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Immigration and the Access to Social Housing in the UK

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Abstract

This paper investigates the impact of immigration on the probability of being in social housing in the UK. In recent years immigrant households are slightly more likely than natives to be in social housing but once one controls for relevant household characteristics immigrants are significantly less likely to be in social housing than natives. However, there has been change over time – the immigrant penalty has fallen over time probably because of changes in allocation rules. Overall we find that the rising number of immigrants and the change in the allocation rules can explain about one-third of the fall in the probability of being in social housing with two-thirds being the result of the fall in the social housing stock.

Key words: Immigration, social housing
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Introduction

The impact of immigration on natives is a contentious issue with a majority of the population in many countries currently being opposed to more immigration and believing that it makes the country a worse place to live (see, for example, Card, Dustmann and Preston, 2012). In the UK (the country studied in this paper) over 30% of the population have, for the last 10 years, rated immigration and race relations as one of the two most important issues facing Britain and over 60% of the population believe there are too many immigrants (Duffy and Frere-Smith, 2014).

The largest body of research on the impact of immigration is about the labour market - the effect on wages and employment of both natives and migrants. Although this literature has a very active debate about whether the impact of immigration on the wages of natives is positive or negative (see, for example, Card, 1990, 2005, Borjas, 2003, Ottaviano and Peri, 2012 for the US and Dustmann, Fabbri and Preston, 2005, Nickell and Saleheen, 2008, Manacorda, Manning and Wadsworth, 2012, Dustmann, Frattini and Preston, 2012, for the UK inter alia) the effects are not very large in absolute terms so it is hard to explain why such modest impacts produce such a strength of feeling about immigration among the general population.

It may be that it is the perceived or actual non-labour market effects of immigration that are more important in explaining attitudes to immigration. An important aspect of these concerns is about the demands that immigrants may place on the welfare state. This literature is most developed in the US (e.g. Borjas and Trejo, 1991, 1993; Borjas and Hilton, 1996) and is usefully reviewed by Barrett and McCarthy (2008)¹. In the UK the number of studies is quite small - Dustmann, Frattini and Halls (2010) and Dustmann and Frattini (2013) attempt to provide an overall assessment of whether immigrants pay more in taxes than they receive in benefits and consume as public services. Wadsworth (2013) studies the relative use of natives and immigrants of public-provided health services in the UK and Germany, and Geay, McNally and Telhaj (2012) study the impact of migrants on educational outcomes and Bell, Fasani and Machin (2013) the impact on crime.

This paper is about the effect of immigration on access to publicly-provided housing in the UK, known as social housing in British English. Although the proportion of the population in social housing has halved over the last 30 years, there remain about 15% of adults who are in social housing with the benefits that social rents are very considerably below the equivalent private sector rents (perhaps 40% nationally and up to 70% in some parts of London)². Although not every household wants to be in social housing³ there is excess demand for such housing and there has to be an allocation mechanism (described in more detail later) to ration demand. So, one reason social housing is of interest because it is a non-trivial portion of the welfare state.

But social housing is also of particular interest because it is an area where immigrants and natives might be in more direct and visible conflict over access to resources. The conflict is more direct because the supply of housing is almost certainly very inelastic in the short-run (and in the longer-run under current UK housing policies). This inelasticity (together with prices that do not respond to excess demand) means that one more immigrant household in social housing is quite likely to be one

¹ There is also a small literature on whether the generosity of welfare affects the location decisions of immigrants (for example, Borjas, 1999; de Giorgi and Pellizzari, 2009).

² Authors' own estimates from the English Housing Survey.

³ Many want to own their own home and social housing tends to be in the more deprived neighbourhoods.

less native household. And this will be visible in a way that the receipt of welfare benefits is not. This contrasts with other aspects of the welfare state e.g. if immigration leads to higher expenditure on some welfare programmes this is not typically at the expense of the entitlement of natives though it may place strain on the wider public finances (depending on the taxes paid and other welfare benefits received by migrants). And in areas like health and education the funding mechanisms ensure that increased resources follow increases in population though the adequacy of those resources is sometimes questioned. Consistent with the view that conflict over resources may be more salient in the case of social housing is that, according to the Citizenship Survey⁴, over 20% of white Britons think they are treated worse than people of other races by social landlords, much higher than feel they are treated worse by the education and health services (less than 5%) and private landlords (about 5%)⁵.

There is a small amount of existing research on immigration and social housing in the UK that has generally concluded that there is no discrimination in favour of immigrants (Rutter and Latorre, 2009). Our study is much more comprehensive in terms of data used. There is a small literature on immigration and home ownership and housing demand (Borjas, 2002; Constant et al, 2009; Nygaard, 2011; Whitehead, 2011; Whitehead et al, 2011) and on the impact of immigration on house prices and rents (Saiz, 2003, 2007; Sa, 2011).

The plan of the paper is as follows. In the first section we describe social housing in the UK and describe its evolution over time. This section also discusses the rules for being eligible to apply for social housing and how these rules affect natives and immigrants paying close attention to the fact that eligibility is based on household more than individual characteristics. Although it is impossible to ascertain eligibility exactly, our best estimate is that over 90% of immigrants are in households who are eligible to apply for social housing. So differences in eligibility are probably not very important in explaining differences in access.

But, because not all households want social housing and there is excess demand for social housing among those who do, being eligible to apply for social housing does not determine whether one is in social housing. It is in the allocation of social housing that the perceived discrimination referred to above exists. The second section then estimates models for the probability of a household being in social housing using the UK Labour Force Survey. We show that immigrants as a whole are slightly more likely to be in social housing but there is considerable heterogeneity among immigrants – those with EEA citizenship are less likely to be in social housing than natives while those immigrants who either have UK (most likely acquired after immigration) or are non-EEA citizens are more likely to be in social housing than natives. However, once one controls for factors like the demographic structure of the household, the area of residence and economic circumstances (all factors that one would expect to affect the probability of being in social housing) these differences disappear and immigrant households are significantly less likely to be in social housing than equivalent native households.

⁴ Authors' own tabulations, available on request.

⁵ To give some further context to these statistics the level of discrimination perceived by white Britons in social housing is higher than that perceived by any other group in social housing. And the only other ethnic groups reporting higher levels of perceived discrimination with any part of the state is the black community with the police, criminal justice and immigration authorities, a relationship that we know to be very troubled.

We then investigate the impact of time since arrival finding that recent immigrants are much less likely to be in social housing than equivalent natives but that after about 10 years this probability rises above that of natives before falling back to the native level. A natural interpretation of this finding is that recent immigrants find it hard to access both social housing but after a while gain access to it. There is then a period of time when they would like to be home owners but cannot afford this option – however, over time a higher fraction come to be able to take this option.

Using data on waiting lists we then investigate the allocation of social housing from those who indicate a demand for it. We find that immigrants are more likely than native households to demand social housing but, given the demand, are less likely to be allocated social housing. However in the allocation of new tenancies, there seems to be equal treatment of natives and immigrants.

The analysis to this point is of the contemporary situation. The fourth section then turns its attention to changes over time. We document that there has been considerable change over time – in particular the penalty to being an immigrant household has declined over time. We argue, using references to the qualitative literature analysis of the social housing allocation procedure, that this reflects changes to allocation processes that were designed to reduce discrimination, primarily against ethnic minorities though ethnicity and immigration do overlap.

While our empirical estimates suggest that these changes have been partly successful, the consequence of this is that the estimated probability of a native household being in social housing has fallen over time from both the increase in immigrant households with a likely demand for social housing and the elimination of discriminatory practices. So, from the perspective of a white native household the chances of being in social housing have fallen. We document the extent of the fall and indicate the changes that can be ascribed to the change in the allocation procedure, to the change in immigration and the change in the social housing stock. We show that it is the change in the housing stock itself that has had by far the largest impact on native households, though there is a modest effect from increased immigration.

Our conclusions are that the vast majority of immigrants in the UK are likely to be eligible to apply for social housing. But, in terms of access to social housing, the contemporary situation is that immigrant households are slightly more likely than native households but, once one controls for demographic, economic and regional circumstances, immigrant households are less likely to be in social housing than equivalent native households. There is certainly no evidence of discrimination in favour of immigrant households as is believed by a sizeable fraction of the white British population. However we show that there has been some important changes – the immigrant penalty has fallen over time. So, the combination of a rising immigrant population and a change in the allocation rules that benefit immigrants has combined with a declining social housing stock to reduce the probability of native households having access to social housing.

1. Social Housing in the UK

In the UK publicly-provided housing, known as ‘social housing’ refers both to housing owned by local authorities (popularly known as ‘council housing’) and housing owned by non-profit Housing Associations. What is termed ‘social housing’ in the UK comes in two main varieties – local authority

owned housing (commonly called council housing⁶) and housing provided by housing associations that are almost entirely non-profit organizations⁷. Collectively, these landlords are known as registered social landlords. The most important characteristics of social housing are that rents are below market levels (probably around 40% lower on average and up to 70% in parts of London), and there is more security of tenure than in the private rental sector. Although there are differences between local authority and housing association tenancies it is commonly perceived that the distinction is often lost on tenants and in this paper we group these tenancies into a single category of social tenants (Table A8 in the Data Appendix presents estimates for the division of social tenants between local authority and housing associations).

Figure 1 presents the share of the total UK housing stock that is owned by councils and housing associations over a long period of time. The decline in the both the total stock and the proportion of the housing stock in the social sector has two main causes - the 'right to buy' policy, initiated by Margaret Thatcher of giving social tenants the right to buy their homes and a dramatic decline in the building of new social housing (as shown in Figure 2).

The rules for the allocation of social housing have also changed over time. At its inception in the late nineteenth century, social housing was primarily for the 'deserving poor', people who were thought to be ill-served by the private rental sector but could not afford to buy their own homes (see, for example, Merrett, 1979). But, over time, social housing increasingly came to be allocated on the basis of need and being a social tenant associated with socioeconomic disadvantage. This long-term trend was exacerbated by the right to buy policy (as the better-off tenants were much more likely to exercise this right). For the current paper, we are particularly interested in the rights of immigrants to social housing.

2. Immigrants and Access to Social Housing

a. Descriptive Statistics

Figure 3 presents the proportions of working-age natives and immigrants who are in the three main forms of housing tenure (owner-occupier, social tenant, and private tenant) using data from the Labour Force Survey over the whole period for which immigration status is recorded. For natives, one can see the dramatic fall in the proportion of social tenants in the 1980s associated with council house sales but also a more gradual but steady fall since then which the outcome of a rising population, a failure to increase the stock of social housing in line with that growth and continued sales of the social housing stock. Owner-occupation rose very markedly for much of the period but has fallen over the last 10 years with a concomitant rise in the private rental sector as rising house prices have made it harder to buy one's own home.

For immigrants the picture is a little different. the fall in the proportion of social tenants is more muted in the 1980s and has been only very small since 1990. The consequence of this is that while 33% of natives were social tenants in 1979 compared to 25% of immigrants, by 2013 16.6% of adult immigrants were in social housing compared to 14.6% of natives. As the fraction of the population

⁶ Increasingly, local authority housing is managed by what is known as 'arm's length management organizations' though ownership remains with the local authorities.

⁷ A 2011 law change now allows housing associations to be profit-making though the numbers are tiny.

that is immigrant is also rising over this period, this means that the proportion of social tenants who are immigrants has been rising as shown in Figure 4. This is more marked if one looks at new social tenancies (defined as a tenancy that is less than 3 months)⁸

This data appears to show that immigrants are becoming relatively more likely over time to be in social housing. This outcome is partly the result of the demand for social housing from immigrant and native households but because there is excess demand for social housing, the rules by which social housing are allocated is also important. The next section describes the rules as they currently operate.

b. Immigrants and Eligibility for Social Housing

The process of being allocated social housing can be thought-of as a two-stage process. First, one has to apply for social housing and not everyone is eligible to apply. Then, one has to be offered (and accept) a tenancy if offered one. We first describe the eligibility conditions and then the allocation process. The eligibility conditions are different for natives and migrants. However, it is hard to give a simple summary of these conditions without any inaccuracy as even official documents express the view that “the rules on eligibility for housing assistance in relation to persons from abroad are extremely complex” (House of Commons Library, 2014).

With the exception of a few special cases (e.g. refugees) all applicants, whether or not they are British citizens, must pass the ‘habitual residence test’ to be eligible for social housing (this test is also used to assess the right to claim other welfare benefits). To pass this test you must have a right to reside in the UK and prove that you intend to make your home in the UK for the time being. If this sounds a bit vague that is because it probably is – for example the 2012 guidance to local authorities on the allocation of accommodation observed that “The term ‘habitual residence’ is not defined in legislation”, and that “When deciding whether a person is habitually resident, consideration must be given to all the facts of each case in a common sense way”⁹.

For UK Citizens the habitual residence test is the only requirement to satisfy the eligibility condition so is a necessary and sufficient condition for being allowed to apply for a council home. For EEA citizens (those from the EU and Norway, Iceland, Liechtenstein and Switzerland), they can apply for local authority housing if they have the right to reside in the UK which they automatically have if they are working (either as an employee or as self-employed) or can support themselves or have lawfully been in the UK for 5 years. The right to reside for those who do not meet these criteria is the subject of evolving case law¹⁰.

Non-EEA citizens are ineligible to apply if they are subject to immigration control which means they do not have indefinite leave to remain and which typically also means they have no recourse to public funds. There are a variety of rules about when non-EEA migrants can apply for indefinite leave to remain but for most immigrants it is currently after 5 years. An immigrant may also be eligible to apply for social housing if they have a child with British citizenship though this is typically only available to the children of immigrants once the parents have indefinite leave to remain so – in theory – coincides with the adult criterion for eligibility for social housing.

⁸ This question is only asked from 1992 onwards so is not available for the earlier years.

⁹ DCLG (2013), Annex 4.

¹⁰ See, for example, <http://www.ftb.eu.com/local-government-pdf/ftb-september-2011-de-right-to-reside-29-final%281%29.pdf>

If an individual is eligible they can include in their application anyone who is reasonably part of their household or family irrespective of whether they are eligible though ineligible household members cannot have the tenancy in their name¹¹. This means that if one wants to apply for social housing, one should apply in the name of some household member who is eligible. This principle guides our selection of variables to include in the regressions later.

The same rules apply to those housing association tenancies for which the local authority has 'nomination' rights i.e. can select the tenant. But, where the housing association itself selects the tenant they are not allowed to exclude anyone on the basis of their immigration status as to do so would make them vulnerable to being prosecuted for discrimination.

c. From Rules to Modelling

Given the above discussion it seems to make sense to divide individuals into 5 mutually exclusive categories based on their country of birth and nationality.

Our baseline category is adults who are born in the UK and who we would expect to be eligible to apply for social housing (though a small minority may not be e.g. if they have lived abroad for most of their life but the information in the available data sets does not allow us to identify this small group). One would expect that these individuals have access to UK citizenship if desired and to pass the 'habitual residence test'¹². We refer to these as the UK-born or natives.

Our second category are adults who are foreign-born but have UK citizenship (probably through naturalization but a minority probably from birth) and so will almost certainly be eligible to apply for social housing. We refer to these as the foreign-born UK citizens.

Our third category are adults who are foreign-born, not UK citizens but do have EEA citizenship - this is a group that would be expected to have more eligibility for social housing than immigrants from outside the EEA. In some of our analysis we separate this group into those containing A8 and other EEA citizens, the A8 being the eight Eastern European countries who joined the EU in 2004 (see, for example, McGhee et al, 2013 for a description of the experience of A8 migrants). We refer to these as foreign-born EEA citizens. Note that in recent years a non-trivial fraction of EEA immigrants into the UK were born outside the EEA i.e. have probably acquired EEA citizenship after first migrating to an EEA country other than the UK.

Finally, the residual category are adults who are foreign-born and do not have EEA citizenship. We sometimes distinguish between those who have been in the UK for more or less than 5 years as this is the most common cut-off for having indefinite leave to remain. We refer to these as the non-EEA citizens.

Figure 5 shows the fraction in each category for immigrants has changed over time¹³. Currently about 40% of adult immigrants are British citizens though it used to be about 50%. The fraction who are non-A8 EEA citizens is quite constant at about 20%, the proportion who are A8 citizens has risen

¹¹ See, for example, <http://www.housing-rights.info/obtaining-council-housing.php>

¹² There is a small proportion of the UK-born who do not report British citizenship in the LFS but we regarded them as too small to warrant separate statistical analysis.

¹³ Note that some changes can occur because of the accession of a country to the EEA so individuals born in that country will be moved from one category to another.

over the past 10 years to about 12% and the fraction who are non-EEA citizens but have been in the UK more than 5 years is also quite constant at about 20%. The fraction of immigrants who are non-EEA and in the UK less than 5 years rose from about 8% in the late 1980s to be about 20% in the early 2000s since when it has fallen back to 10%. It is this last group that is the only group who we might think are ineligible to apply for social housing – most immigrants in the UK would be eligible by virtue of UK or EEA citizenship or having been in the UK sufficiently long.

This is all at the individual level but, as outlined above, it is households that apply for social housing and it is the eligibility status of the proposed named tenant that is decisive in establishing eligibility. We do not have information on who would be the proposed tenant but it is natural to assign individuals to the household category which is most advantageous for applying to social housing and some member of the household meets. So, if there is a UK –born citizen in a household, all individuals in the household would be put in that category whether or not they – as individuals were UK born citizens. Figure 6 shows the proportions of immigrants in the different categories defined in this way. Currently about one-third of immigrants are in households where there is an adult UK native, and slightly under 30% in a household with a foreign-born UK citizen. Under 10% of immigrants are in households where no adult is a UK/EEA citizen and no adult has been in the UK less than 5 years – this is the only group one would not expect to have eligibility to apply for social housing.

Figure 6 says nothing about the link between individual and household status – this data for the period since 2007 is provided in Table 1. For example, among new non-EEA immigrants in the UK, 16.6% are in a household where at least one adult was born in the UK, 9.1% in a household where all adults are foreign-born but at least one has UK citizenship, another 5.3% in a household where someone has non-UK EEA citizenship, and 10.5% in a household with all non-EEA citizens but for whom at least one has been in the UK for more than 5 years. Of non-EEA migrants who have been in the UK less than 5 years only 58% are in households where all adults are in the same situation. So, looked at from the individual perspective we would expect 13.5% of adult immigrants to be ineligible to apply for social housing but, viewed at the household level, that falls to 7.8%. So, the vast majority of immigrants would seem to be eligible to apply for social housing but, just because one is eligible to apply does not mean one becomes a tenant. To address this issue we turn to the statistical analysis of the allocation of social housing.

3. The Probability of Being in Social Housing 2007-2013

Eligible households who apply for social housing are placed on a waiting list. The 1996 Housing Act required local authorities to give priority to various needy groups e.g. households with children, the elderly, the sick the homeless and those living in unsatisfactory accommodation (see Rutter and Latorre, 2009, for more extensive discussion). But local authorities do have some discretion in the way this is interpreted and other factors that might be taken into account. Most use some type of points or banding system to decide the level of priority that a household has e.g. giving more points to households with dependent children. When a property becomes vacant most social landlords now use a choice-based letting scheme in which all households on the list can bid for the vacancy and it is given to the household with the highest number of points. All of this means that the outcome we observe – whether an individual is in social housing – represents the outcome of a demand for social housing by that individual and the allocation of a tenancy according to the rules described above.

We start our empirical analysis by considering the most recent period, 2007-2013. We estimate probit models where the dependent variable is being in social housing. We estimate at an individual level but our characteristics are all defined at the household level – this effectively gives more weight to larger households as seems appropriate. We cluster the standard errors at the household level both to deal with this issue and to deal with the fact that the LFS is a short panel.

As regressors we use some variables to measure the immigrant status of the household. We include the native-immigrant categories defined at household level as reported above. But we also include the fraction of adults in the household who are members of the five categories as these variables do turn out to have considerable explanatory power (though Table A6 in the Data Appendix reports a specification in which these are omitted). In a later analysis we consider the impact of years since arrival in the UK. Time in the UK should be important partly because it affects eligibility for some recent immigrants (as described above) but also because it takes time to get into social housing especially once on the waiting list. As it is likely to be the adult who has been in the UK the longest who is most important in determining eligibility, we use as the maximum time in the UK of any adult household member as our regressor.

Obviously we need to control for other factors that affect whether an individual is likely to be in social housing – we group these into demographic, regional and economic.

Demographic variables

We control for whether there is more than one adult in the household, the number of post-retirement age adults, whether there any children, the number of children and the introduction of multi-adult household with children – these variables are chosen because they seem to have the most explanatory power. In addition we control for the ages of the youngest and oldest child, and a quadratic in the age of the youngest and oldest adults in the household.

Regional Variables

There is a large variation in both the provision of social housing across the UK and the distribution of immigrants so we include in our main analysis dummy variables for the 20 regions recorded in the LFS.

Economic variables

We control for whether any adult in the household is in work, the number of adults in work in the household and, where in work the highest –earning 2-digit occupation of any member of the household. The average earnings by occupation are taken from ASHE 2012 and the regressor we use is a quadratic in the average earnings of that occupation. We sometimes also control for total household weekly labour income relative to average weekly earnings in that year, though are sample is reduced in this case because the income questions are only asked in waves 1 and 5.

One variable we do not include is education. This is because there are serious problems in the UK LFS with the measurement of the education of immigrants. For much of our sample period, qualifications earned abroad were deliberately classified as ‘other qualifications’ even if, for example, it was a college degree, But ‘other qualifications’ for a UK native would typically be a very low level of qualification. The use of this variable makes immigrants seem worse qualified than they really are.

The LFS also contains information on the age left full-time education but there is evidence that immigrants take longer to attain a given level of qualification so this tends to over-state immigrants' education¹⁴. Table A7 in the Data Appendix presents some results when we do control for age left full-time education.

In many ways occupation is a better measure than education for the current purposes as it measures how well a household is doing in the UK labour market so takes account, for example, that some foreign qualifications may not attract the same return as seemingly equivalent UK qualifications. It is the household's economic circumstances and not their education that would appear on any application for social housing.

Country variables

We sometimes control for the detailed country of birth of members of the household and sometimes summarize this by using the log of GDP per capital relative to the UK and the Gini coefficient relative to the UK level (Borjas and Trejo, 1993, found both variables to be important for explaining welfare receipt in the US)¹⁵.

We also sometimes control for the ethnic composition of the household using nine categories (white, mixed, Indian, Pakistani, Bangladeshi, Chinese, other Asian, Black and Other).

Table 2 presents some descriptive statistics for immigrant and native households¹⁶. Immigrant households do differ from native households in a number of respects but there is also considerable heterogeneity within immigrant categories. For example, the A8 migrants are markedly younger and have been in the UK less time, are very much less likely to be owner-occupiers, are more likely to be in work but in much lower-paid occupations. Immigrants tend to be from countries poorer and more unequal than the UK though this is less marked for EEA migrants (as one would expect). Those immigrants who have become UK citizens have been in the UK longer. The ethnic mix of migrants is different from that of natives (mainly in being less white) and also varies by immigrant category – for example almost all individuals in A8 households are white households but it is less than 80% for immigrants from the rest of the EEA.

Table 3 presents the descriptive statistics but disaggregated by whether individuals are social tenants or not. Immigrants as a whole are slightly over-represented in social housing (as we saw in Figure 3) but there is considerable heterogeneity – individuals in A8 households are under-represented in social housing while individuals in foreign-born UK-citizen households are heavily over-represented. But the most striking differences between social tenants and the rest of the population is that social tenants are much more likely to be in single-adult households, much less likely to be in work and when in work to be in lower-paid occupations. Social tenants are also less likely to be white but not all non-white groups are over-represented in social housing. Indians and Pakistanis are less likely to be in social housing while Bangladeshi and Black ethnicities are heavily

¹⁴ For example, while only 1.3% of the UK-born report leaving education aged 25 or older, the proportion is over 20% for immigrants from Nigeria and these immigrants are not all working in Phd-level occupations.

¹⁵ Borjas and Trejo (1993) also offered a hypothesis to explain why those variables are important based on the free choice of immigrants. But as immigration and access to social housing are heavily influenced by institutional rules there may be other explanations for the empirical regularities discovered.

¹⁶ We only report means in the main text as many variables are binary. Standard deviations are presented in the Data Appendix.

over-represented (this variation across ethnic minorities is well-known – see, for example, Robinson, 1980; Peach, 1998; Hamnett and Butler, 2010) .

Of course, one can learn a limited amount from Tables 2 and 3 because so many of the variables are correlated with each other – we next turn to regression results. Table 4 presents our basic results for the period 2007-2013¹⁷. The dependent variable is whether the individual is in social housing. The sample is adults aged 18 and over. The reported coefficients are marginal effects from a baseline characteristics vector which are households that contain someone who is British born and (where the relevant variables are included) have one adult, aged 35, not working and two children aged 10 and 7 and living in the south-east of England . We refer to a household with these characteristics as the baseline household – it is a group among which social tenancy is common. The first column simply controls for year in addition to household immigrant status (though the year dummies are insignificant). This shows that relative to the baseline household some immigrant households are more and some less likely to be in social housing. Households which only contain EEA citizens are equally likely to be in social housing as the native households and those with A8 citizens are less likely. But, those containing a foreign-born British citizen are 7.9% points more likely than the UK –born to be in social housing and those containing no EEA citizens are 5.2% more likely to be in social housing. These are quite likely to be similar groups differing primarily in the time they have been in the UK as citizens from many poorer non-EEA countries find it advantageous to acquire UK citizenship if they are entitled to do so after remaining in the UK for a while. These marginal effects are based on comparing households in which 100% of the adults are in the relevant category. But there is also an important impact from the composition of the household – for a given household immigrant category the probability of being in social housing is lower if there are more immigrants in the household¹⁸. Most of this variation comes from households with a native adult and it shows, for example, that a household with 2 adults, one UK-born and the other a foreign-born UK citizen are 5.5 percentage points less likely to be in social housing (this household has 0.5 for the fraction foreign born UK citizen which multiplies the -0.11 coefficient).

Of course, the results in column (1) do not control for characteristics and successive columns of Table 4 add more controls. The second column adds demographic controls and this has the effect of reducing the coefficients of all immigrant groups except for the A8. This comes about because households with more children, who are older etc are more likely to be in social housing (detailed regressions are in Table A5 in the Appendix) and these tend to be characteristic of immigrant households (see Table 2). The third column then adds regional controls which is important because immigrants are not evenly spread throughout the UK and neither is the supply of social housing. This has the effect of reducing all coefficients on immigrant categories because they tend to over-represented in London where there is more social housing. The fourth column adds economic variables (the number of adults in work and the occupational standing of the household). This has a very large effect, making the coefficients on all immigrant categories negative and significantly different from zero with the exception of the foreign-born UK citizen group. This shows, that

¹⁷ In the main text we present only the coefficients on the immigrant variables but the coefficients on all variables is reported in the Data Appendix.

¹⁸ The Data Appendix reports a specification in which we do not control for the composition of the household – the results are very similar.

conditional on economic circumstances, immigrant households are less likely than native households to be in social housing. We use this as our baseline specification.

This conclusion is based on the number of adults in work in the household and the occupational standing of the household rather than actual household labour income. Labour income is only available in the LFS for households in wave 1 and 5 but, for this sub-set we can investigate the effect that controlling for that has. Column (5) has the same specification as column (4) but restricted to the sample for which total labour income is available. The results are similar showing that the change in sample does not, by itself, change the results. The sixth column then includes household income relative to the annual average. By comparing columns (5) and (6) one can see that the inclusion of actual household labour income has only a small effect on our results.

But there seems to be a significant effect not just of actual household income and occupation but the average income level of the country in which one was born. The seventh column includes a quartic in log gdp per capita and the Gini coefficient in the country of birth relative to the UK (both of these variables being found significant by Borjas and Trejo, 1993, for the receipt of welfare in the US). With inclusion of these variables the dummy variables on the immigrant categories become even more negative. The reason is that immigrants from poorer and more unequal countries (these often being the same countries) do seem to have a higher propensity to be in social housing in addition to their actual economic circumstance in the UK. Finally, we control for the ethnic mix of the household controlling for the proportion of the household in nine ethnic groups. All the estimated coefficients on the immigrant categories remain negative and sizeable.

Our conclusion from Table 4 is that when one compares equivalent households, immigrants are much less likely than natives to be in social housing. But some immigrant groups do have characteristics (more children, lower economic status, concentration in cities, and coming from poorer countries) that are risk factors for all groups in being social housing. So the comparisons without controls are misleading.

Table 5 investigates the robustness of this conclusion to a number of other specifications. For example, every variable included in Table 5 is defined at the household level – the second column of Table 5 shows that the inclusion of individual immigrant and citizenship variables has only tiny additional explanatory power suggesting that our specification does not omit any key household variables. Secondly, we investigate whether the immigrant and citizenship status of children has any additional explanatory power. We include as variables whether there is a child who is UK-born and not interacted with the immigrant status. The results suggest that having a child whether UK born or not has an additional positive effect on the probability of immigrants being in social housing.

All of these regressions pool local authority and housing association tenants together. Table A8 in the Data Appendix reports estimates from models for the probability of being in local authority housing conditional on being a social tenant. Most of the coefficients are not very large suggesting that there is little difference in the allocation of local authority and housing association homes, the one exception being that there is some evidence that A8 migrants are less likely to be in local authority housing.

The Impact of Time in the UK

One important variable that has not been controlled for so far is time since arrival in the UK. This is likely to be important for two reasons. First, as described earlier, non-EEA citizens only become eligible for social housing when they have indefinite leave to remain which typically takes 5 years. Secondly, because social housing is in excess demand, it takes time to be allocated social housing even after one is on the waiting list and an immigrant household cannot go on the list until they arrive in the UK.

Figure 7 presents the raw data on the fraction of immigrants in different categories who are in social housing according to the longest time in the UK of any adult household member. We also show the fitted values from a group-specific cubic in a probit model – this can be seen to be a good approximation for all groups. The proportion in social housing for UK natives is also shown as a comparison. For all groups of immigrant households recent immigrants have a lower probability of being in social housing than natives. The proportion then rises equalling that of natives after about 5 years. For EEA citizens (both A8 and non-A8) the proportion then stabilizes at a level similar to that for natives (though the data for A8 citizens at long durations is very noisy as there are very few observations). But for those immigrants who become UK citizens or who remain non-EEA citizens the proportion in social housing rises above the native proportion peaking after about 15 years and then declining with – in the case of those who become UK citizens – the decline being to about the native rate. These immigrant groups follow a hump-shaped pattern.

One might observe this hump-shape in the raw data because of a failure to control for other relevant factors e.g. age. But it persists even when we do control for these factors as can be seen in Figure 8 which shows the predicted proportions (based on a cubic) when one controls for demographic regional and economic variables (column 4 of Table 4). all groups continue to show a hump-shaped pattern. For the EEA groups they are always below natives but for the UK and non-EEA groups they are first below that native rate then above it before falling back to end up below it again. A natural interpretation for this hump-shaped pattern is that newly-arrived immigrants are almost all in private rental housing but aspire to home ownership. It takes time to acquire the financial resources to buy a home and, in the meanwhile, social housing is more attractive than the private rental sector.

4. Waiting Lists and Allocations

We have estimated models for the probability of being in social housing. This reflects not just the allocation rules but the demand for social housing. So, if a group is found to be less likely to be in social housing that could be because it has a lower demand for social housing and tells us little about the allocation rules. With the LFS we cannot investigate this further because we have no indication of whether individuals who are not in social housing would like to be. But, in the English Housing Survey (EHS) we do have some information about whether households are on a waiting list for social housing.

The EHS is an annual survey of about 13000 households in England that has been conducted since 2008¹⁹. We use the surveys for 2008-2010 inclusive.

¹⁹ It is a successor to the Survey of English Housing which had been conducted since the early 1990s. But the earlier survey has no information on immigrant status so is no use for our purpose.

In most regards the EHS is inferior to the LFS as sample sizes are much smaller, it covers only England and contains less information about individuals. But, it does ask a question about waiting lists, specifically “are you (or anyone else in the household) on a council house or housing association waiting list (or transfer list)?”. We use the answer to this question to identify those households who are actively demanding social housing. In our sample period 3.77% of adults report being on a waiting list which compares with 14.73% in social housing. But, something like 40% of those who report being on a waiting list are already in social housing (it being possible they are seeking a better home) so that only 2.23% of the adult population are not currently in social housing and on a waiting list. One might conclude from this that the excess demand is of the order of 15% than the actual numbers in social housing²⁰.

Because the individual data is not as rich in the EHS as the LFS we need to modify our regressors to fit what is available.

First, and most importantly, the EHS asks whether one is born in the UK and whether one is a UK citizen²¹ but – if one is not – there is no information on country of birth or nationality. This means that we cannot distinguish EEA from non-EEA citizens or the A8 citizens within the EEA group. So our analysis uses three household categories – those containing a UK-born adult, those without a UK-born adult but with an adult UK citizen and those without any adults who are UK born or citizens.

Secondly, the region variable is different being at the government office region level. And, finally the occupation question is coded according to the National Statistics Socio-Economic Classification²² which is similar but not identical to an occupational classification. We take the highest coded one-digit code as a measure of occupational attainment for the household. All other variables are as in the LFS.

As a starting point we compare estimates of the probability of being in social housing in the EHS and the LFS where the LFS data is comparable to the EHS data. This is done in the first two columns of Table 6 where there are no other controls apart from year dummies and in Table 7 for our baseline specification (that includes demographic, regional and economic variables). The first two columns of Table 6 shows that – without controls – the LFS and EHS estimates are quite similar with both household immigrant categories being more likely to be in social housing than natives. With baseline controls, the estimates reported in the first two columns of Table 7 show more difference in the two surveys – in the LFS both immigrant categories are less likely than natives to be in social housing while the immigrant penalties are lower in the EHS where only the penalty on non UK citizens is significantly different from zero. In both surveys, with and without controls, households with a higher fraction of immigrants are less likely to be in social housing.

Of course this does not tell us whether immigrants are less likely to demand social housing or to be allocated it when they demand it. To investigate this we construct a binary variable taking the value one if the household is in social housing or on a waiting list – we use this as our measure of demand. The third columns of Table 6 and Table 7 show the results when this is our binary variable. Without

²⁰ This obviously does not count any discouraged prospective tenants who do not apply because they feel they would not be allocated a home.

²¹ Though the nationality question does not seem to be coded for 2011.

²² For details see <http://www.ons.gov.uk/ons/guide-method/classifications/current-standard-classifications/soc2010/soc2010-volume-3-ns-sec--rebased-on-soc2010--user-manual/index.html>

controls (the third column of Table 6) both household immigrant categories are more likely to demand social housing than natives. With controls (the third column of Table 7) these effects are not significantly different from zero. This suggests that – once one controls for the baseline characteristics, immigrants and natives have very similar demands for social housing.

To consider the allocation of social housing among those who demand it, the fourth columns of Tables 6 and 7 use as a sample those who demand social housing and as a dependent variable whether individuals are in social housing. The negative coefficients reported both with and without controls suggest that, conditional on demanding social housing, immigrant households are less likely than natives to be in social housing i.e. that the allocation process acts, if anything in favour of natives. In these specifications household composition has little significant impact.

One possible explanation for this is that native households are more likely to have been on a waiting list for longer because immigrants cannot go on a waiting list until they arrive in the UK (and are likely to have to wait a longer period even then). The final columns of Table 6 and 7 investigate this by using as a sample whether an individual is on the waiting list or is a new tenant (defined as having been in the property for less than a year, the best that is available) so were on the waiting list recently. Here the sample sizes are very small but none of the coefficients are significantly different from zero, suggesting fairness in the allocation of newly vacant properties to immigrants and natives.

5. Changes Over Time

The analysis so far has focused on the contemporary situation but there is also some interest in whether there has been any change over time. To this end, we estimate models similar to the ones we have so far for each individual year from 1985 to 2013. We then report coefficients for each year. Because A8 migrants did not exist prior to 2004 we pool both the EEA migrants into a single group. Figures 9-11 shows the changes for different specifications. In each figure the first panel shows the predicted probability of being in social housing for a native household with base characteristics and the probability for different types of immigrant household with the same characteristics. The second panel shows the difference in the probabilities of being in social housing of native and immigrant households i.e. is the marginal effect at base characteristics.

Figure 9 shows the results when there are no controls – these are simply the sample proportions in social housing for different immigrant groups. The first panel shows the decline for native households and EEA citizen households follow a similar path. But for foreign-born UK households the proportion in social housing is actually rising – at the start of the period they were 10 percentage points less likely than natives to be in social housing but were 10 percentage points more likely by the end (as can be seen from the second panel). For non-EEA citizen households, they started being much less likely than natives to be in social housing, but this rose to being considerably above by about 2000 before declining somewhat to end up being very similar.

Of course, these different trends might be accounted for by the changing composition of native and immigrant households over this period. Figure 10 does the same exercise but including our baseline controls (column 4 of Table 4). The native proportion now refers to the probability of someone being in social housing for a household with base characteristics which are above the average. Note that the native proportion in social housing declined from 1985-1995 but then rose to 2000 before

falling subsequently. The inclusion of the baseline controls does tend to make the immigrant differentials more negative (as in Table 4) but the overall trends are very similar.

Another possible explanation is the changing origin countries of immigrants which is not well-captured by our immigrant categories. Such cohort effects have been argued by Borjas and Trejo (1991, 1993) to be important in the US. For example the non-EEA citizens include American citizens who are probably well-off and Somalis who are not and it may be that our control for occupation does not control adequately for the difference. To address these concerns Figure 11 reports the result of a specification in which we also include a quartic in the gdp per capita of the country of origin. As in Table 4 this makes the immigrant differentials more negative but, more importantly, it does not really change the trends.

So there does seem to a change in the allocation rule of social housing over this period which benefitted foreign-born UK citizens and non-EEA citizens. The most plausible explanation for this is the change in the allocation rules that occurred in many local authorities in the 1980s and 1990s in response to criticisms (e.g. Smith and Whalley, 1975; Parker and Dugmore, 1977; Henderson and Karn, 1987) that the traditional allocation procedures discriminated against ethnic minorities and immigrants²³. Of course the stock changes only slowly in response to these changes but there does seem to have been a cumulatively large change in practice.

But as the stock of social housing was decreasing (Figure 1) this increased access to social housing for some immigrant groups ran the risk of being at the expense of the traditional occupants of social housing, native households. At the same time the rise in the fraction of immigrants in the population would also be expected to put pressure on social housing. But how large is it plausible to think these effects would have been. The next section attempts to address this question using counter-factuals.

6. Counter-factuals

In this section we provide some estimates of the impact of changes – both in the allocation rules and the structure of the population on the probability of our benchmark household being in social housing. We investigate three issues:

- a. What was the impact of the change in the allocation rules?
- b. What was the impact of the rise in immigration?
- c. What was the impact of the change in the stock of social housing?

Suppose that the type of household is summarized by a vector of characteristics x_i (which would include demographic, geographical, economic, and immigrant status variables). Our estimation above gives us an estimate of the probability of each type of person being in social housing as

²³ For example Henderson and Karn's (1987) study of Birmingham argued that the rules in place in the 1980s made it harder for owner-occupiers to apply for social housing (and many Asians were in low-quality owner-occupation), discriminated against cohabiting couples (which affected Afro-Caribbeans) and other rules had similar effects. In addition council housing officers had considerable discretion in the allocation of social housing.

$\Phi(\beta_{0t} + \beta_t x_i)$. Assume that at date t the number of people of type x_i is n_{it} . Given this the total number of people in social housing can be written as²⁴:

$$H_t = \sum_i n_{it} \Phi(\beta_{0t} + \beta_t x_i) \quad (1)$$

We are interested in how changes in the allocation rules (represented by changes in β_t), how changes in the structure of the population (represented by changes in n_{it}) and changes in the stock of social housing (represented by changes in H_t) have affected the demand for social housing. Note that because our model is not a linear regression the mean of the predicted proportion in social housing will typically differ from the actual proportion²⁵.

One exercise one could do is to interpret (1) as the demand for social housing and think of the right-hand side as giving the demand for social housing i.e. H_t is a function of $(\beta_{0t}, \beta_t, n_t)$. In this way we could ask the question of how many new social housing units would have to have been built if, say, the allocation rules remained at their 1992 level, and the structure of the population has evolved as it actually did. This would assume that the amount of social housing is demand determined when it is more realistic to assume in the period under consideration that it was supply-determined. So, in our counter-factuals we treat H_t as fixed and think of (1) as determining an equation for the intercept $\beta_0(H_t, \beta_t, n_t)$. Holding H_t fixed our counter-factual changes can be thought of as the change in the intercept that would have been necessary to limit the demand changes caused by changes in allocation rules and/or the distribution of household characteristics to ensure the overall allocation was the same as before. There is some arbitrariness in assuming that it is β_0 that does the adjusting but it does seem the most natural assumption. Changes in β_0 can then be translated into changes in the probability of being in social housing for our baseline household.

These counter-factual exercises are not very transparent but one can get some idea of what we are likely to find by using a very simple version of (1). Suppose there are two groups, natives and migrants or size N and M respectively. The probability of natives being in social housing is p and the immigrants have a penalty of δ . The total housing stock, H , must be given by:

$$H = pN + (p - \delta)M \quad (2)$$

Holding H fixed, we have that an increase in the migrant population will change the probability of being in social housing in the following way:

$$\Delta p \approx \frac{\partial p}{\partial M} \Delta M = \frac{p - \delta}{N + M} \Delta M \quad (3)$$

²⁴ The notation assumes the characteristics are discrete but one could use integrals to express the same idea if they were continuous.

²⁵ One could estimate a linear probability model for which there is a perfect decomposition of changes but this would assume that there is an equal change in the probability of being in social housing for everyone something that is implausible. Assuming the change is in the constant of a probit ensures the actual change in probability is zero for groups with little demand for social housing.

So if, for example, the proportion of immigrant households in the population rises from 5% to 10% and 20% are in social housing the probability of a native being in social housing would fall by 1 percentage point. Similarly, if the immigrant penalty changes we have:

$$\Delta p \approx \frac{\partial p}{\partial \delta} \Delta \delta = \frac{M}{N + M} \Delta \delta \quad (4)$$

So that, if, for example the immigrant penalty falls by 10 percentage points and immigrants are 10% of the population, this will reduce the probability of being in social housing for natives by 1 percentage point.

Finally if the housing stock changes we will have that:

$$\Delta p \approx \frac{\partial p}{\partial H} \Delta H = \frac{1}{N + M} \Delta H \approx \frac{p \Delta H}{H} \quad (5)$$

If δ is small. If the social housing stock falls by 20% then the probability of being in social housing will also fall by about 20% or 4 percentage points from a base of a 20% social tenancy rate.

Our counter-factual estimates are more sophisticated than this but these back-of-the envelope calculations but they do give some transparent idea of likely orders of magnitude. The results of our counter-factual analyses are presented in Figure 12 – all results relate to our baseline specification and the probability of being in social housing for a household with baseline characteristics (which is quite high). The actual probability of being in social housing is identical to that reported in Figure 9 – the fall from 1992 to 2013²⁶ is from 61.7% to 51.5% i.e. a fall of 10.2 percentage points. This obviously reflects changes in the demographics of the population (both native and migrant), changes in the allocation rules and changes in the social housing stock. We construct counter-factuals to show what would have happened if some of these factors had been held constant.

The first counter-factual (changing allocation rules) shows what would have happened to the probability of being in social housing for our baseline household if the population and housing stock had been held at their 1992 levels and only the allocation rules had been changed (the β 's in (1)) As can be seen the probability of being in social housing would have first risen and then fallen ending up much where it started and considerably above where it actually ended up. But this is the impact of the change in all the β 's, not just those related to immigrants. So the next counter-factual (changes in immigrant allocation rule) only changes the β 's relating to immigrants (essentially those reported in Figures 9-11) and keeps all others at their 1992 level. This can be seen to reduce the probability of being in social housing for our baseline household by 1 percentage point i.e. the effect is small. The reason is that while the change in some of the coefficients in Figure 9 are large the proportion of immigrants in the population is small so this translates into a small overall change in the probability of being in social housing – as would be expected from (4).

The next counter-factual (“changes in immigrant population”) holds the β 's and the total housing stock at their 1992 levels but changes the cell sizes of the immigrant population in line with the

²⁶ The starting date is partly determined by the start of the quarterly LFS after which the data are more consistent over time and partly because the earlier period was heavily influenced by council house sales.

actual increase (though the composition within immigrant groups is held at the 1992 level). This can be shown to reduce the probability of being in social housing for our baseline household by about 2.7 percentage points i.e. about a third of the total fall.

The final counter-factual (“changes in social housing stock”) keeps the allocation rule and demographic structure constant at the 1992 level and then alters the housing stock in line with the actual change. This is predicted to have caused a fall of about 5.9 percentage points i.e. most of the change.

So our conclusion is that the increase in the population from migration together with a failure to increase the social housing stock can explain about 2.7 percentage points of the 10.1 percentage point reduction in the probability of being in social housing and the change in the allocation rules in favour of migrants another 1.0 percentage point. But the decline in the stock explains about 5.9 percentage points of the reduction so is the more important factor. Note that because this is a non-linear model there is no requirement for the components to add up and we have not done a complete decomposition which would be complicated and uninformative considering there are changes in the sizes of different groups, the composition of these groups, and the allocation process as it relates to different groups.

7. Conclusions

In this paper we have investigated the impact of immigration on social housing in the UK, a topic of contemporary relevance because of a widespread perception that immigrants get preferential access to social housing. Our conclusions are that the vast majority of immigrants in the UK are likely to be eligible to apply for social housing. But, in terms of access to social housing, the contemporary situation is that immigrant households are slightly more likely than native households but, once one controls for demographic, economic and regional circumstances, immigrant households are less likely to be in social housing than equivalent native households. There is certainly no evidence of discrimination in favour of immigrant households as is believed by a sizeable fraction of the white British population. However we show that there has been some important changes – the immigrant penalty has fallen over time. So, the combination of a rising immigrant population and a change in the allocation rules that benefit immigrants has combined with a declining social housing stock to reduce the probability of native households having access to social housing. We constructed a series of counter-factuals to ‘explain’ the fall in the probability of being in social housing – the decline in the size of the social housing stock explains about two-thirds of the fall with the rise in the immigrant population and the change in the allocation rule explaining about one-third.

Our analysis has been of the UK and its institutions²⁷ but many other countries have a sizeable social housing sector where rents are below market levels (see, for example, Andrews et al, 2011) and we would expect the conclusions to have some relevance to them. And housing in general and social

²⁷ Because of the rent subsidy, it is almost inevitable that institutional features loom large in the analysis of social housing because of the need for the rules that ration the excess demand that is likely to exist whenever public rents are below private rents. This makes it harder to draw very general conclusions compared to, for example, labour market impacts that might be expected to be broadly similar across time and space though Angrist and Kugler (2003) emphasize there are institutional aspects to the labour market impacts of immigration as well.

housing in particular is an area where conflict between natives and migrants over access to scarce resources may be both more real (because the housing stock is inelastic in the short-run) and more salient because it is visible in a way that, for example, immigrant receipt of welfare is not. So the study of social housing may shed light on the wider conflicts, perceived or real, between natives and migrants that make immigration such a contentious topic in many countries.

Table 1: The Individual and Household Characteristics of Immigrants

		Household Immigrant Category						
		UK-born	UK Citizen	EEA non-A8 citizen	A8 citizen	Non-EEA, in UK>5yrs	Non-EEA, in UK<=5 yrs	Total
Individual Immigrant Category	UK Citizen	19.52	22.21	0	0	0	0	41.73
	EEA non-A8 citizen	6.05	0.54	8.91	0	0	0	15.49
	A8 citizen	0.84	0.21	0.6	9.45	0	0	11.1
	Non-EEA, in UK>5yrs	5.54	1.86	0.76	0.01	10.02	0	18.22
	Non-EEA, in UK<=5yrs	2.24	1.23	0.71	0.01	1.42	7.84	13.46
Total		34.18	26.05	10.98	9.47	11.45	7.88	100

Notes:

1. Data is from LFS, 2007-2013
2. Sample is all adults aged 18+

Table 2: Means of Main Variables by Household Immigrant Categories

Variable	All	UK- born	UK citizen, foreign born	EEA, non-A8 citizen, foreign born	A8 citizen, foreign born	Non-EEA citizen, foreign born
Sample Size	1.8m	1.6m	65677	27327	20796	43801
Owner Occupier	0.701	0.735	0.563	0.321	0.097	0.217
Social Tenant	0.155	0.150	0.250	0.163	0.118	0.205
Private Tenant	0.144	0.115	0.188	0.515	0.785	0.578
UK- born	0.908	1.000	0.000	0.000	0.000	0.000
UK citizen, foreign born	0.037	0.000	1.000	0.000	0.000	0.000
EEA, non-A8 citizen, foreign born	0.016	0.000	0.000	1.000	0.000	0.000
A8 citizen, foreign born	0.012	0.000	0.000	0.000	1.000	0.000
Non-EEA citizen, foreign born	0.026	0.000	0.000	0.000	0.000	1.000
Fraction UK-born	0.866	0.954	0.000	0.000	0.000	0.000
Fraction Foreign-born UK citizen	0.057	0.027	0.868	0.000	0.000	0.000
Foreign-born non-A8 EEA citizen	0.022	0.008	0.020	0.830	0.000	0.000
Foreign-born A8 citizen	0.014	0.001	0.007	0.049	0.998	0.000
Foreign-born non-EEA citizen	0.041	0.010	0.105	0.120	0.002	1.000
Max Years in UK	16.507		25.511	14.763	5.504	9.648
Multi-adult Household	0.792	0.798	0.703	0.710	0.871	0.739
Adults Aged 65+	0.363	0.380	0.324	0.192	0.014	0.079
Age of Oldest Adult	51.134	51.828	50.595	43.929	35.410	39.237
Age of Youngest Adult	42.480	43.010	42.333	38.360	28.545	33.017
Any Kids	0.332	0.321	0.458	0.339	0.472	0.462
Number of Kids	0.585	0.560	0.950	0.623	0.704	0.855
Age of oldest Child	9.966	10.030	9.858	9.291	8.371	9.047
Age of Youngest Child	7.109	7.190	6.588	6.321	5.797	6.078
Number of workers	1.261	1.267	1.013	1.258	1.931	1.133
No. Workers>0	0.699	0.696	0.663	0.743	0.951	0.716
Log occupational Wage	0.284	0.289	0.234	0.274	0.079	0.264
Relative Household Labour Income	1.816	1.829	1.660	1.954	1.406	1.704
Log GDP pc Relative to UK	-0.174	-0.050	-1.798	-0.568	-0.560	-1.798
Gini Relative to UK	1.026	1.007	1.260	1.073	1.034	1.325
White	0.899	0.946	0.285	0.781	0.946	0.193
Mixed Race	0.010	0.009	0.023	0.031	0.003	0.018
Indian	0.021	0.012	0.161	0.021	0.000	0.160
Pakistani	0.014	0.009	0.093	0.010	0.000	0.047
Bangladeshi	0.005	0.003	0.053	0.002	0.000	0.023
Chinese	0.005	0.002	0.031	0.006	0.000	0.075
Other Asian	0.009	0.003	0.085	0.019	0.000	0.103
Black	0.023	0.011	0.181	0.048	0.000	0.208
Other Race	0.014	0.005	0.088	0.082	0.051	0.173

Notes.

1. Data is from LFS, 2007-2013 and refers to adults aged 18+.
2. Means of region variables are reported in the Data Appendix as are standard deviations of all variables.
3. Immigration variables refer to household status as defined in the text.

Table 3: Means of Variables by Social Tenant Status

Variable	All	Not Social Tenant	Social Tenant
Sample Size	1.8m	1.7m	297k
Owner Occupier	0.701	0.829	0.000
Social Tenant	0.155	0.000	1.000
Private Tenant	0.144	0.171	0.000
UK- born	0.909	0.914	0.880
UK citizen, foreign born	0.037	0.033	0.060
EEA, non-A8 citizen, foreign born	0.016	0.016	0.017
A8 citizen, foreign born	0.012	0.012	0.009
Non-EEA citizen, foreign born	0.026	0.024	0.034
Fraction UK-born	0.866	0.869	0.851
Fraction Foreign-born UK citizen	0.057	0.054	0.069
Foreign-born non-A8 EEA citizen	0.022	0.022	0.021
Foreign-born A8 citizen	0.014	0.015	0.010
Foreign-born non-EEA citizen	0.041	0.040	0.049
Max Years in UK	16.507	15.935	18.741
Multi-adult Household	0.792	0.827	0.603
Adults Aged 65+	0.363	0.367	0.341
Age of Oldest Adult	51.134	51.218	50.678
Age of Youngest Adult	42.480	42.398	42.927
Any Kids	0.332	0.323	0.381
Number of Kids	0.585	0.558	0.734
Age of oldest Child	9.966	9.946	10.076
Age of Youngest Child	7.109	7.135	6.967
Number of workers	1.261	1.359	0.727
No. Workers>0	0.699	0.741	0.471
Log occupational Wage	0.284	0.329	0.036
Relative Household Labour Income	1.816	1.911	0.957
Log GDP pc Relative to UK	-0.174	-0.159	-0.255
Gini Relative to UK	1.026	1.024	1.033
White	0.899	0.907	0.855
Mixed Race	0.010	0.009	0.017
Indian	0.021	0.024	0.009
Pakistani	0.014	0.014	0.011
Bangladeshi	0.005	0.004	0.012
Chinese	0.005	0.005	0.003
Other Asian	0.009	0.009	0.009
Black	0.023	0.016	0.061
Other Race	0.014	0.012	0.023

Notes:

1. As For Table 2

Table 4: The Probability of Being in Social Housing

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Household Immigrant Category								
UK citizen, foreign born	0.079 (0.004)	0.068 (0.005)	0.024 (0.005)	-0.022 (0.006)	-0.023 (0.007)	-0.030 (0.007)	-0.060 (0.009)	-0.062 (0.009)
EEA, non-A8 citizen, foreign born	0.011 (0.005)	-0.005 (0.008)	-0.048 (0.007)	-0.084 (0.009)	-0.074 (0.011)	-0.074 (0.011)	-0.083 (0.009)	-0.099 (0.009)
A8 citizen, foreign born	-0.035 (0.004)	-0.039 (0.009)	-0.047 (0.009)	-0.127 (0.010)	-0.107 (0.015)	-0.104 (0.014)	-0.119 (0.012)	-0.116 (0.012)
Non-EEA citizen, foreign born	0.052 (0.004)	0.063 (0.006)	0.015 (0.006)	-0.071 (0.007)	-0.077 (0.009)	-0.082 (0.009)	-0.121 (0.010)	-0.149 (0.011)
Household Immigrant Composition Variables								
Foreign-born UK citizen	-0.109 (0.006)	-0.154 (0.011)	-0.191 (0.011)	-0.172 (0.013)	-0.170 (0.017)	-0.176 (0.017)	-0.174 (0.015)	-0.149 (0.015)
Foreign-born non-A8 EEA citizen	-0.123 (0.009)	-0.086 (0.017)	-0.117 (0.017)	-0.051 (0.019)	-0.048 (0.024)	-0.039 (0.025)	-0.050 (0.019)	-0.037 (0.019)
Foreign-born A8 citizen	-0.236 (0.021)	-0.184 (0.035)	-0.185 (0.035)	-0.125 (0.040)	-0.069 (0.058)	-0.047 (0.060)	-0.120 (0.041)	-0.109 (0.040)
Foreign-born non-EEA citizen	-0.101 (0.008)	-0.034 (0.014)	-0.090 (0.014)	-0.090 (0.017)	-0.088 (0.022)	-0.089 (0.023)	-0.111 (0.019)	-0.100 (0.019)
Number of obs	2,068,077	2,068,077	2,068,077	2,064,612	659,503	659,503	1,721,601	1,680,568
Year dummies	Yes	Yes	yes	Yes	Yes	yes	yes	yes
Demographic controls		Yes	yes	Yes	Yes	yes	yes	yes
Regional controls			yes	Yes	Yes	yes	yes	yes
Economic controls				Yes	Yes	yes	yes	yes
Relative income						yes	yes	
Country of birth controls							yes	yes
Ethnicity controls								

Notes:

1. The sample is adults for the period 2007-2013 inclusive
2. The dependent variable is whether the individual is in social housing.
3. The reported estimates are marginal effects evaluated for a household with the base characteristics which are a one-adult two-child household, with the adult aged 35 and the children 10 and 7 and not in work and living in the south-east of England.
4. Robust standard errors, clustered at the household level are reported in parentheses.
5. The demographic controls are whether the household has more than one adult, the number of retired adults, a quadratic in the maximum and minimum age of adults, whether there are any kids, the number of kids, the maximum and minimum age of kids.
6. The regional controls are 20 dummy variables.
7. The economic controls are a dummy variable for whether any adult is in work, the number of workers and a quadratic in the log of the maximum occupational wage of any adult.
8. The relative income is total household labour income relative to a year-specific average.
9. The country of birth controls are quartic in the log of GDP per capita in country of birth relative to the UK and the Gini coefficient relative to the UK.
10. Ethnicity controls are for the 9 ethnic groups described in the text.

Table 5: The Probability of Being in Social Housing: Further Specifications

	(1)		(2)		(3)
Household Immigrant Category					
UK citizen, foreign born	-0.022 (0.006)		-0.019 (0.006)		-0.028 (0.007)
EEA, non-A8 citizen, foreign born	-0.084 (0.009)		-0.073 (0.009)		-0.085 (0.011)
A8 citizen, foreign born	-0.127 (0.010)		-0.113 (0.011)		-0.153 (0.015)
Non-EEA citizen, foreign born	-0.071 (0.007)		-0.064 (0.007)		-0.113 (0.009)
Household Immigrant Composition Variables					
Foreign-born UK citizen	-0.172 (0.013)		-0.186 (0.013)		-0.173 (0.013)
Foreign-born non-A8 EEA citizen	-0.051 (0.019)		-0.059 (0.019)		-0.050 (0.019)
Foreign-born A8 citizen	-0.125 (0.040)		-0.130 (0.040)		-0.132 (0.040)
Foreign-born non-EEA citizen	-0.090 (0.017)		-0.115 (0.017)		-0.097 (0.017)
		Individual Characteristics		Child* Immigrant Interactions	
		Foreign	0.001 (0.001)	Foreign-born UK citizen with UK-born child	0.021 (0.011)
		UK Citizen	0.004 (0.003)	Foreign-born non-A8 EEA citizen with UK-born child	0.068 (0.019)
		EEA Citizen	-0.001	Foreign-born A8 citizen with UK-born child	0.059 (0.022)
				Foreign-born non-EEA citizen with UK-born child	0.102 (0.013)
				Foreign-born UK citizen with foreign-born child	0.005 (0.026)
				Foreign-born non-A8 EEA citizen with foreign -born child	-0.102 (0.029)
				Foreign-born A8 citizen with foreign -born child	0.047 (0.026)
				Foreign-born non-EEA citizen with UK-born child	0.053
Number of observations	2,064,612		1,998,944		2,054,262

Notes:

1. Variables and samples as in column (4) of Table 4.

Table 6: Waiting Lists and the Demand for Social Housing: No Controls

	(1)	(2)	(3)	(4)	(5)
Data	LFS	EHS	EHS	EHS	EHS
Dependent Variable	In Social Housing	In Social Housing	Demands Social Housing	In Social Housing	In Social Housing
Sample	All	All	All	Demands Social Housing	New Tenant or On waiting List
Household Immigrant Category					
UK citizen, foreign born	0.079 (0.006)	0.092 (0.011)	0.106 (0.011)	-0.006 (0.018)	-0.065 (0.032)
Non-UK citizen, foreign born	0.023 (0.004)	0.029 (0.008)	0.058 (0.009)	-0.098 (0.020)	0.024 (0.031)
Household Immigrant Composition Variables					
Foreign-born UK citizen	-0.104 (0.012)	-0.102 (0.017)	-0.111 (0.018)	-0.017 (0.044)	-0.102 (0.083)
Foreign-born non-UK citizen	-0.097 (0.013)	-0.094 (0.020)	-0.088 (0.020)	-0.093 (0.043)	-0.133 (0.093)
Number of observations	745,076	96,101	96,101	16,696	4,721
Year dummies	yes	yes	yes	Yes	Yes
Other controls	no	no	no	no	No

Notes.

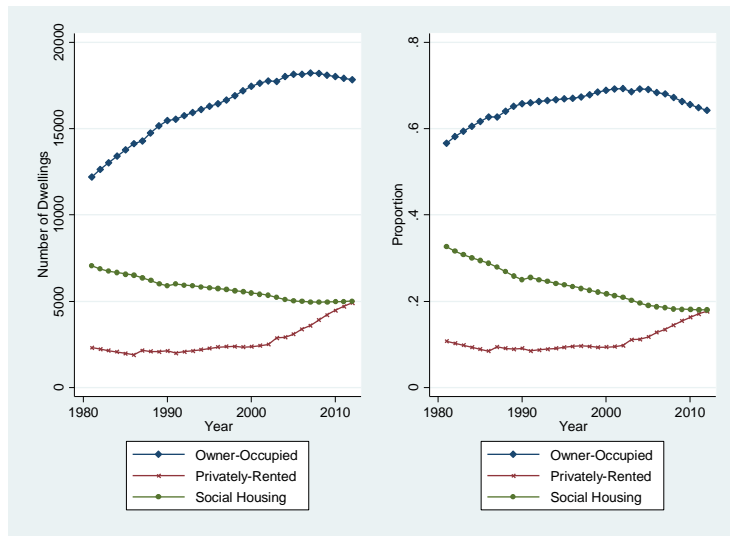
1. Sample is period 2008-2010 inclusive for both LFS and EHS.
2. Reported estimates are marginal effects for the baseline household as defined in Table 4.

Table 7: Waiting Lists and the Demand for Social Housing: Controls

	(1)	(2)	(3)	(4)	(5)
Data	LFS	EHS	EHS	EHS	EHS
Dependent Variable	In Social Housing	In Social Housing	Demands Social Housing	In Social Housing	In Social Housing
Sample	All	All	All	Demands Social Housing	New Tenant or On waiting List
Household Immigrant Category					
UK citizen, foreign born	-0.027 (0.01)	0.008 (0.015)	0.023 (0.015)	-0.047 (0.022)	-0.026 (0.040)
Non-UK citizen, foreign born	-0.077 (0.009)	-0.046 (0.016)	-0.005 (0.014)	-0.116 (0.022)	0.044 (0.035)
Household Immigrant Composition Variables					
Foreign-born UK citizen	-0.148 (0.022)	-0.176 (0.033)	-0.187 (0.031)	-0.008 (0.038)	0.037 (0.094)
Foreign-born non-UK citizen	-0.036 (0.023)	-0.053 (0.038)	-0.049 (0.035)	-0.017 (0.040)	0.048 (0.101)
Number of observations	737,345	95,775	95,775	16,559	4,674
Year dummies	yes	yes	yes	Yes	Yes
Other controls	yes	yes	yes	Yes	Yes

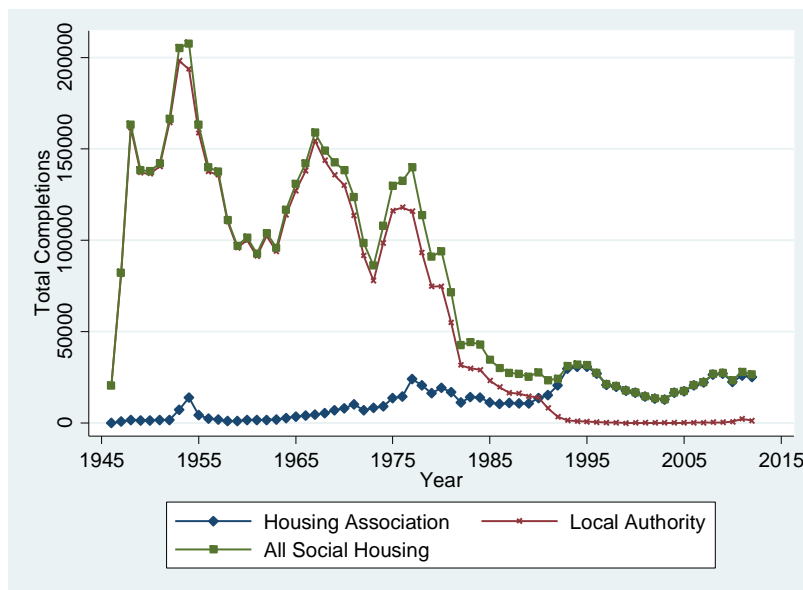
Notes: As for Table 6. Controls are regional, demographic and economic.

Figure 1: The Composition of the UK Housing Stock, 1981-2012



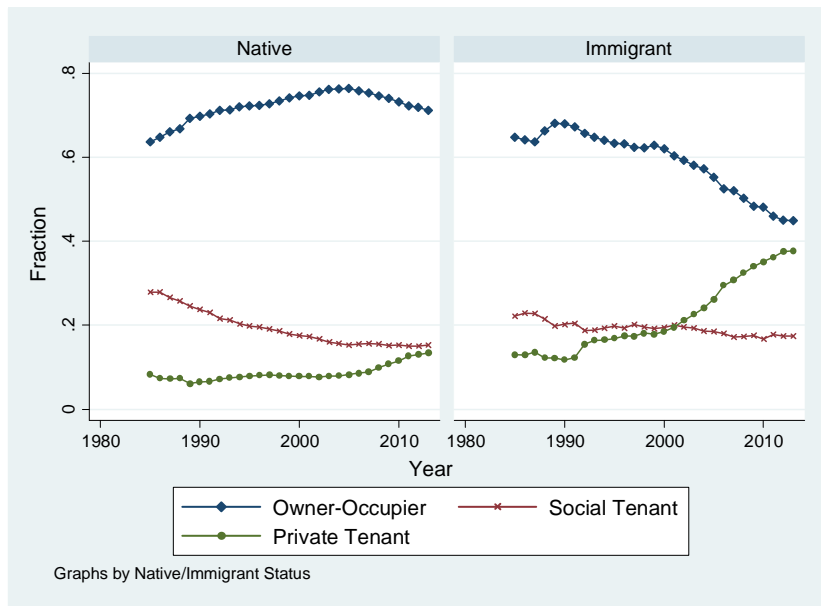
Source: ONS

Figure 2: New Completions of Social Housing Dwellings, 1945-2012



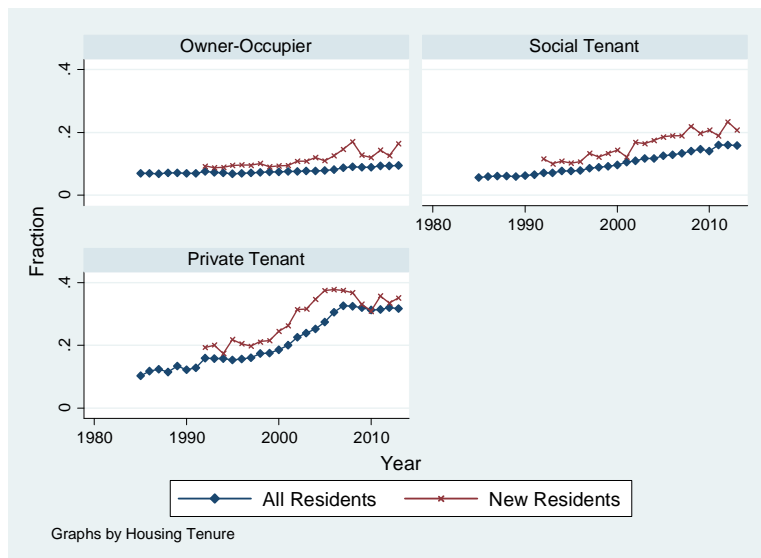
Source: ONS

Figure 3: Housing Tenure for Natives and Immigrants, 1979-2013



Notes: Sample is adults aged 18+.

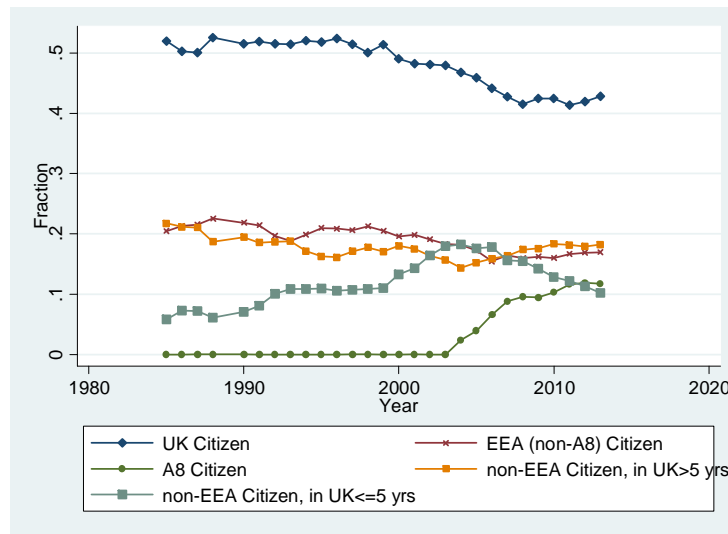
Figure 4: The Fraction of Immigrants in Different Housing Tenures: Stocks and Flows



Notes:

1. Sample is adults aged 18+
2. New residents are defined as those who have been in their current residence for less than three months. Data on length of residence is only provided after 1992.

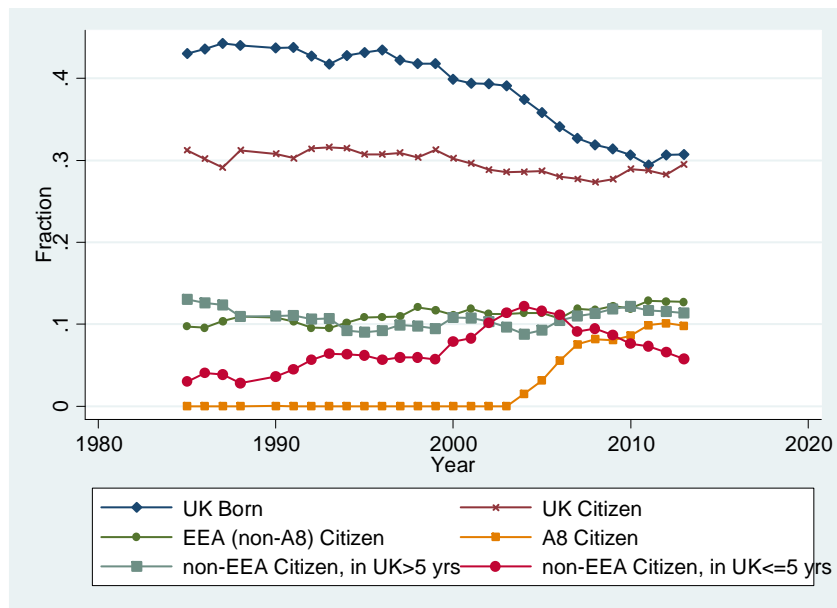
Figure 5: The Share of Adult Immigrants In Different Individual Immigrant Categories



Notes:

1. Sample is the foreign-born, aged 18+.

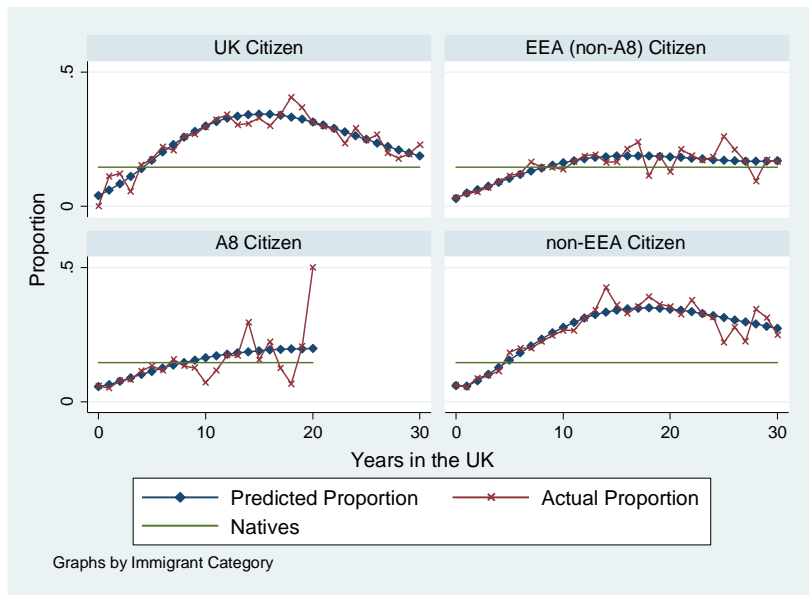
Figure 6: The Share of Adult Immigrants By Household Immigrant Categories



Notes.

1. Sample is the foreign-born, aged 18+.
2. The household immigrant category assigned to an individual is based on the characteristics of all household members e.g. UK born means the immigrant is in a household with at least one adult who is UK born. See text for more details.

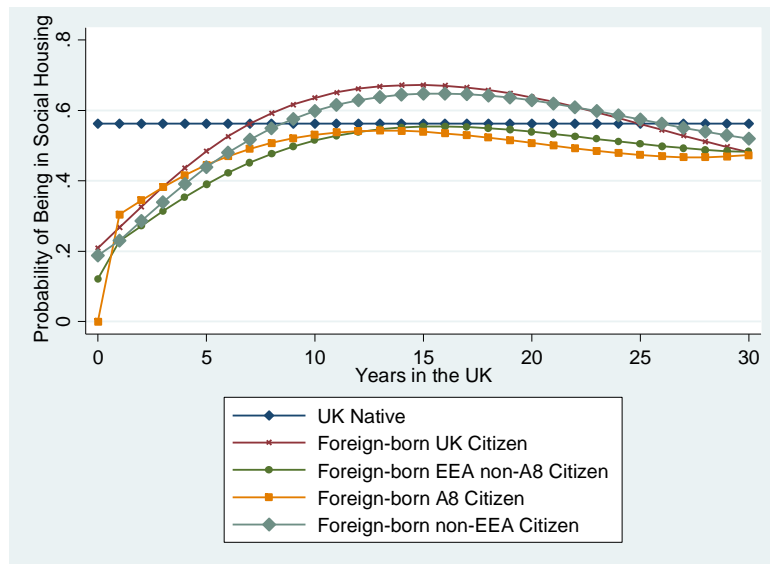
Figure 7: Variation in the Fraction in Social Housing With Time in the UK: No Controls



Notes.

1. The smooth line is the fitted value from a cubic in the probit equation. The more jagged line are the cell means. The plot for the A8 citizens is truncated at 20 years as there are so few observations past this point.

Figure 8: The Relationship Between Time in the UK and Social Housing: with Controls

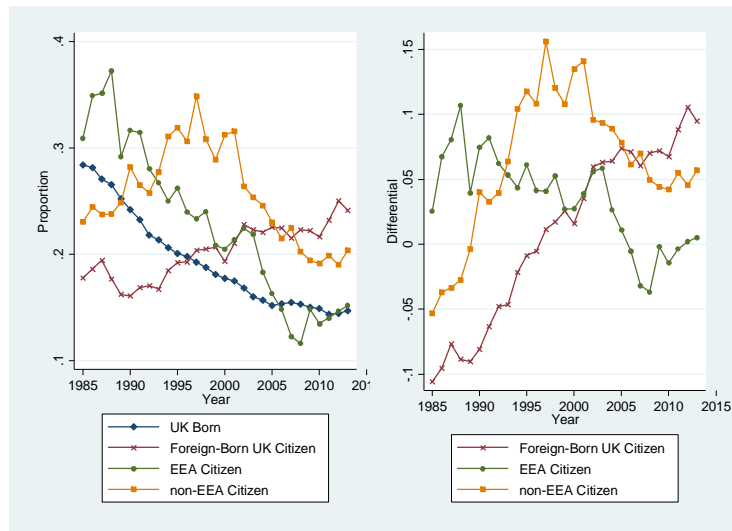


Notes:

1. The controls used are the demographic, economic and geographical controls of column 4 in Table 4.

Figure 9: Changes in the Marginal Effects of Immigrant Household Categories over time:

No Controls



Notes.

1. These are the estimated marginal effects for the household immigrant categories for the specification of column (1) of Table 4 estimated for each year.
2. A8 and non-A8 migrants are pooled.

Figure 10: Changes in the Marginal Effects of Immigrant Household Categories over time:

Baseline Controls

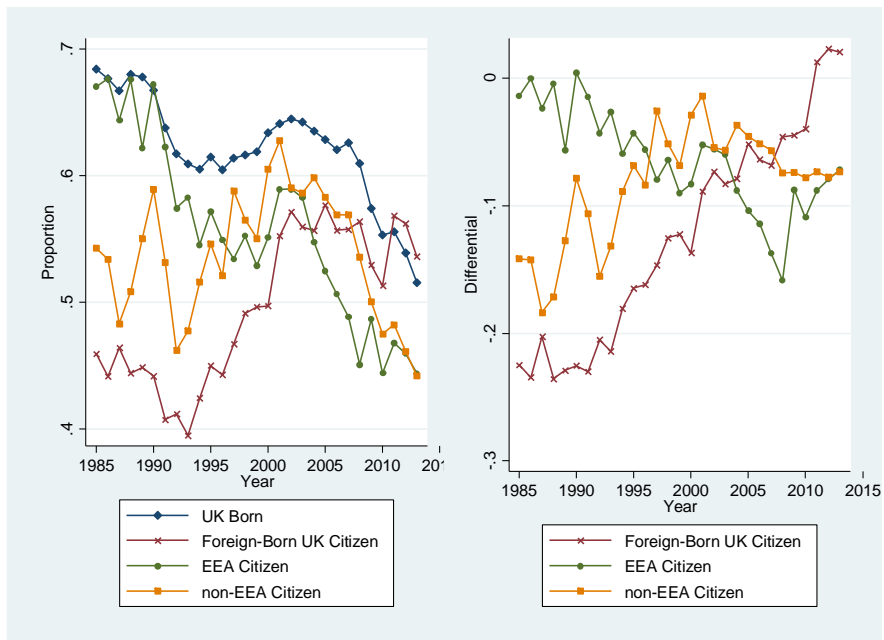


Figure 11: Changes in the Immigrant Proportions and Rates over time: Baseline Controls + Country of Birth Controls

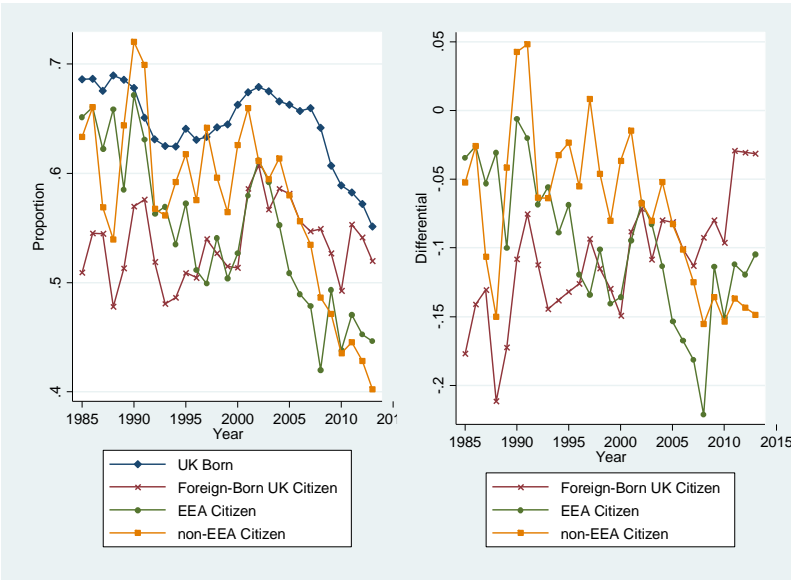
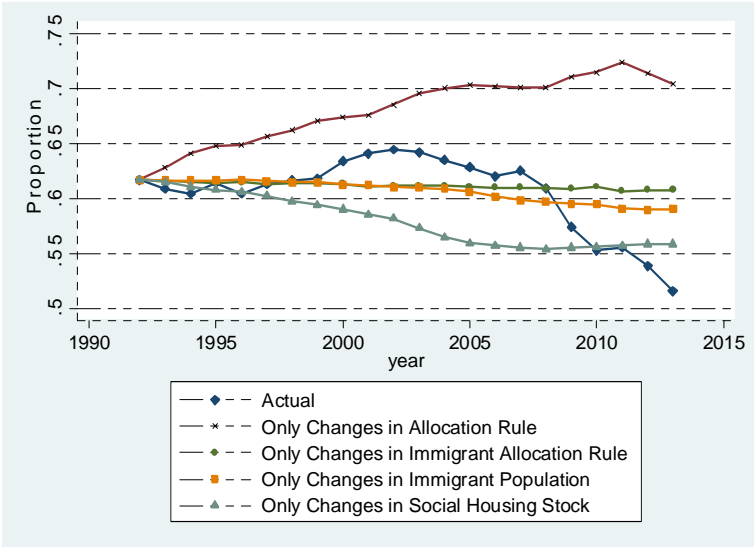


Figure 12: Counter-Factuals for the Probability of Being In Social Housing



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Data Appendix

This Appendix contains more detailed information about the variables used in the regressions and the results of some alternative specifications.

Data Sources

Table A1:	Means of LFS Regional Variables by Household Immigrant Category
Table A2:	Standard Deviations of LFS Variables by Household Immigrant Category
Table A3:	Means of LFS Regional Variables by Social Tenant Status
Table A4:	Standard Deviations of LFS Variables by Social Tenant Status
Table A5:	Detailed Regression Results Behind Table 4
Table A6:	Results Omitting Household Immigrant Composition Variables
Table A7:	Results including Educational Attainment
Table A8:	Regression Results for whether Landlord is Local Authority or Housing Association

Data Sources

Labour Force Survey and English Housing Survey

These data are obtained from the ESRC Data Archive and all codings are available on request.

Relative GDP Per Capita

Per capita GDP at PPP is taken from the CIA World Factbook as this has the most complete list (only Kosovo is missing). Since 2007 all countries of birth and citizenship have been given separate identifiers in the LFS but prior to that date, some countries were grouped together. The coding changed at 4 dates with more individual countries being added at each change. The coding always grouped similar countries together. Where a coding covers a number of countries we use the weighted average of log GDP per capita using as weights the distribution of UK immigrants within the groupings in the post-2007 period.

Relative Gini

Ginin coefficients are taken from the UN-WIDER World Income Inequality database http://www.wider.unu.edu/research/Database/en_GB/database/ and the latest available figures are used for every country. Where a coding covers a number of countries we use the weighted average of the Gini using as weights the distribution of UK immigrants within the groupings in the post-2007 period.

Occupational Wages

These are taken from the 2012 Annual Survey of Hours and Earnings.

Table A1: Means of Regional Variables By Household Immigrant Category

Variable	All	UK- born	UK citizen, foreign born	EEA, non-A8 citizen, foreign born	A8 citizen, foreign born	Non-EEA citizen, foreign born
Sample Size	1.8m	1.6m	65677	27327	20796	43801
Tyne & Wear	0.018	0.019	0.008	0.005	0.006	0.015
Rest of North	0.032	0.035	0.006	0.006	0.014	0.008
South Yorks	0.021	0.022	0.011	0.007	0.018	0.020
West Yorks	0.036	0.036	0.032	0.019	0.037	0.030
Rest of Yorks & Humberside	0.028	0.030	0.007	0.009	0.029	0.010
East Midlands	0.072	0.074	0.052	0.047	0.089	0.041
East Anglia	0.039	0.039	0.018	0.035	0.052	0.031
Inner London	0.050	0.035	0.212	0.271	0.081	0.216
Outer London	0.075	0.059	0.275	0.224	0.153	0.221
South West	0.086	0.090	0.038	0.037	0.066	0.036
West Midlands (met)	0.042	0.040	0.063	0.037	0.041	0.065
Rest of West Midlands	0.045	0.048	0.017	0.013	0.030	0.014
Greater Manchester	0.042	0.042	0.039	0.036	0.036	0.043
Merseyside	0.022	0.023	0.007	0.008	0.010	0.012
Rest of North West	0.039	0.042	0.016	0.010	0.029	0.012
Wales	0.049	0.052	0.014	0.017	0.030	0.019
Strathclyde	0.036	0.038	0.009	0.013	0.025	0.023
Rest of Scotland	0.049	0.052	0.014	0.028	0.054	0.025
Northern Ireland	0.028	0.029	0.004	0.017	0.039	0.009

Notes: as for Table 2

Table A2: Means of Regional Variables by Social Tenant Status

Variable	All	Not Social Tenant	Social Tenant
Sample Size			
Tyne & Wear	0.018	0.016	0.029
Rest of North	0.032	0.032	0.032
South Yorks	0.021	0.020	0.027
West Yorks	0.036	0.036	0.036
Rest of Yorks & Humberside	0.028	0.029	0.023
East Midlands	0.072	0.074	0.063
East Anglia	0.039	0.039	0.034
Inner London	0.050	0.041	0.101
Outer London	0.075	0.076	0.072
South West	0.086	0.090	0.063
West Midlands (met)	0.042	0.040	0.052
Rest of West Midlands	0.045	0.047	0.037
Greater Manchester	0.042	0.040	0.050
Merseyside	0.022	0.021	0.026
Rest of North West	0.039	0.041	0.030
Wales	0.049	0.050	0.044
Strathclyde	0.036	0.033	0.054
Rest of Scotland	0.049	0.048	0.054
Northern Ireland	0.028	0.028	0.024

Notes: As For Table 3

Table A3: Standard Deviations of Variables by Household Immigrant Category

Variable	All	UK- born	UK citizen, foreign born	EEA, non-A8 citizen, foreign born	A8 citizen, foreign born	Non-EEA citizen, foreign born
Sample Size	1.8m	1.6m	65677	27327	20796	43801
Owner Occupier	0.458	0.441	0.496	0.467	0.297	0.413
Social Tenant	0.362	0.357	0.433	0.370	0.323	0.404
Private Tenant	0.351	0.319	0.390	0.500	0.411	0.494
UK- born	0.289	1	0	0	0	0
UK citizen, foreign born	0.190	0.000	0.000	0.000	0.000	0.000
EEA, non-A8 citizen, foreign born	0.127	0.000	0.000	0.000	0.000	0.000
A8 citizen, foreign born	0.108	0.000	0.000	0.000	0.000	0.000
Non-EEA citizen, foreign born	0.159	0.000	0.000	0.000	0.000	0.000
Fraction UK-born	0.308	0.146	0.000	0.000	0.000	0.000
Fraction Foreign-born UK citizen	0.197	0.111	0.227	0.000	0.000	0.000
Foreign-born non-A8 EEA citizen	0.128	0.063	0.099	0.299	0.000	0.000
Foreign-born A8 citizen	0.113	0.024	0.065	0.157	0.027	0.000
Foreign-born non-EEA citizen	0.178	0.069	0.207	0.221	0.027	0.000
Max Years in UK	13.755		12.539	13.676	4.528	9.617
Multi-adult Household	0.406	0.402	0.457	0.454	0.335	0.439
Adults Aged 65+	0.675	0.688	0.605	0.485	0.127	0.322
Age of Oldest Adult	14.438	14.254	14.109	14.552	9.664	12.393
Age of Youngest Adult	19.229	19.412	18.146	17.341	8.333	12.685
Any Kids	0.471	0.467	0.498	0.473	0.499	0.499
Number of Kids	0.973	0.948	1.288	1.046	0.892	1.138
Age of oldest Child	3.145	3.077	3.581	3.348	3.995	3.813
Age of Youngest Child	3.191	3.160	3.515	2.935	3.399	3.395
Number of workers	1.061	1.063	0.936	1.051	1.131	0.985
No. Workers>0	0.459	0.460	0.473	0.437	0.216	0.451
Log occupational Wage	0.387	0.386	0.388	0.407	0.280	0.416
Household relative labour income	1.640	1.652	1.492	1.809	0.889	1.545
Log GDP pc Relative to UK	0.579	0.250	1.158	0.839	0.069	1.154
Gini Relative to UK	0.112	0.051	0.289	0.204	0.088	0.282
White	0.301	0.226	0.451	0.414	0.226	0.395
Mixed Race	0.080	0.075	0.128	0.139	0.046	0.117
Indian	0.140	0.103	0.362	0.132	0.006	0.362
Pakistani	0.114	0.095	0.287	0.092	0.000	0.209
Bangladeshi	0.069	0.049	0.222	0.047	0.000	0.149
Chinese	0.065	0.036	0.169	0.064	0.000	0.258
Other Asian	0.086	0.043	0.267	0.122	0.010	0.294
Black	0.144	0.096	0.380	0.200	0.009	0.400
Other Race	0.107	0.055	0.266	0.245	0.200	0.361
Tyne & Wear	0.134	0.137	0.091	0.069	0.080	0.122
Rest of North	0.177	0.183	0.078	0.075	0.119	0.089
South Yorks	0.145	0.147	0.105	0.081	0.133	0.140
West Yorks	0.186	0.187	0.176	0.135	0.190	0.170
Rest of Yorks & Humberside	0.165	0.169	0.081	0.094	0.168	0.101
East Midlands	0.259	0.262	0.222	0.211	0.285	0.199
East Anglia	0.192	0.195	0.134	0.183	0.223	0.172
Inner London	0.219	0.183	0.409	0.445	0.273	0.411
Outer London	0.264	0.236	0.446	0.417	0.360	0.415
South West	0.280	0.286	0.191	0.188	0.249	0.186
West Midlands (met)	0.200	0.196	0.244	0.188	0.198	0.247

Rest of West Midlands	0.208	0.214	0.129	0.115	0.171	0.117
Greater Manchester	0.200	0.201	0.194	0.186	0.186	0.202
Merseyside	0.146	0.150	0.081	0.091	0.098	0.109
Rest of North West	0.194	0.200	0.124	0.102	0.167	0.111
Wales	0.215	0.222	0.117	0.128	0.169	0.135
Strathclyde	0.187	0.192	0.092	0.113	0.156	0.150
Rest of Scotland	0.216	0.221	0.115	0.164	0.227	0.157
Northern Ireland	0.164	0.169	0.063	0.130	0.194	0.093

Table A4: Standard Deviations of Variables by Social Tenant Status

Variable	All	Not Social Tenant	Social Tenant
Sample Size	1.8m	1.7m	297k
Owner Occupier	0.458	0.376	0.000
Social Tenant	0.362	0.000	0.000
Private Tenant	0.351	0.376	0.000
UK- born	0.289	0.495	0.479
UK citizen, foreign born	0.190	0.179	0.238
EEA, non-A8 citizen, foreign born	0.127	0.126	0.130
A8 citizen, foreign born	0.108	0.110	0.094
Non-EEA citizen, foreign born	0.159	0.154	0.181
Fraction UK-born	0.308	0.303	0.336
Fraction Foreign-born UK citizen	0.197	0.190	0.231
Foreign-born non-A8 EEA citizen	0.128	0.127	0.130
Foreign-born A8 citizen	0.113	0.115	0.097
Foreign-born non-EEA citizen	0.178	0.174	0.197
Max Years in UK	13.755	13.932	12.800
Multi-adult Household	0.406	0.378	0.489
Adults Aged 65+	0.675	0.686	0.607
Age of Oldest Adult	14.438	14.297	15.174
Age of Youngest Adult	19.229	18.933	20.762
Any Kids	0.471	0.468	0.486
Number of Kids	0.973	0.936	1.144
Age of oldest Child	3.145	3.125	3.250
Age of Youngest Child	3.191	3.162	3.342
Number of workers	1.061	1.055	0.925
No. Workers>0	0.459	0.438	0.499
Log occupational Wage	0.387	0.394	0.220
Household relative labour income	1.640	1.685	0.727
Log GDP pc Relative to UK	0.579	0.536	0.770
Gini Relative to UK	0.112	0.108	0.128
White	0.301	0.290	0.352
Mixed Race	0.080	0.073	0.109
Indian	0.140	0.148	0.089
Pakistani	0.114	0.116	0.101
Bangladeshi	0.069	0.059	0.110
Chinese	0.065	0.067	0.056
Other Asian	0.086	0.085	0.090
Black	0.144	0.119	0.233
Other Race	0.107	0.099	0.142
Tyne & Wear	0.134	0.127	0.167
Rest of North	0.177	0.177	0.176
South Yorks	0.145	0.142	0.162
West Yorks	0.186	0.186	0.185
Rest of Yorks & Humberside	0.165	0.167	0.148
East Midlands	0.259	0.262	0.243
East Anglia	0.192	0.194	0.181
Inner London	0.219	0.198	0.302
Outer London	0.264	0.265	0.259
South West	0.280	0.286	0.244
West Midlands (met)	0.200	0.195	0.223
Rest of West Midlands	0.208	0.211	0.190

Greater Manchester	0.200	0.196	0.218
Merseyside	0.146	0.143	0.160
Rest of North West	0.194	0.198	0.170
Wales	0.215	0.217	0.205
Strathclyde	0.187	0.179	0.225
Rest of Scotland	0.216	0.214	0.225
Northern Ireland	0.164	0.166	0.152

Table A5: Detailed Regression Results Behind Table 4

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
UK citizen, foreign born	0.297 (0.012)	0.173 (0.013)	0.062 (0.013)	-0.057 (0.014)	-0.059 (0.018)	-0.075 (0.018)	-0.149 (0.027)	-0.158 (0.023)
EEA, non-A8 citizen, foreign born	0.047 (0.019)	-0.012 (0.020)	-0.130 (0.021)	-0.210 (0.022)	-0.187 (0.028)	-0.188 (0.028)	-0.180 (0.029)	-0.253 (0.024)
A8 citizen, foreign born	-0.168 (0.023)	-0.101 (0.024)	-0.127 (0.024)	-0.319 (0.027)	-0.268 (0.037)	-0.267 (0.037)	-0.239 (0.041)	-0.295 (0.030)
Non-EEA citizen, foreign born	0.203 (0.014)	0.159 (0.015)	0.039 (0.015)	-0.180 (0.017)	-0.193 (0.022)	-0.210 (0.022)	-0.317 (0.033)	-0.378 (0.028)
Fraction Foreign-born UK citizen	-0.473 (0.027)	-0.393 (0.028)	-0.505 (0.028)	-0.437 (0.033)	-0.433 (0.043)	-0.443 (0.044)	-0.426 (0.050)	-0.390 (0.039)
Foreign-born non-A8 EEA citizen	-0.535 (0.040)	-0.219 (0.043)	-0.309 (0.044)	-0.130 (0.048)	-0.123 (0.061)	-0.097 (0.063)	-0.095 (0.064)	-0.098 (0.049)
Foreign-born A8 citizen	-1.025 (0.090)	-0.469 (0.091)	-0.488 (0.093)	-0.319 (0.101)	-0.176 (0.148)	-0.118 (0.151)	-0.086 (0.153)	-0.286 (0.104)
Foreign-born non-EEA citizen	-0.438 (0.036)	-0.087 (0.037)	-0.238 (0.037)	-0.229 (0.042)	-0.225 (0.056)	-0.224 (0.057)	-0.282 (0.064)	-0.261 (0.049)
No. of Kids		0.076 (0.008)	0.083 (0.008)	0.050 (0.008)	0.057 (0.010)	0.057 (0.010)	0.052 (0.010)	0.058 (0.009)
Age of oldest Child		0.030 (0.002)	0.029 (0.002)	0.016 (0.002)	0.015 (0.003)	0.013 (0.003)	0.013 (0.003)	0.015 (0.002)
Age of youngest Child		-0.031 (0.002)	-0.031 (0.002)	-0.019 (0.002)	-0.020 (0.003)	-0.018 (0.003)	-0.017 (0.003)	-0.017 (0.002)
Any Kids		0.409 (0.017)	0.422 (0.017)	0.232 (0.018)	0.210 (0.022)	0.170 (0.022)	0.148 (0.023)	0.176 (0.018)
Multi-adult Household		-1.034 (0.009)	-1.021 (0.009)	-0.499 (0.011)	-0.496 (0.014)	-0.460 (0.014)	-0.416 (0.014)	-0.434 (0.011)
Multi-adult Household with kids		-0.305 (0.011)	-0.310 (0.011)	-0.032 (0.012)	-0.006 (0.015)	0.027 (0.015)	0.041 (0.015)	-0.003 (0.012)
No. Adults Aged 65+		-0.043 (0.008)	-0.049 (0.008)	-0.207 (0.008)	-0.202 (0.010)	-0.194 (0.009)	-0.210 (0.010)	-0.228 (0.008)
Age of Oldest Adult		0.026 (0.005)	0.033 (0.005)	0.174 (0.006)	0.194 (0.007)	0.199 (0.007)	0.194 (0.007)	0.169 (0.006)
Age of Oldest Adult squared		0.030 (0.002)	0.030 (0.002)	-0.036 (0.002)	-0.047 (0.003)	-0.053 (0.003)	-0.051 (0.003)	-0.032 (0.002)
Age of Youngest Adult		-0.145 (0.003)	-0.142 (0.003)	-0.193 (0.003)	-0.188 (0.004)	-0.176 (0.004)	-0.190 (0.004)	-0.208 (0.003)
Age of Youngest Adult squared		0.025 (0.001)	0.026 (0.001)	0.021 (0.001)	0.022 (0.001)	0.021 (0.001)	0.023 (0.001)	0.023 (0.001)
Year==2007	0.025 (0.008)	0.016 (0.009)	0.016 (0.009)	0.044 (0.010)	0.030 (0.012)	0.031 (0.012)	0.034 (0.012)	0.046 (0.010)
Year==2008	0.021 (0.009)	0.012 (0.009)	0.012 (0.009)	0.039 (0.010)	0.019 (0.012)	0.018 (0.012)	0.019 (0.012)	0.039 (0.010)
Year==2009	0.011 (0.007)	0.003 (0.007)	0.002 (0.007)	0.015 (0.008)	0.003 (0.011)	0.004 (0.011)	0.001 (0.011)	0.012 (0.008)
Year==2011	-0.011 (0.007)	-0.010 (0.008)	-0.010 (0.008)	-0.021 (0.008)	-0.024 (0.013)	-0.027 (0.013)	-0.025 (0.013)	-0.021 (0.009)
Year==2012	-0.005 (0.007)	-0.013 (0.008)	-0.011 (0.008)	0.006 (0.008)	-0.018 (0.013)	-0.022 (0.013)	-0.031 (0.013)	-0.008 (0.009)
Year==2013	0.005 (0.008)	-0.006 (0.009)	-0.003 (0.009)	0.024 (0.010)	-0.014 (0.015)	-0.017 (0.015)	-0.033 (0.015)	0.006 (0.010)
Tyne and Wear			0.469 (0.018)	0.342 (0.019)	0.360 (0.022)	0.343 (0.022)	0.340 (0.022)	0.347 (0.019)
Rest of North			0.144 (0.015)	0.009 (0.016)	0.033 (0.019)	0.016 (0.019)	0.008 (0.019)	0.011 (0.016)
South Yorks			0.296 (0.017)	0.153 (0.018)	0.186 (0.021)	0.165 (0.021)	0.152 (0.021)	0.152 (0.018)
West Yorks			0.131	0.016	0.038	0.023	0.019	0.033

			(0.014)	(0.015)	(0.018)	(0.018)	(0.018)	(0.015)
Rest of Yorks & Humberside			0.002	-0.094	-0.062	-0.081	-0.093	-0.097
			(0.017)	(0.018)	(0.021)	(0.021)	(0.021)	(0.018)
East Midlands			0.051	-0.029	-0.008	-0.024	-0.035	-0.029
			(0.012)	(0.012)	(0.014)	(0.014)	(0.015)	(0.012)
East Anglia			0.070	0.030	0.045	0.027	0.022	0.030
			(0.015)	(0.016)	(0.018)	(0.018)	(0.019)	(0.016)
Inner London			0.684	0.732	0.748	0.786	0.807	0.678
			(0.013)	(0.015)	(0.019)	(0.019)	(0.020)	(0.016)
Outer London			0.098	0.080	0.071	0.087	0.094	0.062
			(0.012)	(0.014)	(0.017)	(0.017)	(0.017)	(0.014)
South West			-0.045	-0.105	-0.121	-0.142	-0.141	-0.103
			(0.012)	(0.012)	(0.015)	(0.015)	(0.015)	(0.012)
West Midlands (met)			0.266	0.152	0.172	0.152	0.151	0.161
			(0.014)	(0.015)	(0.018)	(0.018)	(0.018)	(0.015)
Rest of West Midlands			0.025	-0.031	-0.012	-0.033	-0.039	-0.029
			(0.014)	(0.015)	(0.018)	(0.018)	(0.018)	(0.015)
Greater Manchester			0.229	0.129	0.143	0.125	0.115	0.129
			(0.014)	(0.014)	(0.017)	(0.017)	(0.017)	(0.015)
Merseyside			0.221	0.080	0.093	0.075	0.065	0.073
			(0.018)	(0.019)	(0.022)	(0.022)	(0.022)	(0.019)
Rest of North West			-0.044	-0.138	-0.103	-0.123	-0.132	-0.131
			(0.015)	(0.016)	(0.018)	(0.018)	(0.018)	(0.016)
Wales			0.052	-0.085	-0.089	-0.110	-0.114	-0.085
			(0.013)	(0.014)	(0.017)	(0.017)	(0.017)	(0.014)
Strathclyde			0.394	0.306	0.320	0.309	0.304	0.314
			(0.014)	(0.015)	(0.017)	(0.017)	(0.017)	(0.014)
Rest of Scotland			0.201	0.147	0.154	0.149	0.149	0.152
			(0.013)	(0.013)	(0.016)	(0.016)	(0.016)	(0.013)
Northern Ireland			-0.000	-0.148	-0.039	-0.058	-0.075	-0.139
			(0.015)	(0.016)	(0.019)	(0.019)	(0.019)	(0.016)
Number of Workers				-0.143	-0.144	0.017	-0.004	-0.164
				(0.007)	(0.009)	(0.010)	(0.010)	(0.007)
No. of Workers>0				-0.456	-0.452	-0.404	-0.385	-0.446
				(0.011)	(0.016)	(0.019)	(0.019)	(0.012)
Log occupational wage				-1.397	-1.455	-1.136	-1.162	-1.430
				(0.019)	(0.027)	(0.029)	(0.029)	(0.020)
Log occupational wage squared				0.136	0.183	0.189	0.203	0.151
				(0.028)	(0.038)	(0.039)	(0.040)	(0.028)
Log gdp pc in country of birth (rel to UK)							-0.045	0.086
							(0.068)	(0.055)
Log gdp pc in country of birth squared							-0.159	0.228
							(0.101)	(0.082)
Log gdp pc in country of birth cubed							-0.069	0.102
							(0.045)	(0.037)
Log gdp pc in country of birth quartic							-0.005	0.015
							(0.006)	(0.005)
Gini in country of birth relative to UK							0.098	-0.152
							(0.036)	(0.030)
Mixed Race								0.343
								(0.030)
Indian								-0.515
								(0.034)
Pakistani								-0.579
								(0.038)
Bangladeshi								0.054
								(0.051)
Chinese								-0.310
								(0.058)
Other Asian								-0.138

								(0.040)
Black								0.466
								(0.023)
Other Race								0.229
								(0.030)
Relative Labour Income						-0.323	-0.336	
						(0.015)	(0.015)	
Relative Labour Income squared						-0.005	0.003	
						(0.009)	(0.009)	
Relative Labour Income cubed						0.004	0.003	
						(0.002)	(0.002)	
Relative Labour Income quartic						-0.000	-0.000	
						(0.000)	(0.000)	
Constant	-1.047	-0.198	-0.320	0.165	0.182	-0.059	-0.171	0.290
	(0.006)	(0.010)	(0.011)	(0.013)	(0.016)	(0.023)	(0.043)	(0.033)
Observations	2,068,077	2,068,077	2,068,077	2,064,612	659,503	659,503	637,864	1,942,229

Notes.

1. These are probit coefficients (results reported in Table 4 are marginal effects).
2. See Notes to Table 4.

Table A6: Results Excluding Household Composition Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
UK citizen, foreign born	0.083 (0.003)	0.086 (0.005)	0.046 (0.005)	-0.004 (0.005)	-0.007 (0.007)	-0.013 (0.007)	-0.006 (0.008)	-0.015 (0.008)
EEA, non-A8 citizen, foreign born	0.013 (0.004)	0.001 (0.007)	-0.039 (0.007)	-0.082 (0.008)	-0.073 (0.011)	-0.073 (0.010)	-0.068 (0.009)	-0.087 (0.009)
A8 citizen, foreign born	-0.031 (0.004)	-0.035 (0.009)	-0.040 (0.009)	-0.120 (0.010)	-0.102 (0.015)	-0.100 (0.014)	-0.089 (0.011)	-0.090 (0.012)
Non-EEA citizen, foreign born	0.056 (0.004)	0.067 (0.006)	0.025 (0.006)	-0.063 (0.007)	-0.070 (0.009)	-0.076 (0.008)	-0.071 (0.010)	-0.104 (0.010)
Number of obs	2,068,077	2,068,077	2,068,077	2,064,612	659,503	659,503	1,721,601	1,680,568
Year dummies	Yes	yes	yes	Yes	Yes	yes	yes	yes
Demographic controls		yes	yes	Yes	Yes	yes	yes	yes
Regional controls			yes	Yes	Yes	yes	yes	yes
Economic controls				Yes	Yes	yes	yes	yes
Relative income						yes	yes	
Country of birth controls							yes	yes
Ethnicity controls								

Notes.

1. As for Table 4 except that household composition variables are excluded.

Table A7: Results Including Controls for Education

	(1)	(2)	(3)
UK citizen, foreign born	-0.022 (0.006)	0.118 (0.006)	0.040 (0.006)
EEA, non-A8 citizen, foreign born	-0.084 (0.009)	0.006 (0.010)	-0.051 (0.010)
A8 citizen, foreign born	-0.127 (0.010)	0.060 (0.011)	-0.031 (0.011)
Non-EEA citizen, foreign born	-0.071 (0.007)	0.119 (0.007)	0.000 (0.007)
Household Composition Variables			
Foreign-born UK citizen	-0.172 (0.013)	-0.022 (0.012)	-0.055 (0.013)
Foreign-born non-A8 EEA citizen	-0.051 (0.019)	-0.002 (0.019)	0.001 (0.019)
Foreign-born A8 citizen	-0.125 (0.040)	0.026 (0.041)	0.019 (0.041)
Foreign-born non-EEA citizen	-0.090 (0.017)	0.101 (0.016)	0.037 (0.017)
Number of obs	2,064,612	1,829,517	1,826,151
Other controls	yes	yes	yes
Economic controls	yes	no	Yes
Education controls	No	yes	yes

Notes.

1. All samples and variables are as defined in Table 4.
2. All reported specifications include year, demographic and regional controls with the variation being in whether economic and education controls are included.
3. The education controls are dummy variables for oldest age left full-time education of any adult in the household where the categories are 0/10, 11/15, 16/17, 18/20 and 21+.

Table A8: Models for Whether a Local Authority or Housing Association Tenant

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Household Immigrant Category								
UK citizen, foreign born	0.059 (0.009)	0.054 (0.009)	0.015 (0.010)	0.014 (0.010)	0.018 (0.012)	0.018 (0.012)	0.008 (0.016)	0.012 (0.016)
EEA, non-A8 citizen, foreign born	0.016 (0.015)	0.018 (0.015)	-0.007 (0.015)	-0.007 (0.015)	-0.005 (0.018)	-0.006 (0.018)	-0.013 (0.016)	-0.011 (0.016)
A8 citizen, foreign born	-0.015 (0.020)	-0.006 (0.020)	-0.031 (0.020)	-0.028 (0.020)	-0.006 (0.028)	-0.006 (0.028)	-0.022 (0.023)	-0.031 (0.023)
Non-EEA citizen, foreign born	0.060 (0.011)	0.063 (0.011)	0.024 (0.012)	0.021 (0.012)	0.000 (0.014)	-0.000 (0.014)	0.005 (0.019)	0.010 (0.020)
Household Immigrant Composition Variables								
Foreign-born UK citizen	-0.052 (0.025)	-0.083 (0.025)	-0.123 (0.027)	-0.109 (0.027)	-0.147 (0.034)	-0.145 (0.033)	-0.114 (0.030)	-0.100 (0.031)
Foreign-born non-A8 EEA citizen	-0.006 (0.038)	-0.033 (0.038)	-0.036 (0.039)	-0.022 (0.040)	-0.019 (0.050)	-0.016 (0.050)	-0.019 (0.040)	-0.013 (0.040)
Foreign-born A8 citizen	-0.183 (0.082)	-0.199 (0.082)	-0.207 (0.085)	-0.183 (0.087)	-0.161 (0.122)	-0.155 (0.121)	-0.184 (0.087)	-0.199 (0.087)
Foreign-born non-EEA citizen	0.016 (0.031)	-0.023 (0.032)	-0.076 (0.033)	-0.056 (0.033)	-0.111 (0.042)	-0.106 (0.042)	-0.040 (0.039)	-0.019 (0.039)
Number of obs	308,662	308,662	308,662	306,945	105,215	105,215	296,284	290,094
Year dummies	Yes	Yes	yes	Yes	Yes	yes	yes	yes
Demographic controls		Yes	yes	Yes	Yes	yes	yes	yes
Regional controls			yes	Yes	Yes	yes	yes	yes
Economic controls				Yes	Yes	yes	yes	yes
Relative income						yes	yes	
Country of birth controls							yes	yes
Ethnicity controls								

Notes.

1. The sample is all adult social tenants for the period 2007-2013.
2. The dependent variable is a binary variable taking the value 1 if the individual is a local authority tenant and zero if they are a housing association tenant.
3. The reported coefficients are marginal effects from the baseline household as described in Table 4.
4. All controls are as described in Table 4.

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