

Unemployment and Occupational Attainment of Male Immigrants and Ethnic Minorities in UK

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Abstract: The paper models the labour market experience of immigrants and of different ethnic groups in the UK. We find high unemployment probabilities for ethnic minority British in recent years which contrast with the apparent assimilation of immigrants into wage employment. In terms of occupational attainment, over time immigrants' representation in professional and high skill occupations has reduced significantly. Decomposition analysis indicates the importance of both 'explained' as well as 'unexplained' factors. For certain groups of ethnic minorities and immigrants, observed attributes cannot explain their less favourable labour market outcomes and our analysis suggests labour market discrimination against them.

JEL Classification: J71, J61, J64, J24

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

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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 ability, their performance in the labour market could certainly be different from the natives. However, in addition to such differences there could be certain unexplained factors relating solely to their nationality or ethnicity and in certain cases these factors could 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 and that this could constrain their earnings potential and labour market performance to a certain extent. Depending on the country under consideration, the skill-mix of the immigrants, as well as the time period of analysis, we could observe diverse outcomes as well.

In the context of UK it is a well accepted fact that, in comparison to the white British, the ethnic minority British as well as the immigrants suffer higher level of unemployment (Blackaby et. al 1997, 2002 and Price, 2001), receive lower wages (Bell, 199) and are under-represented in the higher stage of occupational ladder, but more concentrated on the lower stage (Borooah, 2001 and 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 whether there exist differences amongst the minorities and immigrants and why some groups as a whole under performs. In addition, given the fact that the UK economy has experienced significant changes in immigration policies and skill mix over time, it is plausible that there have been important changes in the labour market performance of different groups over time.

Existing literature on the labour market experience of the immigrants or ethnic minorities of UK are primarily concentrated on explaining the unemployment problem of the minority communities. In this context, Price (2001) uses 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 finds high unemployment among the prime-aged male immigrants with wide variations depending on country of birth. Blackaby et. al (2002) find that, as a whole, the

ethnic

minorities have a 11% worse employment probability than whites, with blacks appearing to be the worst sufferers, followed by the 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 uses 1994 LFS data of UK to analyze the occupational status of both males and females in different ethnic groups and finds that minorities end up at lower stages in the occupational ladder, with black men and Indian women being in the worst position. Their result is in line with that of Borooah (2001) who while using census data finds blacks to be disadvantaged both in terms of wages as well as occupational attainment. His decomposition analysis suggests attributes as well as ethnicity are important whereas for the Indians, superior attributes compensate for much of the ethnic penalty.

Against this backdrop, in addition to investigating the issue of unemployment, this paper also analyzes the type of jobs that people obtain, which extends the existing literature to provide an overall picture of job market performance of the different groups. Regarding occupational status, rather than considering just the two categories examined by Blackaby et. al (1997, 2002) and Price (2001), we apply multinomial logit estimation to incorporate other possible occupational decisions, especially the possibility of being in self-employment. In the case of occupational choices, we estimate predicted probabilities of belonging to different stages of occupational status for all of the ethnic British and immigrant groups offering information of occupational achievement of all such categories. 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 the minorities during early and mid-90's. In our analysis we have compared labour market performance over a 14 year time period to highlight the performance of different communities in recent years and capture the dynamics on the basis of ethnic background. Finally, decomposition analysis has been carried out for the differences in unemployment and occupational attainment between the immigrants/minorities vis a vis the white indigenous people, to provide quantitative evidence relating to the debate regarding labour market discrimination. Our estimates suggest that, in recent years it is the ethnic minority immigrants who are less represented in

high-skilled better quality jobs, whereas the issue of unemployment is primarily concentrated within the minority British. The analysis has also provides evidence of interesting changes in the labour market over the period and suggests assimilation of immigrant into wage employment. Therefore, depending on ethnicity and immigration status, as well as the time period under consideration, labour market performance could differ significantly and the relatively poor performance of the minority community is not only an issue of unemployment but also that of under achievement in terms of occupational success.

The paper is organized as follows: section 2 discusses the data & key methodologies used in the analysis, section 3 describes the estimation results and decomposition analysis of employment status. In section 4, we present empirical analysis of occupational choices and finally section 5 concludes.

2. Data & Methodology

Our analysis uses the summer quarter of the Quarterly Labour Force Survey (QLFS) for 1992 and 2006. We only consider males within the age band of 25 to 65 in the analysis. For the employment analysis, we use household compositional variables, demographic variables, regional dummies, qualification dummies, health status, age, age squared and marital status as controls. For household composition, we consider number of dependent children below 19 years in the household as the relevant variable and use dummies for having no children, one children, two children and more children. We categorize the regions into 3 broad groups: north, south and London and incorporate 6 dummies for academic qualifications: degree, below degree, A level, O level, below O level, other qualification and no formal qualification. An additional dummy is used to capture whether the respondent has any health problem or not. In order to investigate the effect of ethnicity and immigration status, 14 dummies for the natives and foreign born of white, black, Indian, Pakistani & Bangladeshi², mixed, Chinese and other ethnicities have been used with the white indigenous people as the base group. In order to capture assimilation effect of the immigrants, years spent in UK and its square are used as additional controls.

² For brevity, hereafter we use ‘Pakistani’ to represent both Pakistani as well as Bangladeshi ethnic groups.

For the dependent variable the sample has been classified into 4 groups: wage employed, self employed, other non employed (comprised of student, government employee & trainee and inactive) and unemployed. The analysis of occupational choices deal with only the wage employed and they are categorized into 3 classes: professional³, skilled⁴ and unskilled⁵ occupations. Given the fact that the number of children, along with the health status of an individual, are not expected to influence of occupational choices of an individual, we have excluded the dummies for children and health status from the occupational attainment model.

In the analysis we have considered the choice of employment status 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:

$$\text{prob} (i \text{ chooses } s) = \exp U_{is} / \sum_t \exp U_{it} \quad (\text{i})$$

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

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

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 4 employment status: wage employed, self employed, other non employed and unemployed.

We then restrict our analysis with only the sample of wage employed and model their occupational choices, also with a MNL methodology. In this case we consider choices among 3 categories of occupations, namely professional, skilled and unskilled.

³ Professionals include (a) managers and senior officials and (b) professional occupations.

⁴ 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.

⁵ Unskilled include (a) process, plant and machine operatives and (b) elementary occupations.

As our analysis compares different groups, in the next stage we proceed while decomposing the differences in labour market outcomes between the indigenous white with other groups. In this regard, differences in employment status or occupational attainment could arise from three possible sources: (a) differences in endowments, (b) differences in returns and (c) differences in unobserved characteristics. An unexplained portion is often considered as an approximation of any labour market discrimination. Following the methodology applied by Borooah (2005), if we assume that there are N individuals ($i=1, \dots, N$) in the sample then we could consider that each of them as originating from any of our 14 immigrant/ethnic community denoted by g ($g=1, \dots, 14$). For the decomposition of employment status, each individual could again fall into any of the 4 categories ($j=1, \dots, 4$) and the likelihood of an individual from community g being in employment group j can be represented in the following manner:

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

Here, $X_i^g = (X_{ik}^g, k=1, \dots, K)$ 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 we could assume same beta vector faced by both groups: $\hat{\beta}_j^N = \hat{\beta}_j^M$ and in that case the observed or 'raw' differential in the probabilities of being in a specific employment group would be attributed entirely due 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

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

Or

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

In equation (a), differences in outcome between group N and M are decomposed while considering the majority group N as 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

As reflected in Table 1, the most striking feature of the employment structure in the survey years is the fall in the unemployment rate from 8.5% in 1992 to 3.2% in 2006, reflecting the general upturn in the economy. A point of interest is that, in comparison to the natives, the immigrants appear to suffer more in recessions, with a 12% unemployment rate in 1992, this holds true for almost all categories of immigrants. It is however interesting that although in 1992 we observe wide divergences between the immigrants and the natives, in 2006 the immigrants seem to have similar employment pattern to the natives. Such a convergence is also prevalent in Table 2, where except for Pakistanis, all other major groups are observed to have between 65%-70% representation in wage employment. In terms of employability, among all groups of immigrants and minorities, blacks experience the highest level of unemployment in both of the survey years. In spite of significant reduction of unemployment over the period, 10% of blacks are reported to be unemployed in 2006.

Table 1 : Employment Profile of the Native & Immigrant ¹ (in percentage)						
	<i>Summer 1992</i>			<i>Summer 2006</i>		
	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	2.96	5.5
Other Nonemployed (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.

	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
PakBd Native		54.3		25		7.8
PakBd 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 Native						
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 column refers to percentages of the corresponding group.

3.2 Estimation Results⁶

A multinomial logit framework has been used to model occupational status and we consider 4 categories in this regard: wage employed, self employed, unemployed and non employed (trainee+student+inactive) where wage employed are regarded as the base category (see Appendix A: Table A.1 & A.2). Table 3 presents the predicted probabilities of occupational status for different ethnic groups and immigrants where such probabilities are calculated while holding the controls at the mean of the sample. Therefore, the table 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 the black British as suggested by the descriptive is also observed in predicted probabilities: in 1992, a black British with the same endowment as

⁶ It can be argued that income as well as employment status of other members of the household could have important impact on the employment decision of an individual. In addition to these models we have tried with a model with a dummy variable capturing the presence of employed members in the household. However this variable has not shown statistical significance.

other groups have as high as 22% probability of ending up as unemployed, which although reduced to 6% in 2006, is higher than most of the groups. In 2006, the South Asian British are predicted to experience similar levels of unemployment, which is compatible with their lower participation in wage employment. On the contrary, their position in 1992 was not significantly different than their white counterparts with the Indian British having higher probability of wage employment than most of the groups. We could therefore find a deterioration of the relative employability of the South Asians over time along with a persistence of unemployment of the black indigenous people. The South Asian British are however significantly different in terms of their high participation in self employed activities and in both of the survey years they are predicted to have more than 20% probability of working in self employment.

Among the immigrants, the performance appears to vary over time and as suggested by the descriptive, the predicted probabilities also indicate convergence towards the white indigenous population⁷. The probabilities reflect that, in 2006 it is again the black who experiences the highest level of unemployment among the immigrants whereas in 1992, on the contrary their relative position was better than most of the groups of immigrants and it was the white as well as the Indian immigrants who were found to be the worst sufferer of recession during that period. The participation probability of the South Asian along with the white immigrants in salaried jobs was also lower than average during that period. Over time for the white immigrants, participation in wage employment increases to as high as 74% with a modest unemployment probability of 3%. Similar shift also appears to have taken place for the Indian immigrants and their relative position in terms of employment status as a whole appears to have improved.

	<i>1992</i>	<i>2006</i>	<i>1992</i>	<i>2006</i>	<i>1992</i>	<i>2006</i>
	Wage Employed	Wage Employed	Self Employed	Self Employed	Un employed	Un employed
White Natives	.6981 (.003)	.7217 (.004)	.1713 (.003)	.1787 (.003)	.0809 (.002)	.0267 (.001)
White Immigrant	.5820 (.023)	.7433 (.018)	.1162 (.016)	.1085 (.012)	.0933 (.014)	.0289 (.005)

⁷For wage employment, the variance of predictions of immigrant groups around the prediction of white native has reduced from .027 to .005.

Black Native	.5630 (.045)	.7082 (.033)	.1144 (.032)	.1462 (.027)	.2197 (.033)	.0592 (.014)
Black Immigrant	.6246 (.063)	.7421 (.049)	.0785 (.029)	.0485 (.015)	.0668 (.017)	.0379 (.012)
Indian Native	.6884 (.081)	.6530 (.047)	.2426 (.078)	.2162 (.043)	.0365 (.026)	.0603 (.020)
Indian Immigrant	.4101 (.134)	.7596 (.057)	.0856 (.042)	.0746 (.021)	.1690 (.113)	.0209 (.009)
PakBd Native	.4783 (.182)	.4774 (.049)	.4675 (.185)	.3277 (.048)	.0542 (.056)	.0637 (.021)
PakBd Immigrant		.8007 (.043)		.0706 (.018)		.0192 (.009)
Mixed Native	.4691 (.090)	0.7000 (.048)	.3029 (.087)	0.1670 (.041)	.0940 (.047)	0.0270 (.014)
Mixed Immigrant	.7777 (.087)	0.7502 (.081)	.0626 (.032)	0.0832 (.041)	.0461 (.034)	0.0319 (.028)
Chinese Native	.7537 (.204)	0.7028 (.170)	.2463 (.204)	0.1727 (.152)	.0000 (0)	0.1245 (.118)
Chinese Immigrant	.0000 (0)	0.0000	.0000 (0)	0.0000	.0675 (.003)	0.0000
Other Native	.8321 (.114)	0.7492 (.064)	.1087 (.102)	0.1387 (.052)	.0591 (.059)	0.0533 (.031)
Other Immigrant		0.5877 (.115)		0.1146 (.049)		0.0261 (.017)

⁵ Standard Errors are in parentheses.

⁶ Probabilities of Non employment although used in calculation, are not shown in the table.

As half of the immigrants of our sample are of white ethnicity with heterogeneous background and skill mix, it is interesting to analyze this group separately. Therefore, in the backdrop of an increased political debate about the recent surge of East European immigrants⁸ in UK, we have extended our model while incorporating 3 categories of white immigrants: white immigrant from Old EU countries⁹, English speaking white immigrants (from the old Commonwealth¹⁰ and USA) and other white immigrants. Regarding country of origin of the immigrants, in 1992 other white immigrants are found to have significantly

⁸From 1991 to 2001 there was a 68% increase of the immigrants from Bulgaria, Hungary and Slovakia, 242% increase for Ex-Yugoslavians, 90% for the Romanians (Source: BBC).

⁹Members of EU in 1986, eg. Belgium, France, Germany, Italy, Luxemburg, Netherlands, Denmark, Greece, Portugal, Spain and Ireland.

¹⁰Canada, Australia and South Africa.

high unemployment probability, which could be a reflection of the diversity in skill mix of the white immigrants. Our results for 2006, however does not indicate any significant differences. Therefore in early 90's although there were differences among the white immigrants, overtime such differences tend to diminish as we find similar experience of employability for all such groups.

3.3 Decomposition Analysis

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 country of origin may have differences in household compositions, demographic profiles, educational or occupational achievements or area of residence. Therefore it is important to examine whether the differences in employment outcomes for different groups are the result of different attributes or unexplained features related to the ethnicity/immigration status. As discussed in the methodology section, we perform decomposition analysis of the unemployment probability between the white British with other ethnic and immigrant groups. Table 4 depicts the result where panel (a) presents decomposition on the basis of equation (a) and panel (b) presents the result for equation (b).

For the black British our 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 we cannot rule out the possibility of labour market discrimination for their high unemployment rates. Our 1992 analysis shows that the coefficients of the black British would have increased the unemployment probability of a similar white to as high as 24% where the corresponding figure for 2006 is 7%. On the other hand, in comparison to the majority group the minority community also possess inferior endowment, especially the demographics and household compositional factors are increasing their probability of unemployment (Appendix B: Table B.1 & Table B.2).

For the Indian immigrants, in spite of plausible discrimination reflected by the coefficients, their superior endowment has made their outcomes different from that of the black native: in particular the Indian migrants have greater probability to possess a high degree and other qualification than the white natives. According to 1992 estimates, when the Indian

immigrants are treated as white native, endowments virtually plays no role in explaining the unemployment differential and when the white natives are given the coefficients of the Indian immigrants, their unemployment probability increases by more than double. However the minority possess similar or even better endowments than the majority group and in sum we can say that, if the Indian immigrants would be treated like the white British, it is highly plausible that they would even have lower unemployment than the latter group.

The case of Pakistanis, on the contrary, reflects the adverse effect of inferior endowments on their employment probability, which is further accentuated by the negative effect of coefficients. Among the Pakistani immigrants, for example there are lesser proportion of people with higher level of education, more people with bigger family and health problem (Appendix B: Table B.1 & Table B.2), all of which could act against their employability. However, our estimates indicate that it is not only the endowments, the role of coefficient is also quite strong for their unemployment problem and such a conclusion holds true for the black immigrants as well. In case of Pakistani British, in one extreme there are larger number people with high education but on the other hand lesser proportion of people with mid-level education (Appendix B: Table B.2). For this category, our result reflects that education level as well as number of children could act against of their employment probability and according to panel (b), more than 100% of the difference is generated by the endowments along with the importance of coefficients as suggested by the estimates of panel (a).

The importance of coefficients along with the attributes is found to be important for the white immigrant community as well. For 1992, as suggested in panel (a) of Table 4, unexplained factors appear to be the sole determinant for the higher unemployment of the white immigrants whereas according to panel (b), inferior attributes are also partly responsible for their poor performance. Just like the Pakistani British, they also have wide diversity in educational qualification which could have influential impact on their employability (Appendix B: Table B.1 & Table B.2). However, in contrast to other groups, our 1992 estimates show that having coefficients of the immigrants is expected to improve the position of the white natives and we could interpret such a contradictory result as an indication of the importance of unexplained factors (eg. ability, experience etc not captured in the model) which might have a positive influence their employment outcome.

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 $P(X_i^N, \hat{\beta}_U^M) - P(X_i^M, \hat{\beta}_U^M) = .0711 - .0891 = -.018$
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 $P(X_i^N, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^M) = .0288 - .0324 = -.0036$	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 $P(X_i^N, \hat{\beta}_U^M) - P(X_i^M, \hat{\beta}_U^M) = .1918 - .1104 = .0814$	Attributes Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^M) = .0288 - .0231 = .0057$	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	Coefficient Effect

		$P(X_i^M, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^M) = .0341 - .0776$ = -.0435	$P(X_i^N, \hat{\beta}_U^N) - P(X_i^N, \hat{\beta}_U^M) = .0288 - .0217$ = .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 $P(X_i^N, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^M) = .0288 - .0311$ = -.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

In terms of occupational status, there has been an increased presence of immigrants in unskilled occupations over time, which holds true for most of the ethnic groups (Table 5, Table 6). By contrast, with an exception of the Indians, we observe only a moderate change in the participation of immigrants in professional jobs. For the Indian immigrants, there has been an impressive 8-percentage point increase which is clearly in contrast to that of their Pakistani counterparts: the latter have instead experienced an 11-percentage point increase in the participation of blue-collar jobs over the same time period. It is interesting to note that, in comparison to the immigrants, minority British groups have seen an overall improvement in their occupational attainment, with a tendency for convergence of all groups of indigenous British.

	<i>Summer 1992</i>			<i>Summer 2006</i>		
	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.

	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
PakBd Native		42.9		41.3		15.9
PakBd 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 Estimation Results

In order to understand the labour market experience of the immigrants and ethnic minorities, we analyze the type of jobs the wage employed perform by estimating a multinomial logit model of occupational choice (Appendix Table C.1 & C.2).

Table 7 compares the 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. In most of the cases the predicted probabilities reflects the results found in the descriptive statistics, with lower predicted participation of minorities and immigrants in high skilled jobs. In 2006, *ceteris paribus*, black immigrants are found to be in the worst position in terms of occupational status, with a 41% probability of working in unskilled occupations. A similar scenario is found for the South Asian immigrants who have more than 20% probability of working in blue collared occupations. However the blacks along with the South Asian immigrants, were in much better position in 1992, having greater than 35% probability of working as professional. Therefore, over time there has been a shift in occupational attainment and for the black as well as the Indian immigrant such a shift is most significant as their participation in blue collared occupations increases by more than four fold. White immigrant also experiences a significant increase of participation in unskilled occupations with a 10-percentage point reduction in the participation of professional jobs. The scenario is completely opposite for the indigenous people of both white, and ethnic minority background experiencing an improvement in occupational status over time. The estimates for the early 90's show that, black, South Asians and other British, had lower probability to work in professional jobs. However, over time, there has been a significant improvement in the professional achievement of these groups which is completely in contrast with the experience of their immigrant counterparts.

	Professional		Skilled		Unskilled	
	<i>1992</i>	<i>2006</i>	<i>1992</i>	<i>2006</i>	<i>1992</i>	<i>2006</i>
White Natives	.3036 (.005)	.3700 (.005)	.5160 (.005)	.4613 (.005)	.1804 (.005)	.1687 (.005)
White Immigrant	.5597 (.039)	.4562 (.028)	.4016 (.037)	.3690 (.024)	.0387 (.008)	.1749 (.017)
Black Native	.1813 (.052)	.2946 (.043)	.5933 (.061)	.5378 (.044)	.2254 (.054)	.1676 (.034)
Black Immigrant	.3575 (.099)	.1910 (.047)	.5481 (.092)	.3960 (.062)	.0944 (.036)	.4130 (.076)
Indian Native	.2051 (.086)	.3909 (.058)	.5650 (.10)	.4533 (.056)	.2299 (.089)	.1557 (.047)
Indian Immigrant	.5401 (.141)	.3922 (.071)	.4069 (.130)	.4039 (.066)	.0530 (.030)	.2040 (.066)
PakBd Native	.0000 (.000)	.3627 (.068)	.6036 (.258)	.4853 (.066)	.3964 (.258)	.1519 (.052)
PakBd Immigrant	1.000 (.000)	.2388 (.073)	.0000 (.000)	.4183 (.085)	.0000 (.000)	.3428 (.102)

⁷ Standard Errors are in parentheses.

In Appendix Table C.1 and C.2 we extend our main model to incorporate more categories of white immigrants (eg. Old EU, English speaking and other white immigrant). Our estimates of 1992 shows that, in comparison to white British, all other groups of white immigrants had a higher probability of working in professional occupations. In 2006, immigrants of English speaking countries were still found to retain such higher probability although we don't find any significant difference in probabilities for other groups.

It can be argued that individual's occupational choice might not be confined only to the available occupational categories but an individual could choose among all possible employment opportunities. Incorporating this 4th category is expected to provide a broader analysis and avoid potential self-selection bias that could arise from the modelling of occupational choices. In this context, we extended our analysis of occupational choice while considering an additional group, which comprises the choice of non wage employment (all other categories except wage employment in our employment status equation). However, as described in Appendix Table B.1 and B.2, inclusion of additional category has not have any significant change on the coefficient estimates.

4.3 Decomposition Analysis

Table 8 presents a decomposition analysis of the predicted probabilities of ending up a professional occupation. For both of the years, the decomposition analysis shows the relative importance of unexplained factors to black British as well as 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. For the black native, in 1992 according to panel (a) 58% of the difference can be described as ‘residual effect’ which is as high as 142% if we consider the result of panel (b). For their immigrant counterparts all of our 4 panels suggest more than 100% contribution of the coefficients (primarily for the returns to education), which in turn indicates that if the black immigrant is treated as a white native, we would expect their participation in professional occupation to increase even more than the latter (Appendix D: Table D.1 & Table D.2).

As revealed in our MNL estimates, in comparison to white natives, their immigrant counterparts are found to have greater presence in professional occupation. The case of the white immigrants however reflects the opposite picture of their black counterparts. Although just like the latter group, in most of the cases, the major part of the difference is coming from unexplainable part, coefficients are having positive impact on the occupational status of the former group. 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 the covariates of the model and the estimates might indicate the plausible importance of such unobserved ability as the source of their success.

For the Indian immigrants, on the contrary, it is the attributes rather than the unexplained residual factors that are playing dominant role: especially higher degree and other educational qualification are having important impact on their achievement (Appendix D: Table D.1 & Table D.2). In both of the sample years, the Indian immigrants are found to be endowed with better attributes which is in contrast to other groups. Given their superior attributes, in 1992 we observe the Indian immigrants having greater probability to work in professional occupations. Decomposition analysis of 2006 reflects that the coefficients of white indigenous people would on the contrary reduce the occupational success of the

Indian immigrants from 43% to 38%, whereas for the white natives changed coefficients would have no significant effect.

The case of the Pakistani immigrants indicates the opposite scenario of that for Indian immigrants. 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%. In this context, mid level of education in 1992 and higher degree in 2006 are found to be crucial and in addition marital status also plays important role for their occupational achievement (Appendix D: Table D.1 & Table D.2). The analysis however indicates important contribution of unexplained factors as well. As a whole, although the results are mixed, we can argue for a strong correlation of their inferior attributes to their poor performance in occupational position.

While summarizing both sets of decomposition analysis, we could therefore broadly classify 4 possible scenarios: (a) the importance of coefficients with inferior attributes of the minority group: case of black British and black immigrants, (b) importance of coefficients with superior endowment of the 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)
<i>White Native (WN) vs. White Immigrant (WM)</i>			
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
<i>White Native (WN) vs. Black Native (BN)</i>			
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 $P(X_i^M, \hat{\beta}_P^N) - P(X_i^M, \hat{\beta}_P^M) = .2583-.1667$	Coefficient Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^N, \hat{\beta}_P^M) = .3255-.0997$	Coefficient Effect $P(X_i^M, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^M) = .3956-.3285$	Coefficient Effect $P(X_i^N, \hat{\beta}_P^N) - P(X_i^N, \hat{\beta}_P^M) = .3683-.3089$

=.0916	=.2258	=.0671	=.0594
Attributes Effect $P(X_i^N, \hat{\beta}_p^N) - P(X_i^M, \hat{\beta}_p^N) = .3255 - .2583$ =.0672	Attributes Effect $=.0997 - .1667$ =-.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 $P(X_i^N, \hat{\beta}_p^N) - P(X_i^N, \hat{\beta}_p^M) = .3255 - .2036$ =.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 Native (IN)			
		INs are treated as WNs	WNs are treated as INs
		Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M} = -.0984$	Sample Average between High and Low Groups $\overline{P_P^N} - \overline{P_P^M} = -.0984$
		Coefficient Effect $P(X_i^M, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^M) = .4581 - .4667$ =-.0086	Coefficient Effect $P(X_i^N, \hat{\beta}_p^N) - P(X_i^N, \hat{\beta}_p^M) = .3683 - .4817$ =-.1134

		Attributes Effect $P(X_i^N, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^N) = .3683-.4581$ =-.0898	Attributes Effect $P(X_i^N, \hat{\beta}_P^M) - P(X_i^M, \hat{\beta}_P^M) = .4817-.4667$ =.015
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 $P(X_i^N, \hat{\beta}_U^N) - P(X_i^M, \hat{\beta}_U^N) = .3683-.4427$	Attributes Effect $P(X_i^N, \hat{\beta}_P^M) - P(X_i^M, \hat{\beta}_P^M) = .2543-.4286$

		=-.0744	=-.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

5. Conclusion

The problem of unemployment and under attainment of immigrants and ethnic minorities in UK has been a 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 labour market. In this paper, we have extended the existing empirical analysis while combining both the issue of employment and occupational attainment of different immigrants and minorities. We primarily investigate: (a) whether the ethnic minorities and immigrants suffer higher unemployment than the 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 of the labour market experience 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 of employment status as well as occupational choices for 1992 and 2006. Decomposition analysis discusses the rationale behind the diverse performance of different groups.

The research confirms the problem of unemployment of the ethnic minorities in particular. According to our analysis the black British experience higher levels of unemployment than their white counterparts and in recent years it is the black and the South Asian British who has higher unemployment probability. Immigration status does not appear to be a crucial factor for unemployment and our analysis suggests that over time the immigrants tend to assimilate with the natives and to have similar employment pattern. The self employment probability is however critically influenced by the immigration status, and in recent years we observe a lesser presence of the immigrants in self employed occupations. Pakistani (and Bangladeshi) natives in contrast are the ones always having significantly high probability to work as self employed. Regarding occupational attainment, we observe different picture: there is a clear segregation in terms of immigration status and in recent year minority immigrants (eg. black, South Asian and Chinese) are less represented in professional or skilled occupations. In the early 90's, by contrast, we observe a lesser representation of the black and the Pakistani British in superior quality jobs which is consistent with the finding of Carmichael & Woods (2000) for 1994. Certain categories of immigrants, such as whites and Indians had a greater probability of working as

professionals during that period. However, over time for the minority British have seen an overall improvement in occupational attainment as reflected in the predicted probabilities and we observe a tendency to convergence towards a similar pattern of occupational choice as white British.

A decomposition analysis of the estimates indicate the importance of both ‘explained’ as well as ‘unexplained’ factors when 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 our analysis, for the black British, as well as the black immigrants, in most cases endowments cannot explain their inferior performance and we cannot rule out the possibility of discrimination against them. For the Pakistani immigrants, in addition to a certain degree of discrimination, less favourable attributes are playing important role in their poor performance. The superior performance of the Indian immigrants is caused primarily by their superior attributes and there been no discrimination, they would be able to attain even better status in the job market. Based on such analysis, it can be argued that there exists wide variation in the labour market experience of different ethnic and immigrant groups and the reason behind such diversity lies both on the differences in skill-mix and characteristics as well as the ways labour market treats them.

In sum, our estimation result establishes that, in early 90’s although there was no clear cut evidence of segregation in terms of employability, certain groups of minority British were 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 the minority British and at the same time immigrants’ representation in superior occupations has reduced significantly. Over time, there is a tendency of the immigrants to assimilate in terms of employment pattern and the ethnic minority to converge towards a similar occupational structure and such a shift could be indicative of a changed skill mix of the immigrant group, a positive structural shift of the economy as well as the increased tendency of the immigrants and minorities to assimilate with the better performing white indigenous group. This certainly offers optimism in favour of a more equal employment structure. Policies aiming at such unbiased and efficient labour market where ethnicity or country of birth do not constrain individual’s earning potential should on one hand focus on targeting the ‘inferior’ groups with better education or training facilities

and on the other apply better mechanisms to enforce the employers for a secular selection strategy.

Although our estimates provide important insights into the labour market performance of the immigrants and minorities, due to smaller number of observations we were not able to analyze certain groups in detail. In addition, information on certain variables like language fluency or religion would enrich the analysis as well. Therefore, data sets with greater representation of minority groups and additional information on certain variables would provide better insights into present analysis.

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Appendix A: Multinomial Logit Estimation of Employment Status

Table A.1: Employment Status Estimation (1992)						
	Main Model			Extended Model (different ethnic categorization)		
	Self employed	Un employed	Non employed	Self employed	Un employed	Non employed
Age	0.037 (3.00)**	-0.137 (9.02)***	-0.350 (22.04)***	0.035 (2.82)***	-0.139 (9.03)***	-0.351 (22.03)***
Age2	-0.000 (1.85)*	0.002 (9.02)***	0.005 (26.67)***	-0.000 (1.66)*	0.002 (9.02)***	0.005 (26.63)***
Married	0.012 (0.27)	-1.041 (20.95)***	-0.975 (18.90)***	0.014 (0.31)	-1.031 (20.58)**	-0.962 (18.50)***
Onekid	0.029 (0.66)	0.077 (1.20)	0.021 (0.29)	0.029 (0.65)	0.073 (1.14)	0.016 (0.22)
Twokid	0.088 (1.99)**	0.283 (4.46)***	-0.079 (0.97)	0.084 (1.88)*	0.278 (4.35)***	-0.090 (1.10)
Morekid	0.337 (5.79)**	0.938 (12.87)***	0.729 (7.86)***	0.332 (5.66)***	0.920 (12.49)**	0.717 (7.68)***
Stay	0.035 (2.61)**	0.008 (0.52)	-0.099 (7.23)***	0.038 (2.57)**	0.011 (0.59)	-0.103 (7.05)***
Stay2	-0.001 (2.35)**	-0.000 (1.06)	0.001 (5.27)***	-0.001 (2.13)**	-0.001 (1.25)	0.001 (4.97)***
White immigrant	-0.206 (1.20)	0.325 (1.79)*	1.615 (8.66)***			
Black immigrant	-0.669 (1.61)	-0.080 (0.27)	1.644 (4.22)***	-0.743 (1.76)*	-0.046 (0.15)	1.713 (4.36)***
Indian immigrant	-0.162 (0.35)	1.269 (1.63)	2.441 (2.97)***	-0.230 (0.48)	1.289 (1.64)	2.518 (3.06)***
Pakistani immigrant	-1.112 (1.39)	0.870 (0.75)	20.057 (.)	-1.181 (1.47)	0.897 (0.77)	20.127 (.)
Mixed immigrant	-1.115 (1.96)**	-0.669 (0.84)	0.719 (0.98)	-1.183 (2.06)**	-0.642 (0.80)	0.788 (1.07)
Other immigrant	-0.306 (0.28)	1.409 (1.28)	21.043 (.)	-0.350 (0.32)	1.417 (1.28)	21.089 (.)
Chinese immigrant	0.168 (0.15)	19.743 (.)	22.855 (.)	0.117 (0.10)	19.760 (.)	22.913 (.)
Black	-0.189 (0.58)	1.214 (5.87)***	0.942 (2.93)***	-0.182 (0.56)	1.217 (5.89)***	0.949 (2.95)***
Indian	0.362 (0.84)	-0.780 (1.04)	-0.414 (0.52)	0.367 (0.86)	-0.777 (1.04)	-0.412 (0.52)
Pakbd	1.382 (1.80)*	-0.022 (0.02)	-17.697 (72.13)***	1.389 (1.81)*	-0.021 (0.02)	-17.691 (70.21)***
Chinese	0.286 (0.26)	-20.996 (28.26)***	-20.325 (54.08)***	0.287 (0.26)	-21.000 (28.13)**	-20.326 (53.70)***
Mixed	0.967 (2.21)**	0.548 (0.95)	1.389 (2.48)**	0.971 (2.21)**	0.549 (0.95)	1.389 (2.48)**

Otherrace	-0.630 (0.60)	-0.489 (0.46)	-18.432 (70.66)***	-0.626 (0.59)	-0.488 (0.45)	-18.431 (70.06)***
OldEU immigrant				-0.254 (1.10)	0.080 (0.29)	1.516 (5.30)***
EngSpeaking immigrant				-0.555 (2.38)**	-0.165 (0.56)	1.542 (5.66)***
Otherwhite immigrant				-0.235 (1.09)	0.537 (2.33)**	1.968 (8.34)***
High degree	-0.404 (7.81)**	-1.391 (17.97)***	-0.673 (8.99)***	-0.400 (7.69)***	-1.407 (17.94)**	-0.672 (8.95)***
Below degree	-0.628 (8.54)**	-1.351 (12.60)***	-0.664 (6.74)***	-0.628 (8.49)***	-1.352 (12.55)**	-0.663 (6.70)***
Alevel	0.149 (3.77)**	-0.547 (11.28)***	-0.447 (8.79)***	0.148 (3.72)***	-0.552 (11.28)**	-0.458 (8.94)***
Olevel	-0.223 (4.18)**	-0.811 (12.04)***	-0.614 (8.11)***	-0.228 (4.25)***	-0.813 (12.00)**	-0.622 (8.18)***
Below Olevel	-0.319 (3.10)**	-0.587 (5.25)***	-0.285 (2.00)**	-0.320 (3.09)***	-0.588 (5.24)***	-0.278 (1.94)*
Other qualification	-0.267 (4.01)**	-0.475 (5.94)***	-0.351 (4.40)***	-0.267 (3.95)***	-0.464 (5.76)***	-0.358 (4.46)***
South	0.153 (2.93)**	-0.142 (2.12)**	-0.091 (1.18)	0.162 (3.06)***	-0.142 (2.09)**	-0.090 (1.16)
North	-0.149 (2.92)**	-0.086 (1.38)	0.355 (5.02)***	-0.139 (2.70)***	-0.080 (1.26)	0.368 (5.13)***
Health problem	0.047 (0.90)	0.928 (17.82)***	2.685 (61.35)***	0.049 (0.94)	0.928 (17.67)**	2.684 (60.88)***
Constant	-2.430 (9.34)**	1.841 (5.89)***	3.774 (11.02)***	-2.404 (9.20)***	1.859 (5.91)***	3.796 (11.03)***
Observations	37537	37537	37537	37097	37097	37097
Absolute value of z statistics in parentheses						
* significant at 10%; ** significant at 5%; *** significant at 1%						

	Main Model			Extended Model (different ethnic classification)		
	Self employed	Un employed	Non employed	Self employed	Un employed	Non employed
Age	0.001 (0.05)	-0.050 (1.90)*	-0.235 (14.41)***	0.000 (0.02)	-0.051 (1.92)*	-0.234 (14.37)***
Age2	0.000 (2.28)**	0.001 (2.01)**	0.003 (18.56)***	0.000 (2.31)**	0.001 (2.03)**	0.003 (18.52)***
Married	-0.163 (4.06)***	-1.024 (12.69)***	-0.747 (16.11)***	-0.164 (4.09)***	-1.025 (12.70)***	-0.748 (16.12)***
Onekid	0.160 (3.23)***	-0.312 (2.81)***	-0.176 (2.59)***	0.158 (3.20)***	-0.314 (2.83)***	-0.177 (2.60)***

Twokid	0.274 (5.41)***	-0.121 (1.06)	-0.136 (1.76)*	0.274 (5.40)***	-0.120 (1.05)	-0.139 (1.80)*
Morekid	0.580 (8.66)***	0.398 (2.92)***	0.556 (5.97)***	0.580 (8.66)***	0.399 (2.92)***	0.556 (5.98)***
Stay	0.058 (4.94)***	0.003 (0.15)	-0.038 (2.80)***	0.062 (5.18)***	0.007 (0.38)	-0.038 (2.76)***
Stay2	-0.001 (4.05)***	0.000 (0.53)	0.001 (1.96)*	-0.001 (4.28)***	0.000 (0.30)	0.001 (1.91)*
White immigrant	-0.529 (3.96)***	0.048 (0.23)	0.463 (2.99)***			
Black immigrant	-1.332 (3.98)***	0.322 (0.92)	0.828 (2.44)**	-1.368 (4.07)***	0.291 (0.82)	0.834 (2.45)**
Indian immigrant	-0.924 (2.95)***	-0.296 (0.65)	0.636 (1.37)	-0.964 (3.07)***	-0.330 (0.72)	0.645 (1.38)
Pakbd immigrant	-1.033 (3.51)***	-0.436 (0.93)	0.304 (0.79)	-1.073 (3.63)***	-0.475 (1.00)	0.311 (0.81)
Mixed immigrant	-0.804 (1.45)	0.138 (0.15)	0.576 (0.95)	-0.842 (1.52)	0.104 (0.11)	0.581 (0.95)
Other immigrant	-0.239 (0.51)	0.180 (0.28)	1.521 (2.31)**	-0.273 (0.58)	0.151 (0.23)	1.525 (2.31)**
Chinese immigrant	-0.010 (0.01)	-0.948 (0.76)	19.116 (.)	-0.048 (0.04)	-0.982 (0.79)	19.121 (.)
Black	-0.182 (0.83)	0.814 (3.08)***	0.188 (0.71)	-0.181 (0.83)	0.812 (3.07)***	0.188 (0.71)
Indian	0.290 (1.13)	0.912 (2.51)**	0.067 (0.16)	0.290 (1.13)	0.910 (2.51)**	0.067 (0.16)
Pakbd	1.019 (4.44)***	1.281 (3.46)***	1.002 (3.16)***	1.019 (4.44)***	1.281 (3.46)***	1.003 (3.16)***
Chinese	-0.008 (0.01)	1.565 (1.44)	-16.750 (54.06)***	-0.007 (0.01)	1.564 (1.44)	-16.751 (53.94)***
Mixed	-0.037 (0.13)	0.040 (0.08)	0.405 (1.21)	-0.037 (0.13)	0.038 (0.07)	0.405 (1.21)
Otherrace	-0.291 (0.66)	0.652 (1.06)	-0.252 (0.40)	-0.290 (0.66)	0.650 (1.06)	-0.252 (0.40)
OldEU immigrant				-0.753 (4.17)***	-0.053 (0.18)	0.535 (2.54)**
Eng Speaking immigrant				-0.546 (2.89)***	-0.508 (1.21)	-0.020 (0.06)

OtherWhite immigrant				-0.414 (2.75)***	0.254 (1.10)	0.545 (2.97)***
High degree	-0.395 (6.38)***	-1.347 (11.03)***	-1.316 (19.57)***	-0.396 (6.39)***	-1.342 (10.99)***	-1.312 (19.49)***
Below degree	-0.530 (6.80)***	-1.229 (7.55)***	-1.353 (15.56)***	-0.531 (6.82)***	-1.226 (7.53)***	-1.349 (15.51)***
Alevel	-0.050 (0.87)	-0.775 (7.50)***	-1.130 (19.54)***	-0.051 (0.88)	-0.769 (7.44)***	-1.126 (19.46)***
Olevel	-0.294 (4.46)***	-0.493 (4.52)***	-0.898 (13.33)***	-0.294 (4.47)***	-0.491 (4.50)***	-0.895 (13.29)***
Below Olevel	-0.319 (3.05)***	-0.483 (2.76)***	-0.688 (6.18)***	-0.320 (3.06)***	-0.480 (2.75)***	-0.684 (6.14)***
Other qualification	-0.232 (3.19)***	-0.584 (4.66)***	-1.209 (15.76)***	-0.231 (3.18)***	-0.576 (4.60)***	-1.203 (15.67)***
South	-0.162 (2.70)***	-0.484 (4.17)***	-0.337 (4.38)***	-0.162 (2.70)***	-0.488 (4.20)***	-0.336 (4.36)***
North	-0.323 (5.57)***	-0.205 (1.95)*	0.014 (0.19)	-0.322 (5.56)***	-0.210 (2.00)**	0.013 (0.19)
Health problem	-0.033 (0.86)	0.512 (6.97)***	1.797 (42.36)***	-0.032 (0.84)	0.513 (6.98)***	1.796 (42.33)***
Constant	-1.788 (5.67)***	-0.800 (1.43)	2.305 (6.31)***	-1.777 (5.64)***	-0.789 (1.41)	2.291 (6.26)***
Observations	29600	29600	29600	29599	29599	29599
Absolute value of z statistics in parentheses						
* significant at 10%; ** significant at 5%; *** significant at 1%						

Appendix B: Mean and Coefficients of the Controls used in Employment Decomposition Analysis

Table B.1: Mean & Coefficients of the Controls used in Unemployment Decomposition (1992)¹¹												
	WN		WM		BN		BM		IM		PM	
	\bar{X}	β	\bar{X}	β	\bar{X}	β	\bar{X}	β	\bar{X}	β	\bar{X}	β
Age	42.89	-.009	43.25	-.020	29.50	-.045	43.70	-.011	42.17	-.005	41.45	.000
Age square	1967	.000	2002	.000	898	.001	2032	.000	1885	.000	1834	-.000
Stay			26.49	.003			22.11	.003	21.72	-.003	21.31	.000
Stay square			922	-.000			623.5	-.000	539.84	.000	537.15	-.000
Married	.79	-.091	.78	-.129	.45	-.273	.69	-.155	.901	.012	.915	.009
Hdegree	.13	-.068	.19	-.061	.09	-.212	.17	-.148	.222	-.013	.091	-.289
Blwdegree	.07	-.060	.04	-.040	.11	-.361	.03	-.008	.047	-.124	.012	-.002
Alevel	.34	-.038	.27	-.033	.26	-.225	.25	-.107	.170	-.004	.124	-.011
Olevel	.13	-.043	.08	-.049	.12	-.262	.08	-.08	.062	-.026	.039	-.009
BlwOlevel	.03	-.031	.01	-.074	.08	-.150	.02	-.268	.016	.011	.012	.005
Otherqual	.06	-.026	.14	-.053	.09	-.036	.13	-.031	.144	-.007	.154	.003
Onekid	.16	.003	.16	.033	.15	.102	.18	-.049	.199	-.003	.109	.003
Twokid	.17	.019	.15	.061	.08	.355	.13	.028	.247	.007	.133	-.002
Morekid	.07	.085	.08	.166	.09	.416	.09	-.111	.193	.016	.523	.002
South	.33	-.011	.35	-.026	.13	.112	.11	-.059	.169	.006	.133	-.003
North	.59	-.006	.32	-.019	.31	-.067	.26	-.076	.424	.017	.589	-.004
Health Problem	.16	.037	.15	.027	.09	-.193	.17	.124	.170	.067	.302	.005
Constant		1.77		3.616		3.75		4.025		1.502		-1.31
Observation	34082		1580		141		362		616		331	

¹¹ Bold figures indicate statistically significant estimates.

Table B.2: Mean and Coefficients of the Controls used in Unemployment Decomposition (2006) ¹²																
	WN		WM		BN		BM		IN		IM		PN		PM	
	\bar{X}	β	\bar{X}	β	\bar{X}	β	\bar{X}	β	\bar{X}	β	\bar{X}	β	\bar{X}	β	\bar{X}	β
Age	45.4	-.001	41.17	.002	39.1	-.000	42.19	.002	32.2	.000	44.3	.000	31.6	.000	40.66	-.001
Age square	2185	.000	1821	-.000	1577	.000	1901	-.000	1069	-.000	2082	-.000	1022	-.000	1754	.000
Stay			20.31	-.001			16.72	.009			21.76	.000			21.20	-.004
Stay square			734.9	.000			493	-.000			701	-.000			629.2	.000
Married	.626	-.029	.579	-.023	.361	-.000	.558	.016	.508	-.000	.841	-.000	.707	-.000	.881	-.266
Hdegree	.206	-.022	.258	-.010	.248	-.000	.236	-.026	.5	-.000	.293	-.000	.328	.955	.125	-.049
Blw degree	.088	-.019	.058	.002	.099	-.000	.110	-.046	.079	-.000	.048	-.000	.069	-.000	.043	-.029
Alevel	.298	-.015	.175	.001	.218	-.000	.129	.041	.175	-.000	.072	-.000	.172	.999	.055	-.029
Olevel	.169	-.010	.073	.029	.208	-.000	.104	.110	.135	-.000	.068	-.000	.164	.999	.082	-.006
Blw Olevel	.038	-.009	.013	-.036	.074	-.000	.021	.047	.032	-.000	.019	.000	.069	.999	.033	-.025
Otherqual	.075	-.010	.305	.003	.045	-.000	.273	.109	.016	-.000	.312	-.000	.052	.999	.317	-.067
Onekid	.153	-.010	.165	.011	.173	-.000	.224	-.058	.159	-.000	.201	-.000	.172	.000	.213	.054
Twokid	.163	-.007	.151	.014	.134	-.000	.150	.003	.167	-.000	.253	.000	.155	.000	.192	-.007
Morekid	.061	.007	.059	-.015	.109	-.000	.107	-.025	.056	-.000	.081	.000	.284	.000	.387	.086

¹² Bold figures indicate statistically significant estimates.

										.000						
South	.326	-.007	.366	.006	.158	.000	.163	-.081	.135	- .000	.172	-.002	.147	.990	.183	-.014
North	.606	-.000	.346	.005	.302	-.000	.319	-.002	.587	- .000	.474	-.000	.724	.009	.503	-.062
Health Problem	.323	.008	.199	.001	.257	-.000	.190	.087	.159	- .000	.259	.000	.224	.000	.341	-.006
Constant		-.244		-4.37		14.7		-2.39		-6.4		-26.1		-63.9		.373
Observation	2569 8		1501		202		326		126		458		116		328	

Appendix C: Multinomial Logit Estimation of Occupational Attainment

Table C.1: Occupational Choice Estimation (1992)							
	Main Model			Extended Model (with 4 categories)		Extended Model (different ethnic categorization)	
	Profession al	Skilled	Profession al	Skilled	Nonwage employed	Profession al	Skilled
Age	0.231 (13.7)***	0.032 (2.35)**	0.191 (12.4)***	-0.000 (0.03)	-0.116 (9.58)***	0.231 (13.7)***	0.033 (2.35)**
Age2	-0.002 (12.6)***	-0.000 (2.6)***	-0.002 (11.7)***	-0.000 (0.41)	0.002 (12.7)***	-0.002 (12.5)***	-0.000 (2.59)***
Married	0.420 (7.41)***	0.097 (2.13)**	0.300 (5.72)***	0.036 (0.80)	-0.426 (10.4)***	0.431 (7.57)***	0.103 (2.25)**
Stay	-0.097 (4.86)***	-0.055 (3.1)***	-0.091 (4.94)***	-0.056 (3.2)***	-0.056 (3.6)***	-0.074 (3.37)***	-0.032 (1.60)
Stay2	0.001 (2.79)***	0.001 (1.41)	0.001 (2.76)***	0.001 (1.65)*	0.001 (1.85)*	0.001 (1.75)*	0.000 (0.28)
White immigrant	2.150 (8.42)***	1.288 (5.5)***	2.044 (8.26)***	1.244 (5.3)***	1.469 (6.61)***		
Black immigrant	0.811 (1.46)	0.708 (1.68)*	0.898 (1.75)*	0.682 (1.69)*	0.527 (1.40)	0.490 (0.87)	0.418 (0.97)
Indian immigrant	1.801 (2.47)**	0.988 (1.71)*	2.146 (3.04)***	1.092 (1.91)*	1.806 (3.11)***	1.481 (2.01)**	0.703 (1.20)
Pakbd immigrant	19.410 (.)	1.690 (1.51)	20.171 (.)	1.877 (1.74)*	2.034 (2.18)**	19.101 (.)	1.409 (1.26)
Mixed immigrant	0.895 (0.90)	1.175 (1.29)	0.656 (0.71)	1.149 (1.32)	0.071 (0.09)	0.616 (0.62)	0.938 (1.03)
Other immigrant	1.476 (0.93)	-0.304 (0.26)	1.959 (1.22)	-0.232 (0.20)	1.667 (1.30)	1.244 (0.78)	-0.520 (0.44)
Chinese immigrant	2.151 (1.30)	2.009 (1.43)	2.595 (1.63)	2.475 (1.73)*	3.531 (2.25)**	1.857 (1.12)	1.741 (1.24)
Black	-0.738 (1.70)*	-0.083 (0.27)	-0.636 (1.57)	0.017 (0.06)	0.578 (2.07)**	-0.738 (1.70)*	-0.082 (0.27)
Indian	-0.635 (0.95)	-0.152 (0.29)	-0.873 (1.35)	-0.159 (0.31)	-0.285 (0.54)	-0.636 (0.95)	-0.153 (0.30)
Pakbd	-18.205 (47.3)***	-0.631 (0.58)	-18.875 (52.8)***	-0.720 (0.69)	0.072 (0.08)	-18.210 (45.9)***	-0.633 (0.59)
Chinese	0.744	0.286	0.275	-0.090	-0.913	0.746	0.282

	(0.49)	(0.22)	(0.19)	(0.07)	(0.62)	(0.49)	(0.22)
Mixed	0.337 (0.41)	-0.208 (0.27)	0.414 (0.55)	-0.144 (0.20)	0.986 (1.55)	0.332 (0.40)	-0.211 (0.27)
Otherrace	0.049 (0.03)	1.231 (1.09)	-0.667 (0.42)	1.086 (0.98)	-0.328 (0.26)	0.045 (0.03)	1.229 (1.09)
OldEU immigrant						1.944 (5.70)***	1.069 (3.45)***
Eng Speaking immigrant						2.853 (7.38)***	1.970 (5.33)***
Otherwhit immigrant						2.093 (6.36)***	1.168 (3.86)***
High degree	5.525 (39)***	2.767 (20)***	5.384 (38.4)***	2.741 (20)***	2.532 (18.6)***	5.512 (38.9)***	2.752 (19.8)***
Below degree	4.226 (31.6)***	2.624 (20.5)***	4.112 (31)***	2.602 (20)***	1.538 (11.9)***	4.229 (31.4)***	2.625 (20.3)***
Alevel	1.748 (28.6)***	1.370 (30.7)***	1.687 (27.9)***	1.360 (31)***	0.707 (17)***	1.743 (28.3)***	1.360 (30.3)***
Olevel	2.381 (31.97)** *	1.348 (22.09)** *	2.274 (31.21)** *	1.320 (21.94)* **	0.535 (9.01)***	2.377 (31.74)** *	1.342 (21.90)** *
Below Olevel	0.804 (6.39)***	0.217 (2.42)**	0.662 (5.34)***	0.164 (1.85)*	-0.282 (3.20)***	0.806 (6.39)***	0.212 (2.36)**
Other qualificati on	0.269 (3.11)***	-0.198 (3.06)***	0.326 (3.82)***	-0.162 (2.51)**	-0.197 (3.68)***	0.258 (2.94)***	-0.202 (3.10)***
South	-0.210 (2.67)***	-0.145 (2.09)**	-0.143 (1.93)*	-0.118 (1.73)*	-0.040 (0.62)	-0.228 (2.86)***	-0.159 (2.24)**
North	-0.730 (9.75)***	-0.394 (5.99)***	-0.577 (8.22)***	-0.312 (4.9)***	-0.233 (3.85)***	-0.736 (9.67)***	-0.394 (5.89)***
Constant	-6.553 (18.3)***	-0.566 (1.94)*	-5.518 (16.6)***	0.151 (0.54)	2.583 (9.80)***	-6.558 (18.2)***	-0.567 (1.94)*
Observati ons	23882	23882	38187	38187	38187	23650	23650
Absolute value of z statistics in parentheses							
* significant at 10%; ** significant at 5%; *** significant at 1%							

Table C.2: Occupational Choice Estimation (2006)

	Main Model			Extended Model (with 4 categories)		Extended Model (different ethnic categorization)	
	Professional	Skilled	Professional	Skilled	Nonwage employed	Professional	Skilled
Age	0.139 (7.62)***	-0.015 (0.97)	0.144 (8.38)***	-0.021 (1.38)	-0.056 (3.81)***	0.140 (7.68)***	-0.015 (0.93)
Age2	-0.002 (7.87)***	-0.000 (0.11)	-0.002 (9.20)***	0.000 (0.03)	0.001 (6.17)***	-0.002 (7.93)***	-0.000 (0.15)
Married	0.576 (11.7)***	0.178 (4.1)***	0.508 (10.9)***	0.142 (3.39)***	-0.210 (5.29)***	0.576 (11.7)***	0.179 (4.14)***
Stay	0.044 (2.83)***	0.038 (2.67)***	0.042 (2.96)***	0.039 (2.87)***	0.058 (4.68)***	0.026 (1.62)	0.023 (1.57)
Stay2	-0.001 (3.10)***	-0.001 (2.69)***	-0.001 (2.97)***	-0.001 (2.76)***	-0.001 (4.16)***	-0.001 (1.80)*	-0.001 (1.69)*
White immigrant	0.173 (1.17)	-0.259 (1.97)**	0.022 (0.16)	-0.357 (2.75)***	-0.418 (3.31)***		
Black immigrant	-1.556 (4.03)***	-1.048 (3.25)***	-1.332 (3.69)***	-0.951 (3.07)***	-1.150 (3.77)***	-1.450 (3.74)***	-0.943 (2.92)***
Indian immigrant	-0.131 (0.29)	-0.323 (0.78)	-0.186 (0.43)	-0.353 (0.86)	-0.726 (1.80)*	-0.020 (0.04)	-0.207 (0.50)
Pakbd immigrant	-1.147 (2.13)**	-0.807 (1.74)*	-1.502 (3.12)***	-0.908 (2.07)**	-1.419 (3.56)***	-1.016 (1.88)*	-0.673 (1.45)
Mixed immigrant	-0.932 (1.30)	-0.590 (0.98)	-1.061 (1.57)	-0.629 (1.06)	-0.958 (1.61)	-0.842 (1.18)	-0.495 (0.82)
Other immigrant	-0.938 (1.13)	-1.529 (1.94)*	-1.049 (1.30)	-1.610 (2.07)**	-0.929 (1.18)	-0.826 (0.99)	-1.429 (1.81)*
Chinese immigrant	-17.505 (18.9)***	-16.727 (.)	-18.210 (19.3)***	-17.069 (.)	-17.116 (16.4)***	-17.384 (18.8)***	-16.616 (.)
Black	-0.221 (0.76)	0.160 (0.63)	-0.169 (0.61)	0.189 (0.77)	0.197 (0.81)	-0.217 (0.74)	0.163 (0.65)
Indian	0.135 (0.34)	0.063 (0.17)	0.043 (0.11)	0.035 (0.10)	0.337 (0.94)	0.136 (0.34)	0.063 (0.17)
Pakbd	0.085 (0.19)	0.156 (0.38)	0.412 (1.02)	0.275 (0.72)	1.393 (3.93)***	0.085 (0.19)	0.155 (0.38)
Chinese	18.675 (17.4)***	18.158 (28.2)***	19.280 (17.7)***	18.410 (29.3)***	18.840 (15.9)***	18.671 (17.4)***	18.157 (28.2)***
Mixed	0.141	0.300	0.235	0.341	0.367	0.142	0.301

	(0.35)	(0.83)	(0.61)	(0.97)	(1.05)	(0.35)	(0.83)
Otherrace	0.720 (0.89)	1.213 (1.58)	0.812 (1.03)	1.277 (1.68)*	0.879 (1.13)	0.718 (0.89)	1.211 (1.58)
OldEU immigrant						0.317 (1.44)	0.083 (0.42)
Eng Speaking immigrant						1.677 (6.16)***	0.643 (2.38)**
Otherwhit immigrant						-0.427 (2.40)**	-0.580 (3.86)***
High degree	5.281 (40.1)***	2.950 (25.1)***	5.172 (39.6)***	2.942 (25.1)***	2.145 (19.4)***	5.270 (39.9)***	2.949 (25.1)***
Below degree	3.676 (29.8)***	2.314 (21.7)***	3.595 (29.3)***	2.308 (21.7)***	0.892 (8.75)***	3.658 (29.6)***	2.311 (21.7)***
Alevel	2.044 (22.1)***	1.534 (23.6)***	1.979 (21.)***	1.527 (23.7)***	0.311 (5.8)***	2.027 (21.9)***	1.530 (23.6)***
Olevel	1.437 (14.9)***	0.772 (11.2)***	1.349 (14.1)***	0.751 (11)***	-0.230 (3.9)***	1.423 (14.7)***	0.769 (11.2)***
Below Olevel	0.304 (2.08)**	0.266 (2.72)***	0.220 (1.52)	0.235 (2.42)**	-0.531 (6.04)***	0.286 (1.96)*	0.262 (2.68)***
Other qualificati on	0.672 (6.38)***	0.115 (1.50)	0.636 (6.08)***	0.111 (1.46)	-0.659 (10.6)***	0.616 (5.81)***	0.098 (1.29)
South	-0.203 (2.23)**	-0.398 (4.73)***	-0.228 (2.66)***	-0.404 (4.93)***	-0.486 (6.21)***	-0.190 (2.07)**	-0.390 (4.62)***
North	-0.766 (8.70)***	-0.661 (8.22)***	-0.705 (8.57)***	-0.622 (7.97)***	-0.668 (8.98)***	-0.746 (8.44)***	-0.649 (8.04)***
Constant	-4.438 (10.9)***	0.574 (1.66)*	-4.260 (11)***	0.787 (2.33)**	1.607 (4.90)***	-4.465 (10.9)***	0.554 (1.60)
Observatio ns	19866	19866	29629	29629	29629	19866	19866
Absolute value of z statistics in parentheses							
* significant at 10%; ** significant at 5%; *** significant at 1%							

Appendix D: Mean and Coefficients of the Controls used in Occupation Decomposition Analysis

Table D.1: Mean & Coefficients of the Controls used in Professional Choice Decomposition (1992)¹³												
	WN		WM		BN		BM		IM		PM	
	\bar{X}	β	\bar{X}	β	\bar{X}	β	\bar{X}	β	\bar{X}	β	\bar{X}	β
Occupation	1.90		1.75		2.07		2.10		1.89		2.10	
Age	41.45	.045	41.70	.054	28.68	.005	43.97	-.000	40.23	.022	39.05	.022
Age square	1830	-.000	1857	-.001	831.3	-.000	2040	-.000	1713	-.000	1622	-.000
Stay			24.96	-.009			22.54	.000	21.31	.003	20.19	-.005
Stay square			839.64	.000			627.28	-.000	527.295	-.000	489.3	.000
Married	.815	.079	.812	-.023	.486	.003	.799	.001	.889	-.142	.904	-.128
Hdegree	.158	.653	.241	.554	.097	.999	.234	.999	.286	.772	.152	.724
Blwdegree	.079	.449	.049	.345	.167	.999	.043	.999	.071	.376	.024	-.157
Alevel	.327	.144	.263	.096	.278	.999	.288	.999	.166	.348	.144	.316
Olevel	.143	.298	.077	.194	.222	.999	.059	.999	.077	.515	.056	.349
BlwOlevel	.032	.146	.015	-.043	.069	.999	.022	.999	.022	.332	.008	-.073
Otherqual	.062	.053	.140	.227	.042	-.006	.092	.999	.129	.442	.104	.112
South	.332	-.030	.373	.062	.111	.000	.136	-.000	.194	-.004	.128	-.041
North	.581	-.101	.323	-.073	.292	.005	.245	.001	.375	-.12	.576	-.021
Constant		-6.57		-4.28		-13.5		-257		.068		-1.89
Observation	21970		955		72		184		325		125	

¹³ Bold figures indicate statistically significant estimates.

	WN		WM		BN		BM		IN		IM		PN		PM	
	\bar{X}	β	\bar{X}	β	\bar{X}	β	\bar{X}	β	\bar{X}	β	\bar{X}	β	\bar{X}	β	\bar{X}	β
Occupation	1.87		1.81		1.85		2.14		1.66		1.82		1.73		2.24	
Age	43.74	.032	39.30	.056	39.04	.058	41.46	-.001	31.3	.000	41.82	.036	31.18	.017	37.56	.000
Age square	2022	-.000	1652	-.001	1564	-.001	1831	.000	1004	-.000	1863	-.000	996	-.000	1497	-.000
Stay			18.48	.008			15.584	.002			18.81	.009			17.81	-.000
Stay square			639.6	-.000			438.35	-.000			588.3	-.000			486.0	.000
Married	.642	.103	.585	.093	.416	.311	.584	.009	.5	-.001	.835	-.029	.667	.008	.862	-.002
Hdegree	.230	.604	.294	.71	.277	.209	.292	.999	.544	.948	.327	.602	.492	.999	.138	.999
Blwdegree	.099	.389	.058	.461	.131	.103	.123	.997	.044	-.001	.053	.381	.095	.999	.048	.999
Alevel	.295	.181	.156	.312	.204	-.190	.123	.996	.189	.999	.089	.210	.095	.999	.078	.999
Olevel	.177	.186	.071	.336	.204	-.143	.100	.995	.156	-.006	.066	.079	.127	.999	.072	.999
BlwOlevel	.039	-.007	.014	.379	.073	-.119	.014	-.030	.022	-.001	.017	.287	.032	-.006	.036	.999
Otherqual	.075	.022	.308	.525	.036	-.178	.247	.999	.022	.999	.307	.364	.063	-.029	.347	.999
South	.331	.004	.378	-.016	.182	-.036	.192	.017	.144	.001	.188	.192	.175	.031	.222	.001
North	.604	-.075	.360	-.114	.307	.055	.315	-.007	.6	.000	.469	.137	.619	.004	.437	.000
Constant		-4.03		-6.95		-5.12		-22.1		-9.8		-2.85		-22.7		-32.8
Observation	17285		1060		137		219		90		303		63		167	

¹⁴ Bold figures indicate statistically significant estimates.