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Non-Technical Abstract

According to the 2001 UK Census ethnic minority groups account for 4.6 million or 7.9 percent of the total UK population. The 2001 British Labour Force Survey indicates that the descendants of Britain's ethnic minority immigrants form an important part of the British population (2.8 percent) and of the labour force (2.1 percent). In this paper, we use data from the British Labour Force Survey over the period 1979-2005 to investigate educational attainment and economic behaviour of ethnic minority immigrants and their children in Britain. We compare different ethnic minority groups born in Britain to their parent's generation and to equivalent groups of white native born individuals. Intergenerational comparisons suggest that British born ethnic minorities are on average more educated than their parents as well more educated than their white native born peers. Despite their strong educational achievements, we find that ethnic minority immigrants and their British born children exhibit lower employment probabilities than their white native born peers. However, significant differences exist across immigrant/ethnic groups and genders. British born ethnic minorities appear to have slightly higher wages than their white native born peers. But if British born ethnic minorities were to face the white native regional distribution and were attributed white native characteristics, their wages would be considerably lower. The substantial employment gap between British born ethnic minorities and white natives cannot be explained by observable differences. We suggest some possible explanations for these gaps.

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Abstract: According to the 2001 UK Census ethnic minority groups account for 4.6 million or 7.9 percent of the total UK population. The 2001 British Labour Force Survey indicates that the descendants of Britain's ethnic minority immigrants form an important part of the British population (2.8 percent) and of the labour force (2.1 percent). In this paper, we use data from the British Labour Force Survey over the period 1979-2005 to investigate educational attainment and economic behaviour of ethnic minority immigrants and their children in Britain. We compare different ethnic minority groups born in Britain to their parent's generation and to equivalent groups of white native born individuals. Intergenerational comparisons suggest that British born ethnic minorities are on average more educated than their parents as well more educated than their white native born peers. Despite their strong educational achievements, we find that ethnic minority immigrants and their British born children exhibit lower employment probabilities than their white native born peers. However, significant differences exist across immigrant/ethnic groups and genders. British born ethnic minorities appear to have slightly higher wages than their white native born peers. But if British born ethnic minorities were to face the white native regional distribution and were attributed white native characteristics, their wages would be considerably lower. The substantial employment gap between British born ethnic minorities and white natives cannot be explained by observable differences. We suggest some possible explanations for these gaps.

Keywords: Ethnic Minorities/Immigrants, Education, Intergenerational comparisons, Employment, Wages
JEL: J15, I20, J62, J21, J30

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1. Introduction

A large part of Britain's population today is foreign born. According to the 2001 UK Census, the percentage of foreign-born individuals in the British population is 8.3 percent (or 4.9 million), almost twice as high as in 1951, when the corresponding number was 4.2 percent.[1] The percentage of foreign-born individuals in the working age British population[2] is even higher at 9.8 percent, according to the 2001 British Labour Force Survey (LFS).

Most of the existing research on the economic performance of immigrants focuses on the first generation.[3] But economic assimilation of immigrant populations has a long-term dimension reaching beyond the immigrant's economic lifespan and may comprise several generations. Card (2005) suggests that examining the intergenerational mobility of immigrant communities is more fruitful in studying immigrant economic assimilation and urges for more research in this area. He reaches this conclusion by providing US evidence suggesting that second generation immigrants are a growing fraction of the population, and arguing that nearly all of the second generation immigrants will spend their entire lives in the US, pay taxes and receive income support payments. Thus, he suggests "the success of immigrant children is an important component of the long-run costs and benefits of immigration (p. F317)".

[1] The respective percentages in the 1961, 1971, 1981 and 1991 Censuses were: 4.9 percent, 5.8 percent, 6.2 percent and 6.7 percent (source: Census, April 1951 to 2001, Office for National Statistics (ONS), UK). The 2001 Census is the first Census that collected ethnicity information in Northern Ireland.
[2] We define working age population as men in the age group 16-64 and women in the age group 16-59.
[3] The relevant literature is vast. Among other papers see Borjas (1985) and Chiswick (1978) for the US, Baker and Benjamin (1994) for Canada, and Antecol *et al*. (2003) for a cross-country comparison between the US, Canada and Australia. Research for Britain includes papers by Chiswick (1980), Bell (1997), Blackaby *et al*. (1998), Dustmann *et al*. (2003), Shields and Wheatley Price (1998, 2003) and Wheatley Price (2001).

Evidence on the performance of second generation immigrants when compared to their peers of host country descent differs widely across countries. US and Canadian evidence draws an optimistic picture about the success of second generation immigrants relative to children of native-born parents. For instance Card *et al*. (2000) using data from a number of US Censuses and taking into account parental background find that children of immigrants tend to have higher education and wages than children of natives. Borjas (2006) uses data from the 1940 and 1970 US Censuses and the US Current Population Survey (CPS) and examines social mobility across immigrant populations. He finds that on average the second generation of immigrants earns 5 to 10 percent more than their ancestors. However, he also finds strong intergenerational correlation of ethnic wage differences and suggests that socioeconomic ethnic differences for some ethnic groups in the US could be continued for a long time. Aydemir *et al*. (2006) using data from the 2001 Canadian Census find that second generation immigrants in the age group 25 to 37 have more years of schooling, a greater likelihood of holding a university degree as well as higher earnings than a comparable group of white natives.[4]

In contrast, studies for European countries arrive at less positive conclusions.[5] For Britain, there is hardly any research on how the children of immigrants compare with the white native born population and their parents.[6]

[4] Other studies on intergenerational mobility in immigrant communities include Borjas (1992, 1993b, 1994), Carliner (1980), Chiswick (1977), Trejo (2003) and Smith (2003, 2006) for the US, 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.

[5] 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.

[6] There is a literature on intergenerational correlation of majority individuals, (see e.g. Dearden *et al*., 1997; Blanden, 2005).

In this paper, we provide a detailed analysis of the educational achievement and economic performance of non-white ethnic minority individuals who are born in Britain, and compare them to their parent's generation as well as to comparable groups of white natives. We focus our analysis on ethnic minorities for two reasons. First, ethnic minority individuals are the main focus in public debate about disadvantages of immigrant communities in Britain (see Commission for Racial Equality, Annual Report 2004). Second, non-mixed ethnic minorities make up significant proportions of the British labour force. For instance, non-mixed ethnic minorities born in Britain constitute 2.1 percent of the British working age population, while the respective percentage of ethnic minorities born abroad is 4.0 percent (LFS, 2001). Further, population projections show that the share of working age ethnic minority population is expected to rise to 7.9 percent by 2009 (see Metcalf and Forth, 2000; p. 14).

We distinguish between the six largest non-white minority populations in Britain, belonging to the following ethnicities: Black Caribbean, Black African, Indian, Pakistani, Bangladeshi and Chinese. We exclude all those individuals with a mixed[7], any "other" ethnic background and white immigrants. The benchmark is the British born white population. Our analysis is based on the LFS which includes both country of birth as well as the ethnicity of the individual. Using the LFS from 1979 through to 2005, we create two distinct sub-samples that we declare as first generation ethnic minority immigrants and British born ethnic minorities respectively. As we

[7] According to the 2001 UK Census, 14.6 percent of the minority ethnic population described their ethnic group as mixed making up 1.2 percent of the total UK population. About a third of this group were from white and Black Caribbean backgrounds (Source: Census, April 2001, ONS, UK). We also exclude observations from Northern Ireland.

demonstrate below, the vast majority of British born ethnic minorities in our sample is likely to be second generation.

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 educational improvement relative to their parent's generation is larger for most British ethnic minority groups as opposed to white natives. But, this educational advantage is not translated to better employment prospects for both groups of ethnic minorities. British born ethnic minorities seem to have higher average wages than white natives. However, their wage advantage turns into a wage disadvantage if British born ethnic minorities were to face the white native regional distribution and were attributed white native characteristics. We also find that differences in wage offer distributions hardly account for the employment differences of British born ethnic minorities, and that British born ethnic minorities have lower employment propensities for the same wages than native born whites. We investigate a number of possible explanations for the wage and employment disadvantages of British born ethnic minorities. Our results suggest that differences in the quality of education do not drive the employment and wage gaps, and that the lower labour market participation rate for some British born ethnic minority groups is partly driven by choice.

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, and how these correlate across generations. Section 4 deals with differences in economic activity and employment rates. In Section 5 we focus on British born ethnic minorities, and compare their wage structure and employment probabilities to those of their white native born peers. In Section 6 we provide some possible explanations for differences in wages and employment. We summarise findings and conclude in Section 7.

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). However, in the post-war period, and symbolised 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.

Black Caribbeans

Caribbeans were the first ethnic minority group which arrived in Britain in large numbers. Caribbean migration to Britain effectively started in 1948 (Peach, 1996), and peaked in the early 1960s. By 1973, the Caribbean born population had reached about 550,000. Caribbean after-war migration to Britain was a consequence of an increasing demand for labour, but it had its first origins in government-sponsored war recruitment (Peach, 1996). The size of the Caribbean ethnic population was stable at about the 500,000 mark from 1971 to 1991. The 2001 Census counted 565,876 Black Caribbean, or 1.0 percent of the total UK population and 12.2 percent of the ethnic minority population.

Black Africans

The migration history of Black Africans to Britain differs from those immigrants who were recruited directly for the purposes of employment. Since the immediate post-independence period of the 1960s, there has been a marked increase in the number of Black Africans traveling to Britain for higher education and technical training (Daley, 1996). The 1991 Census of Great Britain recorded 213,362 persons who classified themselves as Black-African, the majority (around 60 percent) being West African in origin (Daley, 1996). In the 2001 Census the corresponding number was 485,277, 0.8 percent of the total UK population and 10.5 percent of the ethnic minority population.

Indians

Large scale labour migration from India to Britain took place during the 1950s and 1960s (Robinson, 1996). According to the 2001 Census, Indians are the largest individual ethnic minority group, numbering 1,053,411 and making up 22.7 percent of the minority ethnic population and 1.8 percent of the total UK population. According to the 1991 Census (Robinson, 1996), the Indian group has diverse places of birth, with 41.2 percent being British born, 36.8 percent born in India, 16.9 percent in East Africa Commonwealth countries, 0.7 percent in South East Asia, 0.5 percent in Pakistan, and 3.9 percent elsewhere.

Pakistanis

The 1961 Census recorded the presence of 24,900 Pakistani born individuals. By 1981 the number of people living in households with a Pakistani born-head had increased to 285,558. By 1991 that figure had almost doubled to 476,555 and by 2001 it was up to 747,285, or 0.5 percent of the total UK population and 16.1 percent of the ethnic minority population. The growth of the second generation Pakistani population has been rapid. For instance, by 1991 more than 50 percent of the Pakistani population was British born (Ballard, 1996).

Bangladeshis

The Bangladeshi community of Great Britain is the youngest and fastest growing of all the ethnic populations (Eade *et al*., 1996). In 1961 there were around 6,000 first generation Bangladeshis in Britain. In 1971, there were only about 1,000

second generation Bangladeshis, whereas in 1991 their number had increased to 59,679. The 1991 Census counted a Bangladeshi resident population of 162,835, and according to the 2001 Census, the number of individuals who identified themselves, as Bangladeshis was 283,063, or 0.5 percent of the total UK population and 6.1 percent of the ethnic minority population.

Chinese

In the 1991 Census the number of the Chinese in Britain was 156,938, or 0.28 percent of the British population (see Table 7.1 in Cheng, 1996). By 2001 this number had increased to 247,403. Forming the smallest ethnic minority group identified in the 2001 Census (5.3 percent), large scale migration of the Chinese to Britain is recent (Cheng, 1996).

2.2 Data sources and sample

Our analysis is based on data from the LFS. The LFS is a large scale household interview based survey of individuals in Britain, similar to the CPS[8], 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 at their first inclusion in the survey and by telephone, if possible, at intervals thereafter. Between 1973 and 1983 it has been on a biennial basis, changing to an annual survey from 1983 onwards. The sample size is

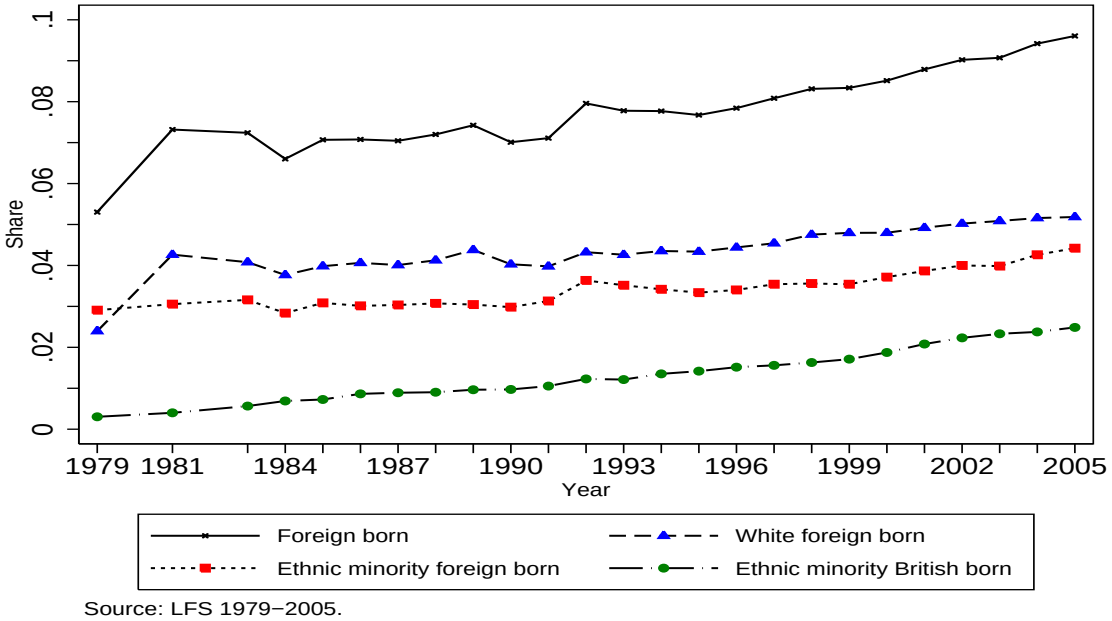
[8] The CPS is a monthly survey of approximately 60,000 households conducted by the Bureau of the US Census for the Bureau of Labor Statistics and it is the primary source of information on the labour market characteristics of the US population.

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 earnings or wages before 1992.

2.2.1 Foreign born and ethnic minority populations in Britain

In our analysis, we use data between 1979 and 2005, as prior to 1979 no information on ethnicity was collected. Figure 1 presents the evolution of the share of working age immigrants/ethnic minority groups in Britain from 1979 to 2005.

Figure 1. Changes in the Share of Working Age Population Immigrant/Ethnic Minority Groups.



Source: LFS 1979–2005.

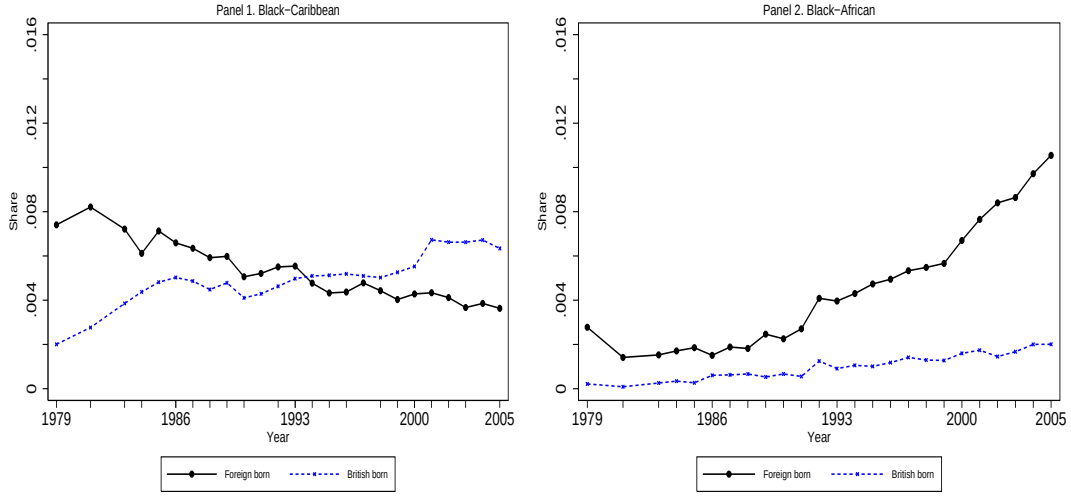
There has been a 4.3 percent increase in the share of immigrants in the working age population over the observation period, from 5.3 percent in 1979 to 9.6 percent in 2005.

The share of the ethnic minority foreign born group has slightly increased from 3 percent in 1979 to 4.5 percent in 2005. The lower line in Figure 1 shows a steady increase in the share of ethnic minority British born individuals. For instance, British born ethnic minority individuals made up only 0.3 percent of the total working age population in 1979, however by 2005 their share was 2.5 percent.[9]

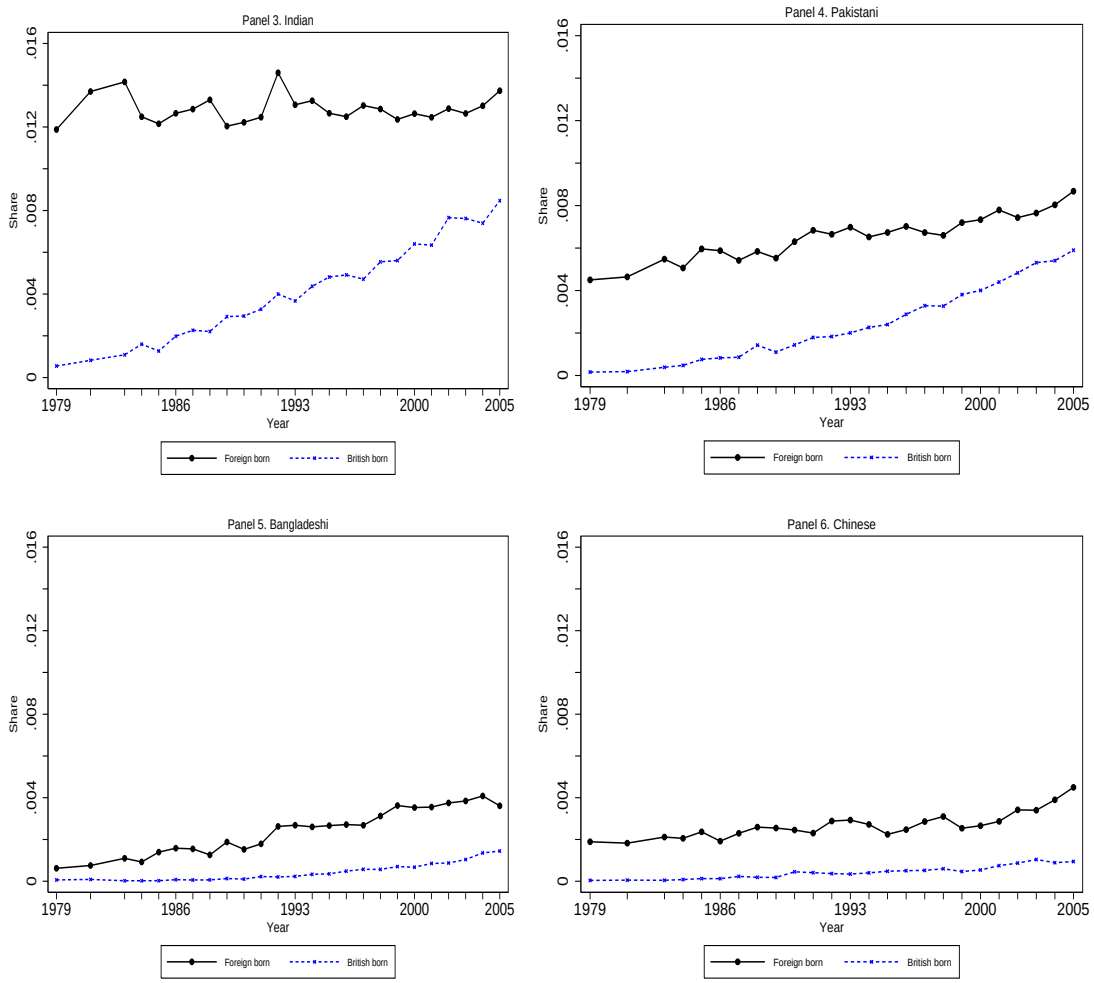
2.2.2 Foreign born and native born ethnic minority populations

Figure 2 distinguishes between the six groups we use in the analysis and displays information on the changes in the shares of working age first generation ethnic minority immigrants and ethnic minority individuals who are born in Britain. Also, it makes comparisons of the relative growth between the above groups with respect to the total population.

Figure 2. Changes in the Share of Working Age Population of First Generation and British Born Ethnic Minority Groups.



[9] Interestingly, this number closely matches the respective share (3 percent) of second generation non-white immigrants in the US (Source: CPS, March 2005).



The first panel of Figure 2 shows a significant downward trend in the share of first generation Black Caribbeans. According to Peach (1996), return migration for retirement or onward migration to North America, are two possible causes for this decrease. In contrast, first generation ethnic minority immigrants in all the other groups have an upward or a constant trend relative to the total population.

The share of working age British born Black Caribbeans exceeded their corresponding first generation share by 1994. This is in line with the earlier arrival of the first generation Black Caribbeans in Britain compared to the other ethnic minority

immigrant groups. There is also a sharp increase in the other British born ethnic minority groups, in particular those of Indian and Pakistani descent. The smaller in size ethnic minority immigrant groups are of Bangladeshi and Chinese origin suggesting their later arrival in Britain compared to the other ethnic minority immigrant groups. Overall, these figures suggest a considerable increase in the fraction of ethnic minorities, both foreign born and British born, on the British population over the last three decades.

2.2.3 The sample used for analysis[10]

Although the LFS classifies people according to their country of birth as well as to their ethnicity (self-reported) it does not collect information on the parental country of birth. For constructing samples of first generation ethnic minority immigrants, and British born ethnic minorities, we use the fact that immigrants of non-white origin are recent in Britain, as demonstrated in Figure 2. We create a sample of immigrants in the age range between 25 to 46 in 1979, who belong to any of the ethnic minority groups defined above, and who are born abroad. These are our first generation ethnic minority immigrants. Because of the small number of observations in the LFS, we pool information from the 1979, 1981, 1983 and 1984 LFS's. Assuming a peak period of fertility in the age range of 21 to 30[11], (potential) children of first generation ethnic minority immigrants should be in a similar age window in the years between 1998 and

[10] Given the long time series we use in constructing our sample, both the wording and the content of some of the variables have changed. Appendix A1 provides details on all the LFS variables used in the analysis, on the survey questions, as well as on the built-up of the variables.

[11] According to the ONS (*Birth Statistics, England and Wales, 2002 FM1 No.* 31) women aged 25-29 have the highest fertility rate at 91.6 births per 1,000 women.

2005. We therefore define ethnic minority individuals born in Britain, to be of one of the ethnic minority groups, and to be in the age range 23 to 35 in 1998. Again, to circumvent the small sample problem, we pool the 1998-2005 LFS's.

At this point we should mention that our definition for British born ethnic minorities intends to capture the children of those immigrants we observe in the first observation window, but may include some ethnic minority individuals of the third or even higher generation. We illustrate below that the arrival of immigrants and their age structure makes it likely that the fractions of third generation or higher order generation ethnic minorities in this group are very small, except for the Caribbean population, and that therefore this groups consists mostly of second generation immigrants. As a reference group for the two periods, we define white British born individuals who are in the same age range as first generation ethnic minority immigrants and British born ethnic minorities in 1979 and 1998 respectively.

In Table 1 we present the total number of first generation ethnic minority immigrants and British born ethnic minorities observed in each time window (upper left panel and lower right panel of the table respectively), as well as the corresponding numbers of white natives.[12] We also display the number of second or higher order generation ethnic minority immigrants in the first time window (lower left panel).

[12] Given that the LFS has a rotating panel format in our second time window, in counting individuals we only keep one observation record for each individual (see Appendix A.1 for construction of this variable).

Table 1. Distribution of Groups by Status of Generation.

	Years					
Groups	*1979-1984*			*1998-2005*		
	First generation					
Black Caribbean	1,877	(26.0%)	[37.5]		---	
Black African	414	(5.7%)	[32.8]		---	
Indian	3,082	(42.6%)	[35.5]		---	
Pakistani	1,220	(16.9%)	[35.8]		---	
Bangladeshi	188	(2.6%)	[37.7]		---	
Chinese	447	(6.2%)	[34.0]		---	
Total (minority)	7,228	(100%)	[35.8]		---	
White natives	205,165		[35.7]		---	
	Second or higher generation					
Black Caribbean	245	(66.6%)	[27.5]	2,483	(34.7%)	[33.4]
Black African	22	(6.0%)	[29.1]	653	(9.1%)	[32.2]
Indian	62	(16.8%)	[29.0]	2,339	(32.7%)	[30.3]
Pakistani	18	(4.9%)	[24.6]	1,307	(18.3%)	[29.9]
Bangladeshi	9	(2.4%)	[29.4]	143	(2.0%)	[28.8]
Chinese	12	(3.3%)	[28.1]	226	(3.2%)	[30.6]
Total (minority)	368	(100%)	[27.8]	7,151	(100%)	[31.5]
White natives		---		227,746		[32.8]

Notes: Percentages in parentheses and mean age (weighted) in square brackets.

The numbers in the lower left panel of Table 1 show that except for Black Caribbeans, the number of British born ethnic minority individuals in the first time window is very small. This suggests that although some of the individuals in the lower right panel may belong to the third or higher generation rather than the second generation, this number is not likely to be large (see also Figure 2).[13]

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 Caribbeans count for about 36 percent of the total British born ethnic minority group and form the largest

[13] The 1983 LFS wave is the only LFS wave with information on parental country of birth. Utilising data from this wave we found that there are only 60 second generation ethnic minorities in the age group 25 to 51, constituting 2.3 percent of the first generation non-white immigrants.

group. British born Indians make up the second largest group and British born Bangladeshis the smallest.[14]

The numbers in square brackets in Table 1 present the average age in the respective population. These 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. First generation Bangladeshis are the oldest group with an average age of 37.7 years and first generation Black African are the youngest group with an average age of 32.8 years. The oldest British born ethnic minority group is Black Caribbeans (33.4 years) and the youngest is Bangladeshis (28.8 years).

3. Educational Achievements: Comparing Immigrants, Natives, and the Second Generation

We commence by examining differences in education between the different groups. 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.

To obtain a measure of years of continuous full-time education and in contrast to previous studies (Bell, 1997; Blackaby *et al*., 2002) we make adjustments for the different ages at which individuals start full-time education in different countries and

[14] In the British General Household Survey (GHS) we observe parental country of birth. However, prior to 1983 the GHS only distinguishes between whites and non-whites. Another limitation of the GHS collects only small ethnic samples within its broader coverage (samples only 10,000 households). We use the 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 (due to data availability). The relative proportions (Black Caribbean 35.1 percent, Black African 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.

changes in the starting age of full-time education through time in some countries.[15] 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).[16]

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 system. To obtain comparable educational categories we aggregate educational qualifications in four broad categories: "High", "Medium", "Low" and "No qualification" (for details on what each category incorporates see the "Educational Qualifications" paragraph in Appendix A1).

3.1 *Years of full-time education*

Table 2 presents means of years of full-time education for each immigrant/ethnic group, by gender and time period. For each of the two panels, the first column reports means for males and females, and the second and third columns separate the two groups. First generation ethnic minority immigrants are displayed in

[15] This information was collected from the World Bank website: http://devdata.worldbank.org/edstats/query/default.htm. It was complemented and verified through private correspondence with the government education departments of each country and/or through the corresponding embassy of each country in Britain.

[16] 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.

columns one to three and British born ethnic minorities in columns four to six. The last two rows present corresponding means for the entire immigrant/minority group and for white natives correspondingly.

Table 2. Average Years of Full-time Education by Status of Generation, Ethnicity and Gender.

	First Generation 1979-1984			British Born Ethnic Minorities 1998-2005		
	(1) Total	(2) Males	(3) Females	(4) Total	(5) Males	(6) Females
Black Caribbean	10.0	9.9	10.2	12.7	12.5	12.8
Black African	12.2	13.2	11.0	15.2	15.6	14.8
Indian	12.2	12.8	11.5	14.2	14.5	13.9
Pakistani	11.6	12.3	10.6	13.5	14.2	12.8
Bangladeshi	11.5	12.6	10.1	13.2	13.6	12.9
Chinese	11.2	12.2	10.3	15.1	15.1	15.1
Total (immigrant/minority)	**11.4**	**12.0**	**10.8**	**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 full-time education.

First generation ethnic minority immigrants have on average 0.6 more years of full-time education than white natives; this difference is mainly due to males, who have on average 1.2 years more full-time education than British born whites. On average, years of full-time education of first generation female ethnic minority immigrants are quite similar compared to their British born peers; Indian and Black African 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 Africans and Indians have the highest number of years of full-time education, 2.4 and 2 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 Caribbeans, 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 seem to be well educated. This is in contrast to the relative educational qualifications of immigrants in many other European countries.

The overall advantage in years of full-time education of first generation ethnic minority immigrants as relative to their British born white peers seems to carry 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 across all levels). An even higher increase is observable for British born ethnic minorities. Further, *all* ethnic groups of British born ethnic minorities have more years of full-time education than their British born white peers. The gender full-time education gaps are again evident in columns five and six. Nevertheless, females in all ethnic groups, including females from the Black Caribbean, Bangladeshi, Pakistani and Chinese communities (and in contrast to the first time period), 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 1.2 years and 0.1 years for the first generation), which suggests significant increases in educational advantage, in particular for British born ethnic minority females.

3.2 Educational qualifications

Table 3 presents the distribution of educational qualifications for the different groups. Columns one to four provide means for the first generation ethnic minority immigrants and the comparable group of white natives, and columns five to eight provide means 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 2.

Table 3. Distribution of Educational Qualifications by Status of Generation, Ethnicity and Gender.

	First generation 1979-1984				*British Born Ethnic Minorities 1998-2005*			
	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.

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 a significant heterogeneity between groups, with only 2.3 percent of first generation Black

Caribbeans 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 Caribbeans.

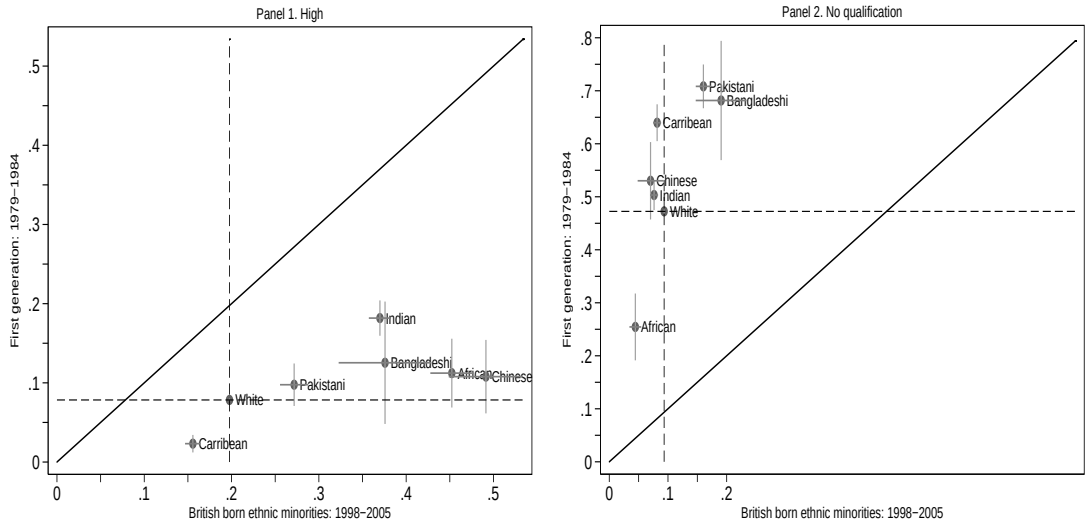
3.3 Intergenerational correlation

We now investigate in more detail the intergenerational link between educational attainment for first generation ethnic minority immigrants and British born ethnic minorities, distinguishing between males and females, and relate this to

educational attainment of comparable groups of white natives. In Table A1 in Appendix A2, we report numbers as in Table 3 above, but broken down by gender. We summarise these numbers for the groups with the highest education "High" and with no education "No qualification" in Figure 3. 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 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 on the second quadrant (north-east region) would suggest that the percentage of both first generation ethnic minority immigrants and British born ethnic minorities who achieved a "High" educational qualification is higher than the respective percentage of the white natives.

Figure 3. "High" and "No qualification" by Status of Generation.



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 Caribbeans 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, and that 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 3 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.

In Figure 4, we display gender differences for the same two categories. The upper two panels report results for males and females with a "High" educational qualification and the lower two panels report results for those individuals with "No qualification".

Figure 4. "High" (panels 1 and 2) and "No qualification" (panels 3 and 4) by Status of Generation and Gender.

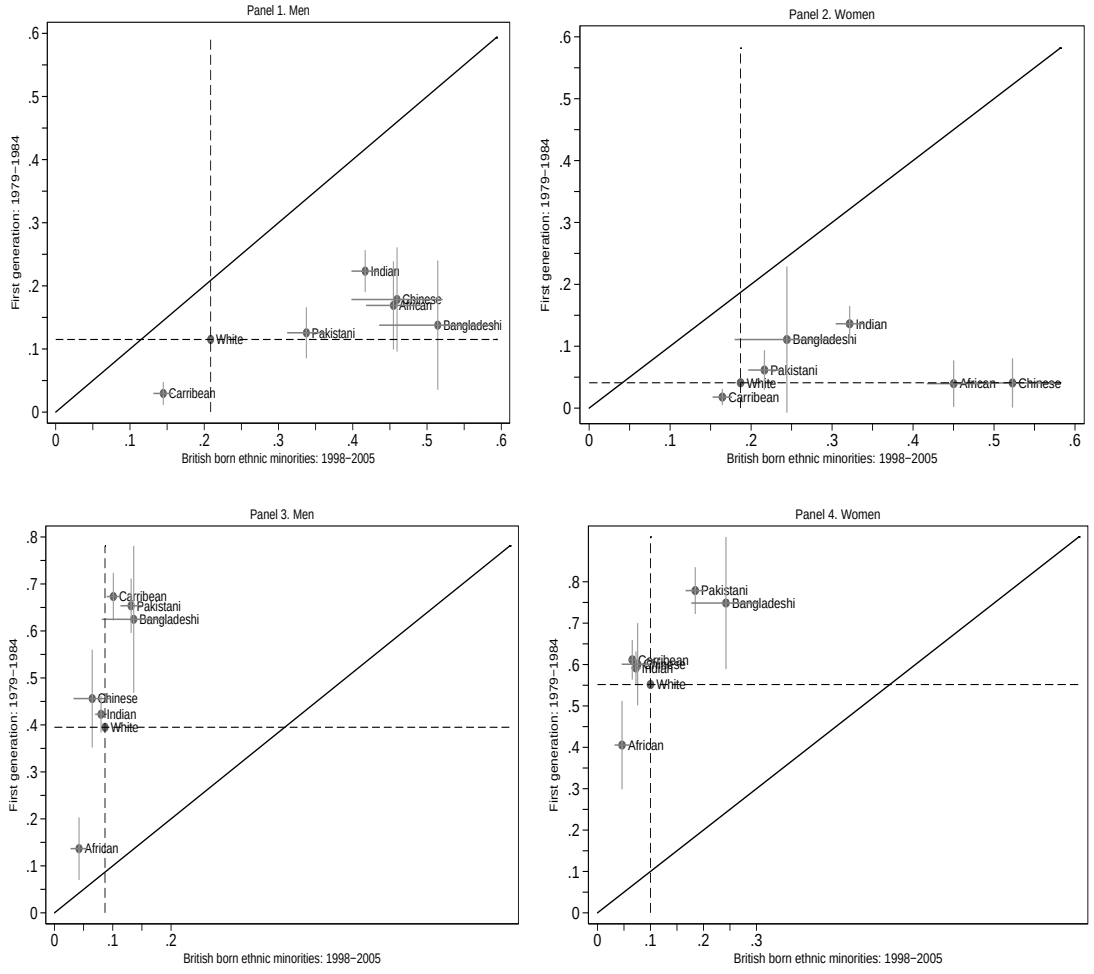


Figure 4 shows substantial differences in gender achievements across ethnic minority groups, in particular for Pakistanis and Bangladeshis. While male British born individuals from these two groups significantly outperform their white native born peers, the differences are not significant for females, although point estimates suggest a small advantage. However, there are significant improvements for these two groups relative to their parents' generation. The Caribbean population is performing worse than British born whites amongst both males and females, but there is a significant increase in the percentage of those with a "High" educational qualification relative to their parent's generation, for both males and females in this group.

Panels 3 and 4 report results for those with "No qualification". For all groups there is a considerable decrease in size within this category, relative to the parent generation. Remarkable is the large decrease in percentages of British born ethnic minority groups with "No qualification", particularly for Pakistani and Bangladeshi females. Although there has been a substantial reduction in the relative size of this group from the first to the next generation, the fraction of females who fall in this category is still significantly larger for both minorities than for white native females.

Our findings with respect to the first generation of ethnic minorities are in line with evidence provided by Baker and Benjamin (1994) as well as by Aydemir *et al.* (2006) who find that first generation immigrants to Canada tend to be more educated than natives, but contrasts with US findings (Borjas, 1993a; Card, 2005; Card *et al.*, 2000) as well as for some European continental countries (see Gang and Zimmermann, 2000 for German evidence). Moreover, our results suggest that British born ethnic minorities are with the exception of Black Caribbeans more likely to obtain higher

educational qualifications than their white British born peers, and that their overall educational advantage is substantial (for a similar result for the US see Chiswick and DebBurman, 2004). Also, the educational improvement relative to their parent's generation is larger for most ethnic minority groups, and indeed dramatic for some groups.

Our findings therefore suggest that British born ethnic minorities are well prepared to compete with their white native born peers, and may even outperform them. In the next Section we analyse this in more detail.

4. Labour Market Performance

We first analyse employment and economic activity of first generation ethnic minority immigrants and British born ethnic minorities, which we compare to British born whites. Our measure for the overall economic activity of individuals distinguishes between paid employment, self-employment, unemployment, economically inactive people 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 exclude the self-employed (these are 8.7 percent of the individuals in our sample and approximately the same for white natives 8.7 percent and ethnic minorities 8.9 percent) as well as those individuals on government schemes. The latter group makes just about 0.1 percent. We also drop all those individuals who were in full-time education at the time of the survey.

4.1 Economic activity and employment

We define an individual as economically active if she is employed or unemployed as opposed to being economically inactive. We define an individual to be employed if she is in paid employment, as opposed to being economically inactive or unemployed. Table 4 presents percentages of economic activity and employment for our two samples.

Table 4. Percentage Distribution of Economic Activity and Employment by Status of Generation.

	First generation 1979-1984		*British Born Ethnic Minorities 1998-2005*	
	(1)	(2)	(3)	(4)
	Economic Activity	Employment	Economic Activity	Employment
Black Caribbean	87.2	79.3	81.4	72.6
Black African	79.0	69.9	82.2	71.8
Indian	76.6	71.0	85.2	80.1
Pakistani	57.1	49.3	62.8	56.4
Bangladeshi	58.1	48.7	65.6	57.6
Chinese	66.3	64.4	85.4	81.1
Total (immigrant/minority)	**75.6**	**68.9**	**79.6**	**72.3**
Whites	**79.0**	**74.7**	**84.0**	**80.2**

Note: Percentages are weighted using population weights.

Columns one and two suggest that white natives have both higher economic activity and employment rates than first generation ethnic minority immigrants. The percentage difference is equal to 3.4 percentage points with respect to economic activity and 5.8 percentage points with respect to employment. However, there is significant heterogeneity between immigrant groups. First generation Black Caribbeans have higher economic activity and employment rates than any group.[17] In contrast, first generation Pakistanis and Bangladeshis have the lowest economic activity and employment rates.

[17] The highest economic activity and employment rates of first generation Black Caribbean immigrants may be explained by the fact that this group arrived in Britain when there was an increasing demand for labour (see Section 2.1).

The overall disadvantages in economic activity and employment that first generation ethnic minority immigrants' face compared to white natives, is larger still for the British born ethnic minorities with the corresponding differentials being 4.4 percentage points with respect to economic activity and 7.9 percentage points with respect to employment. Again, there is significant heterogeneity between groups. For example, British born Indians and Chinese have higher economic activity and employment rates compared to any other group. As it was the case for the first generation of ethnic minority immigrants, British born Pakistanis and Bangladeshis have considerably lower economic activity and employment rates than any other group.

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 respective groups of white natives. The last row of each panel in Table 5 shows employment means for white natives. The reported coefficients on differences are conditional on age and age square (taking differences from their respective means) and year dummies (reference year 1979 for the first time period and 1998 for the second time period) to eliminate composition effects.[18] As 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 44 percent of the first immigrant generation and 46 percent of the British born), in the lower panel we report results where we also condition on region dummies in addition; the reference category being Greater London.

[18] Since in the second time window the LFS has a rotating panel format we keep repeated observations for each individual observed in any one wave, but allow for clustering of individuals using a unique individual identification number.

For the white British born, 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. This increase is largely in line with results reported in Blundell *et al*. (2004).

Table 5. Mean Differences in Employment by Status of Generation and Gender.

Immigrant groups	*First generation 1979-1984*			*British born ethnic minorities 1998-2005*		
	(1) Total	(2) Males	(3) Females	(4) Total	(5) Males	(6) Females
Black Caribbean	3.7	-4.9	13.0	-7.6	-10.9	-4.0
Black African	-4.0†	-15.0	5.6†	-7.9	-10.1	-5.4
Indian	-3.4	-1.4	-5.6	0.1†	-1.2†	1.2†
Pakistani	-25.2	-8.5	-47.1	-23.8	-11.2	-30.2
Bangladeshi	-26.7	-7.0	-43.0	-21.7	1.8	-39.9
Chinese	-9.3	2.1†	-13.5	0.7†	2.0†	-2.0†
Total Difference (Immigrants/Minority)	**-5.8**	**-4.5**	**-6.6**	**-7.7**	**-6.9**	**-7.7**
White natives (Employment)	**75.8**	**94.0**	**59.0**	**78.5**	**87.4**	**70.5**
Controlling for Regions: Omitted category Greater London						
Black Caribbean	2.1	-6.0	10.5	-8.0	-11.6	-3.8
Black African	-5.7†	-15.9	2.7†	-8.5	-10.9	-5.5
Indian	-4.8	-2.3	-7.7	-0.04†	-1.7†	1.3†
Pakistani	-26.6	-9.2	-49.2	-23.7	-10.6	-30.4
Bangladeshi	-28.1	-8.2	-44.7	-21.9	2.1†	-40.0
Chinese	-10.1	1.5†	-14.7	0.8†	2.3†	-2.2
Total Difference (Immigrants/Minority)	**-7.4**	**-5.4**	**-9.1**	**-8.0**	**-7.3**	**-7.7**
White natives (Employment)	**78.0**	**95.2**	**62.9**	**79.2**	**88.6**	**70.6**

Notes: Regressions are weighted using population weights. Coefficients marked † are not significant at the 10 percent level. Reported coefficients are conditional on age and age square (differences from their means) and year dummies (omitted categories are years 1979 for the first time period and 1998 for the second time period). The reference groups are white native born individuals living in Greater London.

Despite the overall educational advantage of first generation ethnic minority immigrants as illustrated in Section 3, there is a remarkable overall disadvantage in their employment probabilities: the overall difference between first generation ethnic minority immigrants and white natives is 5.8 percent. The detailed breakdown reveals that this difference is mainly due to lower employment probabilities of Pakistanis and Bangladeshis, with employment rates being 25.2 and 26.7 percentage points lower than those of their white British born peers. Inspection of the gender breakdown reveals that

for Pakistanis and Bangladeshis, these differences are mainly driven by females, who experience employment probabilities that are 47.1 and 43.0 percentage points lower than those of their white British born peers. Interestingly, for the Black African group, it is the male population that has dramatically lower employment rates than white natives, while females' rates are not significantly different. For Black Caribbeans, females exhibit a 13.0 percentage point higher employment probability than their British born white peers, while males have a 4.9 percentage point lower probability. Overall, these numbers suggest a sizeable employment disadvantage of first generation ethnic minority immigrants, as compared to their white native peers.

The right panel in Table 5 makes comparisons between the British born ethnic minorities and white natives. Overall, there is a large employment disadvantage for British born ethnic minorities relative to their British born white peers (7.7 percent), with a 0.8 percent higher differential among females. Breaking these numbers down by the different ethnic minority groups, the pattern is not unlike 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 30.2 and 39.9 percentage points lower employment probabilities than their native born white peers. The overall disadvantage for both Black Africans and Black Caribbeans has increased: for the British born ethnic minorities, employment probabilities for female Black Africans and Black Caribbeans are now 5.4 and 4 percentage points lower respectively 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 (omitted category Greater London), suggesting that immigrants are settling in regions with higher employment rates.

These figures draw a bleak picture of the labour market situation of British born ethnic minority individuals. Their educational attainment, which is on average considerably higher than that of their white native peers, seems not to transform into equally advantageous employment prospects for many groups. In the next Section, we investigate this in more detail.

5. Employment and Wages of British Born Ethnic Minorities

The analysis in the last Section did not attempt to draw distinctions between the 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 attempt such decompositions. Our analysis is purely descriptive. We concentrate on British born ethnic minorities and their white native peers.[19] We commence by analysing wage distributions of those who are in work. We ask the question: *how does the density of wages of ethnic minority individuals' change if they had the same vector of observable attributes and regional allocation as white*

[19] Henceforth, for brevity we use the term ethnic minorities instead of British born ethnic minorities.

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?*

5.1 Wages

Looking at the raw data, mean log wages of ethnic minority and white males are 2.03 and 2.05 respectively – suggesting a 2 percent wage advantage for white males. For females the respective numbers are 1.97 and 1.83, suggesting a 14 percent wage advantage for ethnic minority females. 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). If unobservable ability components are correlated with observable characteristics like education, inspection of educational attainment differences across white natives and ethnic minorities of those who do and do not participate should give some indication as to how important selection on unobservables is.

Table 6 presents simple descriptive statistics on ethnic minority males and females and white natives where we distinguish between those who are employed and non-employed (including non-participants).

Table 6. Differences in the Observed Characteristics of Employed and Non-employed Individuals.

	Employed				Non-employed (no-participants)			
	Whites		Minority		Whites		Minority	
	Males	Females	Males	Females	Males	Females	Males	Females
Age	32.6	32.7	32.0	32.5	32.5	32.6	32.1	32.0
Years of full-time education	12.7	12.8	14.2	13.9	11.7	11.8	12.6	12.4
High	23.2	21.7	35.1	32.1	9.1	8.8	16.9	12.2
Medium	37.8	30.0	29.5	30.4	24.1	20.0	22.4	22.4
Low	33.1	42.5	29.6	34.2	37.8	48.6	37.2	45.8
No educational qualification	6.0	5.8	5.7	3.3	29.0	22.5	23.5	19.6
Potential wages	1.98	1.74	1.93	1.84	1.81	1.60	1.77	1.67

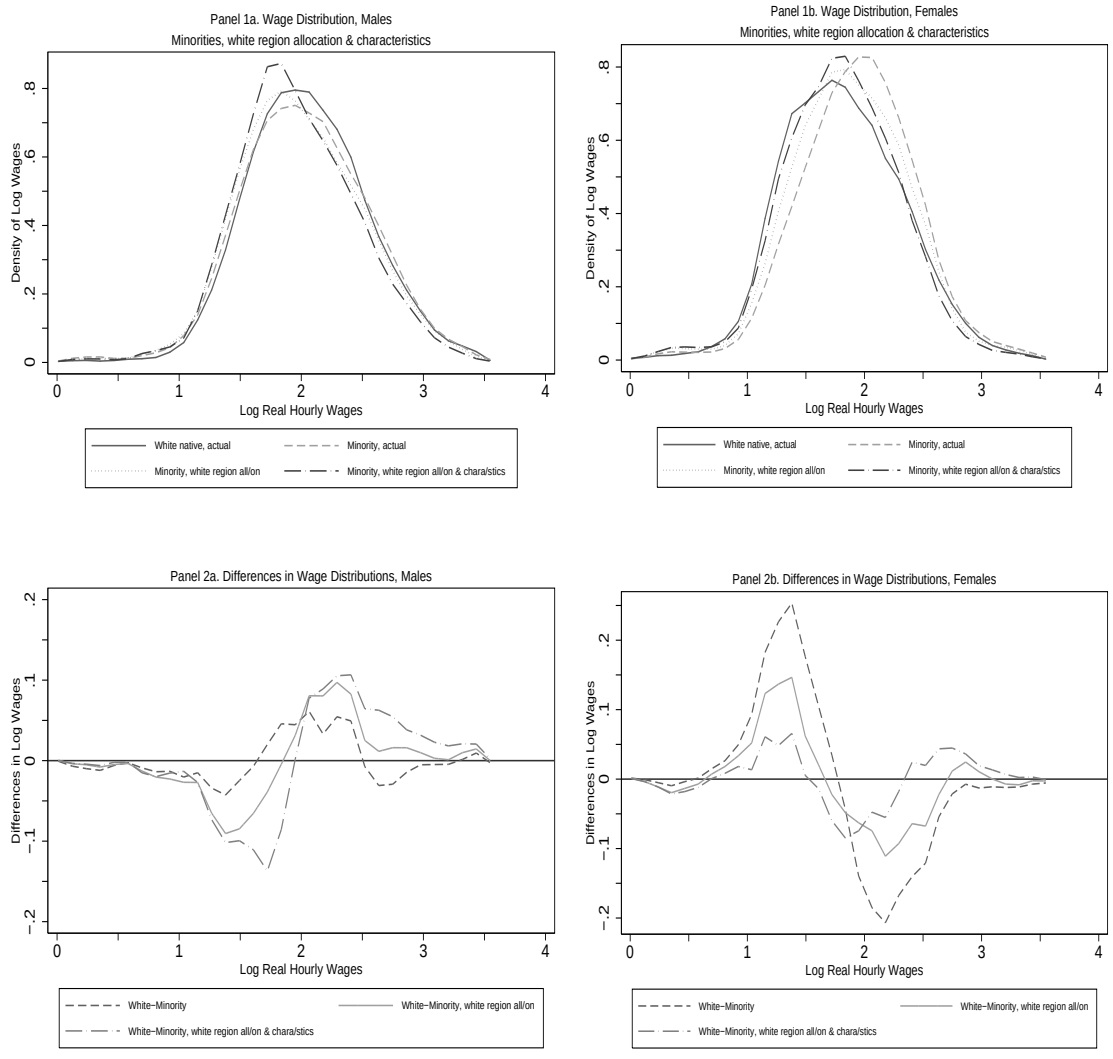
Note: All numbers are weighted except potential wages of the non-employed.

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. These numbers suggest larger differences for ethnic minorities. For females (males), the fraction of ethnic minorities who have a "High" educational qualification and who work is 32 (35) percent, as opposed to 25 (32) percent in the overall population; for white females (males), the respective numbers are 22 (23) percent and 18 (22) percent. Hence, the numbers suggest a stronger selection on observables for ethnic minorities. If education is similarly correlated with unobserved ability across groups, then this indicates stronger selection of ethnic minorities on unobservables.

To investigate how composition as well as geographical distribution affects wages, we consider the entire wage distribution of the two groups. We ask the question: *how does the density of wages of ethnic minority individuals' change if they had the same vector of observable attributes and regional allocation as white natives (keeping the wage*

structure of ethnic minorities constant)? We use the approach outlined in DiNardo *et al*. (1996) (see Appendix B for details). If the two groups of white natives and ethnic minority individuals were identical based on how observed characteristics and circumstances translate into wages (which is a good assumption to start with, as individuals in both groups are born and raised in Britain), then wage distributions should be identical when correcting for differences in observables.

Figure 5. Actual and Counterfactual Kernel Densities and their Differences.



In Figure 5 we display the actual kernel wage densities, the counterfactual kernel wage densities as well as their differences. Panel 1a shows that the actual wage distribution for male ethnic minorities is very similar to that of their white native peers, while panel 2a shows that the wage distribution of ethnic minority females is shifted to the right, relative to white native females; these distributions are compatible with the raw mean wage differentials of 2 and 14 percent.

In panels 1a and 1b, we also display the distributions that would have prevailed if ethnic minorities had the same regional allocation as white natives, and the distributions if, in addition, ethnic minorities had the same characteristics as white natives, all assuming the wage structure of ethnic minorities remains constant. The vector of individual characteristics includes the following variables: age and its square, three dummy variables capturing educational qualifications ("High", "Medium", "Low", omitted category "No qualification"), years of full-time education, year dummies (omitted category year 1998) and quarter dummies (omitted category quarter 4). The panels show that for both males and females, the counterfactual wage distributions shift quite dramatically to the left if the regional allocation of ethnic minorities was the same as that for white natives. They shift even further to the left if in addition ethnic minorities had the same observed characteristics as white natives. This is not unexpected, as ethnic minorities have higher levels of education, as we have shown in Section 3.

Panels 2a and 2b plot the differences between the actual white native wage distribution and the actual ethnic minority wage distribution, as well as differences between the actual white native wage distribution and each of the counterfactual ethnic

minority wage distributions, for both males and females. They show that assuming white native regional allocation and characteristics for ethnic minorities leads to larger differentials in favour of white natives across the entire wage distribution. If we evaluate the wage distributions at the mean, the small raw wage disadvantage of ethnic minority males of 2 percent increases to 6 percent if the regional allocation of minorities would resemble that of their white native peers; it increases to 9 percent if ethnic minority males had in addition the same education and age structure as their white native male peers. For ethnic minority females the initial 14 percent wage 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 numbers therefore suggest that the raw wage differential that we observe between ethnic minorities and white natives turns into a considerable wage disadvantage if ethnic minorities were identical to white natives in terms of individual attributes and regional allocation, and continued to be paid according to ethnic minority wage structures. If in addition, there is more selection on unobservables for ethnic minorities (which is likely given the stronger selection on observables, as shown in Table 6) then the average wage disadvantage of ethnic minority individuals may be even larger.

5.2 Employment

The previous Section suggests that wage distributions of ethnic minority and white native individuals differ, in the sense that ethnic minorities have a different wage distribution than white natives for equal observable attributes. We now investigate the

difference in employment rates between the two groups that is due to differences in their imputed wage offer distributions, to address the question whether employment differences are due to ethnic minorities facing a different wage offer distribution, 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 may now be due to differences in employment response at any wage *w*, $p^j(w)$, or differences in the distribution of offered wages, $g^j(w)$.[20] 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, e.g. discrimination (see Bowlus and Eckstein 2002 for analysis in an equilibrium search framework). Differences in the employment response may be due to differences in reservation wages or preferences.

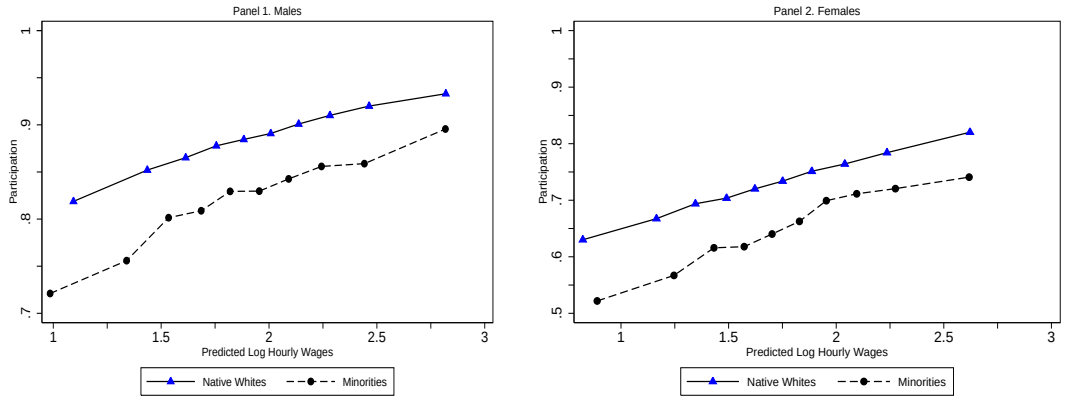
We do not observe the wage offer distributions $g^j(w^j)$ for the two groups. It is well known that the censored distribution of accepted offers does not straightforwardly allow us to estimate the wage offer distribution of the total population – this recoverability problem has been documented by Flinn and Heckman (1982). Here we

[20] The difference in employment probabilities can be decomposed as

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

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 potential wages takes into account differences in wage offers for white and minority individuals due to differences in observable characteristics, or their prices. It does not capture differences in unobservables, 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 6, we plot the participation functions for ethnic minority and white native individuals by gender.

Figure 6. Participation Functions by Ethnic and Gender Groups.



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 groups. 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 function rather than by differences in the wage distribution.

In Table 7 we investigate this further. We display the actual differences in employment between ethnic minorities and white natives along the respective deciles of the (potential) 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 ethnic minority males, and 7.7 percent lower for ethnic minority females. The next columns (columns two and five) display differences in potential wages across deciles. Overall, there is a disadvantage for ethnic minority males of about 5.8 percent, and an advantage of ethnic minority females of about 6.3 percent. For ethnic minority males, the disadvantages are largest at lower deciles of the distribution. The differential in potential wages has moved in favour of white natives, as compared to the differential in wages of those who are in work (see Table 6), which is due to stronger selection on observables of those ethnic minority individuals who are in work.

Columns three and six report the predicted differences in employment probabilities using the ethnic minority participation function. The numbers report therefore the difference in participation between white native and ethnic minority individuals if ethnic minorities faced the white native wage distribution, given the

ethnic minority participation-wage relationship. 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 males faced the potential wage offer distribution of white males,[21] compared to the overall employment disadvantage of approximately 6.6 percentage points; the remaining 5.9 percentage points in the employment differential is accounted for by differences in the participation functions.

Table 7. Decile Decompositions of Participation Functions, Potential Wages and Employment Probabilities.

	Males			Females		
Deciles	(1) Actual Difference	(2) Potential Wage Difference	(3) Predicted Difference	(4) Actual Difference	(5) Potential Wage Difference	(6) Predicted Difference
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 are given the white native wage distribution.

For females, the difference in employment probabilities predicted by differences in the wage distributions is in favour for ethnic minority females, due to the positive overall wage differential. The overall difference in employment probabilities between ethnic minority females and white native females due to differences in the participation functions therefore increases to 8.5 percentage points on average. These results suggest

[21] Using the notation we introduced above, this number equals $\int p^m(w)(g^m(w) - g^{nm}(w))dw$

that differences in potential wages hardly explain any of the differences in overall employment probabilities between ethnic minorities and white natives.

5.3. 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 7, ethnic minorities have considerably lower employment probabilities, and not much of this is explained by wages.

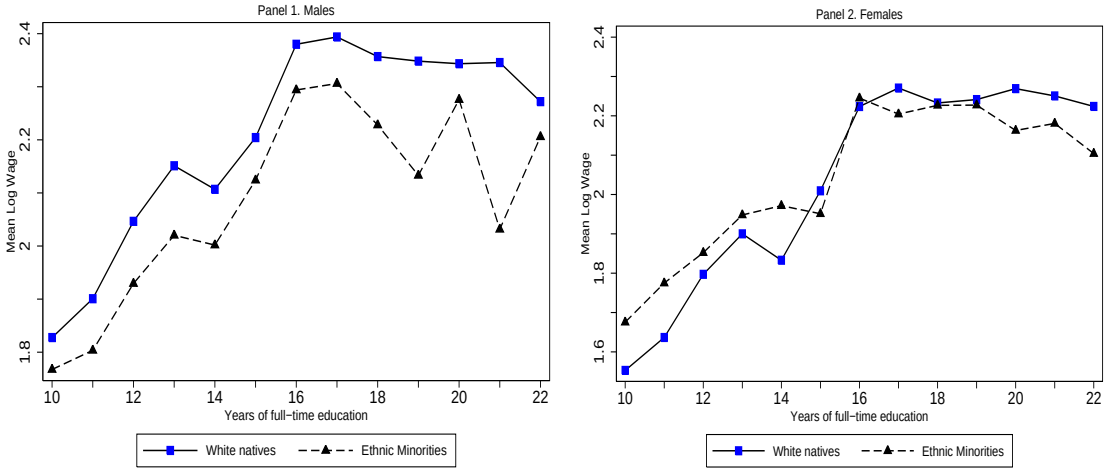
In this Section, we investigate a number of possible explanations for the disadvantage of British born ethnic minority individuals. First, although both ethnic minority and white native individuals have obtained their education in Britain, the quality of education may differ, thus possibly explaining lower returns. Hence, we use a detailed breakdown of educational background information to investigate this issue. Second, one reason for lower employment probabilities of ethnic minorities may be frequency and type of job offers. If ethnic minorities receive less, or inferior offers to white natives, then this could perhaps explain some of the differences in Section 5.2. 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. Finally, employment may be lower by choice. 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 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.

5.3.1. Returns to full-time education and the quality of education

Figure 7 plots average 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 wage returns to each year of full-time education are lower for ethnic minority males, and more similar for ethnic minority women.

Figure 7. Returns to Wages by Years of Full-Time Education.



One reason for the observed differences for males could be a lower quality of educational attainment within each educational category. This may also explain some

of the employment differences. 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 educational categories ("High", "Medium" and "Low") into 40 mutually exclusive education categories: 7 "High" education categories, 20 "Medium" education categories and 13 "Low" education categories.[22] We then estimate employment and wage regressions on the vector of the detailed educational attainment for whites conditional on being in the "High", "Medium", or "Low" category. For each 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 difference measures the unconditional percentage difference in outcomes due to differences in finer educational choices and outcomes within each larger education groups. In Table 8 we display the results. In Table A2 in the Appendix A2 we report the results for each ethnic minority group.

Table 8. Returns to Educational Qualifications for Employment and Wages.

	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.

[22] 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 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.

Overall, the table entries suggest that on average the returns to employment are slightly lower for ethnic minority groups, for both males and females, but the percentage differences are small. With respect to wages, the degree and achievement mix within broader categories seems to be slightly more advantageous for ethnic minority males in the "High" and "Medium" education categories; for females, the wage return is lower by 0.20 log percentage points in the "High" education category and 2 log percentage points in the "Low" education category. Overall, the results suggest that differences in the educational mix are not important in explaining differences in outcomes as reported in Sections 5.1 and 5.2 respectively.

5.3.2 Discrimination

Our analysis above suggests that differences in employment probabilities between the two groups cannot be explained by differences in wage offer distributions. One further explanation could be discrimination, where minority individual obtain less attractive job offers for same qualifications. Our investigation into this is again very tentative. We use data from the Fourth 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 data 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 A3 in Appendix A2. The numbers suggest that individuals of Black Caribbean ethnicity have the highest probability to answer in the positive, while individuals of African and Pakistani background express the least

concern. If discrimination due to race, colour or religion was the main driver for the differences in employment outcomes, and discrimination is equally perceived across ethnic groups, then we should expect the Black Caribbean to have the lowest employment probabilities, while e.g. 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 perception of discrimination (those that answer "Yes" in Table A3) and employment probabilities (numbers in columns 5 and 6 of the upper panel of Table 5) is 0.34. Table A4 in Appendix A2 reports similar figures, this time about the belief that there are employers in Britain who would refuse a job to a person because of their race, religion or cultural background. Again, the numbers in the Table do not suggest any systematic relationship between employment probabilities, and perceived labour market discrimination across groups. Finally, Table A5 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 Caribbeans feel more discriminated in the job market than Asians, with differences being quite large for females.

We do not want to over-emphasise these figures, which may partly be due to other reasons (like differences in perception of discrimination). However, the patterns between perceptions of discrimination and observed employment across different groups do not point towards a clear-cut relationship.

5.3.3 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 withdraw from 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 A6 in Appendix A2 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.[23]

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 by choice and less so because individuals do not find jobs or are being discriminated against.

One reason for differences in labour force participation across groups may be particular views or attitudes that exist in the specific ethnic community. Fortin (2005),

[23] These are not labour market discouraged individuals as they do not want to work. Labour market disadvantaged 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.

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, 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 as opposed to 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.

7. Conclusions

In this paper we provide a first thorough investigation into the economic behaviour and educational attainments of Britain's ethnic minority immigrants and their children. Using twenty seven years of LFS data we study how British born ethnic minorities perform in terms of education, employment and wages, when compared to their parent generation as well as to comparable groups of white natives.

In terms of educational attainment, our results confirm the strong educational background of Britain's ethnic minority immigrant population that has been noted in other studies (see Bell, 1997; Blackaby *et al*., 2002; Owen *et al*., 2000). 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 do substantially worse 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 advantage for British born ethnic minorities who work; however, when we evaluated their wage distributions if their individual attributes and regional allocation were equal to those of white natives, we find that their raw wage advantage turns into 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.

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

We then explore some possible explanations for these differences. We find no evidence for differences in the quality of educational qualification being important drivers for employment and wage differentials. Our investigation of whether discrimination may contribute to disadvantaged employment positions of British born ethnic minorities is also not conclusive: 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, suggesting that inactivity is partly driven by choice. 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 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 UK 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 UK 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.

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Appendix A1

Description and construction of the LFS variables utilised in the analysis

Age

The person's age (coded continuously) at the end of the reference week is calculated at the time of the interview. If a person's birthday occurs in the month in which the interview takes place any discrepancies are resolved by checking whether the birthday falls before or after the reference week. Variables used to identify the age of the individual: (1979=*agec*), (1981=*age*), (1983=*ageie*), (1984=*fage*) and from 1998 onwards *age*.

Ethnicity

The exact wording of this question is "To which of the groups listed on the card do you consider you belong?" In 1979, the variable that captures ethnicity is *ethorc*, in 1981 (*ethor)*, in 1983 (*ethorie)*, and in 1984 (*ethnic).* From 1998 and up to 2000 the original variable we use is *ethcen* (see LFS User Guide Volume 4: Standard Derived Variables 2000), and from 2001 onwards the original variable we use is *ethcen15* (see Labour Force Survey User Guide-Volume 4: LFS Standard Derived Variables pp. 77-78). Using all the above information we are able to identify the following ethnic minority groups consistently through time:
Black Caribbean: individuals self-reporting to belong to this ethnic group, and born in the West Indies, and Other Caribbean Commonwealth.
Black African: individuals self-reporting to belong to this ethnic group, and born in Africa.
Indian: individuals self-reporting to belong to this ethnic group, and born in India.
Pakistani: individuals self-reporting to belong to this ethnic group, and born in Pakistan.
Bangladeshi: individuals self-reporting to belong to this ethnic group, and born in Bangladesh.
Chinese: individuals self-reporting to belong to this ethnic group, and born in China (including Taiwan and Hong Kong).

Gender

We use a dummy variable for gender. For year 1979 we use sexc, and from 1981 onwards the variable we use is *sex*.

Country of birth

The exact wording of this question is "*In which country were you born*?" The country of origin always refers to the country of birth and may differ from a person's nationality. For years 1979 the variable is (*birperc*) and for latter years: 1981 (*birper*), 1983 (*birperie*), 1984 (*country*) and *cryo* from 1998 onwards. Overall, we distinguish between 100 different countries of origin.

Educational Qualifications

For years 1979-1984 individuals were asked: "Do you have any of these qualifications, or have you passed any of these examinations of the types listed in this card (whether you are making use of them or not)?" In 1979 the variable that captures the highest qualification is (*highqual)*, in 1981 (*highqua)*, in 1983 is (*qualonie)*, and in 1984 (*quala)*.
The aggregated educational qualifications for the first time window are as follows:
High: First or higher degree, corporate or graduate member of professional institute
Medium: HNC/HND, teaching qualification (secondary, primary), nursing qualification, recognised trade apprenticeship, ONC/OND/BEC (National/General) / TEC (National/General), City and Guilds, A level

Low: O level, CSE (other grades), any other professional/vocational qualification
No qualification: None

For years 1998-2005 we use the classification as provided in the variable *hiquald* (detailed grouping, see Labour Force Survey-Volume 4: LFS Derived Variables, p. 131). For year 2004 we use the variable *hiqual4d* and for year 2005 we use the variable *hiqual5d*. Individuals were asked: "Which qualifications do (you think) you have, starting with the highest qualifications?"

The aggregated educational qualifications for the second time window are as follows:
High: Higher Degree, NVQ level 5, first degree, other degree
Medium: NVQ level 4, Diploma in higher education, HNC/HND, BTEC higher, teaching (further education, secondary, primary, level not stated), Nursing, RSA higher diploma, other higher education below degree level, NVQ level 3, GNVQ advanced, A level or equivalent, RSA advanced diploma or certificate, OND/ONC, BTEC, SCOTVEC national, City and Guilds advanced craft, Scottish 6th year certificate (CSYS), SCE higher or equivalent, AS level or equivalent, trade apprenticeship
Low: NVQ level 2 or equivalent, GNVQ intermediate, RSA diploma, City and Guilds Craft, BTEC/SCOTVEC first or general diploma, O level, GCSE grade A-C or equivalent, NVQ level 1 or equivalent, GNVQ/GSVQ foundation level, CSE below grade 1, GCSE below grade C, BTEC first or general certificate, SCOTVEC modules or equivalent, RSA other, City and Guilds other, YT/YTP certificate, Other qualification
No qualification: No qualifications

We add-up the educational qualifications in the two time periods and also retain information on those individuals that did not answer "No answer" (genuine missing), or answered "Don't know".

All the above educational qualification variables cover men aged 16-64 and women aged 16-59, or those in employment with qualifications.

Years of continuous full-time education

The exact wording of this question is *"How old were you when you finished your continuous full-time education?"* This question was asked in each year of the survey.
Education refers to continuous full-time education that is education without a break. Holiday jobs do not count as a break provided that the person intended to complete the course. In addition a gap of up to a year between going to school and going to college or university would not count as a break in continuous full-time education. Similarly National Service between school, or college would no count as a break. A sandwich course begun immediately after school finishes would not count as continuous full-time education. Nursing training and similar vocational training undertaken while receiving a wage are not counted as part of the continuous education process (LFS User Guide Volume 3, p. 218).

For years 1979 (variable: *termedagc*) and 1981 (variable: *teredag*) terminal education age was coded in a discrete setting. For instance, those individuals who left full-time education before 14 years of age were coded as "0", those at 14 were given an "1" and so on (e.g. those over 21 were given a "9"). For those years we take the mean of age left full-time education before 14 years of age and above 21 years of age from the 1983 LFS wave and recode the "0's" (=12) and the "9's" (=23). For these two years we have also done the appropriate re-coding (e.g. 1=14 2=15 3=16 and so on) in order the values given to reflect the age the individual left full-time education. For later years the variables capturing age left full-time education are given by: 1983 *teedagie*, and from year 1984 up to 1991 *ftedage*. For years 1998 onwards we keep the variable *edage* as provided in the raw LFS data.

Wages

Individuals were asked: "*What was your gross pay, that is your pay before any deductions, the last time you were paid*?" This question applied to all employees and those on schemes and excluded self-

employed. We use the variable *hourpay* (average hourly pay) as provided by the raw LFS data (see LFS User Guide-Volume 4: LFS Standard Derived Variables, p.135). This variable is derived from the gross weekly pay in main job (*grsswk*, see LFS User Guide-Volume 4: LFS Standard Derived Variables, pp.120-122), the basic usual weekly hours in main job (*bushr*) and the usual weekly paid overtime hours in main job (*pothr*) variables. Since reported weekly earnings include overtime payments, hourly earnings use effective number of hours worked.
We divide *hourpay* by the Consumer Price Index (CPI) to derive real hourly pay, and drop unreasonably low and high wages (see LFS User Guide- Volume 3: Details of LFS Variables 2005, pp. 343-344).

Economic Activity

The main variable in the LFS to identify basic economic activity, according to the International Labour Organisation (ILO) standard definitions, is *inecacr* (see LFS User Guide-Volume 3: Details of LFS Variables, p. 69). People under the age of 16 as well as unpaid family workers are classified as inactive. According to the ILO definition of unemployment an individual is unemployed if she is actively seeking work in the four weeks prior to the interview and is ready to start a new job within the following two weeks. The necessary questions to identify ILO unemployment have been included into the LFS questionnaire from 1984. However, for the years 1984-1991 there is no variable in the LFS directly comparable with *inecacr*. We therefore follow the scheme described in the LFS User Guide Vol. 4: LFS Standard Derived Variables (pp. 160-163), to generate a consistent variable of the economic activity of the individual. Our constructed variable distinguishes between employed, self-employed, unemployed, economically inactive as well as people on government schemes. We derive total numbers of employed and unemployed people which are very close to those published by the ONS: http://www.statistics.gov.uk/STATBASE/tsdataset.asp?vlnk=429&More=Y.
Prior to 1984 unemployment in the LFS is not classified according to the ILO definition of unemployment but according to an LFS classification. The 1979, 1981 and 1983 LFS waves do not provide the necessary variables in order to construct a variable capturing the ILO economic activity definition (or more precisely an unemployment definition) as possible for the years from 1984 onwards. For instance, the 1979, 1981 and 1983 LFS do not contain the variables *lookfour/look4wks* (whether the individual had either been looking for work in the last four weeks or was waiting to start a job that she/he has already obtained) but do provide variables that distinguish whether the individual was seeking employment last week. For 1979 this variable is called *seekempc*, for 1981 is (*seekemp)* and for 1983 (*rnskemie)*. Thus, we follow the same procedure as for 1984 to 1991 and we construct a variable that is identical to the ILO definition with the exception that the individual needed to have been looking for work in the last week rather than in the last 4 weeks. Our unemployment figure approximately replicates Figure 1 (p. 300) of Burgess *et al*. (2003) who follow the same approach (see pp. 298-299).

Region

The variables used to set up a consistent region classification are: 1979 (*urescompc*), 1981 (*urescom*), 1983 (*urescome*), 1984 (*urescomf*). For years 1998-2005 the original variable *uresmc* is kept in the data set. We only sum over Inner London and Outer London to generate a dummy variable for Greater London. The same is done with Strathclycle and Rest of Scotland to generate a dummy variable for Scotland. For consistency across years we use 17 regions: Tyne and Wear, Rest of Northern Region, South Yorkshire, West Yorkshire, Rest of Yorkshire and Humberside, East Midlands, East Anglia, Greater London, Rest of the South East, South West, West Midlands, Rest of West Midlands, Greater Manchester, Merseyside, Rest of the North West, Wales and Scotland.

Weights

Person weights
They are available in the raw data to compensate for differential non-response (see LFS User Guide-Volume 1: Background and Methodology, pp. 44-48) and to resemble Census data.

Person income weights
Because the earnings data is based on a sub-sample of the main survey (employees in paid employment), person income weights are available in the raw data and are constructed in five stages using population-level information on sex, age, region, occupation, industry and full- or part-time work (see LFS User Guide-Volume 1: Background and Methodology, pp. 48-49). The aim of income weights is to: a) weight the cases in the database so that the weight of a sub-group corresponds to that sub-group's size in the population and b) to weight the sample to give estimates of the number of people in certain groups.

Individual identification number

The individual identification number (CASENO) is a function of a code for the region of the address (quota), the week number when interview took place (week), the year the address first entered the survey (w1yr), the quarter that address entered the survey (qrtr), the address number on the interviewer's address list (add), the wave at which individual was first found (wavfnd), the household reference number (hhld), and the person number within the household (person).

Appendix A2

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

	First Generation 1979-1984								Second Generation 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: Figures are weighted.

Table A2. Returns to Educational Qualifications for Wages and Employment by Ethnic Minority Group.

	Employment						Wages					
	Males			Females			Males			Females		
	High	Medium	Low	High	Medium	Low	High	Medium	Low	High	Medium	Low
Black Caribbean	-0. 02	-0. 14	-0. 38	0.00	-0. 23	-0. 33	0. 57	-0.08	-1.73	-0. 12	0. 26	-2.38
Black African	-0. 17	-0. 20	-1.33	-0.08	0. 29	-0. 32	1.68	2.94	-1.46	-0. 32	3.40	-4.05
Indian	-0.08	0. 49	0. 19	-0.04	-0. 52	0. 52	0. 17	3.17	-0. 13	-0.07	1.16	0.02
Pakistani	-0.01	-0. 45	0. 66	0.02	-0. 72	-1.49	0. 29	0. 95	1.03	-0.09	-1.21	-4.11
Bangladeshi	0.09	0. 70	0. 42	0.07	-0. 65	-0. 14	2.26	0. 10	-1.07	0. 66	-3.08	-0. 69
Chinese	-0. 37	-0. 45	3.82	0. 29	0. 65	1.79	1.35	0. 86	12.17	1.52	1.37	4.33

Table A3. 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 weighted. "T"=total, "M"=males, "F"=females

Table A4. Question: Do you Think there are Employers in Britain who would Refuse a Job to a Person because of their 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 weighted. "T"=total, "M"=males, "F"=females

Table A5. Question: Do you Think there is a Prejudice Against Asians and Blacks in Job Market?

	Asians about Asians			Blacks about West Indians/Carribeans		
	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 weighted. Note "T"=total, "M"=males, "F"=females

Table A6. Percentage Distributions of: a) Inactive Individuals and b) Inactive Individuals who were not Looking for Work but Would 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

Our decomposition follows DiNardo *et al*. (1996) who utilise non-parametric kernel methods and a weight scheme to estimate counterfactual wage densities.

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 than 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.