UNIVERSITY OF NOTTINGHAM

Discussion Papers in Economics

Discussion Paper
No. 09/08

Labour Market Experience of Male Immigrants and Ethnic Minorities in the UK

By Sayema H. Bidisha

Department of Economics, University of Dhaka, Bangladesh

September 2009

Labour Market Experience of Male Immigrants and Ethnic Minorities in the UK

Sayema H. Bidisha
Department of Economics, University of Dhaka, Bangladesh
September 2009

JEL Classification: J61, J71, J24, J15

Key Words: Immigrant, Ethnicity, Unemployment, Occupational Attainment, Decomposition Analysis

Correspondence to: Sayema H. Bidisha, Department of Economics, University of Dhaka, Dhaka 1000, Bangladesh. E-mail: bidisha_duecon@yahoo.com. I acknowledge helpful comments from my PhD supervisors Dr. Simon Appleton and Dr. Peter Wright. I also thank Professor David Blackaby and Dr. Sarah Bridges for their suggestions. Comments of the participants at the 42nd Annual Conference of Canadian Economic Association (2008), Annual Conference of Scottish Economic Society (2008) and 7th Annual Post Graduate Conference of GEP (2008) are also appreciated.

Labour Market Experience of Male Immigrants and Ethnic Minorities in the UK

Abstract

This paper examines the changes in the labour market experience of different immigrant and ethnic minority groups in the UK over time. The analysis suggests that, in early 90s although there was no clear cut evidence of segregation in terms of employability, certain groups of minority natives were found to be less represented in high-skilled professional occupations whereas some of the immigrants were in greater proportion in such jobs. Over time, unemployment inequality has become significant among minority natives whereas the position of immigrants in terms of employment status appeared to have improved. In recent years, minority immigrants' representation in superior occupations has reduced significantly, which is in contrast to the improvement of job market status of their native counterparts. Decomposition analysis of the results indicate the importance of both *explained* as well as *unexplained* factors behind such performance. For certain groups of ethnic minorities and immigrants, observed attributes cannot explain their less favourable labour market outcomes and the analysis indicates the possibility of labour market discrimination against them.

1. Introduction

It is often argued that, in comparison to the indigenous population of a country, the immigrant and the minority community suffers greater level of unemployment and is thought to be under represented in high-skilled, better paid jobs. Given the fact that people of different origin or of different ethnicities may have different attributes, preferences or abilities, their performance in the labour market could certainly be different from natives. However, in addition to such differences there could be certain unexplained factors relating solely to their nationality or ethnicity that have important impacts on their employability or occupational attainment. In the labour literature, it is often argued that people of a minority community receive unequal treatment in comparison to the majority group and that this could constrain the earnings potential and labour market performance to a certain extent. In the context of the UK it is a well accepted fact that, in comparison to white natives, ethnic minority natives as well as immigrants suffer higher level of unemployment (Blackaby *et al.* 1997, 2002; Price, 2001), receive lower wages (Bell, 1999) and are under-represented in the higher stage of occupational ladder (Borooah, 2001; Carmichael and Wood, 2000). Anecdotal evidence also suggests wide diversity in labour market experiences on the basis of ethnicity and country of origin. However it is not very clear why some of the groups among the minorities/immigrants under perform than others. In addition, in the backdrop of changed immigration policies and skill mix in the last decade it is plausible that over time there have been important changes in the labour market performance of different groups. Given the existing debates on the impact of the recent waves of immigrants in the British economy, it is an interesting policy issue to examine the changes (if any) of the performance of immigrants and ethnic minorities (2^{nd} or higher generation immigrants) themselves.

Existing literature on the labour market experience of the immigrants or ethnic minorities of the UK are primarily concentrated on explaining the unemployment problem of minority communities. In this context, Price (2001) used labour force survey (LFS) data to analyze unemployment among the white as well as the non-white males born both in the UK and abroad and found high unemployment among the prime-aged male immigrants with wide variations depending on country of birth. Blackaby *et al.* (2002) found that the ethnic minorities have a 11% lower employment probability than whites, with blacks appearing to be the worst sufferers, followed by Pakistanis. Labour market performance however,

involves not only employability but also the type of occupation in which an individual ends up. In this context, research in the UK is quite limited and to our knowledge the work of Borooah (2001) and Carmichael & Wood (2000) are the only exceptions. The latter used the 1994 LFS data of the UK to analyze the occupational status of both males and females of different ethnic groups and found that minorities end up at lower stages of the occupational ladder, with black men and Indian women in the worst position. Their result is in line with that of Borooah (2001) who while using census data found blacks to be disadvantaged both in terms of wages as well as occupational attainment. His decomposition analysis suggested the importance of both attributes as well as ethnic background whereas for Indians, superior attributes compensate for much of the so called ethnic penalty.

This paper, in addition to investigating the issue of unemployment, also investigates the type of jobs that people of different ethnic/immigrant background performs. In particular, while comparing the predicted probabilities of employment status and occupational attainment generated through multinomial logit estimation, it analyzes the labour market performance of prime aged males of different immigrant and ethnic groups. In this context it also investigates the reasoning behind the lack of occupational success of different groups. This question has been addressed while applying a decomposition analysis which distinguishes the contribution of attributes possessed by the individual from the unexplained part, where the latter part is popularly known as discrimination effect. It is worth mentioning that the existing literature of unemployment (Blackaby *et al*. 1997, 2002 and Price 2001) and occupational choices (Borooah (2001) and Carmichael and Wood (2000)) has not examined the impact of the change in immigration policies and skill mix over time, but focused primarily on the experiences of minorities during the decade of 1990s. This paper attempts to examine the changes in the labour market experience of different groups over time while utilizing the data of the Labour Force Survey of the UK for summer 1992 and summer 2006. The analysis suggests that, in early 90s although there was no clear cut evidence of segregation in terms of employability, certain groups of minority natives were found to be less represented in high-skilled professional occupations whereas some of the immigrants were in greater proportion in such jobs. Over time, unemployment inequality has become significant among minority natives whereas the position of immigrants in terms of employment status appeared to have improved. In recent years, minority immigrants' representation in superior occupations has reduced

significantly, which is in contrast to the improvement of job market status of their native counterparts.

The paper is organized as follows: the next section discusses the data and key methodological issues, section 3 describes the estimation results and decomposition analysis of employment status. In section 4, empirical analysis of occupational choices is presented and finally section 5 concludes.

2. Data & Methodology

This analysis uses the summer quarter of the Quarterly Labour Force Survey (QLFS) for 1992 and 2006 and considers males within the age band of 25 to 65. For the employment analysis, household compositional variables, demographic variables, regional dummies, qualification dummies, health status, age, age squared, and marital status are used as controls. For household composition, the number of dependent children below 19 years in the household is considered as the relevant variable and four dummy variables for having no children, one children, two children and more children are included. All of the regions are classified into three broad groups: north, south and London and six dummies for academic qualifications are used: degree level education, below degree education, A level, O level, below O level education, other qualification and no formal qualification. An additional dummy variable is used to capture the status of health of the respondent. In order to investigate the effect of ethnicity and immigration status, 14 dummies for the natives and foreign borns of white, black, Indian, Pakistani and Bangladeshi, mixed ethnicity, Chinese and other ethnic groups have been used. In order to capture assimilation effect of the immigrants, years spent in the UK and its square are used as additional controls.

For the dependent variable the sample has been classified into four groups: wage employed, self employed, non employed (includes student, government employee, trainee, and inactive) and unemployed. The analysis of occupational choices deals only with the wage employed and they are categorized into three classes: professional[1], skilled[2] and unskilled[3]

[1] Professionals include (a) managers and senior officials and (b) professional occupations.
[2] Skilled incorporate (a) associate professional and technical, (b) administrative and secretarial, (c) skilled trades occupations, (d) personal service occupations and (e) sales and customer service occupations.

occupations. Given the fact that the number of children, along with the health status of an individual is not expected to influence occupational choices of an individual, the dummies for children and health status are excluded from the occupational attainment model.

In this analysis the choice of employment status can be considered as an optimization decision of a utility maximizing individual. In this framework, the probability of choosing outcome s of individual i can be described as:

$$\text{prob (i chooses s)} = \exp U_{is} / \sum_{t} \exp U_{it} \qquad \text{(i)}$$

where t ranges over all choices in the set. The following logistic specification illustrates the probability of choosing a particular alternative:

$$P_{ij} = \exp(x'_{ij}\beta) / \sum_{j=1}^{J} \exp(x'_{ij}\beta) \qquad \text{(ii)}$$

Here β is an unknown (K*1) vector of parameters corresponding to the (K*1) vector x_{ij} which is a vector of variables determining the choice set of the individual. In this setup, the problem of optimal employment status can be resolved with multinomial logit (MNL) formulation while considering four employment status outcomes: wage employed, self employed, non employed and unemployed.

The analysis then proceeds with only the sample of wage employed people and their occupational choice is modeled with MNL methodology as well, considering three categories of occupations, namely professional, skilled and unskilled.

After addressing the question of whether there is any difference in the labour market attainment among different ethnic/immigrant groups, the next question is why such difference (if any) might emerge, especially between white natives and other minority groups. In particular it is important to examine whether the difference in employment status and occupational attainment is generated primarily from the differences in their attributes or the minorities and immigrants face disadvantage and are discriminated in the labour market. In addition, among the minorities/immigrants if certain groups perform better than the others than it would also be interesting to examine the factors behind their relative success. In order to address these questions a decomposition technique a la Borooah (2005) has been

[3] Unskilled include (a) process, plant and machine operatives and (b) elementary occupations.

applied where the differences in the outcomes are decomposed while separating the contribution of attributes from that of unexplained part where the latter is often considered as an approximation of any labour market discrimination. Following the methodology applied by Borooah (2005), if it is assumed that there are N individuals (i=1……..N) in the sample then each of them can be considered as originating from any of the 14 immigrant/ethnic communities denoted by g (g=1…..14). For the decomposition of employment status, each individual could again fall into any of the four categories (j=1…4) and the likelihood of an individual from community g being in employment group j can be represented in the following manner:

$$\Pr(Y_i = j) = F(X_i^g \hat{\beta}_j^g) \qquad \text{(iii)}$$

Here, $X_i^g = (X_{ik}^g, k=1\ldots..K)$ is the vector of observations of individual i of community g on K covariates where such variables determines the likelihood of choosing a particular employment status j. The vector of corresponding coefficient estimates are denoted by vector $\hat{\beta}_j^g$. While controlling for their characteristics, if the minority (M) and majority (N) would have been treated equally then the observed or raw differential in the probabilities of being in a specific employment group would be attributed entirely due to the differences in endowments. However, in the presence of discrimination in the labour market, the beta vectors are expected to differ between two groups and in this context, Borooah (2005) shows that the employment probabilities between two groups can be decomposed in the following manner:

Either

$$P_j^N - P_j^M = [P(X_i^M, \hat{\beta}_j^N) - P(X_i^M, \hat{\beta}_j^M)] + [P(X_i^N, \beta_j^N) - P(X_j^M, \beta_j^N)] \qquad \text{(a)}$$

Or

$$P_j^N - P_j^M = [P(X_i^N, \hat{\beta}_j^N) - P(X_i^N, \hat{\beta}_j^M)] + [P(X_i^N, \beta_j^M) - P(X_j^M, \beta_j^M)] \qquad \text{(b)}$$

In equation (a), differences in outcome between group N and M are decomposed while considering the majority group N as the base and asking what would have been the average probability of a minority individual to be in group j, if he would be treated as a member of

the majority community. In equation (b), the minority group is considered as the base. Therefore, the second part of the right side of the equations captures the contribution of endowments while generating corresponding probabilities, whereas the first part is the discrimination effect (if any) where the probabilities are generated solely by the differences in beta vectors.

3. Empirical Analysis of Employment Status

3.1 Descriptive Statistics of Employment Status

As reflected in Table 1, the most striking feature of the employment structure in the survey years is the fall in unemployment rate from 8.5% to 3.2%, reflecting the general upturn in the economy. A point of interest is that, in comparison to natives, immigrants appear to suffer more in the recession of early 90s, with a 12% unemployment rate in 1992 and this holds true for almost all categories of immigrants (Table 2). The rate of unemployment was high for all of the groups in 1992 but it was remarkably high for black and mixed natives, along with the immigrants of black, South Asian and other ethnic communities. It is however interesting that although in 1992 there exist wide divergences between immigrants and natives, in 2006 the former seem to have similar employment pattern to the latter and such a convergence is also prevalent in Table 2, where except for Pakistanis and Bangladeshis all other major groups are observed to have 65%-70% representation in wage employment.

Table 1: Employment Profile of Natives & Immigrants [1] (%)

	Summer 1992			Summer 2006		
	Total	Native	Immigrant	Total	Native	Immigrant
Wage Employed	62.6	63.4	54.5	66.1	66.2	65.3
Self Employed	15.5	15.4	17.2	15.7	15.7	15.7
Unemployed	8.5	8.2	12	3.2	2.9	5.5
Non employed (student+trainee+inactive)	13.4	13.1	16.4	15.0	15.1	13.5

[1] The percentages corresponding to each column refers to percentages of the corresponding group.

Table 2 : Employment Profile of Different Ethnic & Immigrant Groups [2] (%)

	Wage Employed		Self Employed		Un Employed	
	1992	2006	1992	2006	1992	2006
White Native	63.4	66.2	15.4	15.7	8.1	2.9
White Immigrant	58.9	69.8	17	15.9	9.4	3.9
Black Native	51.1	67.9	7.8	12.8	30.5	8.9

Black Immigrant	50.1	67.2	7.9	6.6	20.3	10.8
Indian Native	71.1	71.7	18.4	14.9	5.3	7.1
Indian Immigrant	52.6	65.2	22.9	16.5	10.8	5.2
Pakistani+Bangladeshi Native		54.3		25		7.8
Pakistani+Bangladeshi Immigrant	37.6	50.2	19.2	24.2	18.7	6.5
Mixed Native	47.1	69.6	23.5	13.7	11.8	3.9
Mixed Immigrant	64.1	68.1	18.8	12.8	6.3	4.3
Chinese Immigrant	52.7		29.0		3.2	
Other Native		76.5		11.8		5.9
Other Immigrant	59	63.2	6.9	14.1	16.2	6.7

[2] The percentages corresponding to each row refers to percentages of the corresponding group.

3.2 Predicted Probabilities of Employment Status

As discussed before, in order to model employment status, a multinomial logit framework has been used and four categories are considered in this regard: wage employed, self employed, unemployed and non-employed (trainee+student+inactive) where wage employed are regarded as the base category. Table 3 presents the predicted probabilities of occupational status for different ethnic and immigrants groups where such probabilities are calculated while holding the controls at the mean of the sample. Therefore, it predicts the employment status for different immigrant/ethnic groups, when they have the same characteristics and differ only in terms of their ethnicity or immigration status.

The high rate of unemployment of black natives as suggested by the descriptive is also observed in predicted probabilities: in 1992, a black native endowed with the same characteristics as other groups have as high as 22% probability of unemployment, which although reduced to 6% in 2006, is higher than most of the groups. The relative unemployment experience of South Asian natives in 2006 can be characterized by high unemployment along with moderate participation in wage employment. Over time the relative employment probability of immigrants appears to have improved. As for white immigrants there has been a significant reduction of unemployment probability over time and a 74% probability of wage employment in year 2006. The most impressive change is for black immigrants, whose participation in wage employment has increased to as high as 69% in 2006, with their unemployment probability declining to 8% from 15%. The predicted participation of Indian immigrants in wage employment has also increased over time. The position of Pakistani and Bangladeshi immigrants although has improved, they still have one of the lowest rates of wage employment and highest probability of unemployment in both of the survey years.

Table 3: Predicted Probability of Employment Status for Different Groups [5] [6]						
	1992	2006	1992	2006	1992	2006
	Wage employed	Wage employed	Self employed	Self employed	Un employed	Un Employed
White Natives	.6981	.7217	.1713	.1787	.0809	.0267
	(.003)	(.004)	(.003)	(.003)	(.002)	(.001)
White Immigrant	.5820	.7433	.1162	.1085	.0933	.0289
	(.029)	(.018)	(.016)	(.012)	(.014)	(.005)
Black Native	.5630	.7082	.1144	.1462	.2197	.0592
	(.045)	(.033)	(.032)	(.027)	(.033)	(.014)
Black Immigrant	.4150	.6902	.0432	.0376	.1495	.0797
	(.042)	(.035)	(.011)	(.009)	(.026)	(.017)
Indian Native	.6884	.6530	.2426	.2162	.0365	.0603
	(.081)	(.047)	(.078)	(.043)	(.026)	(.020)
Indian Immigrant	.4929	.7123	.1477	.0936	.0930	.0489
	(.038)	(.030)	(.023)	(.015)	(.018)	(.013)
Pakistani+Bangladeshi Native	.4783	.4774	.4675	.3277	.0542	.0637
	(.182)	(.049)	(.185)	(.048)	(.056)	(.021)
Pakiani+Bangladeshi Immigrant	.4261	.5871	.1370	.1434	.1153	.0507
	(.042)	(.038)	(.025)	(.022)	(.022)	(.014)
Mixed Native	.4691	0.7000	.3029	0.1670	.0940	0.0270
	(.090)	(.048)	(.087)	(.041)	(.047)	(.014)
Mixed Immigrant	.5262	0.7041	.1114	.0752	.0540	0.0312
	(.087)	(.079)	(.037)	(.032)	(.028)	(.022)
Chinese Native	.7537	0.7028	.2463	.1727	.0000	0.1245
	(.204)	(.170)	(.204)	(.152)	(0)	(.118)
Chinese Immigrant	.4322	0.4188	.1670	0.1019	.0143	0.0288
	(.069)	(.063)	(.041)	(.028)	(.010)	(.017)
Other Native	.8321	0.7492	.1087	0.1387	.0591	0.0533
	(.114)	(.064)	(.102)	(.052)	(.059)	(.031)
Other Immigrant	.4246	0.6288	.0409	0.0917	.1234	0.0535
	(.050)	(.029)	(.013)	(.013)	(.027)	(.011)

[5] Standard Errors are in parentheses.
[6] Probabilities of non employment although used in calculation, are not shown in the table.

3.3 Decomposition Analysis of Employment Status

From the predicted probabilities, it appears that country of birth as well as ethnic background has an important impact on the labour market experience of an individual. However it should be kept in mind that, people of different ethnicities or of countries of origin may have differences in household compositions, demographic profiles, educational and occupational achievements and areas of residence. Therefore it is important to examine whether the differences in employment outcomes for different groups are the result of different attributes or are due to unexplained features related to their ethnicity/immigration status. In order to disentangle such issue, a decomposition analysis of the unemployment probability between white natives with other ethnic and immigrant groups has been carried out. Table 4 depicts the results of decomposition analysis where panel (a) presents the result on the basis of equation (a) and panel (b) presents the result for equation (b).

Panel (a) of Table 4 suggests that, in 1992 unexplained factors are the major determinants of unemployment for white immigrants whereas panel (b) shows that attributes have important contribution as well. In addition, it is surprising to observe that, having coefficients of immigrants would actually improve the position of natives since their unemployment probability would have reduced from 8.2% to 6.4%. Such a contradictory result indicates the importance of unexplained factors (e.g. ability, experience etc. which have not been included in the model) that could have positive influence on the employment outcome of white immigrants. For black natives decomposition analysis suggests that the major portion of the difference in unemployment probability is generated not from the inferior endowments but out of the coefficients and therefore the possibility of labour market discrimination against them cannot be ruled out. However, in comparison to the majority group, the minority community also possesses inferior endowments. The decomposition analysis of black immigrants on the other hand, does not indicate any definite result in terms of the relative importance of endowments or coefficients, and both factors appear to affect their unemployment probability. For Indian immigrants, according to 1992 estimates, when the minorities are treated as majorities, endowments virtually play no role in explaining unemployment differential which is also reflected in panel (b). In addition, in terms of endowments, 1992 analysis shows that Indian immigrants possess either better or similar endowments to white indigenous people. Therefore, the decomposition analysis suggests that, if the minority would be treated like the majority group, it is highly likely that they would even have lower unemployment than the latter. In the case of Pakistani and Bangladeshi immigrants the estimates of panel (b) of 1992 clearly reflect inferior endowments of Pakistani and Bangladeshi immigrants. Whereas for 2006, as suggested in panel (a), having coefficients of white natives would have halved the unemployment probability of Pakistani and Bangladeshi immigrants. Summing up the results it is both coefficients as well as endowments, which contribute to the high rate of unemployment of Pakistani and Bangladeshi immigrants.

Table 4: Decomposition Results of Employment Status
(difference in the probability of unemployment)

1992		2006	
Panel (a)	Panel (b)	Panel (a)	Panel (b)
White Native (WN) vs. White Immigrant (WM)			
WMs are treated as WNs	WNs are treated as WMs	WMs are treated as WNs	WNs are treated as WMs
Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =-.0136	Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =-.0136	Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =-.0105	Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =-.0105
Coefficient Effect $P(X_i^M, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^M)$=.0820-.0956 =-.0136	Coefficient Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^N, \hat{\beta}_U^M)$=.0820-.0636 =.0184	Coefficient Effect $P(X_i^M, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^M)$=.0315-.0393 =-.0078	Coefficient Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^N, \hat{\beta}_U^M)$=.0288-.0501 =-.0213
Attributes Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^N)$=.0820-.0820 =0	Attributes Effect $P(X_i^N, \hat{\beta}_U^M) - P(X_i^M, \hat{\beta}_U^M)$=.0636-.0956 =-.032	Attributes Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^N)$=.0288-.0315 =-.0027	Attributes Effect $P(X_i^N, \hat{\beta}_U^M) - P(X_i^M, \hat{\beta}_U^M)$=.0501.0393 =.0108
White Native (WN) vs. Black Native (BN)			
BNs are treated as WNs	WNs are treated as BNs	BNs are treated as WNs	WNs are treated as BNs
Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =-.223	Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =-.2231	Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =-.0603	Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =-.0603
Coefficient Effect $P(X_i^M, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^M)$=.1339-.3050 =-.1711	Coefficient Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^N, \hat{\beta}_U^M)$=.0820-.2361 =-.1542	Coefficient Effect $P(X_i^M, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^M)$=.0401-.0891 =-.049	Coefficient Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^N, \hat{\beta}_U^M)$=.0288-.0711 =-.0423
Attributes Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^N)$=.0820-.1339 =-.0519	Attributes Effect $P(X_i^N, \hat{\beta}_U^M) - P(X_i^M, \hat{\beta}_U^M)$=.2361-.3050 =-.0689	Attributes Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^N)$=.0288-.0401 =-.0113	Attributes Effect $P(X_i^N, \hat{\beta}_U^M) - P(X_i^M, \hat{\beta}_U^M)$=.0711-.089 =-.018
White Native (WN) vs. Black Immigrant (BM)			
BMs are treated as WNs	WNs are treated as BMs	BMs are treated as WNs	WNs are treated as BMs
Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =-.1197	Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =-.1197	Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =-.0816	Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =-.0816

Coefficient Effect $P(X_i^M,\hat{\beta}_U^N)-P(X_i^M,\hat{\beta}_U^M)$=.0952-.2017 =-.1065	Coefficient Effect $P(X_i^N,\hat{\beta}_U^N)-P(X_i^N,\hat{\beta}_U^M)$=.0820-.1218 =-.0398	Coefficient Effect $P(X_i^M,\hat{\beta}_U^N)-P(X_i^M,\hat{\beta}_U^M)$=.0324-.1104 =-.078	Coefficient Effect $P(X_i^N,\hat{\beta}_U^N)-P(X_i^N,\hat{\beta}_U^M)$=.0288-.0437 =-.0149
Attributes Effect $P(X_i^N,\hat{\beta}_U^N)-P(X_i^M,\hat{\beta}_U^N)$=.0820-.0952 =-.0132	Attributes Effect $P(X_i^N,\hat{\beta}_U^M)-P(X_i^M,\hat{\beta}_U^M)$=.1218-.2017 =-.0799	Attributes Effect $P(X_i^N,\hat{\beta}_U^N)-P(X_i^M,\hat{\beta}_U^N)$=.0288-.0324 =-.0036	Attributes Effect $P(X_i^N,\hat{\beta}_U^M)-P(X_i^M,\hat{\beta}_U^M)$=.0437-.1104 =-.0667
White Native (WN) vs Indian Immigrant (IM)			
IMs are treated as WNs	WNs are treated as IMs	IMs are treated as WNs	WNs are treated as IMs
Sample Average between High and Low Groups $\overline{P_U^N}-\overline{P_U^M}$ =-.0284	Sample Average between High and Low Groups $\overline{P_U^N}-\overline{P_U^M}$ =-.0284	Sample Average between High and Low Groups $\overline{P_U^N}-\overline{P_U^M}$ =-.0236	Sample Average between High and Low Groups $\overline{P_U^N}-\overline{P_U^M}$ =-.0236
Coefficient Effect $P(X_i^M,\hat{\beta}_U^N)-P(X_i^M,\hat{\beta}_U^M)$=.0888-.1104 =-.0216	Coefficient Effect $P(X_i^N,\hat{\beta}_U^N)-P(X_i^N,\hat{\beta}_U^M)$=.0820-.1918 =-.1098	Coefficient Effect $P(X_i^M,\hat{\beta}_U^N)-P(X_i^M,\hat{\beta}_U^M)$=.0231-.0524 =-.0293	Coefficient Effect $P(X_i^N,\hat{\beta}_U^N)-P(X_i^N,\hat{\beta}_U^M)$=.0288-.0409 =-.0121
Attributes Effect $P(X_i^N,\hat{\beta}_U^N)-P(X_i^M,\hat{\beta}_U^N)$=.0820-.0888 =-.0068	Attributes Effect $P(X_i^N,\hat{\beta}_U^M)-P(X_i^M,\hat{\beta}_U^N)$=.1918-.1104 =.0814	Attributes Effect $P(X_i^N,\hat{\beta}_U^N)-P(X_i^M,\hat{\beta}_U^N)$=.0288-.0231 =.0057	Attributes Effect $P(X_i^N,\hat{\beta}_U^M)-P(X_i^M,\hat{\beta}_U^M)$=.0409-.0524 =-.0115
White Native (WN) vs Pakistani Native (PN)			
		PNs are treated as WNs	PNs are treated as BNs
		Sample Average between High and Low Groups $\overline{P_U^N}-\overline{P_U^M}$ =-.0488	Sample Average between High and Low Groups $\overline{P_U^N}-\overline{P_U^M}$ =-.0488
		Coefficient Effect $P(X_i^M,\hat{\beta}_U^N)-P(X_i^M,\hat{\beta}_U^M)$=.0341-.0776 =-.0435	Coefficient Effect $P(X_i^N,\hat{\beta}_U^N)-P(X_i^N,\hat{\beta}_U^M)$=.0288-.0217 =.0071
		Attributes Effect $P(X_i^N,\hat{\beta}_U^N)-P(X_i^M,\hat{\beta}_U^N)$=.0288-.0341 =-.0053	Attributes Effect $P(X_i^N,\hat{\beta}_U^M)-P(X_i^M,\hat{\beta}_U^M)$=.0217-.0776 =-.0559
White Native (WN) vs Pakistani Immigrant (PM)			
BNs are treated as WNs	WNs are treated as BNs	PMs are treated as WNs	WNs are treated as PMs

Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =-.1083	Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =-.1083	Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =-.0352	Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =-.0352
Coefficient Effect $P(X_i^M, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^M)$=.1340-.1903 =-.0563	Coefficient Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^N, \hat{\beta}_U^M)$=.0820-.1207 =-.0387	Coefficient Effect $P(X_i^M, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^M)$=.0311-.064 =-.0329	Coefficient Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^N, \hat{\beta}_U^M)$=.0288-.0938 =-.065
Attributes Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^N)$=.0820-.1340 =-.052	Attributes Effect $P(X_i^N, \hat{\beta}_U^M) - P(X_i^M, \hat{\beta}_U^M)$=.1207-.1903 =-.0696	Attributes Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^N)$=.0288-.0311 =-.0023	Attributes Effect $P(X_i^N, \hat{\beta}_U^M) - P(X_i^M, \hat{\beta}_U^M)$=.0938-.064 =.0298

4. Empirical Analysis of Occupational Choice

4.1 Descriptive Statistics of Occupational Choice

In terms of occupational status, over time, there is a greater participation of respondents in professional occupations and at the same time, a noticeable reduction in the participation in skilled jobs. It is interesting to note that, in both of our survey years, in comparison to natives there is a greater proportion of immigrants in professional occupations. However there is no noticeable improvement of occupational status for immigrants, whereas the presence of natives in professional occupations has increased from 33% to 37%.

Table 5: Descriptive on Occupational Attainment [3] (in %)

	Summer 1992			Summer 2006		
	Total	Native	Immigrant	Total	Native	Immigrant
Professional	32.85	32.5	37.4	37.10	36.9	38.6
Skilled	44.52	44.8	41.4	38.76	39.4	33.7
Unskilled	22.64	22.8	21.3	24.14	23.7	27.7

[3] The percentages corresponding to each column refers to percentages of the corresponding group.

Table 6: Occupational Attainment of Different Ethnic & Immigrant Groups [4] (in %)

	Professional		Skilled		Unskilled	
	1992	2006	1992	2006	1992	2006
White Native	32.6	36.8	44.7	39.2	22.8	23.9
White Immigrant	42.4	43.5	39.7	31.7	17.9	24.8
Black Native	16.7	32.9	59.7	48.9	23.6	18.3
Black Immigrant	20.5	22.4	48.1	40.4	31.4	37.2
Indian Native	23.1	46.7	53.9	41.1	23.1	12.2
Indian Immigrant	35.1	43.1	40.2	31.3	24.8	25.7
Pakistani+Bangladeshi Native		42.9		41.3		15.9
Pakistani+Bangladeshi Immigrant	20.2	19.5	47.3	36.1	32.6	44.4
Mixed Native		36.6		46.5		16.9
Mixed Immigrant	34.2	31.3	46.3	43.8	19.5	25
Chinese Immigrant	42.9		48.9		8.2	
Other Native		46.2		48.7		5.1
Other Immigrant	47.5	38.5	36.6	34.2	15.8	27.3

[4] The percentages corresponding to each column refers to percentages of the corresponding group.

4.2 Predicted Probabilities of Occupational Attainment

In order to understand occupational choices of immigrants and ethnic minorities, a multinomial logit model for the selected sample of wage employed has been performed. Table 7 compares occupational choices of different groups of people based on their ethnicity and country of origin, holding all other controls at the mean of the sample. It is

interesting to observe that white immigrants have the highest representation in professional occupation and in 1992 more than half of this group was engaged in such occupations. However, their situation appears to have deteriorated by 2006: representation of white immigrants in professional occupations has dropped by 10-percentage points, along with an increased presence in unskilled occupations. According to the predicted probabilities, over time, there is deterioration in the occupational position for all groups of immigrants with the steepest decline found among Pakistani and Bangladeshi immigrants, mixed immigrants and Chinese immigrants. It is however black immigrants who in both of the survey years are found to be in the worst position in terms of occupational status. In contrast to immigrants, the position of minority natives has generally improved over time. The estimates of 1992 show that, black and South Asian natives had relatively lower probability to work in professional jobs. However, over time, there has been a significant improvement in their occupational achievement with more than 10-percentage point increase in their probability of working in professional occupations.

Table 7: Predicted Probabilities of Occupational Choices for Different Groups [7]

	Professional		Skilled		Unskilled	
	1992	2006	1992	2006	1992	2006
White Natives	.3036	.3700	.5160	.4613	.1804	.1687
	(.005)	(.005)	(.005)	(.005)	(.005)	(.005)
White Immigrant	.5597	.4562	.4016	.3690	.0387	.1749
	(.039)	(.028)	(.037)	(.024)	(.008)	(.017)
Black Native	.1813	.2946	.5933	.5378	.2254	.1676
	(.052)	(.043)	(.061)	(.044)	(.054)	(.034)
Black Immigrant	.2220	.1485	.6554	.4508	.1227	.4006
	(.045)	(.027)	(.048)	(.042)	(.029)	(.046)
Indian Native	.2051	.3909	.5650	.4533	.2299	.1557
	(.086)	(.058)	(.10)	(.056)	(.089)	(.047)
Indian Immigrant	.4156	.4146	.5075	.3971	.0769	.1884
	(.052)	(.040)	(.049)	(.037)	(.018)	(.028)
Pakistani+ Bangladeshi	.0000	.3627	.6036	.4853	.3964	.1519
Native	(.000)	(.068)	(.258)	(.066)	(.258)	(.052)
Pakistani+Bangladeshi	.3778	.2382	.5550	.4477	.0673	.3141
Immigrant	(.071)	(.045)	(.068)	(.085)	(.018)	(.045)
Mixed Native	.4149	.3499	.4091	.5115	.1760	.1386
	(.139)	(.063)	(.129)	(.062)	(.108)	(.042)
Mixed Immigrant	.4035	.2462	.5265	.5063	.0699	.2475
	(.097)	(.085)	(.094)	(.094)	(.030)	(.088)
Chinese Native	.4242	.5734	.4560	.4266	.1197	.0000
	(.281)	(.210)	(.253)	(.210)	(.135)	(.000)
Chinese Immigrant	.5088	.3623	.4745	.5865	.0167	.0513
	(.092)	(.154)	(.091)	(.078)	(.009)	(.031)
Other Native	.1407	.3065	.7797	.6255	.0796	.0608
	(.140)	(.076)	(.151)	(.08)	(.082)	(.048)
Other immigrant	.4844	.3708	.4529	.4190	.0627	.2102
	(.067)	(.036)	(.064)	(.034)	(.020)	(.027)

[7] Standard Errors are in parentheses.

4.3 Decomposition Analysis of Occupational Choice

Table 8 presents a decomposition analysis of the probabilities of ending up to a professional occupation. For both of the years, the analysis shows the relative importance of unexplained factors for black natives as well as for black immigrants. Therefore the poor performance of the black community in terms of occupational attainment is partly due to the discriminatory attitude of the employers. In addition, for black immigrants, in all of the panels endowments act in opposite direction to coefficients and they are found to have either similar or even better endowments than white natives. Therefore, if black immigrants are treated as white natives, we would expect their participation in professional occupation to increase even more than the latter. As revealed by the MNL estimates for 1992, in comparison to a otherwise similar white native, white immigrants have greater probability of working in professional occupations. The estimates of 2006 shows contradictory picture. Treating the immigrants as natives would have reduced the probability of obtaining a professional job for the latter by 8-percentage points whereas panel (b) shows the importance of better endowments of immigrants. The basis of occupational success of white immigrants therefore is not quite straight forward. In this context, in addition to certain endowments, the unexplained part can be considered as a reflection of unobserved attributes, skill-level or ability that has not been captured by model covariates. Indian immigrants are found to be endowed with better attributes. At the same time, the result of 1992 shows that the coefficients also act against them. Therefore it could be inferred that, if treated equally to white natives, we would have observed much higher presence of Indian immigrants in superior jobs. The case of Pakistani and Bangladeshi immigrants indicates the opposite scenario. According to panel (a) of 1992 analysis, 60% of the difference in probabilities is generated by the inferior endowment where the corresponding figure for 2006 is 64%. The analysis however indicates important contribution of unexplained factors as well. As a whole, although the results are mixed, we could think about a strong correlation of their inferior attributes to their poor performance.

While summarizing both sets of decomposition analysis, 4 possible scenarios can be considered: (a) the importance of coefficients with inferior attributes of the minority group: case of black natives and black immigrants, (b) importance of coefficients with superior endowment of minorities: case of Indian immigrants, (c) inferior endowments accentuating the negative effect of the coefficients: case of Pakistani immigrants, (d) positive effect of coefficients on occupational attainment: case of white immigrants.

Table 8: Decomposition Results of Occupational Choices (difference in the probability of being in professional occupation)			
1992		2006	
Panel (a)	Panel (b)	Panel (a)	Panel (b)
White Native (WN) vs. White Immigrant (WM)			
WMs are treated as WNs	WNs are treated as WMs	WMs are treated as WNs	WNs are treated as WMs
Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =-.1017	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =-.1017	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =-.0675	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =-.0675
Coefficient Effect $P(X_i^M, \hat{\beta}_P^N) - P(X_i^M, \hat{\beta}_P^M)$=.3602-.4272 =-.067	Coefficient Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^N, \hat{\beta}_P^M)$=.3255-.4748 =-.1493	Coefficient Effect $P(X_i^M, \hat{\beta}_P^N) - P(X_i^M, \hat{\beta}_P^M)$=.3580-.4358 =-.0773	Coefficient Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^N, \hat{\beta}_P^M)$=.3683-.3453 =.023
Attributes Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^M, \hat{\beta}_P^N)$=.3255-.3602 =-.0347	Attributes Effect $P(X_i^N, \hat{\beta}_P^M) - P(X_i^M, \hat{\beta}_P^M)$=.4748-.4272 =.0476	Attributes Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^M, \hat{\beta}_P^N)$=.3683-.3580 =.0103	Attributes Effect $P(X_i^N, \hat{\beta}_P^M) - P(X_i^M, \hat{\beta}_P^M)$=.3453-.4358 =-.0905
White Native (WN) vs. Black Native (BN)			
BNs are treated as WNs	WNs are treated as BNs	BNs are treated as WNs	WNs are treated as BNs
Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =.1588	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =.1588	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =.0398	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =.0398
Coefficient Effect $P(X_i^M, \hat{\beta}_P^N) - P(X_i^M, \hat{\beta}_P^M)$=.2583-.1667 =.0916	Coefficient Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^N, \hat{\beta}_P^M)$=.3255-.0997 =.2258	Coefficient Effect $P(X_i^M, \hat{\beta}_P^N) - P(X_i^M, \hat{\beta}_U^M)$=.3956-.3285 =.0671	Coefficient Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^N, \hat{\beta}_P^M)$=.3683-.3089 =.0594
Attributes Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^M, \hat{\beta}_P^N)$=.3255-.2583 =.0672	Attributes Effect $P(X_i^N, \hat{\beta}_P^M) - P(X_i^M, \hat{\beta}_P^M)$=.0997-.1667 =-.067	Attributes Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^N)$=.3683-.3956 =-.0273	Attributes Effect $P(X_i^N, \hat{\beta}_P^M) - P(X_i^M, \hat{\beta}_P^M)$=.3089-.3285 =-.0196
White Native (WN) vs. Black Immigrant (BM)			
BMs are treated as WNs	WNs are treated as BMs	BMs are treated as WNs	WNs are treated as BMs

Sample Average between High and Low Groups $\overline{P_U^N} - \overline{P_U^M}$ =.119	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =.119	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =.14	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =.14
Coefficient Effect $P(X_i^M, \hat{\beta}_P^N) - P(X_i^M, \hat{\beta}_P^M)$=.3761-.2065 =.1696	Coefficient Effect $P(X_i^M, \hat{\beta}_P^N) - P(X_i^M, \hat{\beta}_P^M)$=.3255-.2036 =.1219	Coefficient Effect $P(X_i^M, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^M)$=.3855-.2283 =.1572	Coefficient Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^N, \hat{\beta}_P^M)$=.3683-.1378 =.2305
Attributes Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^M, \hat{\beta}_P^N)$=.3255-.3761 =-.0506	Attributes Effect $P(X_i^N, \hat{\beta}_P^M) - P(X_i^M, \hat{\beta}_P^M)$=.2036-.2065 =-.0029	Attributes Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^N)$=.3683-.3855 =-.0172	Attributes Effect $P(X_i^N, \hat{\beta}_P^M) - P(X_i^M, \hat{\beta}_P^M)$=.1378-.2283 =-.0905
White Native (WN) vs Indian Immigrant (IM)			
IMs are treated as WNs	WNs are treated as IMs	IMs are treated as WNs	WNs are treated as IMs
Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =-.0253	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =-.0253	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =-.064	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =-.064
Coefficient Effect $P(X_i^M, \hat{\beta}_P^N) - P(X_i^M, \hat{\beta}_P^M)$=.3934-.3508 =.0426	Coefficient Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^N, \hat{\beta}_P^M)$=.3255-.2880 =.0375	Coefficient Effect $P(X_i^M, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^M)$=.3785-.4323 =-.0538	Coefficient Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^N, \hat{\beta}_P^M)$=.3683-.3565 =.0118
Attributes Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^M, \hat{\beta}_P^N)$=.3255-.3934 =-.0679	Attributes Effect $P(X_i^N, \hat{\beta}_P^M) - P(X_i^M, \hat{\beta}_P^M)$=.2880-.3508 =-.0628	Attributes Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^N)$=.3683-.3785 =-.0102	Attributes Effect $P(X_i^N, \hat{\beta}_P^M) - P(X_i^M, \hat{\beta}_P^M)$=.3565-.4323 =-.0758
White Native (WN) vs Pakistani Native (PN)			
		PNs are treated as WNs	WNs are treated as PNs
		Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =-.0603	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =-.0603
		Coefficient Effect $P(X_i^M, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^M)$=.4427-.4286 =.0141	Coefficient Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^N, \hat{\beta}_P^M)$=.3683-.2543 =.114
		Attributes Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^N)$=.3683-.4427 =-.0744	Attributes Effect $P(X_i^N, \hat{\beta}_P^M) - P(X_i^M, \hat{\beta}_P^M)$=.2543-.4286 =-.1743

White Native (WN) vs Pakistani Immigrant (PM)			
PMs are treated as WNs	WNs are treated as PMs	PMs are treated as WNs	WNs are treated as PMs
Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =.1175	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =.1175	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =.1707	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M}$ =.1707
Coefficient Effect $P(X_i^M, \hat{\beta}_P^N) - P(X_i^M, \hat{\beta}_P^M)$=.2522-.208 =.0442	Coefficient Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^N, \hat{\beta}_P^M)$=.3255-.2386 =.0869	Coefficient Effect $P(X_i^M, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^M)$=.2582-.1976 =.0606	Coefficient Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^N, \hat{\beta}_P^M)$=.3683-.1742 =.1941
Attributes Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^M, \hat{\beta}_P^N)$=.3255-.2522 =.0733	Attributes Effect $P(X_i^N, \hat{\beta}_P^M) - P(X_i^M, \hat{\beta}_P^M)$=.2386-.208 =.0306	Attributes Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^N)$=.3683-.2582 =.1101	Attributes Effect $P(X_i^N, \hat{\beta}_P^M) - P(X_i^M, \hat{\beta}_P^M)$=.1742-.1976 =-.0234

4.4 Nested Logit Model of Occupational Choice

One important consideration while analyzing occupational choice is that, there could be a selection process influencing an individual's decision to take employment. Therefore, if there exist unobserved features that affect an individual's decision of employment status and if these features are not captured in the model of occupational choice then that could lead to sample-selection bias. In order to correct such plausible bias, a nested logit model with the decision of employment status as the 1st stage and the choice of occupation as the 2nd stage is estimated. Given the fact that individual's 1st stage decision is incorporated directly into the model, the plausible problem of sample selection bias is not expected to affect the 2nd stage of decision making.

It is worth mentioning that in the context of nested logit model, the estimates are primarily considered for occupational choices rather than for employment status. However due to the complex structure of nested logits, a simpler specification than that of multinomial logit model is adopted.[4] In addition, some of the categories of ethnic/immigrant dummies are quite small and this is especially crucial in the case of 1992 data set. In order to tackle such problem, for 1992 data set a more aggregate categorization is used (a summary of the result is shown in appendix).[5] Therefore, this analysis is primarily carried out on the basis of 2006 results.

Except Chinese natives and Chinese immigrants, the nested logit analysis of 2006 incorporates all of the categories used in multinomial logit specification.[6] In case of professional occupational choices, for ethnic/immigration dummies most of the coefficients reflect similar finding to that of multinomial logit estimates. According to both sets of results ethnic background has no significant effect on individual's occupational choice. Whereas according to nested logit model, in comparison to their native counterparts, all groups of immigrants, except Indians, are found to have a significantly lower probability of working in

[4] In this regard rather than using different covariates in different stages, same specification and same set of variables are used in both stages of nested logit.

[5] In the multinomial logit analysis we use white, black, Indian, Pakistani and Bangladeshi, Chinese, mixed, and other ethnicities and their immigrant counterparts (white being the base category). In 1992 nested logit the categories are white (base category), black, Asian (comprising of Indian, Pakistani, Bangladeshi and Chinese) and remaining ethnic groups (those of mixed ethnicity and other remaining categories).

[6] All of the variables used in the model are choice-invariant and therefore these are interacted with the respective constant terms. Here the estimation result shows five possible alternatives that can be chosen by an individul (the 6th alternative of being wage employed and working in unskilled occupations is the base category of analysis).

professional occupations. According to multinomial estimates, in comparison to their native counterparts, black immigrants have lower presence in professional occupations. Similar finding is also revealed for Pakistani and Bangladeshi immigrants, and according to the results of both nested logit and multinomial logit, these groups of immigrants have a lower probability of working in professional occupations than in unskilled jobs. Although estimates of multinomial logit fail to show any significant difference for white immigrants, nested logit model reflects that, in comparison of an otherwise similar white native, white immigrants have 42% lower probability of working in professional occupations than in unskilled jobs.

For skilled occupations, the coefficients of most of the variables represent similar finding in both multinomial and nested logit estimates. For the ethnic/immigrant dummies, the nested logit model shows that, in comparison to white natives, blacks and Indians have greater probability of working in skilled occupations. The estimates of multinomial logit model however, show no significant effect of ethnic dummies on the choice of skilled occupation. In contrast to the negative coefficient estimates of the immigrant dummies in multinomial logit model, according to the nested logit estimates, none of these dummies are significant.

Table 9: Full Information Maximum Likelihood Nested Logit Model (year 2006)*

Variable	Coefficients and Standard Errors (unskilled wage employed are the base category)**, ***				
	Professional	Skilled	Self employed	Unemployed	Non-employed
Constant	-4.603	-2.775	-7.646	-2.553	-3.231
	(0.457)	(0.645)	(0.779)	(0.762)	(0.775)
Age	0.237	0.135	0.317	0.156	0.173
	(0.019)	(0.029)	(0.049)	(0.048)	(0.048)
Age square	-0.003	-0.002	-0.005	-0.003	-0.003
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Married	0.811	-0.252	1.314	0.924	0.751
	(0.053)	(0.082)	(0.178)	(0.176)	(0.175)
Stay	0.054	-0.003	-0.081	-0.083	-0.129
	(0.016)	(0.020)	(0.038)	(0.038)	(0.039)
Stay square	-0.001	0.000	0.001	0.001	0.002
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
High degree	1.430	0.484	4.527	2.231	-0.716
	(0.083)	(0.141)	(0.409)	(0.398)	(0.408)
Below degree	1.175	0.481	4.308	2.971	0.662
	(0.108)	(0.183)	(0.459)	(0.450)	(0.455)
A level	1.269	0.539	2.647	2.156	0.626
	(0.070)	(0.111)	(0.287)	(0.277)	(0.276)
O level	0.788	0.605	2.638	1.995	1.236
	(0.082)	(0.119)	(0.315)	(0.303)	(0.301)
Below O level	0.395	0.221	1.657	1.638	1.390
	(0.137)	(0.194)	(0.362)	(0.342)	(0.337)
Other qualification	0.991	0.607	2.364	1.824	1.702
	(0.095)	(0.141)	(0.324)	(0.314)	(0.311)
South	0.223	-0.081	0.620	0.435	0.844
	(0.085)	(0.134)	((0.163)	(0.162)	(0.169)
North	-0.311	-0.202	0.259	0.362	1.023
	(0.090)	(0.120)	(0.218)	(0.218)	(0.225)

White immigrant	-0.421	0.257	1.083	0.644	0.995
	(0.188)	(0.244)	(0.357)	(0.351)	(0.347)
Black immigrant	-1.545	0.111	0.553	1.001	2.089
	(0.439)	(0.438)	(0.763)	(0.746)	(0.770)
Indian immigrant	-0.800	-0.287	1.612	1.402	1.796
	(0.526)	(0.613)	(0.849)	(0.845)	(0.891)
Pakistani+Bangladeshi	-0.894	-0.146	1.179	1.618	2.542
immigrant	(0.421)	(0.544)	(0.894)	(0.856)	(0.889)
Mixed immigrant	-1.303	0.126	0.710	1.061	1.755
	(0.750)	(1.027)	(1.214)	(1.176)	(1.229)
Other ethnic immigrant	-1.441	-0.833	-0.168	-0.782	0.845
	(0.768)	(0.878)	(1.031)	(1.018)	(1.228)
Black	-0.367	0.589	-0.599	-0.231	-0.404
	(0.314)	(0.338)	(0.432)	(0.416)	(0.449)
Indian	0.048	0.934	-0.774	-0.827	-0.870
	(0.456)	(0.509)	(0.602)	(0.602)	(0.664)
Pakistani+Bangladeshi	-0.029	0.345	-2.784	-2.812	-3.007
	(0.341)	(0.432)	(0.824)	(0.800)	(0.835)
Mixed	-0.352	-0.385	-0.306	-0.174	-0.497
	(0.407)	(0.579)	(0.606)	(0.589)	(0.637)
Other ethnicity	0.176	0.976	0.010	0.494	-0.757
	(0.739)	(0.842)	(0.910)	(0.898)	(1.131)
Inclusive Value Parametres					
Wage Employed	-0.076 (0.191)				
Non Wage Employed	0.392 (0.084)				
No. of Observations	29629				
Log Likelihood Function	-43354.12				
McFadden Pseudo R-	0.183				

5. Conclusion

The problem of unemployment and low occupational attainment amongst immigrants and ethnic minorities in the UK has been a hotly debated issue for decades. The research to date is however confined primarily to examining the unemployment problem of certain groups, rather than analyzing the overall experience of different communities in the labour market. In this paper, the existing empirical analysis has been extended while combining both the issues of employment and occupational attainment. The key research questions that this paper investigates are: (a) whether the ethnic minorities and immigrants suffer higher unemployment than white indigenous people, (b) depending on ethnicity and/or country of birth what are the probabilities of different groups to reach the highest stage of occupational ladder, (c) whether there has been any significant changes in the labour market experience of different groups over time and, (d) what are the reasons behind the differences in performance between the white indigenous people and the minorities/immigrants. Such issues are explored while estimating multinomial logit model and adopting decomposition analysis for 1992 and 2006.

The research confirms the problem of unemployment of ethnic minorities in particular. According to the analysis, black natives experience much higher level of unemployment than their white counterparts and in recent years black and South Asian natives are found to have a significantly higher unemployment probability. The problem of unemployment among the minorities, however seems to be a relatively recent phenomenon, since in early 90s South Asian natives were not in an inferior position in comparison to their white peers. By contrast, the relative position of immigrants has improved over time with a significant reduction in unemployment and an increase in wage employment for most of the groups. Regarding occupational attainment, the picture is however different: there is a clear segregation in terms of immigration status and in recent years minority immigrants (e.g. black, South Asian and Chinese) are less represented in professional or skilled occupations. This finding is consistently reflected in both multinomial as well as nested logit estimates. On the other hand, in early 90s certain categories of the immigrants, like whites and Indians had a greater probability of working as professionals, whilst black and South Asian natives were predicted to work in relatively greater proportion in inferior quality jobs. The relative position of certain categories of minority natives however has improved over time as reflected by the greater representation of black, South Asian, Chinese, and other natives in professional occupations.

A decomposition analysis of the estimates indicates the importance of both explained and unexplained factors in analyzing the performance of different groups. This is in contrast to that of Carmichael & Woods (2000) who emphasizes the discriminatory selection process of employers in the British labour market. According to the present analysis, for black natives as well as for black immigrants in most of the cases endowments cannot explain their inferior performance and in certain contexts they even possess better or similar endowments to white natives. Therefore, on the basis of our analysis, we cannot rule out the possibility of discrimination against blacks. For Pakistani and Bangladeshi immigrants, in addition to the contribution of unexplained features, their inferior attributes could also play important role for their poor performance. The superior performance of Indian immigrants is caused primarily by their superior attributes but had they been treated similarly to white natives, they would be able to attain even better status in the job market. As a whole, both attributes as well as coefficients are found to be important for the labour market performance of South Asians. For white immigrants the result is not straight forward and the analysis suggests plausible positive contribution of certain unobserved factors not captured in our model.

References

Bell, (1997) 'The Performance of Immigrants in the United Kingdom: Evidence from the GHS', *The Economic Journal,* 107, 441: 333-344.

Blackaby, D., Drinkwater, S., Leslie, D. and Murphy, P. (1997) 'A Picture of Male and Female Unemployment Among Britain's Ethnic Minorities', *Scottish Journal of Political Economy,* 44, 2: 182-197.

Blackaby, D., Leslie, D., Murphy, P. and O'Leary, N. C. (2002) 'White/Ethnic Minority Earning and Employment Differentials in Britain: Evidence from the LFS', *Oxford Economic Paper*, 54: 270-297.

Blinder, A. S. (1973) 'Wage Discrimination: Reduced Form and Structural Estimates', *Journal of Human Resources*, 8, 4: 436-455.

Borooah, V. (2001) 'How do Employees of Ethnic Origin Fare on the Occupational Ladder in Britain', *Scottish Journal of Political Economy,* 48, 1: 1-26.

Borooah, V. (2005) 'Caste, Inequality, and Poverty in India', *Review of Development Economics,* 9: 399-414.

Carmichael, F. and Woods, R. (2000) 'Ethnic Penalties in Unemployment and Occupational Attainment: Evidence for Britain', *International Review of Applied Economics,* 14, 1: 71-98.

Gabriel, P., Williams, D. and Schimitz, S. (1990) 'The Relative Occupational Attainment of Young Blacks, Whites, and Hispanics', *Southern Economic Journal,* 57, 1: 35-46.

Oaxaca, R. L. (1973): 'Male-Female Wage Differentials in Urban Labor Markets', *International Economic Review*, 14, 3, 693-709.

Price, S. W. (2001) 'The Unemployment Experience of Male Immigrants in England', *Applied Economics*, 33: 201-215.

Appendix: Main Results of Nested Logit Model (year 1992)

T|he restricted set of estimates of 1992 nested logit show that, *ceteris paribus*, blacks have a lower probability of working in professional occupations and a higher chance of working in unskilled occupations. The Asian dummy, which corresponds to the combined effect of Indian, Pakistani and Bangladeshi and Chinese ethnicities, is insignificant in the nested logit, which is consistent with the insignificant coefficient estimate of Indian and Chinese dummies of the multinomial logit model. The dummy variable representing the remaining ethnic groups is found to be insignificant in case of professional occupation, which is similar to the result of multinomial logit model showing insignificant estimates of mixed and other ethnic dummies. None of the ethnic dummies has come as significant for the choice of skilled occupation which is similar to multinomial logit estimates. In the case of immigrants, both models however differ significantly for both professional and skilled occupations and we can not come to any conclusive result which is consistent across the models. However due to the restrictive nature of the 1992 nested logit estimates, the results of multinomial logit model, which allows to analyze all of the ethnic/immigrant groups separately should be given primarily importance.