobservable variation at several levels (e.g. individual, local area and broader regional levels) to be identified. The potential difficulty with this approach is that multinomial logistic regression with panel data, can prove to be computationally burdensome.

We characterise the working-age population as belonging to four groups:

$j = 0$ employed (ILO definition);

$j = 1$ unemployed (ILO definition);

$j = 2$ recorded sickness - inactive due to long-term sickness or disability;

$j = 3$ other inactive - for reasons other than long-term sickness or disability.

The International Labour Organisation (ILO) definition of employment covers employees, the self-employed, unpaid family workers and those on government employment and training programmes. ILO unemployment refers to those who are (1) without a job, have actively sought work in the last 4 weeks and are available to start in the next 2 weeks; or (2) out of work, have found a job and are waiting to start in the next 2 weeks (Office for National Statistics, 2001). Those who do not meet the criteria above are classified as economically inactive ($j = 2$ or $j = 3$). Recorded sickness ($j = 2$) refers to respondents who give their main reason for being out of the labour market as long-term sickness or disability. Importantly, not all of the recorded sick left the labour market because of their health problems. Beatty and Fothergill (1999) reported that nearly half of the male long-term sick left their last job for reasons other than their health condition, with approximately one quarter having faced compulsory severance. The 'other inactive' state ($j = 3$) encompasses a number of sub-groups and a substantial degree of behavioural heterogeneity (e.g. Gregg and Wadsworth, 1998; Little, 2007). The sample is not large enough to withstand further separation of $j = 3$ into sub-groups of inactivity, because the number of observations in the inactive states would be too small in some regions. The advantage in separating recorded sickness from other forms of inactivity arises from the special importance attached to the role of long-term sickness in concealing the real rate of unemployment.

Sample employment rates in Britain are higher for males (83.3 percent) than females (74.4 percent), primarily because they are less likely to be inactive for reasons other than sickness (5.8 percent of males compared to 16.5 percent of females). Recorded sickness accounts for 6.5 percent of the male sample and 5.6 percent of females, which is higher than the respective proportions of unemployed males and females.

Table 1 illustrates the geography of labour market disadvantage in Britain across standard regions and Nomenclature of Units for Territorial Statistics, level 2 areas (hereafter NUTS2). These thirty-six NUTS2 areas represent the lowest level of disaggregation available in the LFS. Sample sizes at NUTS2 range from 17,284 (the female sample in Outer London) to 1,555 (the male sample in the Highlands and Islands of Scotland). NUTS2 areas do not constitute local labour markets, which would be better represented by Travel-to-Work Areas. However, the NUTS2 level still represents a more fine-grained spatial level of analysis than that reported by O'Leary *et al.* (2005).

TABLE 1

Variation in employment is greater across NUTS2 than broadly defined regions. Three regions (Wales; the North and North West of England) and eight NUTS2 areas have a male sickness rate in excess of eight percent. High sickness rates coincide with large urban centres (e.g. Merseyside) and areas that were in the past dominated by heavy industry (e.g. West Wales and the Valleys).

Spatial differences in employment are mirrored largely in the rates of inactivity and sickness, more so than unemployment. Standard deviation in the sickness rate across all NUTS2 areas (2.7 for males; 1.9 for females) is larger than the deviation in the unemployment rate (1.3 for males; 0.8 for females). This is confirmed by the coefficient of variation (standard deviation / mean x 100), which deflates the

deviation to account for the positive relationship between the standard deviation and the mean (Table 1)

FIGURE 1

Figure 1 illustrates the correlations between unemployment and recorded sickness. A significant correlation coefficient of 0.48 exists between male unemployment and sickness across NUTS2 areas, although the correlation is insignificant for females. There is, however, a statistically significant correlation coefficient of 0.59 between unemployment and 'other' inactivity for females. This is unsurprising, given that hidden unemployment among females includes those who are disqualified from unemployment benefits by virtue of their partner's earnings. In Table 2 we note that approximately three-quarters of these females are looking after the family or home, the majority of which express that they would not like to work.[v]

TABLE 2

Compositional differences between each labour market state are illustrated in Table 3. Recorded sickness ($j = 2$) comprises a high proportion of individuals who are aged 50 or over (61.3 percent in the case of men and 50.4 for women), have no qualifications (43.6 percent for males and 48.6 percent for females) and are in living in social housing (45.2 percent for males and 44.5 percent for females).[vi]

TABLE 3

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IV DECOMPOSITION METHOD

This section outlines the method used to decompose spatial differentials in labour market outcomes. First we estimate the following multinomial logit model, in order to determine the probability that individual *i* chooses labour market state *j*:

$$\Pr(Y_i = j) = \frac{\exp^{X_i\beta_j}}{\sum_{j=1}^{m} \exp^{X_i\beta_j}} \begin{cases} i = 1,2,3,...N \\ j = 0,1,2,...J \end{cases} \qquad (1)$$

where X_i is a vector of covariates controlling for age, ethnicity, country of birth, education, marital status, housing tenure and time dummies. The covariates cover a key set of personal characteristics, expected to influence the risk of belonging to each labour market state.[vii] When averaged across spatial areas, differences in the mean values of the explanatory variables may explain differences in labour market outcomes.

We follow the decomposition method employed by Neumark (1988), Oaxaca and Ramsom (1994) and, more recently, by O'Leary *et al.* (2005). Estimates of equation (1) are used to obtain differences in the incidence of labour market outcome *j*, between region *r* and the rest of Britain (denoted by *R*). These differences can be shown to be equal to:

$$\bar{I}_j^r - \bar{I}_j^R = \bar{P}_j^r(X_i^r\hat{\beta}^r) - \bar{P}_j^R(X_i^R\hat{\beta}^R) \qquad \text{for } j = 0,1,2,\ldots J; \qquad (2)$$

where $\bar{I}_j^r = \frac{1}{n^r}\sum_i P_j^r(X_i^r\hat{\beta}^r) = \bar{P}_j^r(X_i^r\hat{\beta}^r)$; $\bar{I}_j^R = \frac{1}{n^R}\sum_i P_j^R(X_i^R\hat{\beta}^R) = \bar{P}_j^R(X_i^R\hat{\beta}^R)$.

$P_j^r(.)$ is the predicted probability that individual *i* in region *r* occupies state *j*, based on the estimated coefficients from equation (1). $\overline{P}_j^r(.)$ is an average of $P_j^r(.)$ across the regional sample (n^r), and is shown to be equivalent to the incidence of state *j* in region *r* ($\bar{I}_j^r$). The incidence of state *j* in the rest of Britain is similarly defined.

Differences in the incidence of state *j* can also be shown to be equivalent to:

$$\bar{I}_j^r - \bar{I}_j^R = \begin{pmatrix} [\overline{P}_j^r(X_i^r\hat{\beta}^*) - \overline{P}_j^R(X_i^R\hat{\beta}^*)] + \\ \{[\overline{P}_j^r(X_i^r\hat{\beta}^r) - \overline{P}_j^r(X_i^r\hat{\beta}^*)] + [\overline{P}_j^R(X_i^R\hat{\beta}^*) - \overline{P}_j^R(X_i^R\hat{\beta}^R)]\} \end{pmatrix} \quad (3)$$

for $j = 0,1,2,\ldots J$;

where $\hat{\beta}^*$ refers to the estimated coefficients for a pooled sample ($n^r + n^R$). These baseline coefficients are taken to represent the hypothetical case in which the structure governing the labour markets in region *r* and the rest of Britain are identical (O'Leary *et al.*, 2005). Using the pooled model for Britain as the baseline structure also ensures that the point of reference for each regional decomposition is the same.

The first term in braces, $\overline{P}_j^r(X_i^r\hat{\beta}^*) - \overline{P}_j^R(X_i^R\hat{\beta}^*)$, gives the difference in the incidence of labour market state *j* that can be attributed to differences in the mean values of the explanatory variables. This component captures variation in labour market outcomes that can be explained by observable differences in composition.

The remainder of the difference, is due to differences in the coefficients. This reflects variation in the propensity of observably identical individuals to choose state *j* in region *r*. Elsewhere this has been taken to represent differences in the 'underlying structure' governing the labour market in region *r*, compared to the rest of Britain (O'Leary *et al.*, 2005). We are cautious in attaching the 'structural' tag to this component. Although the Oaxaca-style decomposition is well established there are limitations with this method. Most importantly, the structural component remains a black box. We rely on the assumption that the covariate set is sufficient to capture the demographic differences between spatial areas. However, we cannot rule out the possibility of omitted variable bias, such that the demographic component could be underestimated by the exclusion of additional variables. Strictly speaking, we should treat the observable component as an upper bound on the effect of characteristic composition. The LFS does provide us with a reasonably comprehensive covariate set, covering key personal characteristics found elsewhere in the decomposition literature. Nevertheless the non-demographic component is appropriately described as residual or unobservable.

In addition to the decomposition, we follow Even and Macpherson's (1993) method to estimate the contribution made by changes in the mean value of each explanatory variable, thus unpacking the compositional component. The contribution made by the k^{th} characteristic is given by:

$$C_{jk} = [\overline{P}_j^{\,r}(X_i^{\,r}\hat{\beta}^*) - \overline{P}_j^{\,N_r}(X_i^{\,R}\hat{\beta}^*)]\left[\frac{(\overline{X}_k^{\,r} - \overline{X}_k^{\,R})\hat{\beta}_{jk}^*}{(\overline{X}^{\,r} - \overline{X}^{\,R})\hat{\beta}_j^*}\right] \quad \text{for } j=0,1,2,\ldots J \qquad (4)$$

where $\bar{X}^r$ denotes a vector of mean values of the covariates for the sample in region *r*, and $\bar{X}_k^r$ gives the mean for the k^{th} variable. $\bar{X}^R$ and $\bar{X}_k^R$ are similarly defined for the rest of Britain. Estimates of C_{jk} are only reported for the employment state (j = 0), which summarises the total contribution of each variable across all three non-employment states (j = 1,2,3).

V RESULTS

The determinants of individual non-employment risk

Table 4 reports the estimated coefficients, based on the multinomial model in equation (1). These coefficients are based on the pooled British sample, and correspond to the baseline structure ($\hat{\beta}^*$) used in the decomposition for each NUTS2 area. The model was re-run on 36 sub-samples for each NUTS2 area (n^r), in order to produce estimates of $\hat{\beta}^r$, and 36 sub-samples referring to the rest of Britain (to estimate $\hat{\beta}^R$). The coefficients on these sub-samples are not reported for reasons of space. The coefficients for the rest of Britain are insensitive to changes in the sample, as each NUTS2 area is excluded. Marginal effects are reported in Table 4, evaluated at the mean values of the explanatory variables.[viii]

TABLE 4

The estimated coefficients on the risk of unemployment (j = 1) are all reasonable and in line with the received literature (see, for example, Pissarides and Wadsworth, 1992; Fieldhouse, 1996; and Brown and Sessions, 1997). For males, the risk of

unemployment exhibits a U-shaped relationship with age, such that younger and older workers are at greatest risk. For females, the risk of unemployment is insignificantly different between prime age (35 to 49) and older workers (over 50). The probability of being inactive (j = 2, 3) increases monotonically with age. For example, males (females) aged over 50 are 3.6 (2.8) percentage points more likely to be recorded sick/disabled (j = 2) than equivalent individuals aged 35 to 49. This may be because of an increasing likelihood of developing health problems in older age, but could reflect a greater discouraged worker effect among older non-employed workers, if Incapacity Benefits are used as a stopgap prior to retirement.

The risk of belonging to each non-employment state (j = 1,2,3) is higher for those with low or no qualifications and for social housing tenants. In the case of recorded sickness, this could reflect a correlation between low income and ill health. Alternatively, less qualified individuals, with poorer employment prospects may be more likely to drop out of the labour market, some onto Incapacity Benefits. The risk of non-employment is also higher for non-white workers. Being born outside of the UK is correlated with a higher risk of female inactivity for other reasons (j = 3), but is associated with a slight reduction in the probability of being recorded sick (j = 2) for both males and females. Marriage and dependent children are negatively correlated with the risk of recorded sickness/disability, for both males and females. In the male case, this is reflected in a higher probability of being employed, and may point to a pro-supply effect associated with familial responsibility. For females, on the other hand, the lower probability of sickness is mirrored by the greater likelihood of being out of the labour force for 'other' reasons (i.e. to look after the family and home).

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Decomposition analysis

The results of the decomposition for each NUTS2 area are reported in the Tables 5 and 6, for males and females respectively. Estimates of the structural and compositional effects are given in terms of percentage points, the sum of which is the raw differential in the incidence of state *j*. To illustrate, consider the results in the first row of Table 5, relating to the male decomposition for Tees Valley and Durham. The raw differential in the male rate of employment between this area and the rest of Britain is –9.0 percentage points. According to our decomposition, -1.6 percentage points is accounted for by differences in the sample means across the vector of explanatory variables (the 'compositional' component). The remaining -7.5 percentage points of the differential are therefore attributed to differences in the coefficients; that is, unobservable differences between Tees Valley and Durham and the rest of Britain. The rate of long-term sickness or disability ($j = 2$) is 5.4 percentage points higher in this area, the majority of which remains unexplained (4.3 percentage points). Similar results are reported for females in Table 6. One might infer that poorer demographic characteristics help to explain labour market outcomes in Tees Valley and Durham, but other factors predominate.

TABLE 5 AND 6

Although we will return to some of the more striking results for specific areas, we first provide a summary analysis of all 36 decompositions. In Table 7, we report the standard deviations and the minimum and maximum values for each component of the decompositions. Table 7 suggests that, across all 36 decompositions, we can explain approximately half of the variation in NUTS2 unemployment rates by differences in

the characteristics of the population. In contrast, the compositional component accounts for just less than one third of the dispersion of recorded sickness. Observable characteristics are more prevalent in accounting for spatial variation in female employment than male employment, primarily because there is greater variation in the compositional component of the 'other inactive' sub-state. This is because observable characteristics - such as marital status, dependent children and educational attainment - are more likely to determine withdrawal from the labour market to look after the family or home. In the far right-hand column in Table 7, we report the standard deviations from the decomposition analysis using the cross-sectional sample, where only the first observation for each individual is included. This confirms that the summary result across all 36 decompositions is almost identical for the pooled and cross-sectional samples.

TABLE 7

Figures 3 and 4 illustrate the relative weight of the compositional and residual components of the employment and recorded sickness differentials by representing these two components on the x-axes and y-axes respectively. Figure 3 exposes one distinct outlier - namely Inner London – where the compositional component is large. This case is discussed further below. We take some comfort in this result because it suggests that our model is capable of capturing a strong compositional component, at least where one exists. If one of the key limitations of the methodology is that the interpretation of the decomposition is tempered by the potential for omitted variable biases, this outlier suggests that our observables do a reasonably good job of controlling for key demographics.

FIGURES 3 AND 4

It is also important to note that most NUTS2 areas are located in either the top right, or bottom left quadrants in Figures 3 and 4, implying that areas with (un)favourable structural factors also have (un)favourable compositional effects. One explanation could relate to the adjustment process following job losses. Low employment areas are subject to selective out-migration, such that workers with more favourable personal characteristics (e.g. highly educated workers) are more likely gravitate away from under-performing labour markets. Differences in population structure could therefore emerge, partly as a consequence of local labour market performance. Whilst we consider the decomposition to be an informative technique, it is beyond the scope of this type of analysis to add to our understanding of the dynamics of the relationship between regional structure and demographic changes.

Figure 4 shows that, across Britain as a whole, spatial imbalances in recorded sickness cannot simply be explained by spatial concentrations of poorly performing demographic groups - a structural explanation may be pertinent. The argument put forward in the literature (e.g. Beatty and Fothergill, 2005), that high rates of sickness are largely a consequence industrial restructuring, fits not only with the geography of male sickness, but also the strength of the residual component in explaining these regional differences. In this respect, it is interesting to compare this residual components, with Beatty *et al.*'s (2007) estimates the spatial pattern of the 'real level unemployment'. They estimate the extent to which the JSA claimant count understates additional ILO unemployment and hidden unemployment on IB. The

mapping of hidden unemployment in their paper is in keeping with the pattern of the residual components in the decomposition, with the highest rates of hidden unemployment amongst IB claims being found in the Welsh Valleys, Clydeside, Merseyside and the industrial North East. Whereas the present paper controls for demographic composition, Beatty *et al*. (2007) control for the level of IB considered plausible in each district, benchmarked against districts that are close to full employment, and also accounting for differences in underlying health between these districts. When evidence from these two analytical approaches is taken together, this might suggest that the high rates of recorded sickness in these areas predominantly reflect a higher incidence of hidden unemployment, which cannot be attributed to demographic composition.

Unobservable variation in female sickness is less easily explained by the diversion of ex-industrial workers onto IB, given that job losses in the heavy industries fell predominantly on males. However, save for a few occupations, both male and female workers compete for the same jobs, and an increase in the stock of non-employed men implies that females also face tighter local labour markets. Male and female labour markets may have become less segmented with the rising concentration of employment in the service sector, and the declining share in manufacturing and skilled, manual employment. Some descriptive evidence in support of this view is provided by significant correlation coefficients between the rate of *female* sickness and the rates of *male* unemployment and inactivity. For instance, the correlation coefficient between female recorded sickness and male unemployment is 0.5 in our data.

The strength of the structural component also sits comfortably with the view that recorded sickness is highest in regions with the greatest demand deficiency. Turok and Edge (1999) reported that the 'jobs gap' was greatest in Merseyside, Manchester and Clydeside, which may underpin the unobservable components of sickness in these areas. In contrast, some areas of the North of England, Scotland and Wales fair well compared with the rest of Britain. For example, although West Wales and the Valleys suffer from the highest rate of sickness in Britain (due to unobservable factors), the sickness rate in East Wales is below the British average (due to a favourable demographic composition). Whereas West Wales provide a classic example of a region that suffered disproportionately from job losses during the 1980s and 1990s, due to a greater reliance on heavy industry, Turok and Edge (1999) found that Cardiff experienced the steadiest economic growth relative to most other British cities. This also demonstrates the advantage of an analysis at the NUTS2 level, compared to the standard regional level where Wales is treated as a single region.

As illustrated in Figure 3, the demographic component is strongest in Inner London, accounting for a 6.4 percentage point reduction in the rate of employment for males, and 10.4 percentage point reduction for females (Tables 5 and 6). This broadly supports the decompositions performed on London's employment rate reported elsewhere in the literature (e.g. Prime Minister's Strategy Unit, 2004; Meadows, 2006; and HM Treasury, 2006). Indeed, for males in Inner London, the 'London effect' may well be positive, given that the results suggest that the employment rate in Inner London would be 1.07 percentage points *higher* than the rest of Britain, if the observable characteristics were equivalent in both areas. In contrast to previous decomposition analyses of the capital, we specifically investigate the rate of recorded

sickness and disability (*j*=2) amongst the working age population. Although the rate of sickness in Inner London is roughly average for Britain, this masks that the predicted rate of sickness, on the basis observable demographic differences, is in excess of the rest of Britain by 2.1 percentage points for males and 1.5 for females. It is to these demographic influences to which our attention now turns.

Unpacking the compositional component

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The contribution of each explanatory variable to the compositional component is reported in Table 8, based on estimates of equation (4). These are reported for the four NUTS2 areas where the compositional component has the strongest negative effect on the rate of employment - i.e. areas with the poorest demographic profile.

TABLES 8

The proportion of non-white male workers in Inner London is 25.8 percent higher than the rest of Britain, and this alone is estimated to account for 1.8 percentage points of the male employment differential. Similarly, the proportion of non-white females in the sample is 31.8 percent higher in Inner London accounting for a reduction in the rate of employment by 3.5 percentage points. Note that the proportion of workers born outside of the UK is also much higher in Inner London, and accounts for 1.6 percentage points of the lower rate of female employment, but the effect on male employment rate is negligible.

A higher percentage of non-whites in the West Midlands (by 11.4 percent for males and 11.8 percent for females) also accounts for a significant part of the low

employment rate in this area - a reduction in the rate of employment of 0.8 percentage points for males and 1.2 percentage points for females. With the exception of Inner London, the areas reported in Table 8 all have poor educational attainment relative to the national average.

Social housing emerges as a key compositional factor in Table 8. For example, the proportion of male tenants in council or other association housing is 17.4 percentage points higher in Inner London, and 6.3 percentage points higher in Northumberland and Tyne and Wear, accounting respectively for an additional 3.1 and 1.1 percentage points on the male non-employment rate.

The housing system segregates the most disadvantaged members of society into small pockets (Lee, 1994). Although our other variables control for differences in these disadvantageous characteristics, a high proportion of residents in social housing may therefore capture additional effects arising from social dislocation in Britain's inner cities and deprived estates.

The nature of the housing benefit system may play a role. Housing benefit and council tax benefit is based on earnings and household circumstances, such that the amount received is significantly lower when individuals move into (even low-wage) employment. HM Treasury (2006) has noted that national policies, intended to raise the financial gain to work, may have been less effective in London because housing costs and the costs of working are higher. Hills (2007) report that the rationing system for social housing 'screens in' those with greatest need and, moreover, those in social housing suffer an additional employment disadvantage, over and above what might be

expected given their other characteristics. Amongst other explanations put forward by Hills (2007), he highlights (1) the disincentive to work resulting from subsidised rents; (2) residential immobility; and (3) local 'neighbourhood effects' such as amenities, transport infrastructure and peer effects. However, it is not possible in our regression to identify the causality of the relationship. This makes it difficult to interpret the reasons why the proportion of working-age population in social housing is important, beyond suggesting that it is a carrier of some additional labour market vulnerability.

VI DISCUSSION AND POLICY IMPLICATIONS

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The aim of the empirical analysis is to assess the extent to which the current policy approach is likely to be effective in tackling the substantial geographical imbalances in both recorded and 'hidden' unemployment. The limitations of our analysis – particularly that the unobservable component of spatial dispersion in labour market outcomes remains a black box – mean that the potential policy implications are discussed tentatively.

In delivering 'full employment in every region', the Government has explicitly stated that, "a lack of jobs is not the problem" (p.22; HM Treasury and Department of Work and Pensions, 2003). The rationale underpinning this statement is the notion that promoting greater labour demand is fruitless, if local residents are unable to successfully compete for new vacancies. In London, where the demographic component of our decomposition is strong, this may well be the case. HM Treasury (2006) have expressed the view that, although London has a high ratio of jobs to

residents, the economic benefits of the capital's resurgence may not have been shared evenly by some groups of the resident population. London excels in high-value added, largely service sector activities, but there is a mismatch between the demand for high-skilled workers and the skills possessed by inner-city residents.

The decomposition of London's employment rate is treated in greater detail elsewhere (*London Project Report*, 2004; Meadows, 2006; and HMT, 2006), whereas the main contribution of the present analysis is in decomposing the pattern of long-term sickness and disability across British sub-regions. The decompositions identified that demographic differences accounted for only a small fraction of spatial variation in recorded sickness. The strength of the residual component may point to either a shortfall or mismatch between demand and supply as the root cause of uneven spatial patterns in recorded sickness.

This view finds some support in more descriptive survey evidence. Goldstone and Douglas (2003), for instance, reported that 63 per cent of the IB claimants who were interviewed in their study stated that an insufficient number of suitable local job opportunities were a barrier to gaining employment. This figure outweighed the number who stated that their main barrier was that they would not be able to work regularly (50 per cent of the sample).

A lack of suitable employment opportunities in under-performing areas could therefore inhibit the success of the Government's supply-side initiatives. This being the case, increasing labour supply among individuals with health problems may only serve to shift the balance back from Incapacity Benefit to Jobseekers Allowance,

rather than increasing the rate of employment. The effect could be a re-emergence of regional unemployment differentials or, more accurately, these differentials would become more overt and less 'hidden'. Given the ambitious aspiration to reduce the Incapacity Benefit caseload by one million by 2016, perhaps greater consideration should be paid to the constraints imposed on this target by the concentration of recorded sickness in less buoyant labour markets.

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Table 1 Labour market outcomes by region and NUTS2 area, March 2003 to Feb 05

	% Employment		% Unemployment		% Sick/Disabled		% Other Inactiv	
	Male	Female	Male	Female	Male	Female	Male	Female
Great Britain	83.3	74.7	4.4	3.2	6.5	5.6	5.8	16.5
σ (Regions)	3.2	2.9	1.0	0.7	2.3	1.7	0.5	2.2
(σ / mean x 100) (Regions)	0.04	0.04	0.23	0.20	0.35	0.31	0.09	0.13
Min (Regions)	77.4	68.7	3.0	2.2	3.7	3.4	5.2	12.9
Max (Regions)	87.7	78.5	6.4	4.8	10.6	8.9	7.1	21.9
σ (NUTS2)	4.1	3.7	1.3	0.8	2.7	1.9	0.8	2.5
(σ / mean x 100) (NUTS2)	0.05	0.05	0.30	0.23	0.42	0.34	0.14	0.15
Min (NUTS2)	74.5	64.0	1.6	1.7	2.8	2.6	3.8	11.9
Max (NUTS2)	89.8	80.7	8.4	5.8	13.4	9.8	7.7	25.0
Northern (Region)	77.4	71.4	5.3	3.4	10.6	8.9	6.7	16.4
Yorkshire & Humberside	82.3	74.5	4.3	3.1	7.3	5.5	6.1	16.8
East Midlands	83.6	75.1	4.0	3.1	6.7	5.6	5.8	16.2
East Anglia	86.2	77.4	3.5	2.6	4.5	4.2	5.8	15.8
London	81.8	68.7	6.4	4.8	5.7	4.6	6.1	21.9
South East	87.7	77.5	3.4	2.9	3.7	3.4	5.2	16.3
South West	86.2	78.5	3.0	2.2	5.1	4.6	5.7	14.7
West Midlands	82.8	73.3	4.8	3.5	6.3	6.0	6.1	17.1
North West	80.7	73.9	4.2	3.0	9.0	7.1	6.2	16.0
Wales	78.3	73.1	4.1	3.0	10.5	7.9	7.1	16.0
Scotland	81.4	76.0	5.5	3.5	7.8	7.6	5.3	12.9
Tees Val'y & Durham (NUTS2)	74.5	68.4	6.1	3.3	11.8	9.8	7.7	18.6
Northumb'd & Tyne & Wear	77.3	71.7	5.1	3.4	11.3	8.9	6.3	16.0
Cumbria	84.5	77.3	3.9	3.7	6.1	6.6	5.5	12.4
Cheshire	83.0	78.4	3.6	1.9	7.5	5.7	5.9	14.1
Greater Manchester	80.7	73.3	4.0	3.3	9.1	7.6	6.2	15.8
Lancashire	82.5	75.4	3.9	3.1	7.3	6.0	6.4	15.5
Merseyside	77.1	70.1	5.3	3.3	11.7	8.4	6.0	18.2
East Riding & North Lincs.	82.0	73.1	5.6	3.7	5.4	4.8	7.0	18.3
North Yorkshire	87.4	80.4	1.6	2.7	5.4	3.3	5.6	13.7
South Yorkshire	79.7	72.0	4.5	3.3	9.6	7.5	6.2	17.3
West Yorkshire	82.3	74.7	4.6	2.9	7.2	5.4	5.8	17.0
Derbyshire & Notts.	81.3	73.8	3.9	3.3	8.2	6.3	6.6	16.6
Leics., Rutland & Northants	86.6	77.6	4.0	2.6	4.5	4.5	5.0	15.4
Lincolnshire	84.0	73.7	3.9	3.4	6.9	5.9	5.3	17.0
Heref'd, Worcs & Warwicks	86.5	77.7	3.0	2.2	4.4	5.6	6.1	14.5
Shropshire & Staffordshire	85.2	74.6	3.4	2.9	6.0	6.1	5.4	16.4
West Midlands	79.2	70.4	6.7	4.6	7.6	6.2	6.5	18.9
East Anglia	86.2	77.4	3.5	2.6	4.5	4.2	5.8	15.8
Bedfordshire & Herts	89.6	78.8	3.2	2.9	2.8	2.9	4.4	15.4
Essex	85.5	75.8	3.5	2.9	4.7	3.3	6.3	18.1
Inner London	78.2	64.0	8.4	5.8	6.8	5.2	6.7	25.0
Outer London	83.9	71.5	5.2	4.2	5.1	4.3	5.7	20.1
Berks, Bucks & Oxfords	89.8	78.8	3.2	3.2	2.8	2.6	4.2	15.4
Surrey, East & West Sussex	87.6	78.0	3.3	2.8	3.7	3.6	5.5	15.6
Hampshire & Isle of Wight	88.1	78.7	3.1	2.4	3.5	3.9	5.3	15.0
Kent	84.4	73.6	4.4	3.0	5.4	4.0	5.8	19.4
Glouc, Wilt & Nth Somerset	87.7	79.1	3.0	2.4	4.2	4.4	5.2	14.1
Dorset & Somerset	87.3	80.5	2.6	1.7	4.3	3.8	5.8	14.0
Cornwall & Isles of Scilly	85.0	73.6	4.1	2.2	5.5	6.8	5.4	17.5
Devon	82.1	77.1	3.0	2.4	8.0	5.0	6.9	15.6
West Wales & The Valleys	75.0	70.8	4.4	3.2	13.4	9.5	7.3	16.5
East Wales	84.1	77.0	3.6	2.7	5.6	5.2	6.7	15.1
North Eastern Scotland	87.2	76.8	4.7	3.1	4.4	6.0	3.8	14.2
Eastern Scotland	83.7	77.8	4.8	3.5	6.5	6.8	5.0	11.9
South Western Scotland	76.6	73.3	6.7	3.7	10.7	9.3	6.1	13.7
Highlands & Islands	87.4	80.7	4.0	3.1	3.9	4.4	4.8	11.9

Figure 1 Unemployment and sickness rates, NUTS2 areas

Table 2 Detailed breakdown of 'Other Inactive' state (j=3) by self-reported reason for inactivity. Britain, March 2003 to February 2005

	Male	Female
Seeking, unavailable		
Looking after family, home	0.4%	1.2%
Temporarily sick or injured	0.6%	0.1%
Other reason	2.4%	0.8%
No reason given	0.5%	0.2%
Not seeking, would like to work		
Waiting for the results of job app.	0.3%	0.1%
Looking after family, home	6.5%	16.3%
Temporarily sick or injured	4.4%	1.6%
Believes no job available	1.9%	0.4%
Not started looking	3.6%	1.8%
Not looked	8.0%	3.4%
No reason	0.1%	0.0%
Not seeking, would not like to work		
Waiting for the results of job app.	0.2%	0.1%
Looking after family, home	10.9%	55.6%
Temporarily sick or injured	3.0%	1.6%
Not need or want job	5.1%	3.8%
Early retirement	41.1%	6.9%
Other reason	7.7%	4.8%
No reason given	3.4%	1.3%

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Table 3 Variable means by labour market status, March 2003 to February 2005

	Employment (*j*=0)		Unemployment (*j*=1)		Sick/Disabled (*j*=2)		Other Inactive (*j*=3)		Total	
%	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Age 16-24	13.1	14.4	39.7	39.5	3.7	4.0	9.8	11.4	13.5	14.1
Age 25-34	20.8	22.3	19.3	21.2	8.8	9.4	9.9	26.9	19.3	22.3
Age 35-49	39.1	41.9	23.2	27.9	26.2	36.2	17.1	36.7	36.2	40.2
Age 50-59/64	27.0	21.5	17.8	11.4	61.3	50.4	63.2	25.0	31.1	23.4
Born outside UK	8.8	8.8	13.0	14.3	8.8	9.0	11.2	17.3	9.1	10.4
Non-white	6.6	6.1	14.9	15.8	6.8	7.3	8.5	14.5	7.1	7.9
Degree level	20.2	18.7	11.0	11.2	3.9	4.1	15.8	8.5	18.5	16.0
Higher educ.	8.7	11.6	4.7	6.1	3.4	6.1	8.6	5.6	8.1	10.2
A-level or equiv	30.5	18.5	21.7	16.8	24.3	8.9	24.0	12.3	29.4	16.9
GCE or equiv	17.7	27.3	23.4	31.1	10.0	17.9	14.7	26.5	17.3	26.8
Other qual.	12.8	12.7	17.0	16.6	14.9	14.5	13.0	17.7	13.1	13.7
No quals.	10.1	11.2	22.1	18.2	43.6	48.6	23.9	29.4	13.6	16.5
Single	32.3	30.4	64.7	58.3	28.6	22.0	27.8	24.6	33.2	29.9
Married	58.3	54.3	24.7	26.8	49.4	46.7	58.7	61.0	56.3	54.1
Separated	9.5	15.3	10.6	14.9	22.0	31.3	13.5	14.3	10.6	16.0
Depend. Child	35.8	38.0	19.2	37.2	17.2	23.3	18.4	65.5	32.8	41.7
Own outright	19.1	18.4	15.8	12.6	24.8	19.8	46.9	20.2	21.0	18.6
Own with mortgage	62.7	62.6	34.8	35.8	21.9	28.3	22.9	37.6	56.5	55.7
Private rent	9.6	9.0	14.8	16.2	8.1	7.4	7.7	11.1	9.6	9.5
Council/other assoc.	8.6	10.0	34.7	35.4	45.2	44.5	22.5	31.2	12.9	16.2
Spring	14.1	14.2	13.5	13.8	14.3	14.4	14.0	13.9	14.1	14.1
Summer	28.5	28.4	30.2	29.6	28.5	28.7	29.0	29.5	28.6	28.7
Autumn	28.8	28.7	28.2	29.5	28.9	28.7	28.4	28.5	28.7	28.7
Winter	28.6	28.7	28.0	27.1	28.2	28.2	28.6	28.1	28.5	28.5
2003	43.5	43.4	45.0	44.3	43.3	43.1	43.4	44.2	43.5	43.5
2004	56.5	56.6	55.0	55.7	56.7	56.9	56.6	55.8	56.5	56.5

Table 4 Multinomial logit estimates, Britain

Panel A: Male

	Employment (j = 0)		Unemployment (j = 1)			Sick/Disabled (j = 2)			Other Inactive (j = 3)		
	ME	P val	Coeff	ME	P val	Coeff	ME	P val	Coeff	ME	P val
Age 16-24	0.005	0.025	0.974	0.031	0.000	-1.442	-0.045	0.000	0.220	0.009	0.000
Age 25-34	0.012	0.000	0.144	0.005	0.000	-0.572	-0.017	0.000	-0.009	0.000	0.883
Age 50-spa	-0.100	0.000	0.344	0.007	0.000	1.254	0.036	0.000	1.560	0.057	0.000
Born outside UK	-0.005	0.048	0.063	0.002	0.135	-0.179	-0.006	0.000	0.222	0.009	0.000
Non-white	-0.042	0.000	0.724	0.021	0.000	0.335	0.009	0.000	0.345	0.012	0.000
Degree level	0.110	0.000	-0.829	-0.022	0.000	-2.322	-0.069	0.000	-0.604	-0.019	0.000
Higher educ.	0.085	0.000	-0.770	-0.021	0.000	-1.714	-0.051	0.000	-0.435	-0.013	0.000
A-level or equiv	0.082	0.000	-0.767	-0.021	0.000	-1.182	-0.034	0.000	-0.763	-0.027	0.000
GCE or equiv	0.065	0.000	-0.482	-0.013	0.000	-1.258	-0.037	0.000	-0.444	-0.015	0.000
Other qual.	0.062	0.000	-0.433	-0.011	0.000	-1.007	-0.029	0.000	-0.605	-0.021	0.000
Married	0.055	0.000	-0.944	-0.028	0.000	-0.578	-0.016	0.000	-0.344	-0.011	0.000
Separated	0.014	0.000	-0.231	-0.007	0.000	-0.098	-0.003	0.004	-0.144	-0.005	0.000
Depend. Child	0.018	0.000	-0.111	-0.003	0.002	-0.400	-0.012	0.000	-0.095	-0.003	0.002
Own with mortgage	0.081	0.000	-0.349	-0.008	0.000	-0.724	-0.020	0.000	-1.437	-0.053	0.000
Private rent	0.008	0.000	0.285	0.009	0.000	0.216	0.007	0.000	-0.614	-0.024	0.000
Council/other assoc.	-0.091	0.000	1.181	0.034	0.000	1.542	0.045	0.000	0.406	0.012	0.000
Autumn	0.003	0.070	-0.064	-0.002	0.019	0.009	0.000	0.604	-0.031	-0.001	0.220
Winter	0.003	0.057	-0.067	-0.002	0.015	-0.010	0.000	0.768	-0.018	-0.001	0.517
Spring	0.002	0.238	-0.050	-0.001	0.171	0.000	0.000	0.939	-0.024	-0.001	0.473
2004	0.002	0.074	-0.075	-0.002	0.001	0.005	0.000	0.678	-0.005	0.000	0.872
Constant	0.184	0.000	-2.398	-0.069	0.000	-1.531	-0.041	0.000	-2.060	-0.074	0.000

Panel B: Female

	Employment (j = 0)		Unemployment (j = 1)			Sick/Disabled (j = 2)			Other Inactive (j = 3)		
	ME	P val	Coeff	ME	P val	Coeff	ME	P val	Coeff	ME	P val
Age 16-24	-0.073	0.000	1.213	0.029	0.000	-1.392	-0.048	0.000	0.803	0.092	0.000
Age 25-34	-0.050	0.000	0.289	0.006	0.000	-0.519	-0.019	0.000	0.552	0.063	0.000
Age 50-spa	-0.151	0.000	0.203	0.000	0.680	1.034	0.028	0.000	1.131	0.122	0.000
Born outside UK	-0.032	0.000	0.152	0.003	0.006	-0.187	-0.007	0.000	0.320	0.036	0.000
Non-white	-0.081	0.000	0.790	0.018	0.000	0.410	0.010	0.000	0.513	0.053	0.000
Degree level	0.226	0.000	-0.716	-0.011	0.000	-2.130	-0.060	0.000	-1.469	-0.154	0.000
Higher educ.	0.217	0.000	-0.759	-0.013	0.000	-1.528	-0.041	0.000	-1.530	-0.163	0.000
A-level or equiv	0.173	0.000	-0.646	-0.011	0.000	-1.429	-0.040	0.000	-1.154	-0.122	0.000
GCE or equiv	0.136	0.000	-0.373	-0.005	0.000	-1.260	-0.036	0.000	-0.898	-0.095	0.000
Other qual.	0.105	0.000	-0.224	-0.002	0.017	-1.059	-0.030	0.000	-0.691	-0.073	0.000
Married	-0.013	0.000	-0.636	-0.017	0.000	-0.404	-0.014	0.000	0.355	0.044	0.000
Separated	0.021	0.000	-0.250	-0.006	0.000	-0.079	-0.002	0.072	-0.132	-0.014	0.000
Depend. Child	-0.175	0.000	0.377	0.004	0.000	-0.304	-0.017	0.000	1.664	0.187	0.000
Own with mortgage	0.100	0.000	-0.294	-0.004	0.000	-0.247	-0.004	0.000	-0.835	-0.092	0.000
Private rent	-0.018	0.000	0.439	0.011	0.000	0.482	0.015	0.000	-0.040	-0.008	0.003
Council/other assoc.	-0.121	0.000	1.027	0.023	0.000	1.615	0.048	0.000	0.539	0.050	0.000
Autumn	0.004	0.043	-0.001	0.000	0.885	-0.001	0.000	0.876	-0.039	-0.004	0.012
Winter	0.008	0.000	-0.086	-0.002	0.011	-0.023	0.000	0.564	-0.050	-0.005	0.003
Spring	0.008	0.004	-0.049	-0.001	0.305	-0.025	-0.001	0.614	-0.057	-0.006	0.008
2004	0.003	0.088	-0.036	-0.001	0.183	0.022	0.001	0.203	-0.026	-0.003	0.047
Constant	0.313	0.000	-3.127	-0.071	0.000	-1.755	-0.045	0.000	-1.906	-0.197	0.000

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Note: Coeff = raw coefficients. ME = Marginal effects. P_val = P value associated with the marginal effects. Male observations = 244687. Female observations = 248158. $j = 0$ is reference category.

Table 5 Decomposition of differentials in the rate of employment, unemployment, long-term sickness and other inactivity. Males

	Employment ($j = 0$)			Unemployment ($j = 1$)			LT Sick/Disabled ($j = 2$)			Other inactive ($j = 3$)		
	Diff	Comp	Unexp	Diff	Comp	Unexp	Diff	Comp	Unexp	Diff	Comp	Unexp
Tees Valley & Durham	-9.02	-1.56	-7.46	1.78	0.13	1.65	5.39	1.12	4.27	1.85	0.31	1.54
Northumb'd & Tyne & Wear	-6.20	-1.68	-4.53	0.76	0.31	0.46	4.97	1.26	3.70	0.47	0.11	0.36
Cumbria	1.21	0.36	0.85	-0.45	-0.45	0.00	-0.43	0.10	-0.54	-0.33	-0.01	-0.32
Cheshire	-0.32	1.22	-1.54	-0.77	-0.73	-0.04	1.00	-0.33	1.33	0.08	-0.16	0.25
Greater Manchester	-2.73	-1.09	-1.64	-0.33	0.14	-0.47	2.66	0.63	2.03	0.41	0.32	0.09
Lancashire	-0.87	1.29	-2.16	-0.47	-0.45	-0.01	0.77	-0.78	1.55	0.57	-0.05	0.62
Merseyside	-6.38	-2.52	-3.86	0.98	0.19	0.79	5.30	1.93	3.37	0.11	0.40	-0.30
East Riding & North Lincs.	-1.31	-0.37	-0.94	1.23	-0.11	1.34	-1.09	0.35	-1.43	1.16	0.13	1.03
North Yorkshire	4.13	1.90	2.23	-2.80	-1.05	-1.75	-1.10	-0.91	-0.19	-0.23	0.06	-0.29
South Yorkshire	-3.69	-0.81	-2.88	0.15	0.25	-0.09	3.20	0.60	2.60	0.33	-0.04	0.38
West Yorkshire	-1.00	-0.72	-0.28	0.27	0.30	-0.03	0.78	0.32	0.46	-0.04	0.11	-0.15
Derbyshire & Notts.	-2.08	-0.57	-1.51	-0.45	-0.33	-0.12	1.80	0.55	1.25	0.73	0.36	0.38
Leics., Rutland & Northants	3.37	0.61	2.76	-0.36	-0.19	-0.17	-2.10	-0.34	-1.76	-0.91	-0.08	-0.83
Lincolnshire	0.65	-0.04	0.69	-0.51	-0.54	0.03	0.41	0.26	0.15	-0.55	0.32	-0.87
Heref'd, Worcs & Warwicks	3.30	0.96	2.34	-1.41	-0.70	-0.71	-2.15	-0.40	-1.75	0.26	0.15	0.12
Shropshire & Staffordshire	1.96	0.13	1.83	-1.03	-0.43	-0.61	-0.50	0.19	-0.69	-0.43	0.10	-0.53
West Midlands	-4.29	-2.60	-1.69	2.47	1.14	1.33	1.10	1.00	0.10	0.71	0.46	0.26
East Anglia	3.03	0.64	2.40	-0.89	-0.32	-0.57	-2.08	-0.40	-1.69	-0.06	0.08	-0.14
Bedfordshire & Herts	6.50	1.57	4.93	-1.19	-0.26	-0.93	-3.85	-0.93	-2.91	-1.47	-0.38	-1.09
Essex	2.30	0.40	1.90	-0.86	-0.41	-0.44	-1.90	-0.01	-1.89	0.45	0.03	0.43
Inner London	-5.34	-6.41	1.07	4.17	3.40	0.77	0.31	2.10	-1.79	0.86	0.91	-0.05
Outer London	0.65	-0.06	0.70	0.93	0.73	0.19	-1.46	-0.77	-0.69	-0.11	0.09	-0.21
Berks, Bucks & Oxfords	6.79	2.55	4.24	-1.19	-0.46	-0.73	-3.86	-1.41	-2.45	-1.74	-0.68	-1.06
Surrey, East & West Sussex	4.50	2.01	2.49	-1.11	-0.56	-0.56	-2.97	-1.11	-1.86	-0.41	-0.34	-0.07
Hampshire & Isle of Wight	4.99	2.55	2.44	-1.28	-0.49	-0.79	-3.10	-1.43	-1.67	-0.61	-0.63	0.02
Kent	1.09	1.14	-0.05	0.07	-0.44	0.50	-1.14	-0.49	-0.65	-0.02	-0.22	0.20
Glouc, Wilt & Nth Somerset	4.57	2.05	2.52	-1.43	-0.48	-0.95	-2.43	-1.04	-1.38	-0.71	-0.53	-0.19
Dorset & Somerset	4.11	1.21	2.89	-1.81	-0.56	-1.25	-2.25	-0.56	-1.69	-0.04	-0.10	0.05
Cornwall & Isles of Scilly	1.75	1.18	0.56	-0.31	-0.49	0.18	-1.02	-0.83	-0.19	-0.41	0.13	-0.55
Devon	-1.21	1.10	-2.31	-1.37	-0.48	-0.90	1.48	-0.56	2.05	1.10	-0.06	1.16
West Wales & The Valleys	-8.61	-1.57	-7.04	0.04	-0.26	0.30	7.08	1.09	5.99	1.49	0.74	0.74
East Wales	0.85	0.83	0.02	-0.78	0.01	-0.79	-0.89	-0.63	-0.26	0.82	-0.22	1.04
North Eastern Scotland	3.92	0.69	3.23	0.30	-0.28	0.57	-2.13	-0.16	-1.97	-2.09	-0.25	-1.84
Eastern Scotland	0.43	0.18	0.25	0.47	-0.22	0.69	0.00	0.38	-0.38	-0.90	-0.34	-0.55
South Western Scotland	-7.02	-1.24	-5.77	2.42	0.14	2.28	4.36	1.45	2.90	0.24	-0.35	0.59
Highlands & Islands	4.12	1.28	2.84	-0.38	-0.36	-0.01	-2.65	-0.78	-1.87	-1.09	-0.14	-0.96

Note: Diff = Mean difference between region r and the rest of Britain. Comp = Compositional component of the decomposition. Unobs = Unexplained residual component of the decomposition.

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Table 6 Decomposition of differentials in the rate of employment, unemployment, long-term sickness and other inactivity. Females

	Employment ($j = 0$)			Unemployment ($j = 1$)			LT Sick/Disabled ($j = 2$)			Other inactive ($j = 3$)		
	Diff	Comp	Unexp	Diff	Comp	Unexp	Diff	Comp	Unexp	Diff	Comp	Unexp
Tees Valley & Durham	-6.43	-2.49	-3.94	0.03	0.11	-0.08	4.31	1.05	3.26	2.09	1.33	0.76
Northumb'd & Tyne & Wear	-3.08	-1.22	-1.86	0.15	0.21	-0.06	3.48	1.14	2.34	-0.56	-0.13	-0.43
Cumbria	2.63	2.12	0.51	0.44	-0.53	0.97	1.08	-0.15	1.22	-4.15	-1.44	-2.70
Cheshire	3.75	1.87	1.88	-1.34	-0.39	-0.95	0.10	-0.41	0.50	-2.51	-1.08	-1.43
Greater Manchester	-1.48	-1.70	0.22	0.06	0.19	-0.13	2.15	0.49	1.66	-0.73	1.02	-1.75
Lancashire	0.73	1.87	-1.14	-0.10	-0.38	0.29	0.46	-0.53	0.99	-1.09	-0.96	-0.13
Merseyside	-4.74	-1.48	-3.26	0.05	-0.02	0.06	2.95	0.97	1.98	1.74	0.53	1.22
East Riding & North Lincs.	-1.59	0.73	-2.31	0.49	-0.19	0.68	-0.73	-0.01	-0.71	1.82	-0.53	2.35
North Yorkshire	5.74	2.64	3.11	-0.52	-0.48	-0.03	-2.34	-0.67	-1.67	-2.89	-1.48	-1.40
South Yorkshire	-2.82	-1.12	-1.70	0.06	0.16	-0.10	2.00	0.47	1.53	0.75	0.49	0.27
West Yorkshire	-0.05	-0.90	0.85	-0.34	0.09	-0.43	-0.15	-0.13	-0.02	0.54	0.94	-0.40
Derbyshire & Notts.	-0.94	0.52	-1.46	0.09	-0.22	0.31	0.80	0.21	0.59	0.06	-0.50	0.56
Leics., Rutland & Northants	2.94	0.16	2.79	-0.65	-0.09	-0.56	-1.12	-0.44	-0.68	-1.17	0.37	-1.54
Lincolnshire	-1.03	1.48	-2.51	0.19	-0.36	0.56	0.34	-0.39	0.73	0.50	-0.73	1.23
Heref'd, Worcs & Warwicks	3.01	1.26	1.75	-1.07	-0.47	-0.60	0.08	-0.03	0.11	-2.02	-0.76	-1.26
Shropshire & Staffordshire	-0.11	1.29	-1.40	-0.31	-0.43	0.11	0.52	-0.22	0.74	-0.10	-0.64	0.54
West Midlands	-4.55	-4.34	-0.21	1.43	0.67	0.76	0.65	0.66	-0.01	2.48	3.01	-0.54
East Anglia	2.83	1.03	1.80	-0.64	-0.30	-0.34	-1.44	-0.15	-1.29	-0.75	-0.58	-0.17
Bedfordshire & Herts	4.19	2.09	2.10	-0.32	-0.21	-0.12	-2.74	-0.93	-1.81	-1.12	-0.95	-0.18
Essex	1.13	1.71	-0.59	-0.38	-0.42	0.04	-2.32	-0.27	-2.05	1.57	-1.02	2.60
Inner London	-11.15	-10.34	-0.82	2.70	2.40	0.30	-0.42	1.47	-1.89	8.87	6.46	2.40
Outer London	-3.43	-2.97	-0.45	1.03	0.60	0.44	-1.41	-0.42	-0.98	3.80	2.80	1.00
Berks, Bucks & Oxfords	4.30	2.35	1.95	-0.07	-0.12	0.05	-3.10	-0.84	-2.26	-1.13	-1.39	0.26
Surrey, East & West Sussex	3.45	3.58	-0.13	-0.45	-0.42	-0.03	-2.00	-1.14	-0.86	-1.00	-2.01	1.02
Hampshire & Isle of Wight	4.11	2.59	1.52	-0.83	-0.36	-0.47	-1.74	-0.50	-1.24	-1.54	-1.73	0.18
Kent	-1.18	1.05	-2.22	-0.21	-0.41	0.20	-1.57	-0.23	-1.34	2.95	-0.41	3.36
Glouc, Wilt & Nth Somerset	4.63	2.53	2.09	-0.87	-0.22	-0.65	-1.22	-0.56	-0.67	-2.53	-1.76	-0.77
Dorset & Somerset	5.89	2.70	3.18	-1.60	-0.43	-1.17	-1.75	-0.54	-1.22	-2.53	-1.74	-0.79
Cornwall & Isles of Scilly	-1.15	2.05	-3.20	-1.08	-0.42	-0.66	1.29	-0.61	1.89	0.95	-1.02	1.97
Devon	2.39	2.22	0.17	-0.81	-0.39	-0.43	-0.60	-0.55	-0.05	-0.97	-1.28	0.30
West Wales & The Valleys	-4.05	-1.00	-3.05	-0.02	-0.11	0.09	4.11	0.19	3.92	-0.04	0.92	-0.96
East Wales	2.38	1.78	0.60	-0.51	-0.15	-0.36	-0.41	-0.42	0.01	-1.46	-1.21	-0.25
North Eastern Scotland	2.08	2.73	-0.65	-0.13	-0.39	0.26	0.41	-0.08	0.49	-2.36	-2.25	-0.11
Eastern Scotland	3.23	2.23	1.00	0.27	-0.17	0.44	1.25	0.28	0.97	-4.75	-2.35	-2.41
South Western Scotland	-1.44	-1.02	-0.41	0.53	0.01	0.52	3.87	1.77	2.10	-2.97	-0.75	-2.21
Highlands & Islands	6.00	0.02	5.98	-0.14	-0.43	0.29	-1.22	0.76	-1.98	-4.64	-0.35	-4.29

Note: Diff = Mean difference between region r and the rest of Britain. Comp = Compositional component of the decomposition. Unobs = Unexplained residual component of the decomposition.

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Table 7 Standard deviation in structural and composition components in decompositions across NUTS2 areas

		σ	σ / (Mean x 100)	Min	Max	σ (c-s data)
Male						
Employment	Composition	1.7	0.02	-6.4	2.6	1.7
	Unexplained	3	0.04	-7.5	4.9	3.0
Unemployment	Composition	0.7	0.16	-1.1	3.4	0.7
	Unexplained	0.8	0.18	-1.8	2.3	0.9
LT Sick & Disabled	Composition	0.9	0.14	-1.4	2.1	0.9
	Unexplained	2.1	0.32	-2.9	6	2.0
Inactivity (exc. sick)	Composition	0.3	0.05	-0.7	0.9	0.4
	Unexplained	0.7	0.12	-1.8	1.5	0.7
Female						
Employment	Composition	2.6	0.03	-10.3	3.6	2.6
	Unexplained	2.2	0.03	-3.9	6	2.1
Unemployment	Composition	0.5	0.15	-0.5	2.4	0.5
	Unexplained	0.5	0.15	-1.2	1	0.5
LT Sick & Disabled	Composition	0.7	0.13	-1.1	1.8	0.7
	Unexplained	1.6	0.29	-2.3	3.9	1.5
Inactivity (exc. sick)	Composition	1.7	0.1	-2.3	6.5	1.8
	Unexplained	1.6	0.1	-4.3	3.4	1.6

Note: Figures show the standard deviation, minimum and maximum values for the unobservable and composition components, based on all 36 decompositions at the NUTS2 level.

'σ (c-s data)' refers to the standard deviation from the decompositions using purely cross-sectional data, and is shown for comparison. It is based on the first observation in the survey for each individual. See Appendix for details of the cross-sectional decomposition results on each NUTS2 area.

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Figure 2 Decomposition of ILO employment ($j = 1$) differentials

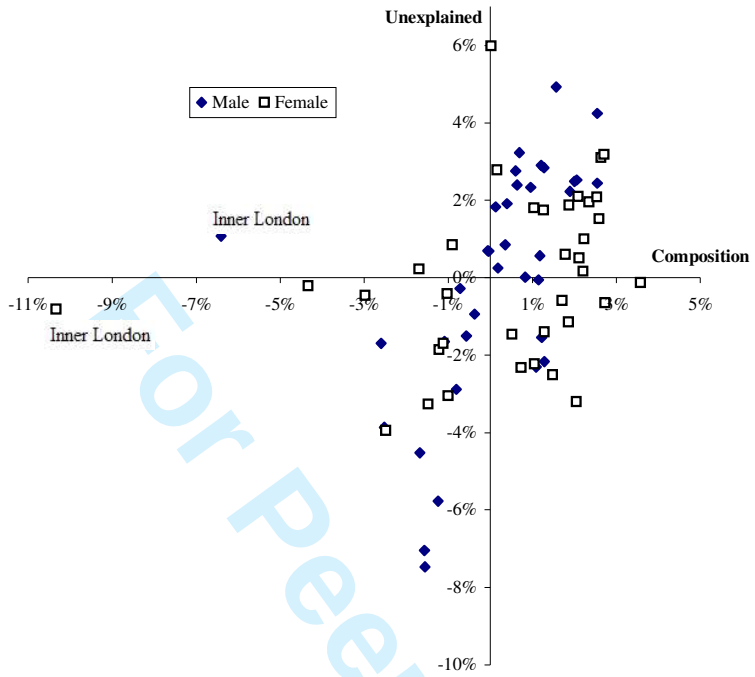

Figure 3 Decomposition of long-term sickness and disability ($j = 2$) differentials

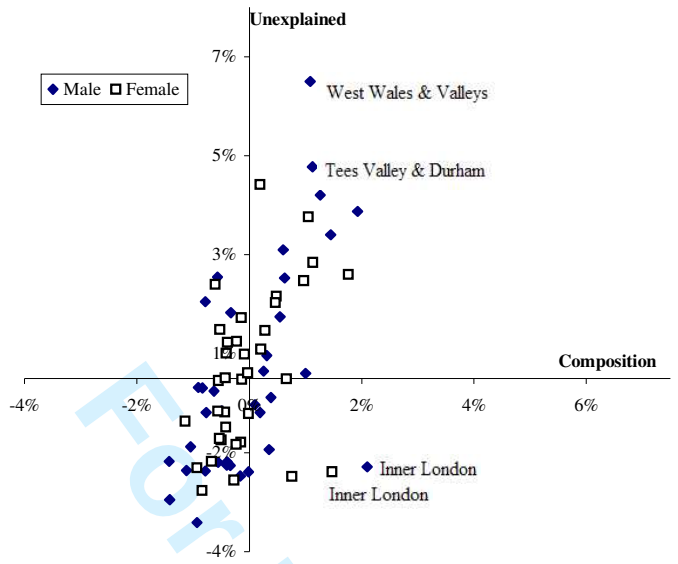

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Table 8 Breakdown of compositional effect on differences in the incidence of Employment. Bottom four ranked NUTS2 areas based on compositional component

Panel A: Male

	Inner London		West Midlands		Merseyside		Northumberland & Tyne & Wear	
	$X^r - X^R$	C_{jk}	$X^r - X^R$	C_{jk}	$X^r - X^R$	C_{jk}	$X^r - X^R$	C_{jk}
Age 16-24	-0.005	0.000	0.014	0.000	0.004	0.000	0.015	0.001
Age 25-34	0.132	0.005	0.025	0.001	-0.013	-0.001	-0.005	0.000
Age 50-spa	-0.109	0.016	-0.016	0.002	0.028	-0.004	0.008	-0.001
Born outside UK	0.346	0.002	0.038	0.000	-0.062	0.000	-0.056	0.000
Non-white	0.258	-0.018	0.114	-0.008	-0.045	0.002	-0.048	0.003
Degree level	0.167	0.037	-0.037	-0.007	-0.034	-0.007	-0.034	-0.008
Higher educ.	-0.044	-0.008	-0.011	-0.002	-0.024	-0.004	-0.007	-0.001
A-level or equiv	-0.153	-0.022	-0.043	-0.006	-0.013	-0.002	0.022	0.003
GCE or equiv	-0.076	-0.009	0.018	0.002	0.031	0.004	0.017	0.002
Other qual.	0.076	0.008	0.024	0.002	-0.032	-0.003	-0.002	0.000
Married	-0.169	-0.016	-0.030	-0.003	-0.047	-0.003	-0.018	-0.002
Separated	-0.011	0.000	-0.013	0.000	-0.013	0.000	0.011	0.000
Depend. Child	-0.074	-0.003	0.010	0.000	-0.021	-0.001	-0.021	-0.001
Buying home	-0.217	-0.022	-0.016	-0.002	-0.018	-0.002	-0.017	-0.002
Private rent	0.141	-0.002	-0.023	0.000	-0.014	0.000	-0.014	0.000
Council/Oth assoc	0.174	-0.031	0.041	-0.007	0.024	-0.004	0.063	-0.011
Total Contribution		-0.064		-0.026		-0.025		-0.017

Panel B: Female

	Inner London		West Midlands		Outer London		Tees Valley & Durham	
	$X^r - X^R$	C_{jk}	$X^r - X^R$	C_{jk}	$X^r - X^R$	C_{jk}	$X^r - X^R$	C_{jk}
Age 16-24	-0.006	0.001	0.017	-0.001	-0.017	0.013	0.009	0.000
Age 25-34	0.113	-0.008	0.022	-0.001	0.034	-0.011	-0.004	0.000
Age 50-spa	-0.072	0.015	-0.016	0.003	-0.030	-0.009	0.012	-0.002
Born outside UK	0.367	-0.016	0.025	-0.001	0.227	-0.031	-0.076	0.002
Non-white	0.318	-0.035	0.115	-0.012	0.211	0.018	-0.063	0.006
Degree level	0.139	0.042	-0.033	-0.009	0.040	-0.029	-0.050	-0.015
Higher educ.	-0.037	-0.011	-0.016	-0.004	-0.019	0.008	-0.006	-0.002
A-level or equiv	-0.053	-0.012	-0.024	-0.005	-0.013	0.006	-0.016	-0.003
GCE or equiv	-0.137	-0.025	-0.001	0.000	-0.043	0.018	0.017	0.003
Other qual.	0.063	0.009	0.014	0.002	0.062	-0.023	-0.008	-0.001
Married	-0.179	0.003	-0.031	0.000	-0.022	0.005	-0.034	0.000
Separated	0.004	0.000	-0.004	0.000	-0.008	0.000	0.021	0.001
Depend. Child	-0.026	0.006	0.026	-0.005	0.019	-0.007	0.020	-0.004
Buying home	-0.250	-0.034	-0.016	-0.002	-0.032	-0.001	-0.013	-0.001
Private rent	0.115	-0.003	-0.030	0.001	0.034	0.007	-0.024	0.001
Council/Oth assoc	0.214	-0.035	0.051	-0.008	0.008	0.005	0.052	-0.009
Total Contribution		-0.104		-0.044		-0.030		-0.025

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Note: The contribution of cohort variables is negligible and these figure have been suppressed. $X^r - X^R$ refers to the difference in the sample proportions between region *r* and the rest of Britain. C_{jk} is an estimate of the contribution of variable *k* to the raw difference in the incidence of outcome *j*.

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Appendix

Table A1 Replication of decomposition analysis, keeping only the first observation for each individual. Males

	Employment ($j = 0$)			Unemployment ($j = 1$)			LT Sick/Disabled ($j = 2$)			Other inactive ($j = 3$)		
	Diff	Comp	Unexp	Diff	Comp	Unexp	Diff	Comp	Unexp	Diff	Comp	Unexp
Tees Valley & Durham	-9.04	-1.34	-7.70	2.10	0.07	2.03	5.37	1.03	4.34	1.58	0.24	1.33
Northumb'd & Tyne & Wear	-5.35	-1.55	-3.80	0.39	0.36	0.03	4.94	1.16	3.77	0.02	0.02	0.00
Cumbria	-0.02	0.62	-0.64	-0.44	-0.47	0.03	-0.03	-0.09	0.06	0.48	-0.06	0.55
Cheshire	-0.43	0.66	-1.09	-0.89	-0.77	-0.11	0.94	0.12	0.82	0.37	-0.01	0.38
Greater Manchester	-3.75	-1.63	-2.12	-0.18	0.26	-0.44	3.35	0.95	2.40	0.58	0.42	0.17
Lancashire	-0.57	1.15	-1.72	-0.95	-0.48	-0.47	1.25	-0.66	1.91	0.27	-0.01	0.28
Merseyside	-6.15	-2.46	-3.69	1.05	0.12	0.93	4.95	1.92	3.03	0.14	0.42	-0.28
East Riding & North Lincs.	-1.89	-0.39	-1.50	1.66	-0.03	1.69	-0.79	0.43	-1.22	1.01	-0.01	1.02
North Yorkshire	4.08	2.08	2.01	-3.07	-1.09	-1.98	-1.01	-0.96	-0.05	0.00	-0.03	0.03
South Yorkshire	-3.63	-1.03	-2.60	0.45	0.37	0.08	2.78	0.73	2.05	0.40	-0.07	0.47
West Yorkshire	-1.14	-0.62	-0.52	0.55	0.44	0.11	0.52	0.12	0.40	0.06	0.06	0.01
Derbyshire & Notts.	-1.82	-0.42	-1.41	-0.42	-0.40	-0.03	1.60	0.52	1.09	0.64	0.30	0.35
Leics., Rutland & Northants	3.58	0.92	2.65	-0.56	-0.31	-0.25	-2.10	-0.43	-1.67	-0.92	-0.18	-0.73
Lincolnshire	0.55	0.40	0.15	-0.17	-0.50	0.33	-0.31	-0.03	-0.28	-0.07	0.13	-0.20
Heref'd, Worcs & Warwicks	4.19	1.15	3.04	-1.58	-0.79	-0.79	-2.36	-0.40	-1.96	-0.25	0.04	-0.29
Shropshire & Staffordshire	1.61	0.20	1.41	-1.03	-0.45	-0.58	-0.18	0.15	-0.33	-0.40	0.10	-0.50
West Midlands	-4.35	-2.35	-2.00	2.30	1.01	1.29	1.05	0.90	0.16	1.00	0.45	0.55
East Anglia	2.77	0.66	2.11	-0.89	-0.36	-0.54	-2.05	-0.31	-1.74	0.17	0.01	0.16
Bedfordshire & Herts	6.49	1.76	4.73	-1.33	-0.32	-1.01	-3.68	-1.04	-2.65	-1.47	-0.39	-1.08
Essex	2.85	0.47	2.38	-0.49	-0.48	-0.01	-2.47	0.04	-2.51	0.11	-0.03	0.14
Inner London	-4.80	-6.31	1.51	3.55	3.41	0.15	0.43	1.75	-1.32	0.82	1.15	-0.34
Outer London	0.77	0.07	0.69	1.06	0.67	0.39	-1.89	-0.89	-1.00	0.07	0.15	-0.08
Berks, Bucks & Oxfords	7.01	2.66	4.35	-1.00	-0.41	-0.59	-4.00	-1.51	-2.49	-2.00	-0.74	-1.26
Surrey, East & West Sussex	4.82	2.29	2.52	-1.42	-0.60	-0.82	-3.16	-1.29	-1.87	-0.23	-0.41	0.17
Hampshire & Isle of Wight	4.86	2.30	2.55	-1.04	-0.47	-0.57	-2.98	-1.26	-1.71	-0.84	-0.57	-0.27
Kent	0.79	1.19	-0.40	0.40	-0.35	0.75	-0.90	-0.53	-0.37	-0.30	-0.31	0.02
Glouc, Wilt & Nth Somerset	5.33	2.10	3.23	-2.02	-0.50	-1.52	-2.37	-1.05	-1.32	-0.94	-0.55	-0.40
Dorset & Somerset	3.11	1.12	1.99	-1.84	-0.64	-1.20	-1.84	-0.48	-1.36	0.57	0.00	0.57
Cornwall & Isles of Scilly	-0.16	0.90	-1.06	0.32	-0.53	0.84	-0.07	-0.65	0.58	-0.08	0.28	-0.36
Devon	-0.43	1.15	-1.58	-1.08	-0.53	-0.55	0.65	-0.68	1.33	0.86	0.05	0.81
West Wales & The Valleys	-8.09	-1.33	-6.77	0.13	-0.35	0.48	6.36	1.02	5.34	1.60	0.65	0.95
East Wales	0.59	0.84	-0.25	-1.05	-0.11	-0.94	-0.09	-0.48	0.39	0.55	-0.25	0.80
North Eastern Scotland	4.99	0.56	4.43	-0.51	-0.24	-0.27	-2.12	-0.06	-2.06	-2.36	-0.26	-2.10
Eastern Scotland	-0.10	-0.07	-0.02	0.85	-0.17	1.02	0.19	0.55	-0.35	-0.95	-0.30	-0.65
South Western Scotland	-6.98	-1.71	-5.27	2.35	0.27	2.08	4.37	1.73	2.65	0.26	-0.29	0.55
Highlands & Islands	4.31	1.49	2.81	-1.12	-0.50	-0.62	-1.85	-0.80	-1.05	-1.34	-0.19	-1.15

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Table A2 Replication of decomposition analysis, keeping only the first observation for each individual. Females

	Employment ($j = 0$)			Unemployment ($j = 1$)			LT Sick/Disabled ($j = 2$)			Other inactive ($j = 3$)		
	Diff	Comp	Unexp	Diff	Comp	Unexp	Diff	Comp	Unexp	Diff	Comp	Unexp
Tees Valley & Durham	-6.22	-2.20	-4.02	-0.37	-0.03	-0.34	4.13	0.90	3.23	2.47	1.34	1.13
Northumb'd & Tyne & Wear	-2.85	-0.95	-1.89	0.08	0.19	-0.11	2.65	1.01	1.65	0.11	-0.24	0.35
Cumbria	2.26	2.27	-0.02	0.32	-0.61	0.94	1.43	-0.16	1.59	-4.01	-1.49	-2.52
Cheshire	4.06	2.14	1.92	-1.19	-0.43	-0.76	0.53	-0.37	0.90	-3.40	-1.34	-2.06
Greater Manchester	-3.01	-2.42	-0.59	0.26	0.19	0.06	2.20	0.62	1.58	0.56	1.61	-1.05
Lancashire	0.31	1.44	-1.13	0.22	-0.37	0.59	0.14	-0.69	0.84	-0.67	-0.38	-0.30
Merseyside	-5.18	-2.10	-3.08	-0.74	-0.07	-0.66	2.94	1.39	1.55	2.97	0.78	2.19
East Riding & North Lincs.	-1.81	0.18	-1.99	-0.32	-0.20	-0.12	-1.04	0.04	-1.08	3.17	-0.02	3.19
North Yorkshire	5.14	2.67	2.46	-0.55	-0.53	-0.02	-2.12	-0.60	-1.52	-2.47	-1.54	-0.93
South Yorkshire	-2.62	-0.96	-1.65	-0.21	0.12	-0.33	1.65	0.43	1.22	1.17	0.41	0.76
West Yorkshire	0.06	-0.94	0.99	-0.37	0.20	-0.57	-0.38	-0.26	-0.13	0.70	1.00	-0.30
Derbyshire & Notts.	0.10	0.41	-0.30	0.15	-0.26	0.41	0.15	0.24	-0.09	-0.40	-0.39	-0.02
Leics., Rutland & Northants	2.46	-0.06	2.52	-0.13	-0.06	-0.07	-1.27	-0.30	-0.97	-1.07	0.42	-1.48
Lincolnshire	-1.44	1.91	-3.36	0.49	-0.38	0.87	0.50	-0.47	0.97	0.46	-1.06	1.52
Heref'd, Worcs & Warwicks	3.36	1.67	1.68	-1.37	-0.46	-0.91	0.21	0.03	0.17	-2.19	-1.24	-0.95
Shropshire & Staffordshire	0.31	1.26	-0.95	-0.39	-0.43	0.04	0.86	-0.14	1.00	-0.77	-0.69	-0.09
West Midlands	-5.41	-4.49	-0.91	1.53	0.65	0.87	0.83	0.65	0.17	3.05	3.19	-0.13
East Anglia	2.96	0.79	2.16	-0.69	-0.30	-0.39	-1.29	-0.01	-1.27	-0.98	-0.48	-0.50
Bedfordshire & Herts	3.69	1.97	1.72	-0.34	-0.18	-0.16	-2.41	-0.82	-1.58	-0.94	-0.97	0.03
Essex	1.16	1.73	-0.57	-0.43	-0.43	0.00	-2.08	-0.14	-1.94	1.35	-1.15	2.50
Inner London	-9.09	-9.65	0.56	2.10	2.36	-0.27	-0.76	1.24	-1.99	7.75	6.05	1.70
Outer London	-3.17	-3.00	-0.17	0.92	0.63	0.29	-1.39	-0.50	-0.89	3.64	2.87	0.76
Berks, Bucks & Oxfords	4.82	2.45	2.36	-0.18	-0.19	0.01	-3.12	-0.92	-2.21	-1.51	-1.34	-0.16
Surrey, East & West Sussex	3.76	3.66	0.10	-0.45	-0.40	-0.05	-1.84	-1.12	-0.72	-1.47	-2.14	0.67
Hampshire & Isle of Wight	4.70	2.84	1.87	-1.03	-0.35	-0.69	-1.56	-0.61	-0.94	-2.11	-1.87	-0.24
Kent	-1.54	1.24	-2.78	0.26	-0.37	0.63	-1.49	-0.35	-1.13	2.77	-0.51	3.28
Glouc, Wilt & Nth Somerset	5.12	3.01	2.11	-0.34	-0.21	-0.13	-1.62	-0.65	-0.97	-3.16	-2.15	-1.01
Dorset & Somerset	5.46	3.09	2.37	-1.77	-0.48	-1.28	-1.15	-0.54	-0.62	-2.54	-2.07	-0.47
Cornwall & Isles of Scilly	-1.16	2.56	-3.71	-0.47	-0.49	0.02	0.85	-0.53	1.38	0.77	-1.54	2.31
Devon	2.03	2.60	-0.57	-0.86	-0.46	-0.40	-0.43	-0.59	0.16	-0.73	-1.54	0.81
West Wales & The Valleys	-3.67	-0.92	-2.76	-0.27	-0.16	-0.12	4.37	0.22	4.15	-0.42	0.86	-1.28
East Wales	2.22	1.72	0.50	-0.17	-0.10	-0.07	-0.48	-0.46	-0.03	-1.57	-1.16	-0.40
North Eastern Scotland	1.30	3.12	-1.82	-0.07	-0.42	0.34	-0.11	-0.06	-0.05	-1.12	-2.64	1.52
Eastern Scotland	2.90	1.84	1.05	0.53	-0.11	0.64	1.76	0.48	1.28	-5.18	-2.21	-2.97
South Western Scotland	-2.01	-0.93	-1.08	0.97	0.01	0.96	3.82	1.77	2.05	-2.78	-0.85	-1.94
Highlands & Islands	6.20	1.13	5.07	-0.44	-0.44	0.00	-1.34	0.59	-1.92	-4.42	-1.28	-3.15

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[ii] Reflected in the Report of the Employment Taskforce (chaired by Wim Kok, 2003), and the Integrated Guidelines for Growth and Jobs (2005-2008).

[iii] Both Pissarides and Wadsworth (1992) and Brown and Sessions (1997) performed a logistic regression to individual risk of unemployment, and decompose differences between region *j* and the South East of England. The differentials attributable to regional effects are found by assuming that individuals are identical across regions.

[iv] For instance, Amable, Demmou and Gatti (2006) considered the impact of institutions on inactivity across 18 OECD countries. Clasen *et al.* (2006) compares the impact of changes in welfare institutions in the UK and Germany. Brandolini, Cipollone, and Viviano (2004) used the European Community Household Panel to identify a spectrum of labour market attachment by estimating transition probabilities across inactive sub-states.

[v] A correlation between unemployment and inactivity at the NUTS2 level has also been reported across the EU-25 (European Commission, 2005b), with an R-square of 0.27 for the group of countries with an unemployment rate below 15%.

[vi] Social housing refers to tenants in council accommodation or who rent from other housing associations.

[vii] Controls for occupational skill are omitted because information on previous occupation is not available for individuals who have either never worked, or not worked in the last eight years. Educational attainment is likely to act as a proxy for the effects of occupational skill.

[viii] Raw coefficients are not available for the reference state, $j = 0$ (employment). The base group in the regression refers to individuals who are aged 35 to 49, white, born in the UK, with no qualifications, single, homeowners, and were interviewed in Summer 2005.