ETHNIC MINORITY IMMIGRANTS AND THEIR CHILDREN IN BRITAIN

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Abstract

This paper investigates educational attainment and economic performance of ethnic minority immigrants and their children in Britain. Based on the British LFS, we construct two samples: ethnic minority immigrants who are born between 1933 and 1954, and whom we observe between 1978 and 1984; and ethnic minorities born in Britain between 1963 and 1975, and whom we observe between 1998 and 2005. We compare them to corresponding cohorts of white British born. We find that ethnic minority immigrants and their British born descendents are on average better educated in comparison to their British born white peers. Further, educational attainment of British born minorities is far higher than that of their parent generation, and supersedes for all minority groups that of their white native born peers. Despite this, British born ethnic minorities exhibit on average lower employment probabilities than their white native born peers, although there is large variation across the different groups. Further, although their mean wages appear to be slightly higher than those of their white native born peers, this is due to their higher educational attainment and their concentration in Greater London. If British born ethnic minorities had the same characteristics and regional allocation than their white British born peers, their wages would be considerably lower. We show that differences in wage offer distributions hardly account for the employment differences of British born ethnic minorities. As possible explanations, we examine, among others, heterogeneity in educational degrees between the two groups and preferences for work.

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1.   Introduction

In many industrialized countries, second generation immigrants are a growing fraction of the population. Examination of intergenerational mobility in immigrant communities and the economic assimilation of the children of immigrants is therefore of great public interest. The performance of second generation immigrants when compared to their peers of host country descent differs widely across countries. Studies from the U.S. and Canada draw an optimistic picture about the success of second generation immigrants relative to children of native-born parents.[1] In contrast, studies for European countries arrive at less positive conclusions.[2] Yet, while the assimilation and economic activity of first generation immigrants is a well-studied area, for many countries we still know relatively little about the second generation.

In Britain, ethnic minority individuals are a focus in the public debate about disadvantages of immigrant communities (see for instance the Commission for Racial Equality Annual Report, 2006). According to the 2001 Census, 4.7 million (or 8.1% of the total population) were from non-white ethnic minorities. This represents an increase of 53 percent from just over 3 million (or 5.5 percent) in the 1991 Census. Also, ethnic minorities make up significant proportions of the British labour force. For instance, in 2005, non-mixed ethnic minorities born in Britain constituted 2.4 percent of the British working age population, while the respective percentage of ethnic minorities born abroad is 4.3 percent (author's own calculations from the British Labour Force Survey (*henceforth* LFS), 2005).

In this paper we examine two aspects of immigrant outcomes of ethnic minority descent across generations: human capital measured by years of schooling and educational qualifications; and labour market success as captured by employment and wages. We distinguish between the six largest non-white

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[1] For instance Card *et al*. (2000) find that children of immigrants tend to have higher education and wages than children of natives. Borjas (2006) finds that on average the second generation of immigrants earns 5 to 10 percent more than their ancestors. Other studies on intergenerational mobility in immigrant communities include, Borjas (1992, 1993, 1994), Carliner (1980), Chiswick (1977), Trejo (2003) and Smith (2003, 2006) for the U.S., Aydemir *et al*. (2006), Chiswick and Miller (1988), Sweetman and Dicks (1999) for Canada, Chiswick *et al*. (2005) for Australia, and Cohen and Haberfeld (1998), Deutsch *et al*. (2006) for Israel.

[2] See for instance work by Gang and Zimmermann (2000), Riphahn (2005, 2003) for Germany, Nielsen *et al*. (2003) for Denmark, van Ours and Veenman (2003, 2004) for the Netherlands, and Rooth and Ekberg (2003), Hammarstedt and Palme (2006) for Sweden.

minority populations, belonging to the following ethnicities: Indian, Pakistani, Black Caribbean, Black African, Bangladeshi and Chinese.[3] The analysis is based on the British LFS from 1979 to 2005. As this is a repeated cross-section (or, in later years, a rotating panel), and does not report the birth place of the parent, we investigate mobility across generations by comparing two birth cohorts. Our first cohort comprises individuals who are born between 1933 and 1954 outside Britain, and whom we observe in the survey between 1979 and 1984. Our second cohort includes individuals who are born in Britain between 1979 and 1984, who belong to any the above ethnic minority groups, and whom we observe between 1998 and 2005. We refer to these groups as first generation ethnic minority immigrants and British born ethnic minorities respectively. We argue in the paper that most of the British born individuals are likely to be the descendents of the first cohorts, as ethnic minority immigration to Britain started not earlier than the 1950's. As white native born comparison groups, we construct samples of British born whites who belong to the same birth cohorts.

This paper makes several contributions to the literature. First, it examines the educational and employment performance of Britain's ethnic minority groups in an intergenerational context, starting from the 1970's, and based on all available data from the LFS. While other work concentrates on intergenerational class mobility of only some of Britain's ethnic groups based on the ONS Longitudinal Study (LS) (see Platt 2005, 2007) and the General Household Survey (GHS) (see Heath and McHanon 2005), our investigation is for all main ethnic minority groups, and we concentrate on educational and employment outcomes.[4] Second, and focussing on comparison between British born ethnic minorities and their white British born peers, we analyse differences in wage distributions, and show how much is explained by regional allocation, and individual characteristics. Third, based on the framework developed by Juhn (1992) and Juhn and Murphy (1997), we de-compose the difference in employment probabilities between British born whites and ethnic minorities in a part that is explained by differences in wage offers, and in a part that is explained by differences in participation behaviour for the same

[3] We exclude all those individuals with a mixed ethnic background, which make 14.6 percent of the minority ethnic population in Britain (2001 UK Census). Some of these individuals may be the children of interracial marriages. For the extent of social integration and intermarriage of the Black Caribbean population in Britain see Peach (2005).
[4] Other work investigates ethnic minorities living in the UK, without however analyzing intergenerational aspects of assimilation. See e.g. Blackaby *et al.* (2002, 2005), Heath and Cheung (2006), Heath and Yu (2005), Heath *et al.* (2000), Robinson and Valeny (2005), Shields and Wheatley Price (2003) and Wadsworth (2003).

wages. Finally, we provide some tentative hypotheses as to why participation behaviour of some British minority groups differs from that of their white born peers.

We find that both first generation ethnic minority immigrants and British born ethnic minorities have on average higher levels of education, as opposed to comparable groups of white natives. Also, the improvement in educational achievement over the two cohorts we consider is larger for most British born ethnic minority groups as for white natives, and remarkable for some groups. However, we also find that this educational advantage does not translate into higher employment probabilities: For both foreign and British born ethnic minorities, employment probabilities are considerably lower than those of the white British born comparison samples. The differences are quite dramatic for some groups. Most surprising is the lower employment prospects of British born ethnic minorities, who obtained higher levels of education within the same education system.

Examining differences in wages and employment for British born ethnic minorities and whites along their wage distributions, we find that – overall – wages of British born ethnic minorities are about 5.5 percent higher than those of their white peers. This advantage is driven by females: while wages of British born ethnic minority males are 1.7 percent lower (although not significantly different from zero), British born ethnic minority females have a statistically significant 14 percent wage advantage over their white female peers. Further, British born ethnic minority males are more heavily concentrated at the lower as well as the higher percentiles of the wage distribution, compared with their British born white peers. We find that the overall wage advantage turns into a wage disadvantage, if British born ethnic minorities were to face the white native regional distribution and were attributed native characteristics, in particular the (lower) levels of education of whites. We also show that British born ethnic minorities have lower employment probabilities than white native born individuals of the same birth cohorts.

When we decompose these differences along the distribution of wages in a part that is due to differences in (imputed) wage offer distributions and a part that is due to differences in participation functions, we find that differences in wage offer distributions hardly account for these employment differences. British born ethnic minorities have lower employment propensities for the same wages than native born whites. Investigating possible explanations for the wage and employment disadvantages, our analysis suggest that differences in the quality of education do not drive the employment and wage gaps.

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Further, the lower labour market participation rate for some British born ethnic minority groups may be partly explained by their lower preference to participate in the labour market.

The structure of the paper is as follows. We begin in Section 2 by providing some background on the timing of entry of each ethnic minority immigrant group to Britain, present the data and explain the construction of our sample. Section 3 examines differences in educational attainment using two different measures, years of full-time education and educational qualifications, differences in employment rates and how these correlate across generations. In Section 4 we focus on British born ethnic minorities, and compare their wage structure and employment probabilities to those of their white native born peers. We also offer possible explanations for differences in wages and employment. We summarise findings and conclude in Section 5.

2. Background, Data Sources and Sample

2.1 Ethnic minority immigrants in Britain

Britain has always been a destination for intra-European immigrants, most notably for the Irish (Chance, 1996). Starting in the post-war period by the arrival of the Windrush in 1948, Britain saw large numbers of immigrants arriving, who were ethnically different from the predominantly white resident population. The six largest ethnic minority groups in Britain today and in descending population size order are: Indian, Pakistani, Black Caribbean, Black African, Bangladeshi and Chinese. These groups differ in the timing of their arrival. While the majority of immigrants from the Caribbean arrived in the period between 1955 and 1964, the main time of arrival of Black African, Indian and Pakistani first generation groups was between 1965 and 1974 (Peach, 1996). Bangladeshi arrivals peaked in the period 1980-1984.

2.2 Data sources and sample

Our analysis is based on the British LFS, which is a large scale household interview based survey of individuals in Britain which has been carried out since 1973 by the Office for National Statistics (ONS). The LFS is the only comprehensive source of information about all aspects of the labour market. Households are interviewed face to face in their first inclusion in the survey and by

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telephone, if possible, at intervals thereafter. Between 1973 and 1983 the LFS was carried out biennially, changing to an annual survey from 1984 onwards. The sample size is about 60,000 households in each survey, or around 0.5 percent of the population. From 1992 onwards, the survey changed to a rotating quarterly panel, with the same individuals being interviewed for five consecutive waves. The quarterly LFS contains information on gross weekly wages and number of hours worked for the fifth wave (1992-1996) or the first and the fifth wave (1997 onwards). There is no information on wages before 1992.

2.2.1 Foreign born and ethnic/native born minority populations in Britain

In our analysis, we use data between 1979 and 2005, as prior to 1979 no information on the ethnicity of the respondent was collected. Table 1 presents average shares of the evolution of working age immigrants/ethnic minority groups in Britain for three different time periods: 1980-1985, 1990-1995 and 2000-2005. There has been a 2.0 percentage point increase in the share of immigrants of working age population, from 7.1 percent in 1980-1985 to 9.1 percent in 2000-2005. The share of the ethnic minority foreign born group has increased from 3.0 percent in 1980-1985 to 4.0 percent in 2000-2005 and that of the ethnic minority British born individuals has gone up by 1.6 percentage points, from 0.6 percent in 1980-1985 to 2.2 percent in 2000-2005. Overall, the numbers in Table 1 suggest a considerable increase in the share of ethnic minorities, both foreign born and British born over the last three decades.

2.2.2 The sample used for analysis

Although the LFS classifies people according to their country of birth as well as to their ethnicity, it does not collect information on the parental country of birth. In our analysis below, we analyse and compare two samples: first generation ethnic minority immigrants, observed in the LFS in 1979-1984, and British born ethnic minorities, observed in the LFS in 1998-2005. We construct these samples in a way that the second group is in a similar age range than the first group 20 years earlier. For each of these samples we construct a white British born comparison sample of individuals of the same birth cohorts.

We define our first generation cohort as all foreign born individuals of Black Caribbean, Black African, Indian, Pakistani, Bangladeshi and Chinese origin who were born between 1933 and 1954, and whom we observe in the LFS between 1979 and 1984. Consequently, these individuals are between 25

and 46 years old in 1979. We pool information from the 1979, 1981, 1983 and 1984 LFS's to obtain a larger sample. We define our second sample of ethnic minority individuals born in Britain to be of one of the same ethnic minority groups, and in the age range 23 to 35 in year 1998 (born between 1963 and 1975). Again, to circumvent the small sample problem, we pool the 1998-2005 LFS's. As immigrants of non-white origin have arrived relatively recently in Britain (see Section 2.1), most of the individuals in the second group are likely to be second generation immigrants, and descendents of the first sample, observed in a similar age range about 20 years earlier; we illustrate this in more detail below. As white British born comparison groups, we construct two samples of white British born individuals who are of the same birth cohorts than the first generation ethnic minority immigrants (i.e. 1933-1954), and the British born ethnic minorities (1963-1975).

In Table 2 we present the total number of first generation ethnic minority immigrants and British born ethnic minorities observed in each of the two time windows (upper left panel and lower right panel of the table respectively), as well as the corresponding numbers for white natives of the same birth cohorts.[5] We also display the number of second or higher order generation ethnic minority immigrants in the first birth cohort (lower left panel). The numbers in that panel illustrate that - except for Black Caribbean's- the number of British born ethnic minority individuals born into that cohort is very small, suggesting that only a small fraction of individuals in the lower right panel belong to the third or higher British born ethnic minority generation.[6]

The largest first generation immigrant group is of Indian origin. Bangladeshis form the smallest group and make up only 2.6 percent of the first generation – which is explained by their relatively late arrival in Britain. British born Black Caribbean's count for almost 35 percent of the total British born ethnic minority group, and form the largest group. British born Indians make up the second largest group and British born Bangladeshis the smallest.[7]

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[5] The LFS is a rotating panel in our second time window. In the Table, we have included individuals only once.

[6] Only the 1983 LFS wave reports information on parental country of birth. Using this information, we computed that only 2.3 percent of the overall population of ethnic minority individuals in the UK in 1983 that belongs to the age group 25 to 51, was British born.

[7] We use the General Household Survey (GHS) to check if the relative proportions of the second generation ethnic minorities we report in the lower right panel of Table 2 match those obtained from the GHS for the period 1998-2004. The relative proportions (Black Caribbean 35.1 percent, Black African

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The numbers in square brackets in Table 2 report the average birth cohort age for each ethnic group in 1979 (upper left panel) and 1998 (bottom right panel). The numbers suggest that both first generation ethnic minority immigrants and British born ethnic minorities are quite similar in their age structure to the respective white British born comparison groups.

3. Educational Achievements and Employment: Comparing Foreign and British born Ethnic Minorities and White Natives

We commence this Section by examining differences in education between foreign born and British born ethnic minorities in the two time windows, and how they compare with the respective groups of white British born individuals. We then turn into differences in employment.

The LFS offers two measures of educational attainment, one based on the age at which the individual left continuous full-time education, and the other based on educational qualifications. We use both measures. To obtain a measure of years of continuous full-time education from the age at which individuals left full time education, we adjust for the different ages at which individuals start full-time education in different countries, and for changes in the starting age of full-time education over time.[8] We also make appropriate adjustments for individuals who started full-time education abroad or came to Britain before the starting age of full-time education (5 years of age since the 1870 Education Act).[9] This is important as the school starting age differs quite substantially: For instance, while children in the UK start school at age 5, they start at age 6 in Bangladesh, and at age 7 in many African countries, like Tanzania and Zimbabwe.

Our second measure is based on information about educational qualifications. This measure may be problematic when comparing native and foreign-born populations, as some foreign qualifications may be difficult to classify to equivalent British qualifications. In addition, the LFS does not have a single consistent classification that spans from 1979 to 2005, mainly due to changes in the British education

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10.3 percent, Indian 28.9 percent, Pakistani 20.1 percent, Bangladeshi 2.9 percent and Chinese 2.7 percent) are reassuringly close to those obtained from the LFS.
[8] This information was collected from the World Bank website:
http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=189
[9] There is no information in the LFS about the number of years spent in education in the home country and in Britain. Also, for the 1979 and 1981 LFS waves we do not observe the year of entry the individual entered Britain and the appropriate adjustments cannot be made.

system. In order to create a consistent measure we aggregate educational qualifications in four broad categories: "High" (first degree (or equal) and above, i.e. Masters, PhD), "Medium" (i.e. teaching and nursing qualifications, trade apprenticeship, A levels) "Low" (i.e. O-levels, any other professional/vocational qualification) and "No qualification".[10]

3.1 Years of full-time education

Table 3 presents means of years of full-time education. In the left panel, we report numbers for the first birth cohort of foreign born ethnic minority immigrants, obtained from the LFS between 1979-1984. In the right panel, we report the same information for the second birth cohort (1963-1975) of British born ethnic minority individuals. For each of the two panels, the first column reports means for both males and females, while the second and third columns report means for males and females respectively. The last two rows in each panel present corresponding average means across all immigrant/minority groups and for the white British born comparison groups.

First generation ethnic minority immigrants have on average 0.7 more years of full-time education than white natives; this difference is mainly due to males, who have on average 1.0 years more full-time education than British born whites.[11] On average, years of full-time education of first generation female ethnic minority immigrants are quite similar compared to their British born peers; Black African, Pakistani and Indian females being the only immigrant groups who have more years of full-time education compared to white native females. This heterogeneity is also evident among male immigrant groups. Black African and Chinese males have the highest number of years of full-time education, 2.2 and 1.8 more years of full-time education respectively than white native males. On the other hand, Black Caribbean men have fewer years of full-time education than their white native peers. Across genders, for all first generation ethnic minority immigrant groups except for Black Caribbean's and Pakistani, men have more years of full-time education than women. Years of full-time education between white native men and women are almost the same. Overall, ethnic minority immigrants in Britain in the early 1980's

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[10] See Burgess et al. (2003) for a similar classification of educational qualifications using the LFS, and Manacorda *et al*. (2006) for a discussion of choosing educational measures for immigrants in the LFS.

[11] Some countries may have grade repetition, so that more years of schooling may signal lower ability as some individuals may have to repeat grades. We acknowledge this possibility but cannot examine it with the available information in our data.

were well educated. This is in contrast to the relative educational qualifications of immigrants in many other European countries (see references in footnote 2).

The overall advantage in years of full-time education of first generation ethnic minority immigrants as relative to their British born white peers carries through to their British born children. Among white native born individuals, there is an increase in the number of years of full-time education of almost two years from one generation to the next (see Hansen and Vingoles, 2005 for the increasing participation in education in the UK). An even higher increase is observable for British born ethnic minorities. *All* British born ethnic minority groups have more years of full-time education than their British born white peers. Interestingly, females in all ethnic groups, including females from the Black Caribbean, Bangladeshi and Chinese communities (and in contrast to the parent generation), have more years of full-time education than white native females. The overall difference in years of full-time education between British born ethnic minorities and their British born white peers is 1.3 years for males and 0.8 years for females (compared to 1 year and 0.4 years for the first generation). This suggests a significant increase in educational achievements, particularly for British born ethnic minority females.

3.2 Educational qualifications

Table 4 presents the distribution of educational qualifications for the different groups. Columns 1-4 report means for the foreign born ethnic minority immigrants and the comparable group of white natives, and columns 5-8 for British born ethnic minorities. The results largely confirm the educational advantage of first generation ethnic minority immigrants and of the British born ethnic minority individuals, as shown in Table 3.

The numbers in columns one to four suggest that higher proportions of first generation ethnic minority immigrants are concentrated at the extremes of the educational distribution. While the percentage of first generation ethnic minority immigrants that fall into the "High" educational category is 3.6 percentage points higher than that of white British born, the percentage that falls into the "No qualification" category is likewise 7.7 percentage points higher. There is significant heterogeneity between groups, with only 2.3 percent of first generation Black Caribbean's having a "High" educational qualification as opposed to 17.8 percent of Indians. The highest percentages of first generation ethnic

minority immigrants with "No qualification" are in the groups of Pakistani (69.4 percent), Bangladeshi (68.2 percent) and Black Caribbean (62.4 percent).

In stark contrast, columns five to eight suggest a substantial improvement in educational qualifications of ethnic minority individuals who are born in Britain. The overall number of those in the highest educational category has increased from 11.3 to 28.4 percent, which contrasts with an increase from 7.7 to 19.8 percent for British born whites. Equally striking is the decrease in the percentage of those with no qualification, from more than one in two individuals in the first generation to approximately one in ten individuals for those ethnic minorities born in Britain. Again, this decrease is larger than for native born whites. These numbers suggest a more dramatic overall improvement of ethnic minority immigrants from the first to the next generations than of native born whites and confirm the overall better educational background of ethnic minority British born individuals as compared to comparable British born whites. The results also suggest substantial heterogeneity across these groups. While a significant percentage of British born Chinese (49.8 percent) falls into the highest educational group, this is the case for only 15.0 percent of British born Black Caribbean's.

In Table A1 in Appendix A1, we report numbers as in Table 4, but separately for males and females. We summarise these numbers for the groups with the highest education "High" and with no education "No qualification" in Figure 1. We display the first generation of ethnic minority immigrants on the vertical axis, and the British born ethnic minorities on the horizontal axis. The data points represent population weighted means of first generation educational outcomes against the corresponding means of the British born ethnic minorities. The horizontal and vertical lines through each ethnicity data point is the corresponding confidence bound of the estimate at the 95 percent level.

We use two reference points. First, the 45 degrees line (solid line) represents the line of immobility – entries on this line indicate that educational outcomes for the parent generation are identical to those of their offspring's generation. The second reference point is with respect to white natives. The two dashed lines that pass through the "white" data point create four regions of comparison between white natives and both first generation ethnic minority immigrants and British born ethnic minorities. Points in the first quadrant (north-west region) would suggest that the first generation of ethnic minority immigrants does better than white natives whereas British born ethnic minorities do worse than white

natives. Similarly, points in the second quadrant (north-east region) would suggest that the percentages of both first generation ethnic minority immigrants and British born ethnic minorities who achieved a "High" educational qualification are higher than the respective percentages of the white natives.

Panel 1 suggests that significantly higher proportions of all groups in the second time window hold a "High" educational qualification relative to their respective groups in the fist time window. Also, all the groups except Black Caribbean's (see also Platt, 2006; Plewis, 1988; Modood, 2005) are located in the second quadrant suggesting that first generation ethnic minority immigrants were more likely to hold a "High" educational qualification compared to their white native born peers. The same is true for British born ethnic minorities. The advantage for British born ethnic minorities relative to their foreign-born parent generation is dramatic for some groups. For instance, while slightly higher proportions of first generation Chinese immigrants were holding a "High" educational qualification compared to white natives in the first time period, more than twice as many second generation Chinese are observed in this category, compared to their white British born peers.

Panel 2 of Figure 1 displays differences for those individuals with "No qualification". All British born ethnic minority groups as well as white natives have moved away from this category. However, there are again significant differences between groups. For instance, lower proportions of first generation and British born Black Africans fall into this category than of any other group, while the proportions of both first generation and British born Pakistanis and Bangladeshis are high in this category.

These findings suggest that British born ethnic minorities with the exception of Black Caribbean's more likely to obtain higher educational qualifications than their white British born peers, and that their overall educational advantage is substantial. Also, the educational improvement relative to their parent's generation is larger for most ethnic minority groups, and remarkable for some groups.

3.3 Employment

Sub-sections 3.1 and 3.2 have shown that immigrants from ethnic minority groups and their descendents have a remarkably strong educational backgrounds, with few exceptions. We now turn to

analysis of employment. Again, we compare the cohorts of first generation ethnic minority immigrants and British born ethnic minorities, with respective British born whites as a reference. Our measure for the overall economic activity of individuals distinguishes between paid employment, self-employment, unemployment, economical inactivity as well as people on government schemes. We concentrate here on individuals in paid employment, in unemployment, and on those who are economically inactive. We consider here only individuals in dependent employment, and exclude the self-employed (these are 7.2 percent of white natives and 6.1 percent for minorities respectively in year 1998 and for the 1963-1975 birth cohort) as well as those individuals on government schemes. The latter group is about 0.1 percent. We also drop all those individuals who were in full-time education at the time of the survey.

We define an individual to be employed if she is in paid employment, as opposed to being economically inactive or unemployed. In Table 5, we present differences in means of employment (given in percentages) for the different immigrant/ethnic groups, for all individuals and for males and females separately. The reference groups are the respective groups of white natives. The last row of each panel in Table 5 shows employment means for white natives. The reported coefficients are estimated conditional on age and age squared, year dummies (reference year 1979 for the first time period and 1998 for the second time period) and quarter dummies for the second time period (omitted category quarter 4) to eliminate composition effects.[12] The composition of the white native and ethnic minority population across geographical regions is very different: 10 percent of white natives in both time periods live in Greater London as opposed to 47 percent of the first ethnic minority immigrant generation and 46 percent of the British born ethnic minorities. Thus, in the lower panel we report results where we also condition on region dummies (the reference category being Greater London).

For the two white British born cohorts, the overall employment probability has slightly increased, mainly due to an increase in female employment, from 59 percent between 1979 and 1984 to 70.5 percent between 1998 and 2005 (see Blundell *et al*. 2007 who report similar numbers).

Despite the overall educational advantage of first generation ethnic minority immigrants as illustrated in sub-sections 3.1 and 3.2, they experience remarkably lower employment probabilities. The overall difference between first generation ethnic minority immigrants and white natives is 6.0

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[12] In the second time window the LFS has a rotating panel format. We keep more than one observation per individual, but adjust the standard errors for repeated observations.

percentage points. The detailed breakdown reveals that this difference is mainly due to lower employment probabilities of Pakistanis and Bangladeshis, with employment rates being 23.4 and 31.4 percentage points lower than those of their white British born peers. Inspection of the gender breakdown reveals that for these differences are driven by females, who have employment probabilities that are 46.2 and 60.4 percentage points lower than those of their white British born peers. Black Caribbean's females on the other hand exhibit a 17.2 percentage point higher employment probability than their British born white peers, while males have a 6.7 percentage point lower probability. Overall, these numbers suggest a sizeable employment differential between first generation ethnic minority immigrants compared to their white native peers, but also a lot of heterogeneity across the different minority groups.

The right panel in Table 5 compares British born ethnic minorities and white natives of the same cohort. Overall, there is a large employment disadvantage for British born ethnic minorities relative to their British born white peers (7.7 percentage points). However, the difference between males and females is now much reduced. Breaking these numbers down by the different ethnic minority groups, the pattern is similar to that for the first generation, with the largest differences for Pakistanis and Bangladeshis. These are once more driven by females, where Pakistani and Bangladeshi females have 25.2 and 46.9 percentage points lower employment probabilities than their native born white peers. The overall disadvantage for both Black Africans and Black Caribbean's has increased. For instance, the employment probability for female British born Black Caribbean's is now 4.8 percentage points lower than of their British born white peers. The lower panel of Table 5 shows that the employment differentials between the white native and both immigrant populations are slightly higher once we control for regions.

The results draw a bleak picture of the labour market situation of British born ethnic minority individuals. Despite have more schooling and British qualifications (and are likely to be fluent in English, see Modood, 1997), most groups have lower employment probabilities than their British born white peers. In the next Section, we investigate this in more detail. We focus on comparisons between British born ethnic minorities and white natives.

4. Employment and Wages of British Born Ethnic Minorities

The analysis in the last Section did not attempt to draw distinctions between possible channels, through which employment disadvantages of ethnic minorities are created. If employment depends on wage offers as well as a set of other observable characteristics, then the lower employment probabilities of British born ethnic minorities relative to their white native peers may be due to differences in the wage offer distribution, or to lower labour supply for the same labour market opportunities. In addition, it may depend on differences in other factors that directly affect employment probabilities.

In this Section we first analyse the hourly wage distributions of those who are in work. We ask the question: "*How does the distribution of wages of ethnic minority individuals' change if they had the same vector of observable attributes and regional allocation as white natives*?" This helps us to understand whether ethnic minorities are equally rewarded for human capital characteristics and other attributes as white native individuals, and whether there are differences along the wage distribution. We then turn to employment probabilities of ethnic minority and white native individuals, where we predict employment along the imputed wage offer distributions. Here we ask the question: "*How does the employment distribution of ethnic minorities look like if they faced the same (imputed) wage offer distribution as white natives?*"

4.1 Wages

Looking at the raw data, mean log hourly wages of British born ethnic minority and white males are 2.03 and 2.05 respectively – suggesting a 2 percent wage disadvantage for white males, which is however not significantly different from zero. For females the respective numbers are 1.97 and 1.83, suggesting a significant 14 percent wage advantage for ethnic minorities. These raw figures may be driven by the educational advantage of ethnic minorities as well as by different regional distributions. The female wage advantage may also be partly explained by differently selective employment across the populations in both observables and unobservables (Neal, 2004).

How do individual attributes as well as geographical distribution affect wages of British born ethnic minority individuals compared to British born whites along the wage distribution? We investigate this by analysing how the density of wages of ethnic minority individuals changes if they had the same

vector of observable attributes and the same regional allocation as white natives. To do this, we use the approach outlined in DiNardo *et al.* (1996) who propose an estimator for counterfactual wage densities. In Appendix B we explain in detail how we implement this approach for our estimation.

In Figure 2 we plot the differences between the actual white native wage distribution and the actual ethnic minority wage distribution. We also report the differences between the actual white native wage distribution (dashed line), and the ethnic minority wage distribution if ethnic minority individuals had the same regional distribution (solid line) and, in addition, the same age and education distributions (dashed - dotted line). We present graphs for both males and females.

For males, the figure shows that the density of wages for British born ethnic minorities is higher at the lower and the higher part of the wage distribution, and lower in the middle of the distribution. Keeping the regional distribution the same than for British born whites increases the density at the low part of the distribution, and decreases the density at the upper part of the distribution, leading to an overall larger wage disadvantage along all parts of the wage distribution. This is re-enforced when we assign to ethnic minority British born – in addition – the age- and education structure of their white peers.

For females, the picture is different: Considering the actual wage distributions, ethnic minority British born females have a lower density at the low end of the wage distribution, and a higher density at the upper end of the wage distribution, compared to their white peers. As we report above, the raw mean wage differential points at a 14% advantage for female minorities. However, when we assign to female minorities the same regional distribution and the same age and education structure than their white peers, the density at the lower part strongly increases relative to whites, and is now lower than that of whites at the upper part of the wage distribution.

If we evaluate the wage distributions at the mean (which essentially means to integrate over the curves in the figures), the small raw wage disadvantage of ethnic minority males of 2 percent turns into a 6 percent disadvantage if the regional allocation of minorities resembled that of their white native peers, and to 9 percent disadvantage if ethnic minority males had in addition the same education and age structure as their white native male peers.[13] For ethnic minority females the initial 14 percent wage

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[13] The variables we include in the regressions are age and its square, three dummy variables capturing educational qualifications ("High", "Medium", "Low", omitted category "No qualification"), years of

advantage decreases to 3 percent if their regional distribution was equal to that of white native females, and turns into a 4 percent disadvantage if, in addition, they had the same age and education structure as white native females.

These results suggest that British born ethnic minorities, and in particular females, have a mean wage advantage over their British born white peers. This seems not surprising given their higher levels of educational attainment, and their regional concentration in Greater London. However, if they were identical to white British born in terms of their individual attributes (like education) and regional allocation, then the positive raw wage differential turn into a considerable wage disadvantage for both males and females.

This overall disadvantage is even larger if, in addition, there is a stronger selection into employment on unobservables for ethnic minorities. If unobservable ability components are correlated with observable characteristics like education (as suggested by standard human capital theory), inspection of educational attainment differences across white natives and ethnic minorities of those who do, and do not work should give some indication as to how important is selection on unobservables. We find that the difference in years of full-time education between employed and non-employed individuals for ethnic minorities and white natives are 1.6 and 1 years for males and 1.5 and 1 for females respectively. This translates into a 7.9% (7.8%) higher educational attainment for British born white males (females) who are in work, but to a 11.3% (10.8%) higher educational attainment for British born ethnic minorities who are in work. If education is similarly correlated with unobserved ability across groups, then this implies a stronger positive selection of ethnic minorities into the workforce.

4.2 Employment

The previous Section shows that – for the same regional distribution and the same levels of education – British born ethnic minorities receive lower wages than their British born white peers. In Section 3.3 we illustrate also that British born ethnic minorities have lower employment probabilities than British born white natives of the same cohort. We now investigate how much of the difference in employment rates between the two groups can be explained by differences in their imputed wage offer

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full-time education, year dummies (omitted category year 1998) and quarter dummies (omitted category quarter 4).

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distributions. This helps us answering the question whether employment differences are due to ethnic minorities facing different wage offers, or whether ethnic minority individuals react differently to the same labour market opportunities than their white native peers.

The overall employment rate of minority ($j = m$) and non-minority ($j = nm$) individuals can be expressed as a weighted sum of employment probabilities over the wage offer distribution, or $P^j = \int p^j(w) g^j(w) dw$. Differences in employment rates may now be due to differences in employment responses at any wage w, $p^j(w)$, or differences in the distribution of offered wages, $g^j(w)$. The difference in overall employment probabilities can then be decomposed as:

$$(1) \int p^m(w) g^m(w) dw - \int p^{nm}(w) g^{nm}(w) dw = \int p^m(w)(g^m(w) - g^{nm}(w)) dw + \int (p^m(w) - p^{nm}(w)) g^{nm}(w) dw.$$

Differences in the distribution of offered wages may be due to differences in observed or unobserved characteristics of the two populations, or due to differences in the prices for observed and unobserved characteristics. They may also be due to demand side considerations, for instance discrimination (see Bowlus and Eckstein 2002, for analysis in an equilibrium search framework). Differences in the employment responses may be due to differences in reservation wages or preferences.

We do not observe the wage offer distributions $g^j(w^j)$ for the two groups. It is well known that the censored distribution of accepted offers does not straightforwardly allow us to estimate the wage offer distribution of the total population – this recoverability problem has been documented by Flinn and Heckman (1982). Here we neglect this problem, and provide a more parsimonious analysis along the lines of Juhn (1992) and Juhn and Murphy (1997), by imputing wages for people in the censored part of the wage distribution from observed wage information of those who work, and who have identical characteristics. We do this by estimating different regressions for males and females, and pool together the ethnic minority groups Black Caribbeans/Black Africans, Indian/Chinese and Bangladeshi/Pakistani due to the small number of observations. We normalize all wages to the year 1998 and add to the predictions an error term drawn from a normal distribution, where we allow the variance to differ across the groups described above. Therefore, the distribution of imputed potential wages takes into account differences in wage offers for white and ethnic minority individuals due to differences in observable

characteristics, or their prices. It does not capture differences in unobservable characteristics neither does it address selection into employment. We then compute the participation functions by dividing the data into intervals along the wage distribution and compute participation rates within these intervals. We follow Juhn (1992) and assign participation probabilities to 2.5 percentiles of the potential wage distribution, and aggregate these up to deciles.

In Figure 3, we plot the resulting participation functions for ethnic minority and white native individuals by gender. The panels show that both male and female ethnic minorities have substantially lower employment probabilities for every level of potential wages, as compared to their respective white native born peers. The difference slightly decreases at higher wages, for both genders, but remains substantial. This suggests that the large difference in observed employment is driven by differences in the participation functions rather than by differences in the wage distributions.

In Table 6 we investigate this further. We display the actual differences in employment between ethnic minorities and white natives for the deciles of the (imputed) wage distributions in the first (males) and fourth (females) columns. The numbers show that employment differences are slightly higher at lower deciles; overall, employment probabilities are 6.6 percent lower for British born ethnic minority males, and 7.7 percent lower for females. The next columns (columns two and five) display differences in potential wages (in percent) across deciles. For ethnic minority males, the disadvantages are largest at lower deciles of the distribution, and disappear further up the distribution. The mean disadvantage for ethnic minority males is about 5.8 percent. For females, there is an advantage for ethnic minorities along most of the distribution, except for the highest decile, with a mean difference of about 6.3 percent.

Columns three and six report the predicted differences in employment probabilities between white native and ethnic minority individuals if ethnic minorities faced the potential white native wage distribution, evaluated at the ethnic minority participation-wage relationship. This corresponds to the first term on the right hand side in (1).[14] The numbers show that differences in wages within deciles only explain a very small part of the overall difference in participation. Across all deciles, the difference between male ethnic minority and white native employment is -0.7 percentage points if ethnic minority

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[14] Using the notation we introduced above, the table entries for the kth decile equals $\int\limits_{w \in k^{th} decile} p^m(w)(g^m(w) - g^{nm}(w))dw$.

males faced the potential wage offer distribution of white males, compared to the overall employment disadvantage of approximately 6.6 percentage points. The remaining 5.9 percentage points in the employment differential are accounted for by differences in the participation functions (corresponding to the second term on the right hand side in (1)).

For females, the difference in employment probabilities predicted by differences in the wage distributions only is in favour for ethnic minority females, due to the large positive overall wage differential. Thus, the overall difference in employment probabilities between ethnic minority females and white native females due to differences in the participation functions increases to 8.5 percentage points on average (-7.73-0.79). Overall, these results suggest that differences in (imputed) wage offers do not explain much of the differences in overall employment probabilities between ethnic minorities and white natives, and that most of the employment gap is due to differences in the participation functions. As we discuss above, these may differ due to preferences, or differences in reservation wages. We investigate this in the next Section.

4.3 Possible Explanations

The results in the previous Sections suggest that British born ethnic minorities have on average higher levels of education than white natives, as well as higher average wages. Keeping observed characteristics and regional allocation constant, their wage advantage turns into a considerable disadvantage, suggesting that regional allocation and better educational background help ethnic minorities to compensate for lower returns to observed (and possibly unobserved) characteristics. Moreover, and as shown in Table 6, ethnic minorities have considerably lower employment probabilities, and not much of this difference is explained by wages.

In this Section, we investigate a number of possible explanations for the disadvantage of British born ethnic minority individuals. First, although both ethnic minority and white native individuals have obtained their education in Britain, the quality of education may differ, thus possibly explaining lower returns. Hence, we use a detailed breakdown of educational background information to investigate this. Second, one reason for lower employment probabilities of ethnic minorities may be the frequency and type of job offers they obtain. We investigate this by relating differences in self-reported perceptions of

discrimination due to race, cultural background or religion to differences in observed employment probabilities across the different ethnic groups. Finally, employment may be lower due to lower willingness to participate in the labour market, due to preferences or differences in reservation wages. As the numbers in Table 5 suggest, some ethnic minority groups have particularly low employment probabilities, for instance, Bangladeshi and Pakistani females. We investigate whether those who do not participate in the labour market would like to work if given the opportunity, and compare these numbers across populations. We also investigate whether the prevailing attitudes in the respective communities towards female labour force participation are compatible with observed differences. Our analysis in this Section is only suggestive and does not provide final answers. However, it points to possible directions for future research.

4.3.1 Returns to full-time education and the quality of education

Figure 4 plots unconditional wages (on a log scale) for men and women by years of full-time education for British-born whites and ethnic minorities. The panels show that the full-time education-wage profile is lower for ethnic minority males (panel 1) than for white native males, and about the same for British born ethnic minority and white females (panel 2). The slopes of all four profiles are approximately the same. One explanation for the level difference for males may be that the same number of years of education measures different qualifications, if ethnic minority and white British born acquire different degrees.

To investigate this, we use detailed information as available in the LFS about the specific educational qualification the individual has achieved as well as the individual's performance in some qualification categories. We divide our three broad education categories ("High", "Medium" and "Low") into 40 mutually exclusive education categories: 7 "High" education categories, 20 "Medium" education categories and 13 "Low" education categories.[15] We then estimate employment and wage regressions on

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[15] The "High" education category includes: PhD, Masters, postgraduate certificate, other postgraduate certificate, first degree, other degree, NVQ Level 5. The "Medium" education category includes: diploma in higher education, other higher education below degree, HNC/HND/BTEC higher, nursing, teaching (further and secondary education), teaching (foundation, primary, not stated), one A level, more than one A level, one AS level, two or more AS levels, BTEC national, NVQ level 4, NVQ level 3, GNVQ advanced, RSA higher, RSA advanced diploma or advance certificate, City and Guilds advance craft, Scottish 6 year certificate or Scottish higher full national certificate, one or two SCE highers, three or

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the vector of the detailed educational attainment for whites conditional on being in the "High", "Medium", or "Low" category. For each minority group and separate for males and females, we then weight these coefficients by the distribution of finer categories within each education group, and subtract the index we have obtained for whites. This measures the unconditional percentage difference in outcomes (employment and wages) due to differences in finer educational outcomes within each larger education group, weighted by the return obtained by whites. In Table 7 we display the results.[16]

The table entries suggest that on average, the finer educational degrees within each education category obtained by ethnic minorities lead to slightly lower employment probabilities, for both males and females, but the differences are small. With respect to wages, the degree and achievement mix seems to be slightly more advantageous for ethnic minority males in the "High" and "Medium" education categories; for females, the educational composition leads to a slightly lower wage in the "High" education category. Overall, these results suggest that differences in the educational composition are not important in explaining differences in outcomes as reported in Sections 4.1 and 4.2 respectively.

4.3.2 Discrimination

Do ethnic minority individuals obtain less attractive job offers for the same qualifications? To investigate this, we use data from the Fourth National Survey for Ethnic Minorities (FNSEM) collected between 1993 and 1994 in England and Wales and apply the same selection rules, distinguishing the same ethnic groups, as we do for the LFS above. Respondents in the FNSEM were asked about whether they have ever been refused a job because of their race, colour, religion or cultural background. We report the numbers in Table A2 in Appendix A1. The numbers suggest that individuals of Black Caribbean ethnicity have the highest probability to answer positively (answer "Yes"), while individuals of African and Pakistani background express the least concern. If discrimination due to race, colour or religion was the main reason for the differences in employment outcomes, and discrimination is equally

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more SCE highers. The "Low" education category includes: Fewer than five O-Levels, more than five O-levels, CSE below grade 1 (GCSE below grade C), BTEC general diploma certificate, NVQ level 1, NVQ level 2, GNVQ intermediate or foundation level, RSA diploma and other, City and Guilds craft, City and Guild foundation, YT/YTP certificate, SCOTVEC first diploma or certificate, any other qualification. See Bradley *et al*. (1996) for the appropriateness of LFS educational qualifications in measuring returns to education.

[16] Results for each ethnic minority group and by gender are available upon request.

perceived across ethnic groups, then we should expect the Black Caribbean to have the lowest employment probabilities, and the Pakistanis to have the highest. Inspection of Table 5 suggests however exactly the opposite, with Black Caribbean having the highest, and Pakistanis having among the lowest employment probabilities. Overall, the correlation coefficient between perceptions of discrimination (those that answer "Yes" in Table A2) and employment probabilities (numbers in columns 5 and 6 of the upper panel of Table 5) is 0.34. Table A3 in Appendix A1 reports similar figures, this time about the belief that there are employers in Britain who would refuse a job to a person because of her/his race, religion or cultural background. Again, the numbers do not suggest any systematic relationship between employment probabilities, and perceived labour market discrimination across groups. Finally, Table A4 presents cross tabulations from various years of the British Social Attitude Survey (BSAS) on perceptions of prejudice in the job market. Similar to what we report above, these responses suggest that Black Caribbean's feel more discriminated in the job market than Asians, with differences being quite large for females. We do not wish to over-emphasise these figures, which may partly be due to other reasons (like differences in perceptions of discrimination). However, the patterns between perceptions of discrimination and observed employment across different groups do not point towards a clear-cut relationship.

4.3.3 Intent to participate

One reason for the lower employment probabilities of ethnic minorities in general, and some groups in particular may be that individuals are discouraged and do not participate in the labour market. Using again the LFS we examine whether non-employment is voluntary or not. In the LFS, non-participating individuals are asked whether they would like to have a regular paid job, with the wording of the question being "*Even though you were not looking for work in the last 4 weeks ending Sunday [the date], would you like to have a regular paid job at the moment, either full- or part-time?*" In Table A5 in Appendix A1 we show the percentage distribution of inactivity for each ethnic and gender group,

whereas the second row shows the percentage distribution of those inactive individuals who were not looking for work and not wanting a regular full- or part-time paid job.[17]

The numbers show that Pakistanis and Bangladeshis, the two groups with the highest inactivity and lowest employment rates, have at the same time very high proportions of individuals who do not wish a regular paid job. In contrast, groups with low inactivity rates (e.g. Black Caribbean) have lower proportions of individuals in this category. This is particularly true for females. This suggests that the lower labour force participation rates for some ethnic groups (e.g. for Pakistani and Bangladeshi women) is largely due to their lower readiness to participate in the labour market, and less so because individuals do not find jobs or are being discriminated against. The large gender differential in educational attainment (see Table A1 in Appendix A1) for these two groups suggests that women invest less in education anticipating they are unlikely to work later on.

One reason for differences in labour force participation across groups may be particular views or attitudes that exist in the specific ethnic community and/or the intergenerational transmission of those attitudes. Fortin (2005) using data from the World Value Surveys, establishes a relationship between anti-egalitarian views and female labour force participation. Based on the British Social Attitudes Survey (BSAS) for several years, we investigate two questions: i) "The family suffers when the woman has a full time job", and ii) "A job is all right, but what a woman really wants is a home and children". To the first question, 34 percent of white women agreed/strongly agreed, whereas 40 percent of Black Caribbean women, 25 percent of Black African women, 42 percent of Indian women, but 58 percent of Pakistani women and 40 percent of Bangladeshi women did so. To the second question, 19 percent of white women agreed/strongly agreed, 22 percent of Black Caribbean women, 45 percent of Black African women, 46 percent of Indian women, 41 percent of Pakistani women and 80 percent of Bangladeshi women. These numbers suggest a strong "conservative" view about the role of women among Bangladeshi and Pakistani women.

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[17] These are not labour market discouraged individuals as they do not wish to work. Labour market discouraged individuals are those individuals who report they want to work but are not looking for a job because they think they could not find one, or the costs of searching for a job out-weigh the benefits.

5. Conclusions

This paper investigates educational attainments and economic behaviour of Britain's ethnic minority immigrants and their children, and relates it to comparable cohorts of white British born individuals, drawing on 25 years of data from the LFS. We create two birth cohorts and study how British born ethnic minorities perform in terms of education and employment with respect to their first generation and to comparable groups of white natives. We then examine differences in wage distributions as well as differences in participation rates between British born ethnic minorities and white natives.

In terms of educational attainment, our results confirm the strong educational background of Britain's ethnic minority immigrant population. Compared to the potential parent generation of first generation ethnic minority immigrants, educational attainment for ethnic minorities born in Britain is on average higher. It is also higher when compared to educational attainment of their white native peers. However, when turning to employment, we find that both first generation ethnic minority immigrants and British born ethnic minorities experience far lower employment probabilities than their white native peers. Based on the findings of educational attainment, this is particularly unexpected for British born ethnic minorities. We find a slight wage disadvantage for British born male ethnic minorities who work, and substantial wage advantage for females. However, when we evaluate their wage distributions at individual attributes and regional allocation that are equal to those of white natives, we find a wage disadvantage for both males and females. This suggests that British born ethnic minorities obtain lower wages on average for the same observable characteristics than their white native peers. Our findings also establish a large degree of heterogeneity between the different ethnic minority groups of both foreign born and native born individuals, which is persistent through birth cohorts. For instance, the low employment shares of first generation Pakistani and Bangladeshi foreign born females can also be observed for those born in Britain in later generations.

To investigate further how this may impact on employment, we evaluate how much of the differential in observed employment is due to differences in (imputed) wage offers along the wage distribution. We find that differences in wage offer distributions hardly account for the employment difference of British born ethnic minority individuals. This suggests that most of the difference is due to different participation functions.

We then explore some possible explanations. We find no evidence for differences in the quality of educational qualification obtained by the two groups to contribute to employment and wage differentials. Investigating whether discrimination may add to disadvantaged employment positions of British born ethnic minorities, we find no systematic pattern between employment probabilities across the different groups, and perceptions of discrimination. There is also little evidence that the relatively high rates of inactivity, which drive low employment rates for some groups, are the result of labour market discouragement. For instance, we find the lowest intent to participate when offered a job among inactive individuals with the highest inactivity rates. This suggests that inactivity is partly due to lower readiness to participate in the labour market. We also find some evidence that groups with the highest rates of non-participation of females have at the same time strong views about the value of female labour force participation.

One important reason for observed differences, in particular in employment outcomes, may be related to particular views and attitudes about and specific engagement with the labour market. These may be shaped during early childhood, and have an impact on labour market behaviour as well as directly on outcomes later on. Neal (2005) suggests that black-white differences in early childhood experiences may contribute significantly to measured black-white skill gaps later in life. Frijters *et al.* (2005) find lower job-finding probabilities for ethnic minority British born male individuals as opposed to white native males, despite their more favourable observed characteristics. They suggest as an explanation for this gap, that ethnic minorities are searching for jobs in different parts of the British labour market as opposed to their white male counterparts. A better understanding of such mechanisms and how they relate to labour market outcomes for Britain's ethnic minorities is an important agenda for future research.

TABLES

Table 1. Share of Working Age Population Immigrant/Ethnic Group with Respect to the Total British Population.

	1980-1985 %	1990-1995 %	2000-2005 %
Immigrant/Ethnic group			
Foreign born (all)	7.057	7.550	9.102
White foreign born	4.023	4.214	5.054
Ethnic minority foreign born (total)	3.034	3.337	4.048
Black Caribbean	0.717	0.507	0.397
Black African	0.163	0.367	0.858
Indian	1.313	1.304	1.297
Pakistani	0.529	0.667	0.781
Bangladeshi	0.104	0.232	0.374
Chinese	0.209	0.259	0.341
British born ethnic minorities (total)	0.596	1.207	2.237
Black Caribbean	0.395	0.470	0.646
Black African	0.024	0.091	0.176
Indian	0.120	0.385	0.731
Pakistani	0.045	0.196	0.497
Bangladeshi	0.004	0.002	0.104
Chinese	0.008	0.041	0.083

Notes: Percentages are population weighted. Source LFS (1980-2005).

Table 2. Distribution of Groups by Status of Generation.

	Birth Cohorts							
Groups	*Birth cohort 1933-1954, observed in 1979-1984*				*Birth cohort 1963-1975 observed in 1998-2005*			
First generation								
Black Caribbean	1,877	(26.0%)	[37.3]	{19.10}	---			
Black African	414	(5.7%)	[31.4]	{22.85}	---			
Indian	3,082	(42.6%)	[34.3]	{23.72}	---			
Pakistani	1,220	(16.9%)	[34.0]	{25.33}	---			
Bangladeshi	188	(2.6%)	[38.9]	{25.57}	---			
Chinese	447	(6.2%)	[32.5]	{25.64}	---			
Total (minority)	7,228	(100%)	[34.8]	{22.92}	---			
White natives	205,165		[34.9]		---			
Second or higher generation								
Black Caribbean	245	(66.6%)			2,483	(34.7%)	[29.9]	
Black African	22	(6.0%)			653	(9.1%)	[29.2]	
Indian	62	(16.8%)			2,339	(32.7%)	[27.4]	
Pakistani	18	(4.9%)			1,307	(18.3%)	[26.9]	
Bangladeshi	9	(2.4%)			143	(2.0%)	[27.8]	
Chinese	12	(3.3%)			226	(3.2%)	[26.7]	
Total (minority)	368	(100%)			7,151	(100%)	[28.4]	
White natives	---				227,746		[29.1]	

Notes: 1. Percentages in parentheses, mean age (population weighted) in square brackets and average age of arrival in curly brackets. Our first generation sample includes individuals who were born between 1933 and 1954, who we observe in the years 1979 and 1984. Our second or higher generation sample includes individuals who were born between 1963 and 1975, whom we observe between 1998 and 2005. Mean age is the average birth cohort age in 1979 (top left panel) and in 1998 (bottom right panel). Mean age of arrival is the average arrival age for years 1983 and 1984 only, as the 1979 and 1981 LFS waves do not provide information on the year of arrival.

Table 3. Average Years of Full-time Education by Status of Generation, Ethnicity and Gender.

	Birth cohort 1933-1954, observed in 1979-1984(Minorities: all foreign born)			Birth cohort 1963-1975 observed in 1998-2005(Minorities: All British born)		
	(1) Total	(2) Males	(3) Females	(4) Total	(5) Males	(6) Females
Black Caribbean	10.2	10.0	10.4	12.7	12.5	12.8
Black African	12.5	13.0	11.6	15.2	15.6	14.8
Indian	12.0	12.5	11.5	14.2	14.5	13.9
Pakistani	11.6	11.6	11.6	13.5	14.2	12.8
Bangladeshi	11.1	11.6	10.2	13.2	13.6	12.9
Chinese	11.7	12.6	10.5	15.1	15.1	15.1
Total (immigrant/minority)	**11.5**	**11.8**	**11.1**	**13.6**	**13.9**	**13.4**
White native	**10.8**	**10.8**	**10.7**	**12.6**	**12.6**	**12.6**

Notes: Means are weighted using population weights. Those individuals without any formal education were given zero years of education. Our first generation sample includes individuals who were born between 1933 and 1954, who we observe in the years 1979 and 1984. Our (potential) second generation sample includes individuals who were born between 1963 and 1975, whom we observe between 1998 and 2005. The average age of years in full-time education is calculated in birth cohorts.

Table 4. Distribution of Educational Qualifications by Status of Generation and Ethnicity.

	Birth cohort 1933-1954, observed in 1979-1984 (Minorities: all foreign born)				Birth cohort 1963-1975 observed in 1998-2005(Minorities: all British born)			
	High	Medium	Low	No qualification	High	Medium	Low	No qualification
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Black Caribbean	0.023	0.226	0.128	0.624	0.150	0.317	0.436	0.097
Black African	0.110	0.416	0.224	0.250	0.429	0.313	0.209	0.049
Indian	0.178	0.165	0.163	0.494	0.371	0.231	0.314	0.084
Pakistani	0.096	0.105	0.106	0.694	0.273	0.242	0.307	0.178
Bangladeshi	0.125	0.088	0.105	0.682	0.354	0.131	0.311	0.204
Chinese	0.108	0.225	0.138	0.529	0.498	0.247	0.187	0.068
Total (immigrant/minority)	**0.113**	**0.192**	**0.146**	**0.549**	**0.284**	**0.271**	**0.343**	**0.103**
Whites	**0.077**	**0.267**	**0.194**	**0.462**	**0.198**	**0.313**	**0.378**	**0.111**

Notes: Means are weighted using population weights. Our first generation sample includes individuals who were born between 1933 and 1954, who we observe in the years 1979 and 1984. Our second (or higher) generation sample includes individuals who were born between 1963 and 1975, whom we observe between 1998 and 2005.

Table 5. Mean Differences in Employment.

Immigrant groups	Birth cohort 1933-1954, observed in 1979-1984 (Minorities: all foreign born)			Birth cohort 1963-1975 observed in 1998-2005 (Minorities: all British born)		
	(1) Total	(2) Males	(3) Females	(4) Total	(5) Males	(6) Females
Black Caribbean	5.3	-6.7	17.2	-7.9	-10.3	-4.8
Black African	0.8†	-11.6†	8.7†	-9.6	-11.8	-7.1†
Indian	-6.6	-4.6†	-6.2†	-0.7†	-0.5†	-1.1†
Pakistani	-23.4	-3.8†	-46.2	-19.2	-8.1	-25.2
Bangladeshi	-31.4	-6.9†	-60.4	-29.7	-6.1†	-46.9
Chinese	-7.9†	3.4	-23.6	1.3†	1.7†	1.1†
Total Difference (Immigrants/Minority)	**-6.0**	**-5.2**	**-6.5**	**-7.7**	**-6.4**	**-8.0**
White natives (Employment)	**76.1**	**94.3**	**58.7**	**78.8**	**87.9**	**70.7**
Controlling for Regions: Omitted category Greater London						
Black Caribbean	3.2†	-8.1	14.5	-8.0	-10.9	-4.2
Black African	-1.1†	-12.5†	6.1†	-9.9	-12.4	-6.8†
Indian	-8.3	-5.9	-8.4	-0.7†	-1.0†	-0.4†
Pakistani	-24.9	-4.6†	-48.1	-19.0	-7.7	-25.3
Bangladeshi	-32.5	-7.3†	-64.8	-29.8	-6.1†	-47.0
Chinese	-9.3†	2.2†	-25.9	1.1†	1.5†	1.1†
Total Difference (Immigrants/Minority)	**-8.0**	**-6.4**	**-9.1**	**-7.8**	**-6.8**	**-7.6**
White natives (Employment)	**79.0**	**96.0**	**62.6**	**79.2**	**88.9**	**70.2**

Notes: Coefficients report differences in employment probabilities between the respective ethnic minority group and white natives. † indicates that employment probability of that group is <u>not</u> significantly different from white natives at the 10 percent level. Reported coefficients are conditional on age and age square, year dummies (omitted categories are years 1979 for the first time period and 1998 for the second time period) and quarter dummies for the second time period (omitted category quarter 4). The reference groups are white native born individuals living in Greater London. Regressions are weighted using population weights.

Table 6. Decile Decompositions of Employment Probabilities, Potential Wages and Participation Functions.

Deciles	Males			Females		
	(1) Actual Difference in Employment	(2) Potential Wage Difference	(3) Predicted Difference due to different wage offer distributions	(4) Actual Difference in Employment	(5) Potential Wage Difference	(6) Predicted Difference due to different wage offer distributions
1	-9.77	-10.83	-1.30	-10.54	6.64	1.41
2	-9.61	-9.59	-2.21	-7.65	8.18	0.43
3	-6.37	-7.93	-0.62	-11.2	8.45	-0.69
4	-6.89	-7.01	-1.81	-6.39	7.99	2.33
5	-5.51	-6.36	1.00	-8.14	7.68	2.08
6	-6.12	-5.32	-1.42	-8.46	7.08	-0.27
7	-5.82	-4.66	-1.00	-5.39	6.41	2.96
8	-5.42	-3.92	1.88	-7.69	5.63	-1.99
9	-6.11	-2.20	-1.46	-7.65	4.57	1.19
10	-3.75	-0.20	0.16	-4.13	0.30	0.48
Total	**-6.55**	**-5.80**	**-0.68**	**-7.73**	**6.29**	**0.79**

Note: Columns one & four: Actual differences in employment along the potential wage distribution. Columns two & five: Differences in potential wages. Columns three & six: Differences in participation if ethnic minorities had the white native wage distribution.

Table 7. Differences in Returns to Educational Qualifications for Employment and Wages by Gender.

	Males			Females		
	High	Medium	Low	High	Medium	Low
Employment	-0.08	0.00	-0. 08	-0. 01	-0. 33	-0. 25
Log Wages	0.59	1.34	-0. 70	-0. 20	0. 55	-2.00

Note: Entries are percentage (employment) or percent (wages) differences in returns to 40 mutually exclusive educational qualifications within each broad education group ("High", "Medium", "Low").

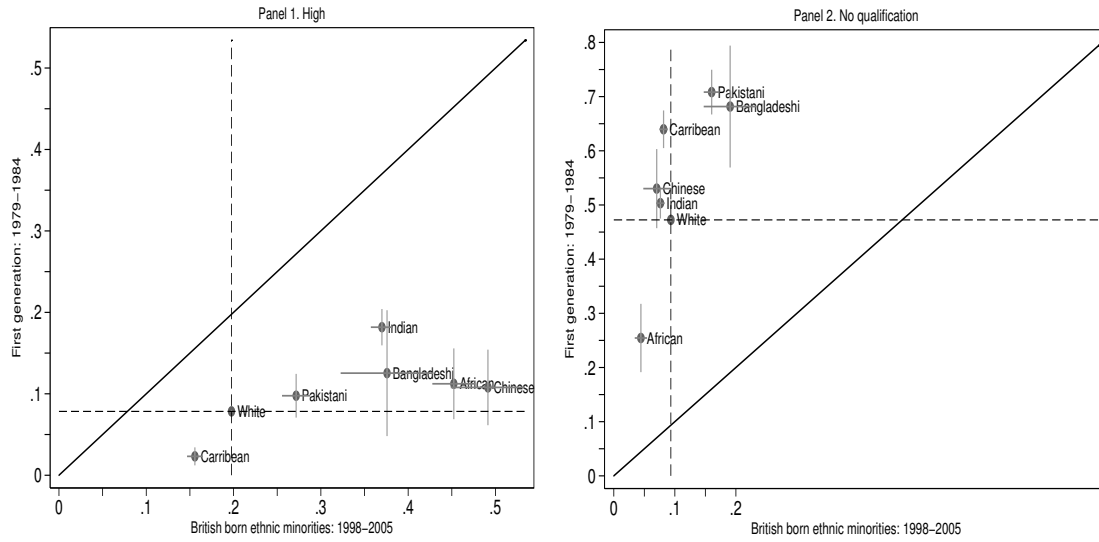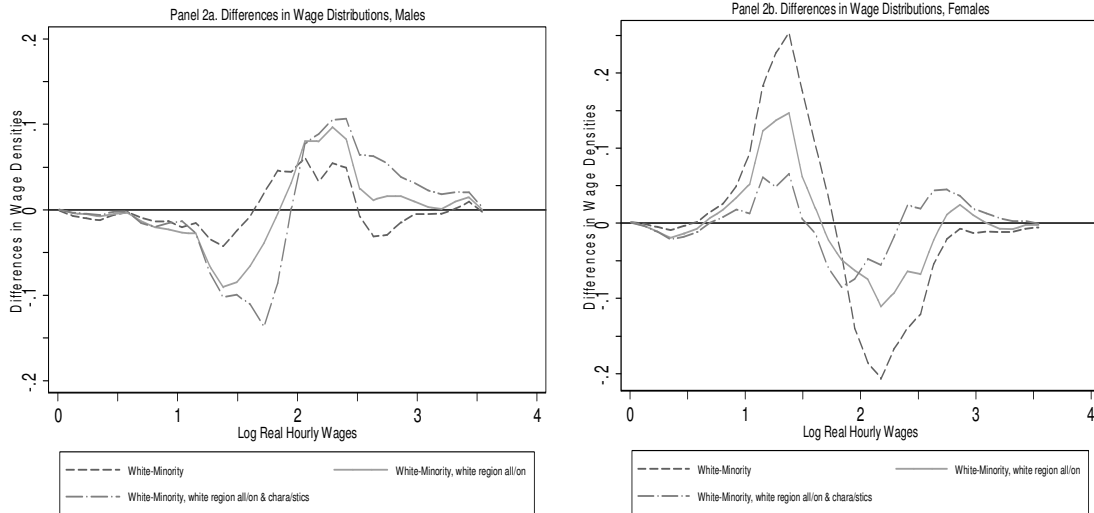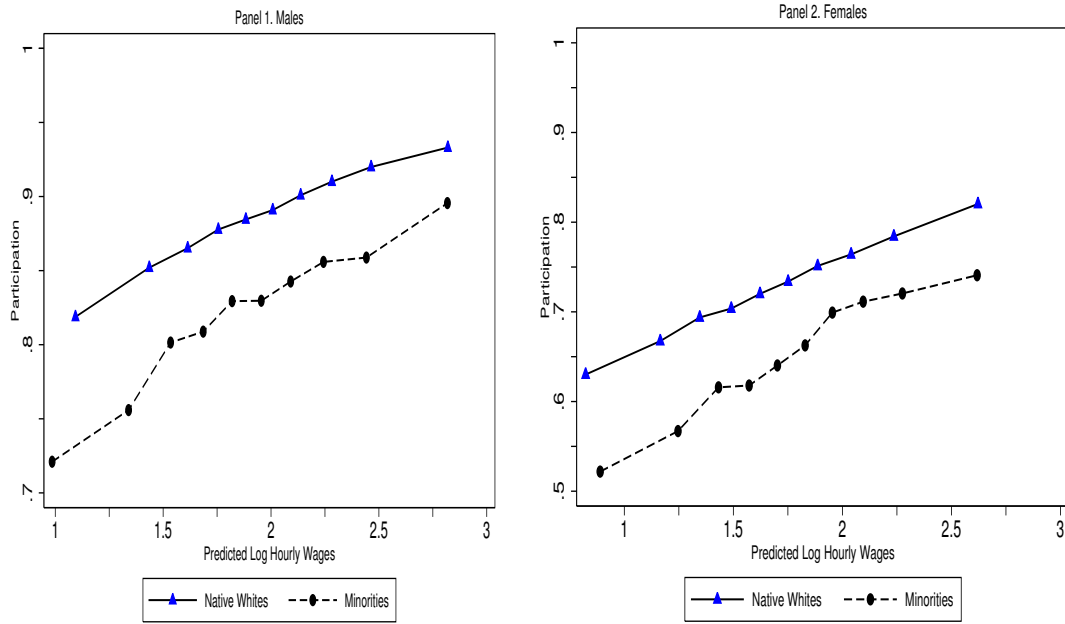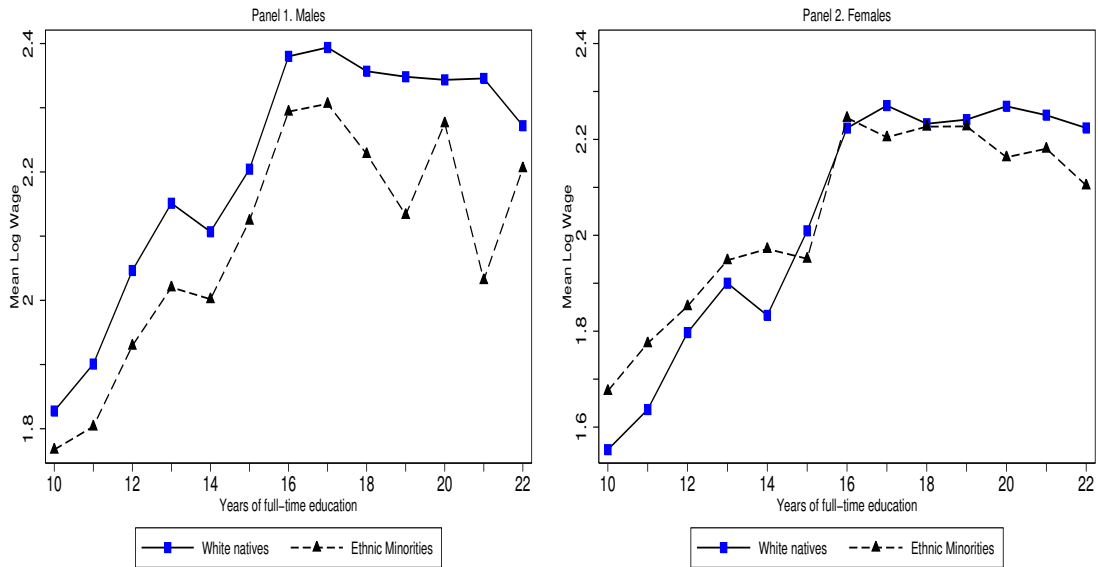**Figure 1. "High" and "No qualification" by Status of Generation.**

Figure 2. Differences between Actual and Counterfactual Kernel Densities.

Figure 3. Participation Functions by Ethnic and Gender Groups.

Panel 1. Males

Panel 2. Females

Figure 4. Wage Profiles by Years of Full-Time Education.

Panel 1. Males

Panel 2. Females

Table A1. Distribution of Educational Qualifications by Immigrant Status, Ethnic Group and Gender.

	Birth cohort 1933-1954, observed in 1979-1984								Birth cohort 1963-1975 observed in 1998-2005							
	High		Medium		Low		No qualification		High		Medium		Low		No qualification	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Black Caribbean	0.029	0.017	0.197	0.249	0.109	0.143	0.664	0.591	0.138	0.161	0.308	0.299	0.402	0.465	0.122	0.076
Black African	0.167	0.038	0.494	0.317	0.203	0.251	0.135	0.393	0.434	0.425	0.341	0.284	0.182	0.256	0.043	0.055
Indian	0.220	0.133	0.204	0.123	0.160	0.165	0.416	0.578	0.415	0.327	0.214	0.249	0.284	0.345	0.087	0.080
Pakistani	0.123	0.060	0.112	0.097	0.124	0.082	0.641	0.761	0.358	0.198	0.237	0.247	0.256	0.352	0.149	0.203
Bangladeshi	0.138	0.111	0.151	0.013	0.087	0.127	0.625	0.749	0.479	0.251	0.179	0.091	0.193	0.409	0.148	0.250
Chinese	0.178	0.041	0.239	0.213	0.127	0.148	0.456	0.599	0.463	0.537	0.287	0.203	0.173	0.203	0.077	0.057
Total immigrants/minority	0.149	0.075	0.210	0.173	0.141	0.150	0.500	0.601	0.315	0.255	0.275	0.266	0.304	0.378	0.106	0.100
Whites	0.113	0.040	0.365	0.167	0.132	0.257	0.389	0.536	0.208	0.187	0.359	0.267	0.327	0.429	0.106	0.117

Note: Source: LFS. Means are population weighted. Our first generation sample includes individuals who were born between 1933 and 1954, who we observe in the years 1979 and 1984. Our (potential) second generation sample includes individuals who were born between 1963 and 1975, whom we observe between 1998 and 2005. The average age of years in full-time education is calculated in birth cohorts.

Table A2. Question: Have you Yourself Ever Been Refused a Job for Reasons Which you Think Were to do With your Race or Colour, or your Religious or Cultural Background?

	Caribbean			African			Indian			Pakistani			Bangladeshi			Chinese		
	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F
Yes	**28.5**	32.4	25.3	**7.6**	9.3	5.1	**11.4**	13.2	9.8	**8.1**	13.6	3.2	**14.9**	22.1	--	**14.7**	21.3	10.5
No	**63.4**	58.4	67.5	**82.9**	80.5	86.2	**78.2**	70.5	84.9	**83.9**	70.5	95.6	**73.5**	60.6	0	**85.3**	78.7	89.5
Can't say	**8.1**	9.2	7.3	**9.6**	10.2	8.7	**10.4**	16.3	5.3	**8.1**	15.9	1.2	**11.6**	17.3	--	---	--	--
N	248	102	146	35	21	14	150	69	81	115	57	58	18	11	7	13	5	8

Note: Data drawn from the FNSEM. "---" implies no observations available. Percentages are population weighted. "T"=total, "M"=males, "F"=females.

Table A3. Question: Do you Think there are Employers in Britain who would Refuse a Job to a Person because of their her/his Race, Religion or Cultural Background?

	White native			Caribbean			African			Indian			Pakistani			Bangladeshi			Chinese		
	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F
Yes	**89.0**	89.6	88.4	**93.1**	96.4	90.5	**74.7**	80.6	66.6	**70.7**	73.1	68.6	**75.9**	80.6	71.7	**70.9**	79.8	52.6	**92.1**	100	87.1
No	5.9	5.3	6.4	3.0	2.4	3.5	11.2	7.0	16.9	10.7	8.6	12.6	**16.3**	**13.9**	**18.3**	15.9	4.6	39.2	7.9	---	12.9
Can't say	5.1	5.1	5.1	3.9	1.2	6.0	14.1	12.4	16.4	18.5	18.3	18.8	7.9	5.5	10.0	13.2	15.7	8.2	---	---	---
N	1,988	876	1,112	249	103	146	35	21	14	151	70	81	115	57	58	18	11	7	13	5	8

Note: Data drawn from the FNSEM. "---" implies no observations available. Percentages are population weighted. "T"=total, "M"=males, "F"=females.

Table A4. Question: Do you Think there is a Prejudice Against Asians and Blacks in the Job Market?

	Asians about Asians			Blacks about West Indians/Caribbeans		
	T	M	F	T	M	F
A lot	**26.9**	**24.6**	**28.8**	**42.7**	**39.2**	**45.3**
A little	45.9	52.8	40.3	40.0	50.1	32.2
Hardly at all	22.3	20.4	24.0	11.9	8.6	14.5
Don't know	4.9	2.3	7.0	5.4	2.0	8.1
N	174	78	96	124	51	73

Note: Data drawn from the BSAS. Available for years 1983, 1986, 1989, 1990, 1991,1996. Percentages are population weighted. Note "T"=total, "M"=males, "F"=females.

Table A5. Percentage Distributions of: a) Inactive Individuals and b) Inactive Individuals who were not Looking for Work and Would Not Like to Have a Regular Job, either Full- or Part-Time.

	White native			Black Caribbean			Black African			Indian			Pakistani			Bangladeshi			Chinese		
	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F
a) Inactive	**16.0**	7.0	24.1	**18.6**	11.7	23.7	**17.8**	11.2	23.0	**14.8**	7.8	21.3	**37.2**	13.6	53.0	**34.4**	3.2	60.0	**14.6**	5.8	23.0
b) Individuals not looking for work given they are inactive and not wanting a regular paid job	65.6	55.7	**68.1**	54.5	53.0	**55.0**	65.9	61.3	**67.6**	62.4	48.8	**66.8**	77.1	69.0	**78.2**	85.8	-	**88.7**	62.4	23.5	**70.3**

Note: Data drawn from the LFS 1998-2005. The responses to the second row apply to all inactive respondents not looking for work or a place on a government scheme in the last 4 weeks and not waiting to start work. "-" implies no observations available. Percentages are weighted. "T"=total, "M"=males, "F"=females.

APPENDIX B

Each individual observation is a vector (w, z, S) consisting of a wage w, a vector of individual attributes z, and the ethnic group the individual belongs to, S. Consider the density of wages for natives and minorities, $f_j(w)$, where $j = M, N$ and M and N stands for minorities and natives respectively. The density of wages of minorities can be written as the integral of the density of wages, conditional on regional allocation and individual characteristics, over the distribution of regional allocation R and individual attributes x:

$$f(w; S_w = M, S_{R|X} = M, S_x = M) = \int\int f(w \mid R, x, S_w = M)dF(R \mid x, S_{R|x} = M)dF(x \mid S_x = M)$$

where $S_w = M$ signifies that the distribution of wages is that of minorities; likewise, $S_{R|x} = M$ represents the distribution of regional allocation conditional on individual attributes being that of minorities, and $S_x = M$ represents the distribution of individual attributes being that of minorities.

Using this notation, the density of wages of ethnic minorities had they the same regional distribution than whites, but the minority set of attributes equals

(A1)
$$f(w; S_w = M, S_{R|X} = N, S_x = M) = \int\int f(w \mid R, x, S_w = M)dF(R \mid x, S_{R|x} = N)dF(x \mid S_x = M)$$

$$= \int\int f(w \mid R, x, S_w = M)\Phi_{R|x}(R, x)dF(R \mid x, S_{R|x} = M)dF(x \mid S_x = M),$$

where $\Phi_{R|x} = \dfrac{dF(R \mid x, S_{R|x} = N)}{dF(R \mid x, S_{R|x} = M)} = R\dfrac{\Pr(R = 1 \mid x, S_{R|x} = N)}{\Pr(R = 1 \mid x, S_{R|x} = M)} + (1 - R)\dfrac{\Pr(R = 0 \mid x, S_{R|x} = N)}{\Pr(R = 0 \mid x, S_{R|x} = M)}$

and R is equal to one if the individual lives in Greater London, and 0 otherwise. The term $\Phi_{R|x}$ can be easily computed by noting that the conditional probabilities can be obtained as predictions of a logit estimator. The expression in (A1) is the density of minority wages if minorities would be allocated to London in the same way as whites, but keeping the wage structure equal to those of minorities. This is the first counterfactual density we report.

Allowing in addition for individual characteristics of natives is straightforward, and means evaluation of the density:

$$f(w; S_w = M, S_{R|X} = N, S_x = N) = \int\int f(w \mid R, x, S_w = M)dF(R \mid x, S_{R|x} = N)dF(x \mid S_x = N)$$

$$= \int\int f(w \mid R, x, S_w = M)\Phi_{R|x}(R, x)\Phi_x(x)dF(R \mid x, S_{R|x} = M)dF(x \mid S_x = M)$$

where the additional weight Φ_x is given by $\Phi_x = \dfrac{\Pr(S_x = N \mid x)}{\Pr(S_x = M \mid x)}\dfrac{\Pr(S_x = M)}{\Pr(S_x = N)}$. Again, we obtain the conditional probabilities from simple logit estimators. This is our second counterfactual distribution.

To implement this we estimate the wage densities using weighted kernel density estimates. We use a Gaussian kernel function.

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