

ECONOMIC SEGREGATION IN BRITAIN'S CITIES

By

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1. Introduction

This paper addresses the question of the *persistence* of economic (rather than ethnic) segregation in Britain's cities. The promotion of integrated communities is a key feature of UK government policy and, yet, the first part of this paper demonstrates from Census data that segregation has shown little sign of declining over the last twenty years. However, the promotion of integration requires us to understand why segregation arises in the first place. Although a number of economic theories indicate that segregation is a "natural" outcome, we argue that policy has behind it no discernible, quantifiable model of how local housing systems work. In the second part of this paper we provide a small, empirical model of housing and labour markets across the English local authorities that can be used to analyse the cumulative processes of growth and decline, which lead to segregation. In the third part of the paper, we conduct simple simulations on the model to see the policy implications and in order to draw lessons for future.

2. Segregation in Britain

The UK suffers from the highest degree of social exclusion in Europe. The UK has the highest percentage of children living in households with incomes below the US official poverty line, the highest proportion of households with children in which no adult is in employment; only Spain has a worse performance in maths tests for 13 year olds; the UK shows low levels of adult literacy, low rates of participation in learning at age 18 compared with the EU average, the highest teenage birth rate, the highest rate of drug usage by teenagers and high chances of being the victim of a crime (Social Exclusion Unit 2001). These problems are most heavily concentrated in urban areas. As the Social Exclusion Unit suggests, these problems are linked and are mutually reinforcing, creating "a fast-moving vicious circle". The idea of vicious circles, and how to model and quantify them, is a recurring theme in this paper.

Table 1, taken from Robson *et al* (2000), shows the regional pattern of the most and least deprived wards in England, based on the 2000 Index of Deprivation. The Index ranks the level of deprivation in every English ward and local authority area. It combines a number of indicators covering income, employment, health deprivation and disability, education skills and training, housing and geographical access to services into a single score for each area. With the exception of London the most deprived wards are heavily concentrated in the North, whereas the most prosperous wards are primarily in the South. But a simple representation of a North/South divide is misleading. London, in particular, has a high proportion of deprived wards and the top three English districts with the highest proportions of deprived populations all lie in Inner London.

Table 1. The Regional Pattern of the Most and Least Deprived Wards

	Regional Breakdown of 10% most deprived wards	Regional breakdown of 10% least deprived wards
North East	19.0	0.8
Yorkshire & Humberside	9.4	2.7
East Midlands	9.0	9.5
Eastern	3.7	17.4
London	18.0	5.6
South East (excl. London)	3.4	47.1
South West	3.6	9.4
West Midlands	8.2	3.4
North West	25.7	4.0
Total	100.0	100.0

Source: Robson *et al* (2000)

London provides an extreme example of a characteristic of many of Britain's cities – it's relatively young age distribution. After decades of population decline, London's population in 2001 stood at 7.2 million, a 5% increase from 1981. The gains in recent years in London have occurred partly as a result of natural population increases. London has both a high birth rate and low death rate compared with the country as a whole. Furthermore London has gained significantly from international in-migration. In terms of internal migration, London continues to gain population from the Northern regions, but loses population to the neighbouring South East and Eastern regions. Furthermore, London benefits from the mobile 16-24 age group, but contracts in the other age groups. These trends have established distinct patterns of urban-rural drift. To caricature the movements, at early stages of an individual's life-cycle, he/she tends to be drawn towards London (as a result of labour market opportunities) but, as the individual becomes older and household characteristics change, the

individual migrates short distances to Outer London or the South East and, in many cases, commutes back to London to work.

Table 2. Population Age Structure in London and South East England (% shares)

	0-15	16-24	25-29	30-44	45-59	60+
Inner London	19.5	13.2	12.1	27.4	14.0	13.8
Outer London	20.6	11.3	8.1	24.6	17.3	18.1
South East	19.9	10.6	6.3	22.6	19.5	21.1

Source: 2001 Census of Population; South East measured on Government Office Region basis.

From Table 2, Inner London clearly has a younger population structure than the rest of the South East, particularly in the 16-24 and 25-29 age bands. The table also demonstrates that individuals tend to move away from the centre as they become older. But an important element of current urban policy is concerned with how these deep-seated long-run trends might be reversed. The question, however, is why households move away from London as they age. It seems unlikely that age *per se* is the critical factor. To answer the question, we need to look at the factors that cause households to move and the factors that influence the choice of location.

Table 3 widens the spatial scale and looks at the *changes* in the proportions of the population in the younger age bands in some of England's largest cities in both the 1991 and 2001 Censuses. Although it is frequently argued that Britain's (and Australia's) cities are being repopulated by wealthy, young households, there is little evidence that the proportion of the young in England's cities has risen over the last ten years. The main exception is Manchester where the proportion of the local authority population in the 20-29age band has increased.

Table 3. Population Shares of Younger Individuals in Selected Cities - % shares

	20-24	25-29	20-29	20-24	25-29	20-29
	1991			2001		
Inner London	9.4	11.8	21.2	8.7	12.1	20.8
Outer London	8.1	9.3	17.4	6.5	8.1	14.6
Newcastle	8.1	8.5	16.6	9.6	7.1	16.7
Manchester	9.4	9.1	18.5	11.4	8.5	19.9
Liverpool	7.9	8.2	16.1	8.4	6.6	13.0
Sheffield	8.2	8.0	16.2	8.1	6.7	14.8
Leeds	8.0	8.1	16.1	8.1	7.1	15.2
Birmingham	8.2	8.4	16.6	7.6	7.0	14.6

Source: 1991 and 2001 Censuses of Population

Table 4. Components of Population Change (000s)

	Population mid 1991	Natural change	Net migration & other	Population mid 1999	Natural change	Net migration & other	Population mid 2000
Inner London	2,627.4	156.5	33.1	2,817.1	23.4	33.9	2,874.3
Outer London	4,262.6	159.1	46.3	4,468.0	20.1	12.6	4,500.7
Newcastle	278.2	-0.4	-4.7	273.0	-0.2	-2.4	270.5
Manchester	438.5	9.7	-17.1	431.1	0.9	7.6	439.5
Liverpool	480.7	1.4	-24.2	458.0	-0.3	-0.4	457.3
Sheffield	529.3	0.3	1.1	530.6	-0.2	-0.3	530.1
Leeds	717.4	10.5	-1.1	726.8	0.5	-1.1	726.1
Birmingham	1,006.5	36.6	-29.5	1,013.2	4.1	-6.8	1,010.4

Source: ONS

Table 4 presents evidence on the source of population change in the sample of cities. Note, however, that these are pre-2001 Census estimates and, therefore, not consistent with the figures in the earlier tables. In almost all cases, the figures suggest that net migration is the primary source of population loss in the North, although the estimated net migration gain in Manchester in 2000 stands out as an exception. Therefore, at least at this level, historical patterns of out-migration from the larger industrialised centres appear to be continuing. London is, however, the gainer from these patterns. For future reference, it is useful to note that there is a high degree of correlation between local authority migration flows and the 2000 Index of Multiple Deprivation. Based on 354 English local authorities, the correlation between migration rates and the deprivation index is approximately –

0.4. Although causality cannot be inferred from the figures, they indicate that positive net inflows into each area are inversely correlated with the level of deprivation. We take this analysis further in the next section.

In themselves, the figures in the tables tell us little about economic segregation and its change over time. Here we use two indicators – concentrations of unemployment and educational qualifications. The Censuses include no information on income, but these two indicators are good proxies.

There are many potential measures of segregation. Cutler *et al* (1999) consider segregation in five dimensions: evenness (dissimilarity), exposure (isolation), concentration (the amount of physical space occupied by the minority group), clustering (the extent to which minority neighbourhoods are contiguous) and centralisation (proximity to the city centre). In practice, measures of dissimilarity and isolation have been constructed most frequently in the literature (see Massey and Denton 1988). Green (1994) has constructed both these indicators for Britain, using the 1981 and 1991 Censuses. We concentrate, here, primarily on the dissimilarity rather than the isolation index. In the (US) literature, indices are more usually constructed in terms of ethnicity, rather than economic conditions and the index of racial dissimilarity, (D), is calculated as:

$$D = 0.5 \sum_{i=1}^n \left| \frac{black_i}{black_{total}} - \frac{nonblack_i}{nonblack_{total}} \right| \quad (1)$$

In our analysis, there are almost 8,000 wards across England. Therefore, the index looks at the percentage of minority households in any ward relative to the percentage of non-minority households. More precisely, the index is a measure of the proportion of a given group that would need to move across wards in order to obtain a perfectly even distribution of that group across the city (or local authority area). Of course, the index can be constructed for any socio-economic variable, rather than ethnicity. The value of the index ranges between zero and one. Massey and Denton (1988) suggest that, for ethnicity, a value of less than 0.3 is low; between 0.3 and 0.6 dissimilarity is moderate and above 0.6 dissimilarity is high. A value of zero would imply that every ward has the same percentage of minority households as the city average. A value of one implies total segregation, where all the minority live in certain wards and everyone else lives in other locations. However, these rules-of-thumb apply primarily to ethnicity-based measures. As Abramson *et al* (1995) indicate, income-based indicators typically show lower levels of segregation, despite the fact that race and poverty are highly correlated. Abramson *et al* calculate a mean dissimilarity index value across the 100 largest US metropolitan areas in 1990 of 0.36 based on income compared with a value of 0.61 based on race.

Table 5 presents the fifteen top ranked local authority districts (LADs) on the two bases for 2001. Considering, initially, the unemployment based indicator, first, note that it does not necessarily follow that the areas of the highest unemployment will have the greatest degree of segregation. Hackney in London is the most deprived local authority in the country on the basis of the deprivation index, but has a dissimilarity value of only 0.048 – one of the lowest in the country. This reflects the fact that unemployment is almost uniformly high in each of the wards of the local authority. It does not imply an integrated community between rich and poor. Therefore, we have to be careful in our interpretation. Second, although Cannock Chase tops the list, it is not typical. Cannock Chase has a relatively small population of 67,138 between the ages of 16 and 74 and the unemployment rate across its wards ranges from 2.3%-8.6%. But the upper limit is an outlier and, since the number of wards is relatively small, this value has a disproportionate effect on the results. Cannock Chase has not figured significantly in earlier studies. By contrast, of the top four ranked wards, Stockton and Middlesbrough, both in the North East of England are more typical. In Stockton, the unemployment rate ranges from 3.0%-22.4% and in Middlesbrough 3.8%-24.3%. Overall, eleven of the fifteen top ranked local authorities lie in the North (North East, North West, Yorkshire and Humberside) of the country and none in the South East.

But for policy, the question is whether these rankings and, indeed, the absolute levels of the indices have changed over time. The second question is difficult to answer since the exact definitions of the Census questions have changed over time. Relatively small differences in definitions appear to have a significant impact on the absolute scores. Furthermore the ward boundaries over which the LAD indices are constructed have altered over time. Nevertheless, we can still discern patterns in the rankings. As noted above, the most comprehensive study of segregation in Britain is that by Green (1994) for 1981 and 1991. A broad pattern emerged for 1991. Green found that, in England, Middlesbrough (3), Stockton (2), Preston (4), Castle Morpeth (22), Ellesmere Port (9), Sefton (29), Blackburn (12), Derby (14) and Newcastle (31) were the districts of highest segregation – again all lying in the Northern part of Britain. The numbers in brackets are our rankings in 2001. Therefore, all the most highly segregated local authorities in 1991 remain high on the 2001 list. Furthermore, in terms of changes

between 1981 and 1991, Green points to a high degree of continuity in the spatial distributions. All the evidence, therefore, points to the stability of segregation patterns between 1981 and 2001, with the most segregated communities existing in large, older industrial areas.

The second part of Table 5 considers the segregation of those who have achieved no formal educational qualifications. Since unemployment is strongly correlated with qualifications, we might expect similar rankings to those obtained using the unemployment indicator and, indeed, this turns out to be the case. Once again, segregation is heavily concentrated on the northern regions and eleven of the top local authorities are the same as under the unemployment based index.

Table 5. Indices of Dissimilarity – Top 15 Nationally, Local Authority Districts (2001)

LAD (unemployment based)	Region	Index of Dissimilarity (Unemployment based)	LAD (skills based)	Region	Index of Dissimilarity (skills based)
Cannock Chase	West Mids	0.304	Sheffield	Yorks & Humber	0.411
Stockton-on-Tees	North East	0.284	Leeds	Yorks & Humber	0.345
Middlesbrough	North East	0.270	Solihull	West Mids	0.340
Preston	North West	0.267	Stockton-on-Tees	North East	0.332
Oldham	North West	0.253	Ellesmere Port	North West	0.323
W. Lancs	North West	0.253	Kingston-upon-Hull	Yorks & Humber	0.316
Bradford	Yorks & Humber	0.246	Middlesbrough	North East	0.299
Ellesmere Port	North West	0.244	Derby	East Mids	0.284
Gloucester	South West	0.236	Preston	North West	0.274
W. Lindsey	East Mids	0.233	Blackburn	North West	0.260
Blyth Valley	North East	0.233	W. Lancs	North West	0.256
Blackburn	North West	0.232	Bradford	Yorks & Humber	0.250
Crewe	North West	0.231	Blyth Valley	North East	0.243
Derby	East Mids	0.230	Crewe	North West	0.241
Sheffield	Yorks & Humber	0.230	Oldham	North West	0.234

Source: calculated from the 2001 Census.

3. Modelling Segregation

As we saw in Table 4, the main way in which cities expand and contract is through migration. But most household moves in Britain are short distance. According to the Survey of English Housing, for owner-occupiers approximately 55% of moves are less than five miles and 80% less than 20 miles. The Survey also indicates that most of the moves take place because of changes in family circumstances, e.g. marriage or additional children, or to improve housing quality. Job related moves are only a small part of the total. We also saw above that migration flows are strongly correlated with the Index of Multiple Deprivation. This is the first piece of evidence that helps in constructing a model that can explain economic segregation. In full, our model has five elements: (i) explaining the location choices of households (and hence moving patterns), (ii) explaining the demand for housing in each local market (iii) explaining levels of deprivation, (iv) explaining local unemployment, (v) segregation patterns emerge from the previous steps.

3.1 Moving Decisions and Household Location Choices

In this sub-section, we present the key results from a study of moving and location decisions in London and South East England (Andrew *et al* 2002). In this study, household decisions to move depend on the economic and demographic characteristics of each household, whereas location choice depends on the aggregate features of each area, notably the level of deprivation and unemployment, and the price of housing. But since households typically only move short distances, the previous location is also an important determinant of location choice. Households are assumed to be able to choose between four locations; Inner London, Outer London, Rest of the South East (RoSE) and the rest of Britain.

Table 6 gives the estimated moving probabilities for a selection of different household types, discriminating between income quartiles, tenure, the number of children and the age of the household head. For current purposes, the key result is that the moving probabilities for households in the upper income quartiles are significantly higher than for households in the lower quartiles. Table 7 sets out the estimated location probabilities for households who start out in either London or the South East. Despite the fact that moves are

typically short distance, for those previously living in Inner London, there is a 23% probability that moving households will relocate in the Rest of the South East. By contrast, for those originally living in the South East, there is a less than 3% probability that they will move to Inner London. For this group, there is an 86% probability that any moves will be to another south-eastern location, although there is a 6% chance that they will move out of the South East altogether. Moves by Outer London residents also show relocation outwards rather than back into Inner London. The key determinants of these outward migration patterns are the higher levels of deprivation and unemployment in the central areas.

Table 6. Moving Probabilities

Household Type	Probabilities
Income quartile 1; private renting; 0 children; <40	0.362
Income quartile 4; private renting; 0 children; <40	0.403
Income quartile 1; owner occupn.; 0 children; <40	0.097
Income quartile 4; owner occupn.; 0 children; <40	0.114
Income quartile 1; public renting; 0 children; <40	0.164
Income quartile 1; owner occupn.; 1 child;=45	0.037
Income quartile 2; owner occupn.; 0 children; retired	0.097

Table 7. Location Probabilities

	Inner London	Outer London	Rest of South East	Rest of England
Previously IL	0.395	0.184	0.228	0.193
Previously OL	0.041	0.769	0.103	0.087
Previously SE	0.028	0.057	0.856	0.059

3.2 The Demand for Housing and House Prices

Areas of decline are typically associated with falling relative housing demand and house prices. Low demand estates have primarily (although not exclusively) been a problem for the northern areas of Britain (see Bramley and Pawson 2002). Since the location model in the last section implies that, through migration, areas of high levels of unemployment and deprivation will lose wealthier households disproportionately, we expect to observe a relationship between local house prices and those variables. Therefore, the next part of the model attempts to explain house price differences across 353 English local authority districts in terms of these demand-side factors and available housing supply. However, compared with most house price models, there is one important innovation. At the local level, there are reasons to suspect that the relationship between house prices and deprivation is non-linear. More precisely, the relationship may exhibit a *threshold* as in Figure 1.

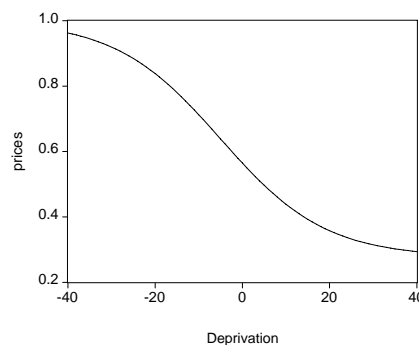


Figure 1. Relationship Between House Prices and Deprivation

Relationships of this form have been investigated, in particular, in Galster (2002). Only when the deprivation rate, (or some other neighbourhood variable) passes a threshold does the local area take off or go into decline. This might, for example, generate a sudden take off in house prices in an area, whereas prices in a neighbouring locality exhibit little change. As we shall see in the next section, threshold models have important policy implications. In fact, Meen (2003) suggests that Figure 1 is a good representation of the relationship between the two variables. In the estimated equation (the precise form is given in the appendix) the dependent variable (on the vertical axis) is measured as house prices in each local authority relative to the maximum price in the region in which that local authority exists. Therefore, the value of the variable can range between zero and one. Similarly the deprivation index (and other variables in the equation) is measured relative to the regional mean. The key findings of the study are (i) the relationship exhibits a threshold, (ii) deprivation, incomes and housing availability are all very important in explaining local authority house price differences. Approximately 75% of the variation can be explained by these factors.

3.3 Explaining Deprivation and Unemployment

Given that the level of deprivation is the key variable in explaining household moves and house prices, a complete model needs to consider the primary determinants of local deprivation itself. Equation (2) in the appendix suggests that deprivation can be explained well by unemployment, the age distribution, the proportion of residents who possess no qualifications, long-term illness and the ethnic composition. Amongst these variables the absence of qualifications and unemployment are particularly important for our purposes. Furthermore, the unemployment rate and the level of educational qualifications are not independent of each other. Table 8, taken from Meen (2001), gives the estimated labour market status probabilities for selected individuals, distinguishing between full and part-time employment, unemployment and non-participation in the labour force (inactive).

The table indicates that the probability of full-time employment for graduates is similar for males and females, although the probability of full-time employment falls significantly for a similarly qualified woman with a school-aged child (not shown in the table). Note also, from the top half of the table, that males with no qualifications, who were unemployed in the previous time period, have a 7.3% probability of dropping out of the labour force altogether.

Table 8. Predicted Labour Market Probabilities

	Full Time (FT)	Part Time (PT)	Unemployed (UR)	Inactive (NP)
Males				
Degree; age 21; previously FT	0.953	0.013	0.028	0.006
Degree; age 45; previously UR	0.287	0.036	0.648	0.029
No qualifcn; age 45; previously FT	0.895	0.014	0.074	0.016
No qualifcn; age 45; previously UR	0.173	0.030	0.724	0.073
A-level; age 21; previously FT	0.944	0.015	0.020	0.020
Females				
Degree; age 21; previously FT	0.931	0.039	0.022	0.009
Degree; age 45; previously UR	0.304	0.117	0.532	0.046
No qualifcn; age 45; previously FT	0.876	0.044	0.056	0.024
No qualifcn; age 45; previously UR	0.185	0.099	0.599	0.117
A-level; age 21; previously FT	0.910	0.044	0.015	0.032

Although this model concentrates very heavily on the supply-side of the market and has little to say about the pressure of demand, the key finding is that labour market status is strongly related to educational qualifications. At the upper end of the scale, those with a degree are much more likely to be employed full-time than inactive. Furthermore they are more likely to be employed full-time than either employed part-time or unemployed. At the other end of the scale, those with more limited qualifications have a higher probability of unemployment. Qualifications, therefore, generate a ranking of labour market status. Moreover, qualifications are much more important than residential location *per se* in determining status. But this does *not* imply that the unemployed will not be spatially concentrated.

3.4 Explaining Segregation

Segregation – high concentrations of the unemployed and the wealthy – is a natural outcome of the model. It is straightforward to see how cumulative processes of decline and segregation may occur, even in the absence of changes in the pressure of demand. Economic segregation is not necessarily the outcome of industrial decline concentrated on certain areas or industries. Segregation can occur in expanding as well as declining areas, although it is, perhaps, more likely in the latter and Table 5 did suggest that segregation is highest in the older industrialised areas.

For a given pressure of demand, from 3.3, individuals with the highest levels of qualifications will have the highest incomes and are less likely to experience unemployment. From 3.1, these individuals have the highest moving propensities and, on moving, are more likely to be able to move to areas of the best amenities and lowest levels of deprivation and unemployment. Also from 3.3, as unemployment rises, the level of deprivation increases. This pushes down relative house prices in deprived areas from 3.2. But, rather than prices restoring an equilibrium in which socially mixed neighbourhoods arise, the processes are self-reinforcing. As the more wealthy move out, unemployment and deprivation rise further in the areas they leave behind. The unemployed and those on low incomes, who cannot move, become segregated from those on high incomes. As Cheshire *et al* (2003) observe, the main causes of segregation are the distribution of income (which has widened in the UK) and the fact that locational attributes are in inelastic supply – for example river front locations are in limited supply and cannot easily be increased. It follows that employment creation policies in areas of high unemployment are likely to have limited success since the vacancies are likely to be filled by higher skilled workers commuting from other areas rather than from the locally unemployed. Furthermore, skills-enhancement programmes for those without qualifications will raise out migration rates as their incomes increase. The stability of the segregation patterns observed in the last section are unsurprising. Reversing the patterns is very hard.

4. Policy Implications

In the light of the model and government priorities to encourage mixed communities, are there policies that are capable of reversing the observed patterns of segregation? There are broadly three locally based forms of intervention to consider as possibilities, (i) planning policies, (ii) area regeneration policies, (iii) fiscal policies.

4.1 Planning Policy

Current UK planning policy guidance to local authorities highlights (i) the need to create mixed communities through planning decisions (ii) the need to provide sufficient housing land, but giving priority to re-using land in urban areas, bringing empty homes back into use and the conversion of existing buildings (60% of new homes should be constructed on brownfield sites), (iii) the creation of sustainable development patterns, (iv) the promotion of good design in new developments in order to create high quality living environments. But it is, by no means clear, that these objectives are consistent with the deep-seated market demands considered in the previous section, unless the provision of dwellings in itself manages to divert demand to those locations. There is little evidence in the UK that this is the case. Our model of London and the South East suggested the likely continuation of (older) population flows away from Inner London towards the suburbs, despite government priorities for urban areas.

4.2 Area-based Regeneration Policies

Area-based regeneration initiatives have been used widely throughout Europe. Policies include, physical neighbourhood improvement, active marketing and attempts to counteract bad reputation, change in tenure and dwelling disposals, support for private service facilities, efforts to combat crime, empowerment of local residents and communities, direct support for socially weak groups, including immigrants, attempts to attract new firms, education, job training (Skifter Andersen 2002). But European initiatives have rarely been implemented with any clear overall strategy¹ and, although evaluations of policy initiatives have differed in their conclusions, most appear to be negative in that they find only limited evidence that conditions have improved in the supported areas.

¹ And no clear model of how local housing markets work.

But our model suggests one reason why these initiatives have been limited in their success. Consider the house price equation in the appendix. We saw in Section 3.2 that there is evidence of non-linear responses in local house prices and that a threshold level of deprivation exists. In policy terms it is important to identify the points at which the thresholds occur. Policy change is most likely to be successful in areas that lie around the thresholds. By contrast, areas that lie well above the threshold level of deprivation are likely to be immune to some types of policy action, such as regeneration expenditures. But we found that the deprivation index is determined by unemployment, the proportion of the population lacking qualifications, illness, the proportion of retired individuals and the ethnic composition. Once the area tips, due to these factors, it becomes very difficult for policy to reverse the position. Therefore, early warning signs of areas at risk are particularly important.

At the mean value (across England) of the per capita housing stock, Figure 1 plotted the relationship between prices and deprivation. At the local authority level, deprivation (expressed in terms of deviations from the regional average) ranges from -21 to +33. Therefore, Figure 1 extrapolates outside the observed range. But the observed range at the local authority level is narrower than at the ward level. Furthermore, although no data are available below the ward level, our expectation is that the range would be even greater. The point is that tipping is more likely to be a feature of very localised markets than whole wards or local authorities. Therefore, the full range of the function is still of interest. But our estimates suggest that once the deprivation index reaches approximately 40-50, then the rate of change of prices stabilises and it is difficult to change conditions in these areas. Our expectation is that the areas that are particularly susceptible to regeneration expenditures, for example, are likely to lie in the areas of moderate deprivation.

4.3 Fiscal Incentives

Traditionally, fiscal incentives – whether through the UK government or through the EU – have been used to attract industry to deprived areas, rather than attracting individuals to those locations. But if deprived areas are simply those where low-skilled households choose, or are forced to live, then a complementary approach is to target incentives on high-skilled individuals in an attempt to promote integrated neighbourhoods. In fact, there are relatively few examples of such initiatives – the belief remains that integrated communities can be promoted either through physical development controls or by improving the quality of the environment through regeneration initiatives. Indeed, figures on Council Tax payments (the local property tax) suggest that the fiscal system discourages population movements towards areas of greatest deprivation, since effective tax rates are lowest in the areas of highest property values.

Amongst the few initiatives to have been implemented in Britain is the exemption from Stamp Duty of property transactions of less than £150,000, introduced in November 2001 for designated disadvantaged areas. The exemptions are ward-based and cover not only the North, but also the most deprived wards of London. It is still too early to assess the success of this initiative, but there are few examples of such policies in Britain even though they avoid the complex machinery of the planning process and can be implemented quickly.

As an example of how fiscal policies might be developed further, using the location choice model of Section 3.1, we shock the index of deprivation in Inner London. More precisely, we assume that a combination of renewal policies, such as those discussed in 4.2, successfully manages to bring the deprivation index in Inner London to the same level as that currently experienced in Outer London. We do not enquire in this paper how this might be achieved, or its cost. However, were it to be successful, it would clearly be a remarkable achievement. But, for our purposes, the absolute levels of change are not critical, merely the relative changes to the different types of policy instrument. Table 9 shows the new location probabilities (to be compared with Table 7) if the deprivation index in Inner London is set equal to that in Outer London. All the other variables are maintained at their outturn levels. The simulation is, of course, partial.

Table 9. Location Probabilities – Lower Levels of Inner London Deprivation

	Inner London	Outer London	Rest of South East	Rest of England
Previously IL	0.745	0.078	0.096	0.081
Previously OL	0.161	0.673	0.090	0.076
Previously SE	0.115	0.052	0.780	0.054

Comparing the results with those in the baseline scenario, it is clear that the current location remains the main determinant of new location – households move short distances – but the flows into Inner London are now substantially greater than in the base case (although admittedly from a large change to the deprivation index); environment matters to location. Now, of those previously living in Inner London, 75% stay there (40% in the base case) and less than 10% move to the Rest of the South East (23%). Note, however, that the increased flows back to Inner London from those previously resident in RoSE are slightly more modest, although still significant – 11% compared to 3% earlier. This suggests that it is easier to keep households in London who are already there than to persuade those outside London to move back in. If we also take into account the fact that households in RoSE are typically older and, therefore, have lower moving propensities, the results suggest that policies for Inner London should be aimed primarily at keeping the current younger, high-skilled households, rather than (as has sometimes been suggested) the more difficult option of attracting back older middle-class households, who have already left, in an attempt to promote social mix.

The next question is to ask what reduction in housing costs, through rebates of Council Tax in Inner London, would induce the same location probabilities as in Table 9. In the model, housing costs in each location are calculated simply as the mortgage interest rate multiplied by a measure of house prices in each location. On average, over the estimation period 1991-96, this gives an annual housing cost of £6,029 in Inner London. The simulations suggest that a reduction of £750 (12.5%) would induce similar probabilities. There is, however, an important caveat. The reduction in Council Tax appears to be a modest price to pay for the elimination of deprived areas in London. But this is an *average* estimate across Inner London. In fact, large sections of Inner London are not deprived and there are good reasons to believe that the required subsidies in the poorer areas would need to be substantially greater. This requires estimation at a finer spatial level of disaggregation, but we suggest that these values provide lower estimates of the required changes. On the other hand, the effects of the fiscal change could be even larger, since the simulations do not allow for any induced environmental gains. Movements of higher income households to an area introduce endogenous amenity improvements. Furthermore, from the results of the last sub-section, the effects may be non-linear. In some locations the effects may be very small, but in areas close to the thresholds very large. Again this points to the need for targeting.

5. Conclusions

Our paper suggests that segregation is the most likely type of local housing structure to emerge, generated by interactions between housing and labour markets. We have criticised the fact that government policies, designed to promote integration, rely on no formal model of local housing markets. When such a model is constructed the nature of the problems is apparent and the stability of the dissimilarity indices over time can be explained. However of the policy options available to governments, we have raised doubts about the efficacy of planning and regeneration policies, but have suggested that a spatially targeted use of fiscal policies warrants greater examination than has been the case in the past.

Equation Appendix

The threshold model discussed in Section 3.2 takes the following logistic form:

$$y_i = 1 - \frac{C_1}{1 + e^{(C_2 + C_3 IMD_i + C_4 (H / HH)_i + C_5 (INC)_i + \varepsilon_i)}} \quad (1)$$

Table 1a. Parameter Estimates in the House Price Equation

Area	C_1	C_2	C_3	C_4	C_5	R^2
England	0.723 (imposed)	-0.416 (12.0)	-0.083 (14.5)	-0.033 (5.9)	8.19E-5 (10.1)	0.76

t-values in brackets

Source: Meen (2003)

y_i = local authority house prices relative to the maximum regional price in which the local authority exists
 IMD = Index of Multiple Deprivation (relative to regional average)

H = number of owner-occupied dwellings
 HH = number of households
 INC = household income

$$IMD = 1.71 + 4.19(UR) - 0.61(AGE) + 0.15(NQUAL) + 2.03(ILL) + 0.13(NW)$$

11.3) (14.7) (7.9) (2.7) (16.2) (4.4)

$$R^2 = 0.92 \quad (2)$$

where:

UR = % of economically active population who are unemployed
 AGE = % of economically inactive population who are retired
 $NQUAL$ = % of people who have no qualifications
 ILL = % of working population with long-term illness
 NW = % of Black or Asian individuals in the local authority district

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