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Accounting for Big City Growth in Low Paid
Occupations: Immigration and/or Service Class
Consumption

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DEPARTAMENT D'ECONOMIA – CREIP
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Accounting for Big City Growth in Low Paid Occupations: Immigration and/or Service Class Consumption

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Abstract

Growth of 'global cities' in the 1980s was supposed to have involved an occupational polarisation, including growth of low paid service jobs. Though held to be untrue for European cities, at the time, some such growth did emerge in London a decade later than first reported for New York. The question is whether there was simply a delay before London conformed to the global city model, or whether another distinct cause was at work in both cases. This paper proposes that the critical factor in both cases was actually an upsurge of immigration from poor countries providing an elastic supply of cheap labour. This hypothesis and its counterpart based on growth in elite jobs are tested econometrically for the British case with regional data spanning 1975-2008, finding some support for both effects, but with immigration from poor countries as the crucial influence in late 1990s London.

Keywords: regional labour markets; wages; employment; international migration; consumer demand

JEL Codes: J21, J23, F22, R12

1. Introduction

Increased inequality in labour market outcomes during the past 30 years has been a subject of note, concern and academic investigation in a number of advanced economies, notably the US and UK. For much of the academic literature, the issue of interest has been that of a widening of earnings differentials across occupations (and sometimes also industries), often seen in terms of changing returns to particular components of human capital (increasing returns to 'skill', or more specifically to educational qualifications). The dominant approach to explaining this has been in terms of shifts in the demand-supply balance for these assets, driven by a demand for upskilling stimulated by some combination of technological change with a reinforcal of the established comparative advantage of advanced economies in the context of intensified competition in a globalised economy. An alternative approach has emphasised structural changes in the context of pay determination within increasingly deregulated labour market institutions – itself perhaps a response to intensified competition and these market forces, but one mediated in different ways by national political/social systems and the established power of labour unions (Bound and Johnson, 1992).

Within the more neo-classical (supply-demand) accounts of this change, shifts in the occupational distribution – generally seen as one toward more sophisticated high skill jobs - play an important intermediate role. Their direct, compositional effects on the aggregate distribution of earnings/incomes has been of less interest, though on some plausible assumptions (if technological change were particularly biased toward elimination/deskilling of intermediate jobs, à la Braverman, 1974), they might have led to a significant increase in the variance, as well as to an upward shift of the whole distribution. A number of studies did, however, suggest that the occupational structure of advanced economies might actually be polarising, in the sense that the share of the least well rewarded job types might be increasing as well as that of the most rewarded types.

This hypothesis was first advanced by sociologists/political economists in the context of debate about an emerging post-industrial/post-Fordist economy (Bell, 1973; Pahl, 1988; Sassen, 1991). More systematic evidence of this pattern was subsequently presented by labour economists (Goos and Manning, 2007 for UK; Autor et al. for US). The key observation was that the least well-paid jobs were typically to be found in activities with

(more or less) untradeable products, notably in personal services and construction, which could not as readily be offshored to cheap labour economies, in accordance with comparative advantage – and which might not be readily merchandisable either, because of some barriers to standardisation. Urban sociologists/geographers tended to focus on the former, pointing to the service nature of these jobs as requiring face-to-face contact and thus geographical proximity between the high-income consumers and the low-paid producers. Labour economists tended to focus on the latter, and base their analysis on a non-monotone impact of technological progress. In particular, Autor et al (2003) distinguished between routine tasks that are substitutable by technology and non-routine tasks that are not, while Goos and Manning (2007) pointed to the concentration of non-routine tasks at the two ends of the pay spectrum (e.g. among professionals *and* cleaners), as a cause of polarisation. Recent work has combined the two approaches, relating employment growth in the lowest paid occupations to rising consumer demand by affluent/time-poor consumers for personal services, that are both untradeable and unmerchandisable (Manning 2004; Mazzolari and Ragusa, 2007; Kaplanis, 2007, 2010b).

The global cities thesis (originated by Friedmann and Wolff, 1982 and Sassen, 1984), linked this phenomenon specifically to concentrations of the higher echelons of the service class[1] in global command and control centres such as New York and London. Sassen (1991) claimed empirical support from analyses of the development of key global cities during the 1980s, but this was vigorously contested in relation to European centres by urban geographers/sociologists, who contended that the observable trend was simply one of professionalization not polarisation (Hamnett, 1994; Buck, 1997; Buck et al., 2002).

A decade later, however, there were indications, for London at least that some such occupational polarisation might have belatedly been emerging (Buck et al., 2002). Indeed, whereas at UK level, a polarisation trend was evident through the 1980s/90s (Goos and Manning, 2004), in London, this only clearly emerged during the 1990s, but then proceeded more vigorously than in the rest of the country (Kaplanis, 2007). Econometric analyses suggested a causal association between the growth of jobs in the top and bottom quintiles of the occupational distribution (Kaplanis, 2010a, 2010b) as implied by the global city thesis – though the timing was problematic since both globalisation and rapid service class growth in

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[1] i.e. those in professional and managerial occupations

London seemed as evident in the 1980s as in the 1990s. To account for the reported break in polarisation trends in London between these decades, and for the apparent discrepancy between New York and London trends in the 1980s (as reported by Sassen and Buck/Hamnett respectively) requires another hypothesis. The one that we propose and investigate in this paper is that actual employment growth in the bottom segment of jobs is conditional on availability of an elastic supply of cheap labour, which was afforded - in New York from the 1980s on, but only more recently in London – by large scale immigration from low wage economies to these cities in particular (Buck et al., 2002; Hamnett, 1996[2]; Wills et al., 2010).

The impact of international migration on wages and employment has been a matter for intense study and debate among labour economists (since Card, 2001; and Borjas, 2003). A key issue has been the skill distribution of migrant workers and how it relates to that of native workers (Dustmann et al 2008b). Low-skill migrants, who have been perceived to make up most of the upsurge in immigration to UK from the 1990s onwards, would be expected to compete mainly with low-skill natives and thus have an asymmetric effect on the wage distribution. In the lower tail of the skill distribution there should be a downward shift in wages, engendering some growth in employment, while productivity spillovers could induce an increase in the wages of those higher up the distribution - with an unclear overall effect on the average wage. Indeed, evidence has shown a modest negative effect on wages of the low-skilled and a positive effect on the wages of the high-skilled (Ottaviano and Peri, 2008; Manacorda et al. 2006, Dustmann et al. 2008a).

Skill as such may not be the critical factor, particularly if defined in relation to formal qualifications. Our approach in this paper starts instead from a simple ordering of occupations in terms simply of pay rates (for a benchmark time/area) to represent the hierarchy of sub-labour markets into which migrants are inserted. Our thesis is that, rather than being intrinsically 'low-skilled' most recent migrants to the UK have substantial skill potential (and formal qualifications), but that initially those coming from poor countries get

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[2] As Hamnett (1996) points out, Sassen (1991) had emphasised the close connection between immigration and the growth of bottom tier jobs, but continued to see the causal connection as running simply from job growth to migration, rather than in the reverse direction. Wills et al. (2010) also stress the importance of international migration for London's bottom tier sector, but for them the link comes from the rise of the neoliberal globalisation that deregulates the labour markets suppressing wages and at the same generates the conditions for global migratory flows in search for jobs.

crowded into the bottom rungs of the occupational ladder (see Table 1). The reasons for this are various - ranging from language problems, through non-recognition of qualifications, to discrimination. But the effect is that many highly-educated immigrants downgrade, in terms of occupation at least, upon arrival in the country, before starting to climb back to positions consistent with their capacities (Gordon et al., 2007). On this interpretation, there should be an identifiable association between depressed wages in bottom tier jobs and recently high levels of in-migration (from poor countries) - rather than a longer term accumulation of low-skilled workers. And growth in jobs associated with local service provision, should reflect the elastic labour supply that new migrants provide – not just a growth of potential demand for such services from an expanding elite of money-rich time-poor professionals in 'global city' roles.

In this paper we address these hypotheses through investigation of demand and supply-side influences on the evolving occupational profile of employment in British regions, via a panel model of earnings and employment dynamics for quintile[3] segments of jobs during the years 1976-2008. The model is initially set up in simple supply-demand terms, with wages in each segment potentially influenced by international migration, and employment levels responding to these as well as to exogenous demand factors. Uneven impacts from introduction of a National Minimum Wage (NMW) during the period are controlled for. The scale/earnings of the top segment are included in the demand equations for lower segments; interdependences between earnings in neighbouring segments are allowed for; auto-correlation across segments is handled through estimation with 3SLS, and spatial interdependences are explicitly investigated. Results from these inter-regional analyses are then applied to explanation of what happened to lower tier jobs in London during the late 1990s, and whether this is due mostly to an influx of rich ('global city') consumers or of poor migrant workers.

2. Theory

The conceptual background to this simple equilibrium model may be sketched in terms of an economy comprising two economic sectors, three types of labour, a number of internal

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[3] defined on the basis of *national* earnings and employment shares observed *at a reference date*, with the actual share of employment in each quintile varying both over time and across areas.

regions, and an external region with substantially lower wages, which serves both as a trade and migrational partner. One sector produces a mix of *tradable* goods and services for intermediate and final demand; the other produces only services for private consumers, which cannot be traded because personal contact is required. The servicing sector is taken to be less amenable to capital-labour substitution because of this contact aspect. In the traded sector, demand is assumed to depend both on price and quality, whereas in the non-traded sector, it is determined by a combination of price, local real incomes, and by social/demographic influences on tastes and on the opportunity cost of self-servicing. The three types of labour are professional, routine and low-skilled, with high, medium and low levels of human capital, respectively.

The internal regions are distinguished in terms of centrality, and thus in potential for agglomeration economies. But these are taken to apply primarily to the professional jobs in the traded sector - because of the role of tacit knowledge exchanges for workers with high human capital in quality-sensitive activities (Graham, 2009). Within the traded sector (only) production may be functionally disaggregated across regions (and/or internationally). At the regional scale there are thus effectively three independent trading sectors, each employing just one type of labour, as well as a local service sector employing all three types.

Wages are set competitively at the regional scale, but with spillovers between both regions and occupations. The strength and rapidity of inter-regional spillovers depends both on proximity; and the relatively mobility of occupational groups (varying positively with their human capital levels). Though subject to external shocks, affecting competitiveness in the traded sector and driving the flow of international migrants, real wage levels (adjusted for cost of living differences) are assumed to converge strongly, though never fully equalised for the low skill group. Money wage differentials remain, however, because of an inelastic supply of space (for residences and untraded services) in the most central region.

Migrants from the (poor) external region are assumed to settle disproportionately in the core region, and to have a distribution of (general) human capital levels mirroring that in the host economy – but to take time acquiring those specific assets which allow access to skilled or professional jobs. In the context of nationally inflexible wages in these occupations, in times of recession, new migrants may be joined in competing for unskilled jobs by others 'bumped down' from skilled employment (Reder, 1964).

Though there are gaps in this sketched specification of the economy, it has a number of evident implications. In particular, as spatial divisions of labour are facilitated, it implies a pattern of specialisation in which the home economy as a whole comes to concentrate solely on professional and skilled activities, plus an inescapable segment of unskilled jobs within the untradeable service sector – while the core region (whether formally 'global' or not) specialises solely in professional occupations, with only a residue of skilled/unskilled jobs in that untradeable sector. Overall, growth in the home economy should be focused on professional jobs, implying a more rapid overall growth (both in jobs and money incomes) within the core region, and the likelihood (because of space constraints) that residence costs at least will rise there. And, in turn, whether local employment in such jobs is sustained, or grows, would seem to depend *both* on the 'luxury' (high income and low price elasticity) character of demand for untradeable services – the essence of the global city hypothesis - *and* on the extent to which external migration to the core region keeps unskilled wages down.

In this paper we investigate the significance of (one, other or both of) these factors for the shifting pattern of employment change in the bottom segment of the labour market (where untraded services now clearly predominate) across British regions. On the demand side we look both at the potential impact of employment/earnings in the top group of jobs and at that of induced changes in household structure. On the supply side we focus on the impacts of recent international migration: first on relative earnings in the bottom group of occupations; and then (indirectly) on employment levels there. Derived estimates of quantitative relations are then applied to the specific London 'global city' case.

3. Framework of Analysis

Operationally, the analysis is framed in terms of a simple equilibrium model of regional labour supply/demand for the quintile groups, applied to a panel data-set for the years 1976-2008 and the 10 NUTS1 regions of Great Britain. The region/quintile sub-labour markets are seen as related to each other and to an external world via sets of spatial and occupational mobility processes.

3.1 The Basic Model

The basic model estimated for the bottom quintile (Q1) involved a supply/earnings equation and a demand/employment equation, taking the general form:

Supply : *Wage in the quintile* – related to employment in the quintile, international migration (in gross and/or net terms) and house prices, plus spillovers from adjacent quintiles and regions, and differential impacts of the National Minimum Wage (NMW);

Demand: *Employment in the quintile* – related to wage in the quintile, together with employment/earnings in the higher paid quintiles, and other household characteristics potentially influencing substitution of marketed (but untraded) personal services for self-servicing.

In each case, a dynamic panel model is specified, in log- linear form, with lagged values of the dependent variable reflecting the likelihood of extended adjustment toward equilibrium earnings and employment, levels. With fixed effects, the two basic equations are:

$$W_{rt}^q = \gamma_1 W_{rt-1}^q + \gamma_2 W_{rt}^{q\pm1} + \gamma_3 W_{r\pm1t}^q + \gamma_4 L_{rt}^q + \gamma_5 MigD_{rt-1} + \gamma_6 NMW_{rt}^q + \gamma_7 HP_{rt} + d_r^q + d_t^q + \varepsilon_{rt}^q \quad (1)$$

$$L_{rt}^q = \beta_1 L_{rt-1}^q + \beta_2 W_{rt}^q + B_3 Pop_{rt} + \beta_4 LD_{rt}^{q\,2:5} + \beta_5 LD_{rt}^{d\,10} + \beta_6 WHhld_{rt} + d_r^q + d_t^q + \varepsilon_{rt}^q \quad (2)$$

where: L = (log) number of jobs

LD = (log) job density (as proportion of population)

W = log wages (hourly earnings)

$MigD$ = international migration (as proportion of population)

NMW = expected direct impact of National Minimum Wage on (log) earnings

HP = (log) average house prices

Pop = (log) population

$WHhld$ = proportion of fully employed working age households

d = a fixed effect

subscripts r and t refer to region and year respectively, and superscripts to (pay-ranked) quintiles or deciles of occupations (with 1 as the lowest); ±1 for r or q refers to adjacent region(s) or quintiles; and parameters are all specific to a quintile.

In the supply / earnings equation a control for the NMW is included because its impact was bound to be weaker in the high cost regions of London and the South East, where fewer of those in the bottom tier of jobs had earnings below the level of it, as initially set in 1999 or as uprated subsequently (Stewart, 2002). In the demand / employment equation, the proportion of all-worker households is included, to reflect constraints on their potential for self-servicing, together with the employment (or total earnings) ratios for the higher quintiles, and (as a more specific test of the Friedman-Sassen hypothesis) for the top decile (D10) of jobs, most likely to demand income/education- elastic local services such as childcare, cleaning, and catering (Manning 2004, Mazzolari and Ragusa 2007; Kaplanis 2010b). Comparable wage equations are estimated for each quintile, to test hypotheses about the specific impact of migration in the bottom quintile. The employment equation is only estimated for that quintile, however, and hence direct indicators of productivity, competitiveness or growth potential in traded sectors are omitted.

3.2 Labour Mobility

Internal labour mobility, both between regions and quintiles, is treated here as entirely endogenous. The regional distribution of international flows is, however, assumed to contain substantial elements that are independent of the current state of regional labour markets. One reason is that non-economic factors have contributed substantially both to the scale and the timing of the growth in immigration during the past 30 years, in the form of refugee flows set in motion by internal conflicts elsewhere, shifting degrees of effectiveness in UK immigration control (temporarily loosened in the late 1990s), and the immediate opening up of UK borders to workers from the A8 countries of eastern Europe following their entry to the EU in 2004. The other is that the regional distribution of immigrants within the UK has been heavily influenced by historic concentrations of particular national groups, the more generally perceived receptiveness of London (like other world cities) toward foreign workers and refugees, government efforts after 2000 to counter this by dispersal of asylum seekers, and the more targeted role of agencies in steering the recent A8 migrants toward employers with particular recruitment problems. Particularly for those coming from 'poor'/low wage countries[4], these factors clearly matter much more than short-medium term fluctuations in

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[4] This category includes countries from the less developed global south, newly industrialising countries and the transition economies of eastern/central Europe.

destination regions, that scarcely affect the magnitude of the expected earnings differential from their home countries

In our model, immigration enters only into the supply equation, because its effects on demand for untraded services are assumed to be mediated by the aggregate local population level which is controlled for. Within the supply equation, its impact on wages could be diluted by induced migration of others to neighbouring regions, of which there is some evidence, though displacement is only partial and appears more of a housing than labour market phenomenon (Hatton and Tani, 2005; Gordon et al., 2007).

4. Data Sources and Groupings

4.1 Data sources

Data on earnings and employment come from the British New Earnings Survey (NES) an annual employer-based 1% survey of pay records. Its coverage omits those with weekly pay below the National Insurance threshold, including one quarter of part-timers on Hakim's (1989) estimate, while response rates have been falling over time. For this reason we present data on the size of quintile groups in a region in terms of employment *shares*, while in the (log-linear) regression analyses we rely on region and year fixed effects to absorb the variations in response rates.

The second key source is the ONS annual series of international migration estimates for the UK regions, covering all kinds of movement into/out of the country involving people intending to stay in/out for at least a year. The main source for these is the port-based International Passenger Survey, supplemented from the 1990s on (in the Total International Migration series) with administrative information about asylum seekers, flows to/from Ireland, and people switching between visitor and migrant status. The IPS sample provides information on origins/destinations within the UK, though adjustments have had to be made in recent years to correct for apparent over-reporting of London destinations by in-migrants. Within the figures derived from administrative sources there is also some uncertainty about areas of residence, with the regional allocation of asylum-seekers for years prior to the introduction of a dispersal policy in 2000 apparently stemming from a one-off analysis of

Home Office files (for cases in 1983-91) that found 85% to be living in London (Carey-Wood et al., 1995).

Our hypothesis about migration effects relates primarily to those coming from low-wage countries. For years before 1991, however, no breakdown by origin is available at regional level. Instead, because there is substantial continuity in the pattern of regional destinations of particular types of migrant, we use a national breakdown of flows between key migrant types to generate estimates of the changing regional balance between rich and poor country migrants, and to instrument the (known) total migration estimates for regions (which might not be independent of wage or employment changes). Four groups are distinguished, each with a distinct regional distribution and big temporal shifts in their share: asylum applicants (as counted by the Home Office), separating those arriving before/after the introduction of dispersal policies in 2000; the A8 migrants arriving from mid-2004 on; and a residual category of 'mainstream' economic migrants (coming more or less equally from poor/rich countries). The last of these showed the smallest fluctuations, and had a regional pattern of destinations mid-way between the extremes represented by (pre-dispersal) asylum seekers who were heavily concentrated in London, and A8 migrants, who were not. As discussed in the next section, time series regressions of regional migration on these four flow types were used both to instrument aggregate regional flows, and to generate estimates of the rich/poor country split within these.

Supplementary data on household/demographic characteristics - including a measure of the proportion of workers living in households where all those of working age were actually in employment – were derived from the General Household Survey (GHS), supplemented by the Labour Force Survey (LFS) for missing years.

4.2 Geographic and Occupational Breakdowns
Our analysis, spanning the years 1976-2008 is conducted at the level of administrative regions of Great Britain. To overcome a major discontinuity in definitions during the 1990s affecting those parts of the Greater South East outside London, these were combined into a

Rest of Greater South East (RGSE) region[5] , leaving 10 regional units, among which London is in a class of its own in both in agglomeration potential and in 'global city' status.

For the distinction between job types in relation to levels of human capital, we rely on the NES classification of workers by occupation. These were ordered, and then grouped into quantiles on the basis of hourly pay relativities (at UK level), taken to reflect market valuations of the range of (human capital) attributes required of workers in each. The initial grouping was in terms of quintiles, with Q1 taken to represent an 'unskilled' category - now largely confined in the UK to work in untradeable activities, (retailing, catering, hairdressing, social care etc.[6]), with high shares of women and migrant workers. To represent the elite, agglomeration sensitive 'professional' tier of cash-rich / time poor workers, however, D10 was chosen, since their earnings were well above those in the next decile (by a third), as was their concentration in Central London (with a quarter of the jobs).

The underlying occupational classification changed twice during our analysis period (in 1991 and 2002), requiring re-benchmarking at the start of each period, and splicing together of the sub-series. To control for compositional shifts in the quantile groups, in the regression analyses, the regional fixed effects are interacted with separate dummies the 3 sub-periods.

4.3 National Minimum Wage

The NMW variable represents an estimate of the expected proportional impact on a region's Q1 wage-bill from compliance with the current NMW. This combines two sources of evidence. One (from NES) is the ratio of the current (adult) NMW to mean earnings in the region / quintile a year previously. The other (from LFS) is a regression-based estimate of the (non-linear) relationship, estimated across regions/conurbations, between the proportionate compliance cost for the quintile, at the initial (1999) adult rate, and the ratio of that rate to mean Q1 earnings in summer 1998[7].

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[5] comprising first the South East and East Anglia SSRs, then the Eastern and South East GORs.
[6] For a listing of occupations in the the bottom and top quintiles (using the 3-digit Standard Occupational Classification SOC90) see Kaplanis (2007).
[7] This regression took the form of a power function with the proportionate impact estimated as 12.25% * $MWR^{3.7}$ (where MWR is the ratio of the NMW to mean hourly earnings in Q1). The weighted R^2 of actual on predicted impacts was 0.969

5. Patterns and Trends in the Data

An initial perspective on the evidence can be gained simply by looking at time-series graphs of regional employment and real wage levels for the top and bottom quintiles, and for net international migration relative to regional populations (Figures 1-5). In each case London stands out clearly from the other regions, not only in terms of levels – with the highest earnings levels for both quintiles, the highest share of jobs in D10, the lowest in Q1, and the highest net migration ratio – but also in the distinctiveness of its trends.

In terms of employment shares, in D10 (Figure 1), the trend over the period as a whole is broadly positive across the set of regions, though the evidence for this is generally weak before about 1992. The take-off in London seems slightly earlier (from 1990) and its growth thereafter is substantially faster. Its neighbouring region, the RGSE, which had the second highest share of their employment in D10 throughout, also pulls rather further away from the others, though with less rapid growth than London.

In Q1 (Figure 2), the employment trend is also upward in just about every region, with some fluctuations common to most regions but no clear breaks of trend. London stands out in showing a slightly downward trend in the share of employment in this quintile in the years up to about 1990 – taking it from a point only slightly below the West Midlands and RGSE to one a quarter lower. Beyond that point, the Q1 share in London starts to grow, increasing sharply between 1995 and 2000 – almost converging again with that pair of regions. But then it falls back almost equally sharply over the next 5 years - while those in the other pair first hold firm and then pull further away, opening up an even larger gap by 2008 than in the early 1990s. There is a suggestion at least of a symmetry in trends between London, on the one hand and the RGSE +West Midlands, on the other, but London's fluctuations are clearly distinct from those in any other region. They are also quite unrelated to any observed for D10. If simultaneous growth in shares of employment in the top and bottom groups is taken as evidence of occupational polarisation, there does some to be a weak tendency of that kind across the country as a whole from about 1990s, most clearly in the RGSE. In London itself, however, that only really seems true between 1995 and 2000.

Graphs of change in real hourly *earnings* (deflated simply by a *national* cost of living index) naturally show strong upward trends, with some short term variation, but little evidence of

substantial regional deviation from national patterns of change – except in one case. In D10 (Figure 3) both London and (to a lesser degree) its regional neighbours in the GSE do seem to show faster growth than the other regions after about 1990, though the difference is quite modest. In Q1 (Figure 4) also there seems little difference in earnings trends for 9 of the regions. For London, however, the real earnings trend actually appears downward during the 1990s, with the earnings gap between it and the rest of the GSE closing rapidly between 1994 and 2000, before partially re-emerging during the next 5 years. These trends will have been affected by the uneven regional impacts of the NMW. But, since it came in at a point (in 1999) when the Q1 pay gap between London and the RGSE had already substantially closed, and was stepped up (between 2003 and 2006) while the gap was again opening up, it clearly was not responsible for the big swings in the relative position of London Q1 earnings.

For gross migration from overseas (as a proportion of population) national levels are modest and relatively stable until the late 1980s, when they are subject to one upward step, with another following a decade later. For most regions there is little change before 2000, when almost all of them show an up-turn - most notably Yorks/Humber, rising from a very low base to second/third highest position. Over the longer run, the RGSE remains above average both in rates of inflow and their growth. But it is London which again stands out, with relative rates of inflow initially about 3 times larger than the rest of the country, then rising much more steeply between 1994 and 2000, before falling back, while those in other regions started to grow.

The shifts in overall rates of inflow and in their regional distribution both reflect the distinct developments for different types of inflow referred to in Section 3.2. In particular, the boom in asylum seekers was very heavily concentrated in London (with about 85% of arrivals), until the enforcement of dispersal from 2000, while the A8 migrants mostly went elsewhere (including to Yorkshire/Humber).

Regressions of regional arrival rates on national series, distinguishing asylum seekers (treating pre/post-dispersal cohorts separately) , A8 migrants and 'others' turn out to account statistically for a very high proportion of the variance (between 90% and 98% for regions with substantial inflows, falling to around 80% for Wales and the North (together receiving just 5% of in-migrants). These regressions have been used as the basis both for a synthetic set of regional estimates of rich/poor country inflows, and an instrument to control for

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potential endeogeneity in migration levels, in analyses using this as a regressor[8].   It should be noted, however, that addition of measures of relative wage levels or employment change to these equations did not provide any significant evidence of substantive endogeneity of short/medium term fluctuations in the regional pattern of arrivals.

This simple descriptive overview of trends points to the coincidence at least of some major fluctuations between the mid-1990s and the mid-2000s particularly affecting London and involving migration and both the scale and earnings of bottom tier employment. Most notably, between 1995 and 2000 this region experienced a distinctively strong upsurge in immigration, coinciding with falling real earnings and increased employment in Q1 – all three shifts being largely reversed in the 5 years that followed.

6. Estimation and Results

To examine the causal relations more closely, we start by estimating a common set of (supply-side) wage equations for each of the 5 quintiles, in order to identify where within the hierarchy of jobs international migration might actually have exerted a significant (presumably downward) effect on earnings (section 6.1).   Having identified a significant negative effect only within Q1, we then proceed to estimate a (demand-side) employment equation for this quintile, in order to test how far a lowering of wages, on the one hand, and growth in the elite segment of the regional workforce can be expected to impact on jobs in the lowest paid occupations (section 6.2).   To check the robustness of the results, particularly in relation to the impacts of migration on Q1 employment, we then estimate some augmented and reduced form employment equations (section 6.3).   Finally, we translate the inter-

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[8] The measure of expected regional inflows used as an instrument for gross in-migration was the predicted value for this inflow from a panel regression involving four national inflow variables (for principal asylum seekers, pre/post-2000, A8 migrants and all otherss) each interacted with regional dummies. The first 3 components, which account for the bulk of the regional differences in trends, are each largely the product of exogenous policy and political factors.   A similar measure for net migration was calculated from regressions including out-flows as a fifth national variable. Synthetic estimates of poor country inflow were derived from the gross migration regressions, using the coefficients on A8 migrants and the two asylum seeker variables to predict the distribution of these flows plus a constant share (54%, as nationally) of the 'other' inward flow category. As an approach to instrumenting regional migration rates there are similarities with Card's (2001) strategy, but differences in the use of a policy-related (rather than geographic) split of national flows, and of regression rather than base period flows to determine weights.

regional findings from this, to the specific case of explaining the Q1 employment boom in London during the late 1990s (section 6.4).

6.1 Wage Equations for the 5 Occupational Quintiles

Base runs of wage equations for each quintile are estimated on a dynamic panel basis, including temporal and inter-quintile 'lags' of the dependent variable, with an intendedly robust measure of international migration, based on gross inflows averaged over the two preceding calendar years, expressed as proportions of the resident population. Various forms of spatial lag in dependent and independent variables were tied experimentally, without success, and excluded from the base model, though that involving migrant inflows and Q1 wages was re-examined, with results reported below.

Two basic sets of estimates for the quintile wage equations are reported (in Table 2), one based on OLS, and the other on 3SLS. In the latter case, current earnings and employment levels in each quintile are treated as endogenous, as are international migration and house prices. In addition to the migration instrument discussed in the last section, instruments include two lags of other included variables and other demographic/labour market variables (drawn from the GHS). The 3SLS estimates also control for potential correlation of residuals across the 5 quintile groups, including those which might arise from shared reactions to aggregate shocks impacting across a regional economy.

The reported $\overline{R}^2$ values in Table 2 indicate *very* close fits for each of the regressions, though this essentially reflects the power of the fixed effects, within what are clearly highly integrated national labour markets - even in Q1, though especially for the higher quintile groups. As suggested by the time series graphs for Q1 and Q5 (Figures 1 and 2 above), this integration has produced a rather stable pattern of regional differentials, with time-specific influences (shocks and cycles) exerting similar effects across all regions. The fact that this is slightly less true in Q1 could reflect a lower spatial mobility, and/or the weakness of national wage bargaining in a poorly organised segment of the labour market. Using separate time fixed effects for northern and southern regions, to allow for weaker integration across this 'divide', further reduces the residual variance from the pure fixed effects regressions (by around 20%) - in all quintiles except for Q5. Our failure, in the preliminary experiments, to

find specific interdependences with neighbouring regions, is to be understood then, not as pointing to an absence of spillovers, but rather to a strength that transmits effects[9] well beyond immediate neighbours, within the timescale picked up by annual data series.

Among the more economically substantive control variables, contrasting patterns are evident in results for regional house prices (as the only available proxy for cost of living differences) and for employment within the quintile (i.e. effective labour supply). For house prices, the only indication of a significant (positive) effect on earnings is in Q1, and even there estimated elasticities (just 6% on the 3SLS estimate) are much below the share of housing costs in total expenditure. At the top end (in Q5) there is no sign at all of a positive effect on wages.

By contrast, employment within the quintile only ever shows the anticipated significant positive relation in Q5, while in the bottom two quintiles there is never a sign of a positive relation (or of significance). In general, the indications of a very elastic labour supply at quintile/region level, are not inconsistent with evidence about the high degree of openness of such disaggregated 'sub-markets'. From this perspective, it does seem perverse that it should only be in what appears to be the most spatially open segment of the labour market (Q5) that eliciting a larger supply in a specific region seems to require a significant increase in relative earnings. The most plausible explanation is that a combination of high levels of specialisation, continuously growing demand, and the monopoly power available to key workers with firm-specific human and social capital, has made this the least 'perfect' of the broad segments of the labour market.

For the NMW, the results bear out expectations about its impact on regional differentials in Q1 earnings. Our computed measure of the potential direct effect of introducing the minimum involves average values for years from 1999 of 4.3% in London, compared with 6.7% across the rest of the country. The estimated coefficient on this in the 3SLS estimates implies a relative increase in earnings for areas outside London of 3% in the short term and 5% over the long run.

For evaluation of the two hypotheses about causes of Q1 employment expansion in the core (London) region, the key issue on the supply side is whether earnings in this quintile show a

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[9] in terms of earnings if not necessarily of employment rates.

distinctively strong negative impact from overseas migration. On this point, the evidence from our quintile regressions is pretty clear-cut, since there is only significant evidence of such an effect in Q1. In most other quintiles the parameter estimates are negative, but not at all significant. In Q4, the relation actually appears to be positive, and possibly significant (at the 5% level) in the OLS estimates. There is good support for the hypothesis that negative effects of overseas migration on wages are confined to the bottom tier of jobs. But among these Q1 jobs it seems capable of depressing wages quite substantially. The relevant parameter estimate from the (preferred) G3SLS estimates imply that increasing the level of inflow by the equivalent of 1% of a region's population could be expected to reduce Q1 wages by nearly 4% in the short-run, rising to 6% in the longer-run. The strength of this specific effect from international migration contrasts with the evidence (just noted) that (without migration) Q1 employment can apparently be expanded significantly without any detectable increase in average earnings.

To look more closely at the character of this Q1 pay-migration relationship, a series of alternative regressions were undertaken, focused on the time lags involved, whether there was a symmetric effect from outflows, overspills from migration into neighbouring regions, and the specific significance of flows from poor countries. The main results are reported in Table 3. These suggest firstly (comparing columns 1-6) that only the most recent inflow (in the calendar year preceding the spring-based earnings survey) has an impact, and that rates of outflow are more or less irrelevant (since the net migrant version fits less well and with much lower coefficient values). Secondly, when an estimate of the split between poor and rich country origins is introduced (column 7) it is clearly the former which exercise the dominant influence, with an effect from rich country arrivals which looks substantially weaker, and is not at all statistically significant. The best fitting model then simply involves the gross inflow into the region itself, in the most recent period, This is entirely consistent with our hypothesis that migration impacts on Q1 regional earnings are most likely to arise from the channelling of recent migrants from poor countries into such jobs – rather than any cumulative effect on the balance of supply and demand.

6.2 A Demand-side Employment Equation for the bottom Quintile

On the demand-side, our baseline model concentrates on intra-regional influences on the untraded element of Q1 employment - starting with the aggregate local population level, and the mean wage/ density of employment in the Q1-Q4, but with particular interest in its

responsiveness to employment/earnings in the ('money rich') top decile, the incidence of ('time-poor') all-worker households, and the affordability of Q1 employees, in terms of hourly wages. Additional influences on the (smaller) traded component are subsumed within the fixed effects, which again deal separately with northern and southern regions.

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These hypotheses are tested, in a series of models reported in Table 4, generally as single equations (estimated with IV), but also finally with G3SLS in the context of a full set of quintile wage and employment equations. Of the control variables, there is confirmation (though with varying significance) of the positive effects of (changing) population size, and the employment: population ratio for the other 4 quintiles, but not for average earnings there.

In relation to the variables of direct interest, there is support, if not always with statistical significance, for a stronger positive effect from the employment ratio for the top decile, and (more tenuously) from a higher proportion of all-worker households. But there is no evidence at all that increased earnings levels within the top decile add to demand for Q1 employment (see column 1). The strong indications that it is the size of the elite group that matters rather than its spending power suggests that it may be the nature of their tastes / lifestyles which boosts demand for the untraded services supplied by workers in Q1.

For the other key variable, the wage level within Q1 itself, results consistently support our expectation of a negative relation, though not quite significant at 5% in the base run (col. 1), and a bit weaker statistically, when we remove the other two wage variables (with insignificant and perversely signed coefficients (col. 2). The estimated elasticity (of -0.74) is still quite strong, however, especially in relation to the commonly reported finding that the NMW did not significantly lower employment in this segment of the market - perhaps because the price effect was off-set by new efforts to improve competitiveness in the activities concerned (Metcalf, 2008). That finding held up even in the one study examining looking at inter-regional differences (Stewart, 2002). But whereas in this NMW case the spatial contrast is a broad north-south one (between higher / lower cost regions), in our case more localised immigration shocks have produced some sharp contrasts in Q1 changes between neighbouring regions, both around London, and around Yorks/Humber. In these situations, even with nominally 'untraded' kinds of services there might be spatial switching of demand between nearby areas with significantly widening or narrowing wage differences - particularly if there are established commuting, shopping or visiting flows between them.

To test this hypothesis, spatially lagged Q1 wages were added to the regression, attracting a positive coefficient, which (though again not formally significant) was of very similar scale to the negative coefficient on the own region Q1 wage (column 3). Respecifying the wage variable as a difference from neighbours hardened up its significance, though not reaching the 5% threshold on the IV estimates (column 4a), though passing it when the equation was estimated by 3SLS as part of a full quintile system (column 4b). This is our preferred version of the employment equation, with the lowest standard error, a population coefficient with the unit elasticity that could be expected a priori, and the clearest positive relation with the D10 employment density[10].

To test the robustness of these results, and to derive direct estimates of the impact of migration on Q1 employment, we ran a number of augmented regressions, including both a saturated model (pooling variables from the supply and demand equations for Q1) and a reduced form Q1 employment equation (Table 5). Results from the former suggested that migration had no impacts on Q1 employment beyond those mediated by (depressed) Q1 wages and (increased) regional population. In line with other studies, however, there is a suggestion that the NMW might have had other (positive) effects on Q1 employment countering the negative one from increased wage costs (column 1). Allowing the NMW variable to enter the demand equation served only to slightly harden up the significant of D10 employment (columns 2 and 3).

In the reduced form equation (columns 4-6), all 3 estimation methods point to significant effects on Q1 employment from earnings in Q2 (negative in sign, reflecting spillover effects on Q1 wages levels) and from Q1 earnings in the adjacent region (positive, apparently reflecting price competition for locally traded services), as well as from population levels (with elasticities of +1 or a bit below). Consistent with the Sassen thesis, employment in the top cadre of jobs (D10) shows a consistently positive effect (with elasticity estimates of 0.3 in each case, despite varying levels of significance). There is also confirmation of an important effect from in-migration rates, however – over and above that through its impact on

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[10] Estimates for the other quintile groups suggest a much weaker (negative) wage effect in Q2 and Q3 (with none in Q4 or Q5) and no effect from D10 employment there (though positive ones again in Q4 and Q5).

population levels. In this case, coefficients do vary quite a bit, with values between 2.5 and 4.6, as compared with that of 3.3 implied by our preferred 3SLS estimates for the relevant structural equations. Taking account of different parameter estimates on the lagged dependent variables, the estimated long run effects are more or less identical - with values of about 8, implying an 8% increment to Q1 jobs from an regional inflow equivalent to 1% of the resident population - from both the structural and reduced form 3SLS estimates

6.3 Implications for the London Case 1995-2005
Though this analysis provides empirical support for both growing service class demand and poor country migration as significant positive influences on bottom tier employment, the time series evidence reviewed in section 5 suggests that these have unequal relevance to the actual upturn in such jobs eventually materialising in London during the late 1990s (and partially reversed after 2000). In this context what was striking was not any clear acceleration in the growth of D10 jobs, but rather the sharp upturn in immigration, accompanied by a lowering of Q1 wages.

The relevant change indicators for the period 1995-2000 are presented in Table 6, comparatively for London and the average region. These do show a significant growth in D10 employment (by about 7%), but only modestly above that in the average region, whereas international migration in London surged ahead, much faster than elsewhere, contributing to population growth 3 times faster than nationally. Q1 employment in London appears to have grown by a full 20% over these 5 years against zero change nationally. Applying the long run impact estimates from the 3SLS reduced form equation to the London differentials in growth rates for the independent variables, it appears about 8% of this 20% gap in Q1 growth rates could be attributed to London's higher in-migration rate, with a further 2% from its faster population growth, against just 1% from a proportionately larger increase in D10 jobs. Arithmetically, this is far from a complete accounting. But it is sufficient to show that the upsurge of international immigration (particularly from poor countries) into London over these years is *much* the more powerful of the two explanatory hypotheses in relation to this unique period of strong growth in bottom tier jobs within the capital/global city. It is also the only one that could explain the reversal of this growth in the years after 2000, when in-migration abated or was diverted elsewhere.

7. Conclusions

In the late 1990s London did belatedly display the growth in low paid service jobs anticipated, a decade earlier, by proponents of the 'global cities hypothesis'. But this turned out to be a temporary phenomenon and primarily attributable to an influx of poor country migrants rather than the demands of a burgeoning global service class. At its simplest, our finding (from British evidence) that inflows of such migrants into a region tend to push wages down in the lowest tier of its jobs, and that a cheapening of labour there can lead to a significant expansion of such jobs, seems simply to reflect some elementary economics, with an expanded supply serving to lower prices and thus raise demand. The second part of this diagnosis is, however, at odds with the reported insensitivity of employment in low paid jobs to significant wage increases engendered by the UK NMW.

Our results imply a more specific and nuanced process, however, in two respects. First, it is not a simple accumulation of a growing supply of unskilled labour that exerts an increasing downward pressure on labour, but rather the initial channelling of (potentially skilled) new arrivals from poor countries into bottom tier jobs that engenders a temporary downward pressure on wages in that tier. This also helps to explain the localisation of impacts within the region of arrival, and shifting pay differentials between neighbouring regions. In turn, that leads to the second significant finding, namely that pay differentials of this kind between neighbours are capable of inducing significant switches of demand for personal services which are locally tradable (e.g. through customer mobility) – even where a shared change in wage levels does not on overall demand for these.

Our basic conclusion for the London case - that the (real) boost to personal servicing demands from an expanding professional elite (partly linked to 'global' activities) would not have outweighed the negative influences on bottom tier employment of rising wage costs and domestic out-migration, without the arrival of new waves of in-migrants from poor countries– raises interesting comparative questions in relation to the experience of other international cities, to which the global city thesis has been applied, though often challenged. There are also important follow-up questions to be explored about the contribution of depressed wages in this tier of the London labour market from the late 1990s to an upturn in voluntary worklessness, prior to the financial crisis (Gordon et al., 2009).

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TABLES

Table 1. London Employment by Migrant Type and UK Pay Quintiles 2008

Migrant Origin	Years in the UK	Bottom quintile	2nd quintile	3rd quintile	4th quintile	Top quintile
Non-Migrant	..	11.3%	16.0%	17.4%	24.0%	31.3%
High Wage countries	0-3	13.5%	11.6%	10.2%	24.3%	40.5%
HWC	>3	9.5%	12.6%	9.8%	24.3%	43.8%
Low Wage countries	0-3	40.5%	19.7%	9.0%	9.1%	21.7%
LWC	>3	23.9%	21.3%	17.7%	17.3%	19.8%

Source: Labour Force Survey 2008

Table 2. Average Earnings Regressions for Quintiles across Regions and years 1976-2008

	Average Real Hourly Earnings (logged)				
	Quintile 1	**Quintile 2**	**Quintile 3**	**Quintile 4**	**Quintile 5**
OLS					
W_{t-1} _in quint	0.473	0.366	0.273	0.471	0.324
	(6.9)	(4.3)	(3.9)	(7.4)	(4.2)
W_t_ quint above	0.273	0.362	0.153	0.087	..
	(3.2)	(5.3)	(2.1)	(1.6)	
W_t_ quint below	..	0.185	0.453	0.218	0.305
		(3.4)	(5.5)	(2.8)	(3.8)
$IntMig_{t-1}$	-2.397	0.932	-0.752	1.168	0.462
	(3.2)	(1.6)	(1.2)	(2.1)	(0.6)
L in quint	-0.031	-0.047	0.013	0.020	0.058
	(1.7)	(2.7)	(0.5)	(1.0)	(2.2)
HP_{t-1}	0.030	0.011	-0.004	0.001	-0.016
	(1.9)	(0.8)	(0.2)	(0.1)	(0.5)
Pot NMW impact	1.416	..	..	..	..
	(4.3)				
SE	0.0088	0.0074	0.0083	0.0091	0.0128
$\bar{R}^2$	0.9965	0.9981	0.9980	0.9986	0.9974
$\bar{R}^2$ fixed effects + N/S interaction	0.9866	0.9924	0.9937	0.9964	0.9954
$\bar{R}^2$ fixed effects only	0.9836	0.9904	0.9913	0.9954	0.9952
G3SLS					
W_{t-1} _in quint	0.402	0.248	0.167	0.176	0.132
	(3.8)	(2.4)	(1.8)	(1.8)	(1.8)
W_t_ quint above	0.251	0.643	0.284	0.478	..
	(1.6)	(3.1)	(1.9)	(3.8)	
W_t_ quint below	..	0.087	0.507	0.307	0.840
		(0.5)	(2.5)	(2.0)	(5.0)
$IntMig_{t-1}$	-3.728	0.131	-1.393	1.529	-0.061
	(2.8)	(0.1)	(1.4)	(1.6)	(0.1)
L in quint	-0.061	-0.054	-0.005	-0.018	0.081
	(1.3)	(1.6)	(0.2)	(0.6)	(1.9)
HP_{t-1}	0.061	0.016	-0.003	0.008	-0.038
	(1.6)	(0.8)	(0.2)	(0.3)	(1.2)
Pot NMW impact	1.181	..	..	..	..
	(2.9)				
SE	0.0074	0.0065	0.0070	0.0088	0.0116
Observations	320	320	320	320	320

Sources: NES and GHS micro-data (from ONS VML and ESDS respectively), and CLG house price series.

Notes: 1. Wage, employment, population and house prices are all in log form; 2. Bracketed values are t statistics, based on boot-strapped estimates of standard errors; 3. Fixed regional and year fixed effects are included in all regressions; the regional fixed effects are interacted with dummies for the periods covered by 3 different occupational coding schemes; the year effects are interacted with a north-south dummy; 4. Employment in each quintile and the international migration rate are treated as endogenous in the G3SLS estimates; 5. Additional instruments used for these estimates include one-year lagged values of employment in each of the quintile groups, exogenous variables from the demand/employment equation, and an expected migration rate derived by regressing of actual numbers on national immigration and asylum-seeking series interacted with regional dummies; 6. G3SLS estimates relate to this set of 5 equations estimated together.

Table 3. Average Earnings Regressions for Bottom Quintile across Regions and Years with Alternative Measures for International Migration

Migration variable	Gross	Net	Gross	Net	Gross	Net	Gross
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
Own Region							
$IntMig_{t-1}$	-4.321 (2.9)	-2.295 (1.6)	-4.491 (3.4)	-2.972 (2.1)	-4.262 (2.3)	-2.562 (1.8)	
$IntMig_{t-2}$	0.585 (0.5)	0.779 (1.0)	0.442 (0.4)	0.786 (1.1)			
$IntMig_{t-3 \text{ to } t-5 \text{ (ave)}}$	0.449 (0.3)	-1.743 (1.5)					
$MigPoorCountry_{t-1}$							-3.232 (3.8)
$MigRichCountry_{t-1}$							-1.246 (0.6)
Neighbouring Regions							
$IntMig_{t-1}$	0.806 (0.4)	2.493 (1.2)					
$IntMig_{t-2}$	0.896 (0.4)	0.558 (0.3)					
$IntMig_{t-3 \text{ to } t-5 \text{ (ave)}}$	-0.287 (0.1)	1.852 (0.6)					
W_Q1_{t-1}	0.331 (3.9)	0.449 (6.5)	0.347 (4.2)	0.456 (5.1)	0.338 (2.8)	0.450 (5.3)	0.411 (5.9)
$W\__t$ quint above	0.269 (2.7)	0.206 (2.5)	0.231 (2.8)	0.200 (2.1)	0.231 (2.6)	0.213 (1.8)	0.187 (1.4)
L_Q1	-0.039 (1.0)	-0.045 (1.1)	-0.065 (1.9)	-0.069 (1.4)	-0.065 (1.4)	-0.064 (2.0)	-0.067 (1.8)
HP_{t-1}	0.048 (1.8)	0.013 (0.5)	0.037 (1.8)	0.018 (0.9)	0.039 (1.4)	0.020 (1.0)	0.038 (2.0)
Pot NMW effect	1.162 (2.9)	1.559 (3.9)	1.293 (3.2)	1.535 (4.4)	1.223 (2.9)	1.553 (3.7)	1.381 (4.6)
Observations	280	280	280	280	280	280	280
RMSE	0.0094	0.0094	0.0094	0.0096	0.0093	0.0095	0.0091

Sources: as for Table 2
Notes: see Table 2; all estimates here are based on 2SLS regressions, treating current employment and earnings in quintiles as endogenous, together with own region migration in the most recent period; Instruments are as in Table 2, with the addition of an expected value for current net migration computed as for the gross migration instrument but with reference also to a third national migration series , for gross out-migration.

Table 4. Regressions of Employment in Bottom Quintile

	(1)	(2)	(3)	(4a)	(4b)
	IV	IV	IV	IV	3SLS
Lagged Emp Q1	0.438	0.504	0.494	0.480	0.419
	(4.8)	(7.5)	(7.2)	(6.8)	(4.9)
W_Q1					
In region	-1.211	-0.738	-0.597		
	(1.9)	(1.4)	(1.2)		
In neighbours			0.468		
			(1.1)		
Diff from neighbours				-0.682	-0.732
				(1.7)	(2.2)
Pop	0.283	0.767	0.921	0.904	1.037
	(0.7)	(2.1)	(2.3)	(2.5)	(4.1)
EmpDens Q2_5	0.326	0.139	0.094	0.147	0.272
	(0.9)	(0.6)	(0.4)	(0.6)	(1.0)
W_ Q2:Q5	-0.382				
	(0.7)				
EmpDens D10	0.179	0.193	0.227	0.209	0.276
	(1.2)	(1.4)	(1.4)	(1.3)	(1.9)
W_D10	-0.132				
	(0.3)				
PropAllworkerHhld	0.076	0.098	0.094	0.095	0.093
	(0.5)	(0.7)	(0.7)	(0.8)	(0.6)
N	320	320	320	320	320
R^2	0.9969	0.9970	0.9970	0.9970	0.9970
RMSE	0.0272	0.0269	0.0268	0.0266	0.0218

Sources: as for Table 2

Note: 1. Equations also include a full set of fixed effect/interactions, as for the wage equations in Table 2;

2. IV estimates are for single equations, with endogenous variables and instruments as in Table 2. The 3SLS equations are from estimation of a set of wage and employment equations for each of the 5 quintiles.

3. The R^2 and SMSE values for a regression with just fixed effects are 0.9908 and 0.0430; including the interaction between time and a north-south dummy brings these to 0.9921 and 0.0427

Table 5. Additional Regressions of Bottom Quintile Employment

	Saturated	Augmented Demand Equation		Reduced Form		
	IV	IV	3SLS	OLS	IV	3SLS
Lagged Emp Q1	0.458 (6.3)	0.456 (5.6)	0.452 (6.5)	0.452 (7.9)	0.452 (6.2)	0.470 (8.1)
Wage_Q1 In region	-0.433 (2.1)					
In neighbours	0.581 (1.5)			0.569 (1.4)	0.700 (2.1)	0.590 (2.1)
Diff from neighbours		-0.731 (1.8)	-0.768 (2.8)			
Pop	0.969 (2.8)	1.042 (2.9)	1.025 (2.7)	1.030 (3.8)	1.043 (4.0)	0.782 (2.3)
EmpDens D10	0.314 (2.3)	0.281 (2.0)	0.419 (2.2)	0.281 (5.0)	0.311 (2.5)	0.340 (1.9)
W_t quint above	-0.308 (1.4)			-0.547 (2.8)	-0.545 (3.0)	-0.762 (3.2)
$IntMig_{t-1}$	-0.140 (0.0)			4.590 (1.9)	2.462 (0.9)	4.259 (2.0)
Pot NMW Effect	1.845 (1.0)	2.335 (1.7)	0.734 (0.6)	1.815 (1.5)	1.473 (1.0)	0.357 (0.3)
N	320	320	320	320	320	320
R^2	0.9970	0.9969	0.9967	0.9971	0.9969	0.9970
RMSE	0.0268	0.0269	0.0230	0.0266	0.0273	0.0222

Sources: as for Table 2
Notes: 1. See notes 1 and 2 to Table 4;   2. The 3SLS estimates for the reduced form are estimated together with reduced form employment equations for the other quintile groups.

Table 6. Employment and Migration Changes 1995-2000: London versus British Regional Average

	London	Average for British Regions
Bottom quintile: share of all jobs		
1995	16.1%	22.5%
2000	19.4%	22.5%
% change 1995-2000	+20.5%	0.0%
Top decile job:population ratio		
1995	5.21%	2.82%
2000	5.57%	2.97%
% change 1995-2000	+6.9%	+5.3%
Gross International Migration: population ratio		
1995	1.57%	0.49%
2000	2.75%	0.68%
Absolute change 1995-2000	+1.18%	0.19%
Population (millions)		
1995	6.91	5.64
2000	7.24	5.72
% change 1995-2000	+4.7%	+1.5%

Sources : as for Table 2

Note : D10 job : population ratios average data for 3 years (1993-5 and 1998-2000) to smooth out annual response variations
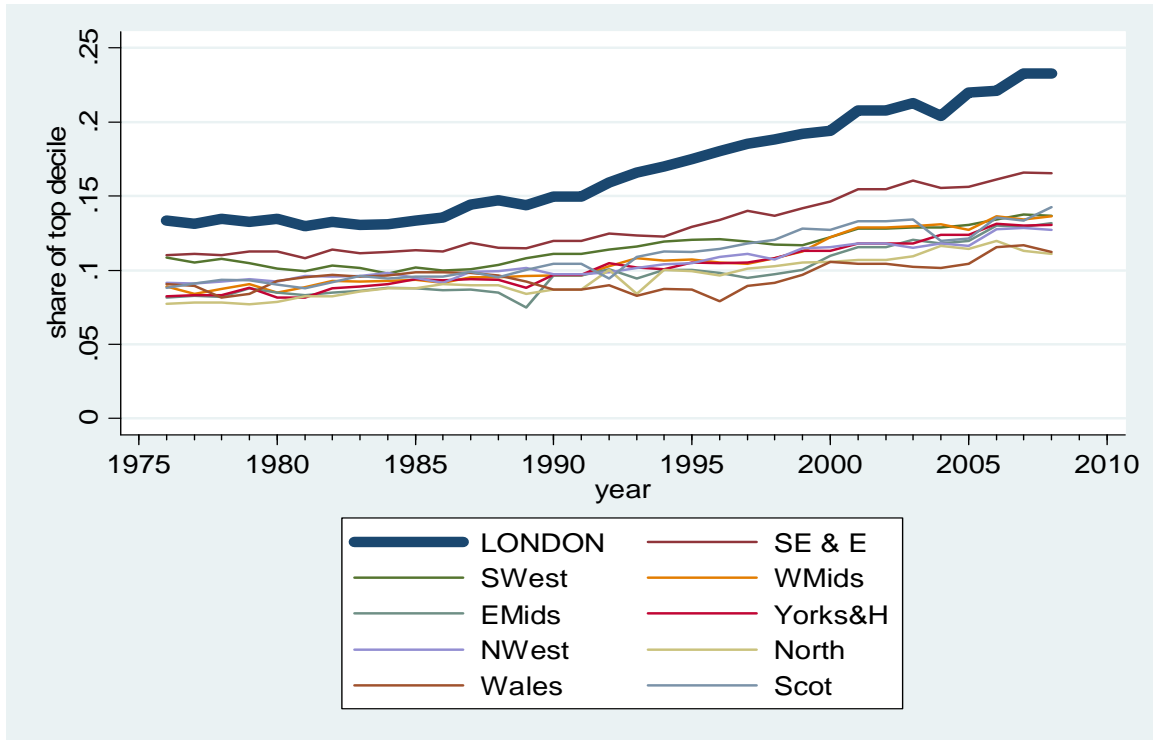
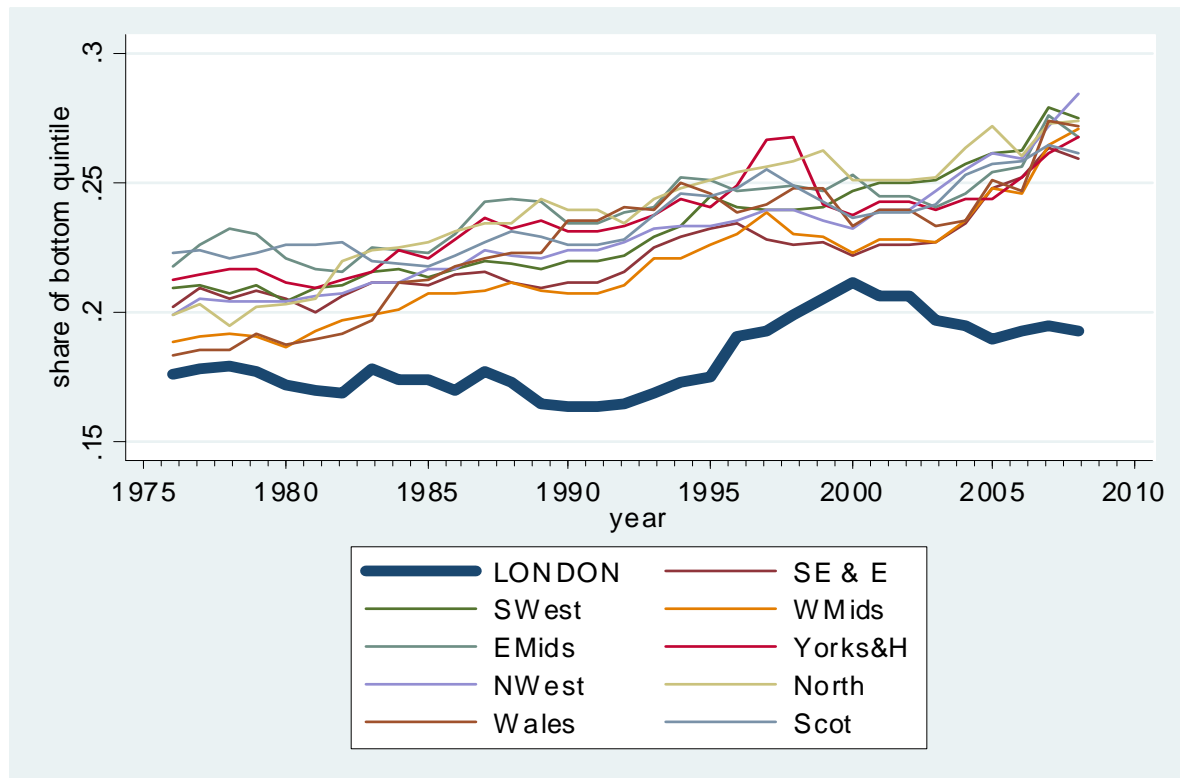**Figure 1: Top Decile Job Share**

Figure 2: Bottom Quintile Job Share

Figure 3. Top Decile Real Hourly Earnings (£s 2008 UK prices)
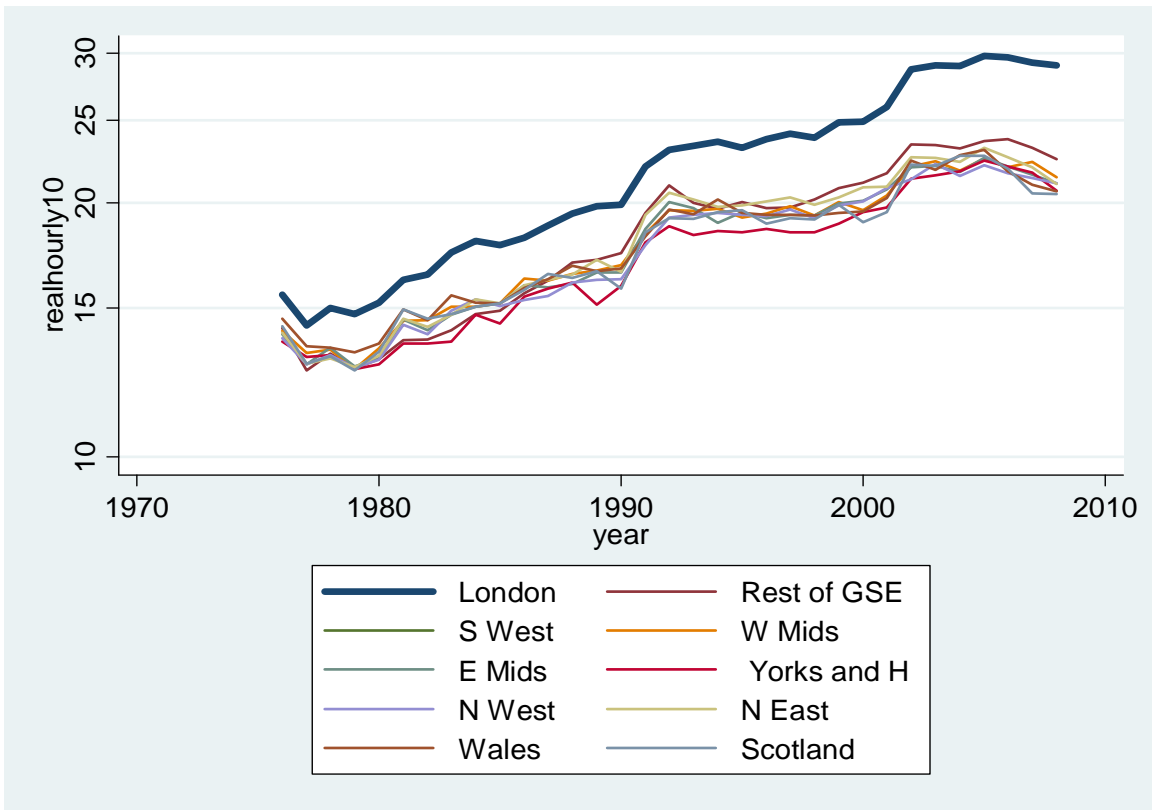

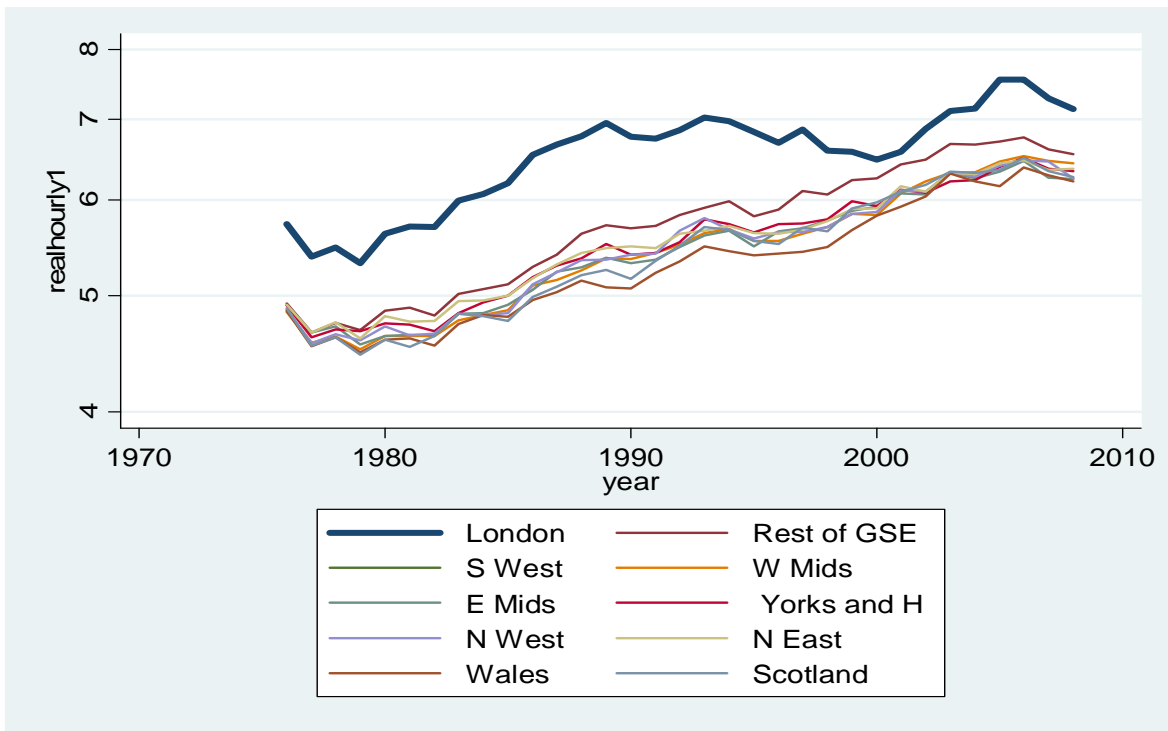**Figure 4: Bottom Quintile Real Hourly Earnings   (£s 2008 UK prices)**

Figure 5. In-Migration from Overseas (population adjusted)