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A multilevel analysis of returns to education in labour market among ethno-religious minorities in England and Wales [1]

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Abstract

It is widely accepted that education is the most important factor in determining one's social class and chances of upward mobility in modern societies. In Britain and other western countries, the main channel through which education shapes one's social mobility chances is the labour market. In previous studies on ethnicity and transition from school to work, it has been pointed out that minorities are likely to face ethnic penalties while entering the labour market. The empirical evidence from Britain suggests that people from Indian and Chinese backgrounds are doing as good as the white majority in many aspects, if not better, whereas people from Caribbean, Pakistani and Bangladeshi backgrounds have lower levels of achievement in terms of education and employment than the white majority. In this paper, drawing on data obtained from the 2001 UK census (CAMS data), we carry out a new multi-level analysis to explore the influence of the ethno-religious background on the one hand and neighbourhood-based factors such as ethnic segregation and levels of deprivations on the other hand on the transition from school to work in England and Wales. In addition, in this paper we are introducing new way to operationalise the transition from school to work by taking into account in the same variable both the educational level that a person has and his or her occupational level as reported in the census. Out of these two variables, we have calculate a score that runs between minus four (-4) and plus four (+4) with 0 to indicate the perfect match between education and employment (for further explanations the reader is referred to the methodology section). The scale indicates the returns to education with -4 indicating the lowest returns and +4 indicating the highest returns.

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A multilevel analysis of returns to education in labour market among ethno-religious minorities in England and Wales

It has been argued in previous literature that ethnic and religious minorities in Britain followed a different pattern in their educational and occupational endeavours than their white British fellow citizens. Some minority groups were overrepresented in higher education while some others were overrepresented among unemployed or inactive populations. In this study, we have analysed some key factors in order to explain the school-to-work transition of minority groups using 2001 UK Census individual data.

The analysis has focused on age, gender, ethnicity, religion, and type of family, marital status, country of birth, ownership and type of accommodation, educational qualification, and occupational level. We have contrasted these individual level characteristics with level of deprivation and isolation of minority groups at neighbourhood level. For analytical purposes, we have formulated school-to-work transition in terms of returns to educational qualification which is measured by level differences between the level of qualification and level of occupation. To overcome the shortcomings of earlier studies, we have also introduced an interaction variable, ethno-religious identity reflecting ethnic and religious affiliation.

These three, ethno religious variable, transition formulation, and multilevel analysis, has proven to be innovative and pioneering, provided us with a rich array of findings shedding lights on ethnic and religious diversity and its reflections in UK employment patterns. Muslim segments of different ethnic groups are found more vulnerable and disadvantaged suffering a relative deprivation which is responsive to where they live and with whom they are more likely to be in contact. Differences have also been related to age, gender, and tenure of accommodation, marital status, and family types.

It is widely recognized that education is the most important single factor in determining one's social class and chances of upward mobility in modern societies. The process through which individuals convert their educational attainment into economic achievement into the labour market is largely known as transition from school to work. Previous studies have pointed out that minorities are likely to face ethnic penalties while entering the labour marketing various forms such as longer period of unemployment until first full time job than amongst the majority ethnic group, or lower wages for the same job and qualification, underemployment and job allocation (Craig, et al. 2005; Heath and McMahon 1997; Modood, et al. 1997). Although all ethnic minorities face discrimination in the labour market (Craig, et al. 2005), in recent years it has become clear that some minorities face larger penalties than other minority groups. For example, Modood (2005: 79-80) has concluded, "ethnic minorities in Britain can no longer be said "to be at the bottom of the occupational and income scale". While this description is true of some minorities, others are more likely to be at the bottom than the whites. At the same time, the ethnic minorities are less likely than the whites to be at the top as we have attempted to show in this study. But some minorities are now well represented near the top and in the middle".

The empirical evidence suggests that people from Indian and Chinese backgrounds are doing as good as the white majority in many aspects, if not better, whereas people from Caribbean, Pakistani and Bangladeshi backgrounds have lower levels of achievement in terms of education and employment than the white majority. In his attempt to explain the ethnic diversity in Britain, Modood (1997) has argued that the nature and perhaps the extent of discrimination faced by ethnic minorities in Britain varies between different ethnic minority groups with Muslim minorities (Pakistanis, Bangladeshis and perhaps Muslim Indians) suffer a distinctive and complex kind of racism. This may even be more evident for Muslim women in the labour market, especially those women who wear *Hijab* as some recent studies suggest

(Ahmad, et al. 2003; Dale 2002; Dale, et al. 2002). However, most of these studies have come to the conclusion that Muslims face an extra penalty due to their religious affiliation based on subjective perceptions of respondents through qualitative investigations. Through these studies we can only learn about the subjective experience of the respondents and cannot make any generalizations about the whole community and whether this pattern of religious based-discrimination runs across all groups or not; again an area to be revisited in this study.

There are very few studies that have investigated the effect of ethnicity and religion. (Brown 2000) investigated the labour market behaviour in relation to religion among the South Asian population in Britain (Brown 2000). Drawing on secondary analysis of the Fourth National Survey of Ethnic minorities, he has confirmed that religious groups are different from each other in their socio-economic profile, with Muslims being the most disadvantaged group (pp.1058-1059). However, he then goes on to challenge this latter point by referring to the relative advantaged Indian Muslim minority and that the latter is significantly different from the other two major Muslim groups of Pakistanis and Bangladeshis. Thus, these studies are creating more question than providing answers leaving us with relation to the question of ethnic and religious differences in square one. Drawing on the 2001 UK census data, we carry out a new investigation to look at the influence of the ethno-religion background on the transition from school to work in England and Wales.

Moreover, while previous studies have rightly pointed out that racial discrimination is still a major factor in determining the returns on education amongst ethnic minorities, many of them have failed to take residential patterns and the effect of place of residence into account, despite its importance (Jargowsky 1997). Not surprisingly, geographers were the first in the UK to highlight the importance of residential patterns of ethnic minorities in relation to their labour market outcomes (Fieldhouse 1999; Fieldhouse and Gould 1998; Fieldhouse and Tranmer 2001; Peach 2005). In their very influential work on ethnic penalties in the UK, Heath and McMahon (1997) have not included residential patterns or residential segregation in their analyses, and thus have not accounted for a very significant factor in the process of transition from school to work amongst. Unlike the former, Modood, et al. (1997) have lightly mentioned the spatial patterns in relation to unemployment, as they have suggested that "the relationship between unemployment rates and concentration of ethnic minorities is complex and would merit further exploration" (p. 192). Indeed, exploring the issue of segregation and labour market outcomes among ethnic minority requires a different and more advanced method of analysis such as multilevel analysis in order to capture the complexity. (For different applications of multilevel models see Fieldhouse and Tranmer 2001, Khattab 2006; Mouw 2000). Using a multilevel approach to analyse the transition from school to work among minority groups, we aim to control for both individual factors such as the ethno-religious factor as well as neighbourhood factors (i.e. segregation).

The paper is organized as follows. Following a brief outline of ethnic minorities in England and Wales, the first section explains data and methods detailing our conceptualization and operationalisation of returns to education in school-to-work transition. An overview of minority populations' economic activity status and level differences between educational qualification and employment/occupation is followed by the results of empirical models used to measure differences among ethno-religious minorities in England and Wales. Final section discusses the results and potential policy implications from the analysis of school-to-work transition in relation to ethnic and religious diversity in the UK.

ETHNIC AND RELIGIOUS MINORITIES IN ENGLAND AND WALES

As a concept, ethnic minorities refer to population groups that are smaller in number relative to the larger majority mainstream population group in any country. Most literature and this paper, however, use the term to refer to those ethnic groups who (or their ancestors)

originally arrived as international immigrants. In other words, these are *immigration-bound ethnic minorities* whom include Irish but not Scottish or Welsh population groups in England and Wales.

The history of ethnic minorities in England and Wales in particular, and Britain in general, can date back to the 18th and 19th centuries mainly due to British colonial expansion in Africa, Caribbean and Indian sub-continent. Many of earlier immigrants were of Irish origin. Since the early years of the post-war era, Britain have seen influx of people in large numbers from countries that formerly were part of the British Empire. These minorities still constitute the vast majority of total non-white population in the UK comprising Asians and Blacks. During the 1980s, there was a 23 per cent increase in non-white ethnic minority groups (compared to 1 per cent rise in the Whites). In the 1990s, the corresponding figures were 39 per cent in the former and 4 per cent in the latter. Yet, we need to count that there is a large group of white ethnic minorities such as Turks, Greeks, Polish, etc.

Today, almost a tenth of the UK population is composed of minorities, mainly Asian and Irish origin. Over a decade (1991-2001), the proportion of non-white minority ethnic groups in England and Wales rose from almost six per cent to nine per cent. In the same period, the proportion of UK born people living in England and Wales has dropped about two per cent. The 2001 Census results on ethnicity and religion reveal that 87.5 per cent of the population of England and Wales (seven out of eight people) are White British. White minorities form almost four per cent of the population of which Irish people make up one third.

The highest proportions describing themselves as White British are in the North East, Wales and the South West (over 95 per cent) whilst highest proportions of minorities are found in London. Almost 45 per cent of minorities live in London. Two per cent of the population of England and Wales are Indian, led by Leicester where 25.7 per cent of the population is Indian. Pakistanis are the second largest minority group (1.4 per cent). 0.5 per cent of the population of England and Wales are Bangladeshis with the highest proportion in the London borough of Tower Hamlets (33.4 per cent).

The Black population of England and Wales is comprised of 1.1 per cent Black Caribbean, 0.9 per cent Black African and a further 0.2 per cent other Black minorities. Again Blacks are highly concentrated in London boroughs including Lambeth, Lewisham, and Hackney.

Chinese people, being one of the affluent ethnic groups, form more than two per cent of the population in some London boroughs including Westminster and City of London but their overall share is not more than 0.4 per cent in England and Wales.

Some ethnic groups are pretty homogeneous in terms of religious affiliations such as Pakistani and Bangladeshi are largely Muslims while Irish are Christians. For other groups, however, religious homogeneity is not the case. We, therefore, attempted to a finer analysis of minorities by using a combined identity marker that is ethno-religious affiliation. Previously it was not possible because the Census had not asked about religion until 2001. Comparisons among these newly developed ethno-religious categories promise a finer understanding of multicultural Britain.

More than 70 per cent of people in England and Wales were reported Christian in the last census. 6 per cent in England and 1.5 per cent in Wales were reported to have other faiths whereas 14 per cent stated that they have no religion and another 8 per cent did not want to state their religion. Within this picture, Islam appears to be the second most common religion in England and Wales (3 per cent) and this figure is as high as 36 per cent in some London boroughs. 1.1 per cent in England and Wales are Hindu, followed by 0.6 per cent Sikhs, 0.5 per cent Jewish, and 0.3 per cent Buddhist. Again in some areas, faith groups are concentrated such

as Hindus (19.6 per cent) in Harrow, Jewish (14.8 per cent) in Barnet, or Sikh (over eight per cent) in Hounslow.[3]

METHODS AND DATA

We use the information on religious affiliation and ethnic background to derive new variable that we label as ethno-religious identity. This helps us to control for both religion and ethnicity, but also to explore the interaction effect of both backgrounds (religion and ethnicity). Using such variable will help answering some of the questions that previous studies failed to answer due to lack of information or outdated data sets such as the 1991 UK Census where religion was not asked or the Fourth National Survey of Ethnic Minorities that is now about 11 years old.

The analysis here is based on the Controlled Access Microdata Sample (CAMS), which is a more detailed version of the licensed SAR file and we have accessed the data by special arrangement with the Office for National Statistics at their Titchfield Offices. The dataset contains details on geography down to LA level as well as full details on occupations and industry including other variables such as country of birth. The SARS data is a 3% representative sample of the entire population in England and Wales. Our final sub-sample includes about 800,000 individuals at working ages (16 and 64 for men and 16 to 59 for women.

Variables

Operationalisation of school to work (dependent variable)

In this paper we are introducing new way to operationalise the transition from school to work by taking into account in the same variable both the educational level that a person has and his or her occupational level as reported in the census. Out of these two variables, we have calculate a score that runs between minus four (-4) and plus four (+4) with 0 to indicate the perfect match between education and employment (for further explanations the reader is referred to the methodology section). The scale indicates the returns to education with –4 indicating the lowest returns and +4 indicating the highest returns.

The school-to-work transition is transformed into scores ranging from –4 to +4 indicating the distances between levels of qualification and of occupation by a formula using two variables from the 2001 census data. Level of occupation is adopted by classification of ISCO (International Standard Classification of Occupations) whilst level of qualification (level of highest qualification) is used as it was in the census data. We also partially integrated economic activity status by recoding unemployed and inactive categories into level 0 in occupational level. In both, qualification and occupation, we reduced the sample by eliminating unknown categories. For example, we have excluded both the ‘armed forces’ category in ISCO, and the ‘level unknown qualifications’ category in the highest level of qualification which resulted in a sizeable reduction of the sample. Then we obtained two variables; qualification level ranging 0 to 4/5 and occupational level ranging from 0 to 4. In the former 0 represents those with no qualification while it is unemployed or inactive in the latter (see appendix 1).

By subtracting level of qualification from level of occupation we obtained a score, which we call transition score representing the level of match or mismatch between the two. This score, we believe, gives an indication of returns to education in labour market. Table 1 presents a summary of these scores by ethno-religious groups.

[3] As an interesting note, 0.7 per cent of people stated their religion as "Jedi Knight", religion of the Star Trek movie.

Transition score = level of occupation – level of qualification (1)

(returns to education)

In the analysis we have merged –4 into –3 and +4 into +3 for the sake of simplicity. Additionally, we have recoded the variable further to create a series of dummy variables in order to run the multilevel models. The latter recoding has to be done due to software restrictions, as full multinomial models could not run using the MLWin software.

Independent variables

Level-1

Gender: coded as 0 for men and 1 for women.

Place of birth: coded as 0 for UK born and 1 for overseas

Marital status: coded as 0 for unmarried and 1 for married. The unmarried category includes all people who are not married at the time of the census (such as single divorced and so on).

Ethno-religious background: this variable was derived using the two variables on ethnicity and religion. We have created 15 ethno-religious groups as follows:

Christians White-British (CWB), Muslim Indians (MI), Muslim Pakistanis (MP), Muslim Bangladeshis (MB), Muslim others (MO), Jews White-British (JWB), Hindu Indians (HI), Sikh Indians (SI), Chinese (Chinese), No religion (NR), Christians White-Irish (CWI), Christians Black-Caribbean (CBC), Christians Black-Africans (CBA), Other White-British (OWB) and Others (O).

Tenure of accommodation: the variable has been recoded into 3 categories: home owner, privately rented and council tenant.

Age: indicates the respondent's age and runs from 16 to 64 for men and 16 to 59 for women. We have excluded other age groups.

Family type: the variable has been coded into 4 categories: individual, lone parent, couple with no children and couple with children.

Level-2

Two variables have been defined at the neighbourhood level. The first variables was the Multiple Index of Deprivation for each neighbourhood which was measured and added to the dataset by the ONS, and the second was the Modified Index of Isolation which we have estimated for each neighbourhood on the basis of the formulation by Johnston and others (2004).

The model

Data were analysed using a series of multilevel logistic models. There were 7 different models to cover the whole range of transition outcomes with the "match" situation to indicate the middle status where there is no difference between qualification level and occupational skill level. In each model we examine the log-odds of being in a certain transition outcome against the log-odds of being in one of the other remaining outcomes. The full equation of the model is included in appendix I. For the sake of simplicity, and because among some groups, there were relatively few cases at the return levels of 4 and 3 or –4 and –3, we have combined the last 2 levels at each end of the scale so that 4 and 3 became the highest level of return and –4 and –3 became the lowest level of return to education.

FINDINGS

In this section we will present and discuss our results. First we will present, briefly however, the distribution of occupations using the one digit ISCO classification by ethno-religious background. Then we will present the differences between the ethno-religious groups in terms of their transition scores (or returns to education) and will follow-up by presenting the models from the multi-level analysis. For the ethno-religious differences in levels of returns to education and for the results of the multi-level analysis we use separate figures for men and women highlighting the relevant results for 3 levels of returns: highest, match and lowest. The full range of results is included in Appendix 3 for the distribution of transition scores by ethno-religious background and in Tables 1 and 2 for the multi-level analysis.

Figure 1 presents the occupational distribution by ethno-religious group using the one digit ISCO classification excluding the armed forces. The figure reveals that while most of the groups have different patterns, CWB, CWI and NRWB have very similar pattern. For example, they are almost evenly represented within the top two classes of legislators, senior officials and managers and professionals (29%, 29% and 28% respectively). The group with the highest representation within the top two classes is JWB. They are over-represented with 44% of them holding positions within these two classes followed by HI and Chinese with 35% and 33% of them respectively holding jobs that can be classified in these two classes. In contrast to these groups, MB and CBC are under-represented within these top classes with 17% and 19% of them respectively occupying positions within these classes. MP are too under-represented within these top classes with slightly over a fifth (21%) placing them just below the CBA and SI (23% and 24% respectively). Unlike the other previous Muslim groups (MB and MP) MI are just below CWB with slightly over a quarter of them (27%) hold positions within these two top classes placing them at a better position than the other two Muslim groups but also ahead of SI (one of the other two Indian groups).

In addition to the differences within these two top classes, we would like to highlight the differences within the class of service works and shop and sales workers. It is worth noting here that MB are extremely over-represented within this class with 41% of them are employed within this class followed by Chinese with slightly less than third of them (30%) holding positions as service and shop workers. In both cases, these high percentages of people in this class are due to the high percentage of people working in food businesses and the take away style restaurants.

In Figures 2 and 3, we present the ethno-religious differences in levels of returns to qualification (transition) for men and women. As we have mentioned earlier, the scale measures the distance (difference) between the formal qualification and the actual skill level required within the class in which the person's job is located. For the sake of simplicity and for us to highlight the most significant patterns, we have restricted the presentation for three levels of returns only: highest, match and lowest (the full results are in appendix III). We begin with figure 2, which presents the relevant results for men. The results confirm that JWB enjoy the highest level of return followed by CWB, SI and CWI. In contrast to the former groups, there are two groups who are under-represented within the highest level of return: CBA and MO. While the percentage of Chinese people within the highest level is similar to that of other groups such as MI, MB, CBC, their percentage within the lowest level of return is higher than any other group with about 22% of them receive the lowest level of return to their qualification followed by CBA and MO with about 21% and 17% respectively. It seems that relative to all the other groups, CWB are under-represented with only 4% of them receive the lowest level of return to their qualification. It is worth noting here that despite the JWB are over-represented within the highest level of returns, they seem to be slightly over-represented within the lowest level as well. This might be due to the pattern of economic activity amongst the orthodox religious Jews who usually do not participate in the labour market.

With respect to the match level, where the formal qualification match with the skill level required within the occupational class, it seems that in general around third of the people among most of the groups hold occupations that suit their qualification. The only exceptions here are HI and CWI who are over-represented within the match level with about 40% of them having jobs that suit their qualification.

Now we move on to report the ethno-religious differences in levels of return among women. Like men, about third of women among most of the groups hold jobs with skill level that match their qualification. This pattern exists amongst JWB, HI, SI, CWI, OWB and CWB. The only exception here is the four Muslim groups and in particular MB, MP and MI who are significantly over-represented within the match level with about half (49.8%) of MB women having this level of return.

Unlike men, no group of women reach the threshold of 5% representation within the highest level of return, which was the case among 5 of the groups in relation to men. The group with the highest percentage of members holding positions with the highest level of return is Chinese women (3.8%) followed by JWB (3.7%), CWB 3.5%) and SI (3.5%). Three out of the four Muslim groups (MP, MB and MO) along with CBA are well below the former groups. The equivalent percentage for CWI women is 2.6% slightly below that of MI and SI women (2.8%). In terms of representation within the lowest level of returns, it is worth noting that Chinese women have the higher percentage (22.8%) followed CBA (18%) and MO (15.8%). In contrast, CWB women seem to be in a better position with about 5% of them only had to face the lowest level of returns to their qualification.

These two figures suggest that discrepancies exist between different ethno-religious groups and to lesser extent within some of the groups in relation to men and women. The comparison between the two figures reveals that in most of the groups women had to face lower returns to their qualification than men and are less likely than men to be at the opposite end of the returns' scale (the highest level). This suggests that different patterns exist among men and women, which justifies fitting different models to them. In order for us to learn more about these patterns and about the differences between the ethno-religious groups we have run a series of multi-level logistic models with levels of returns to qualification as the dependent variable. These models are presented in Table 1 for men and Table 2 for women.

We now move on to report the results from the multi-level analysis beginning with the relevant results for men. While Table 1 covers the results from of all the 7 models, we will highlight the results for three models: highest returns, match and lowest returns. The first predictor in Model 1 is place of birth indicating the impact of being born overseas vis-à-vis UK born. Table 1 suggests that the impact of being born overseas is negative. It significantly reduces the log-odds of falling within the highest level of returns rather than within the other levels. Being unmarried has also a negative impact on falling within the highest level of returns. The third predictor is the ethno-religious background. In order for us to illustrate the contrasts between the three models in relation to the influence of the ethno-religious background we have included Figures 4 for men and 5 for women. As Table 1 suggests (see figure 4 as well), surprisingly, the group with the highest log-odds is Chinese (0.64). This means that holding all other factors constant, relatively to CWB, Chinese are more likely to be represented in the highest level of returns rather than in any of the other levels followed by JWB with log-odds of (0.32). Both results are statistically significant. The only groups who are significantly less likely to be represented within the highest level of returns are: CBA (-1.28), NR (-0.22) and O (-0.27). The results for the other groups are not statistically significant suggesting that these groups are not so different from CWB in terms of their chances of being represented within the highest level of returns. Tenure of accommodation does not seem to have significant impact on the outcome variable and so family type. However age seems to increase the log-odds of being in the highest level of returns. This may be due to experience that is increased with age and on the job training that is not being controlled for here.

The bottom part of the table presents the impact of the macro (neighbourhood) factors. It suggests that the level of deprivation measured at the neighbourhood level decreases the log-odds of being at the highest level of returns to education. The impact of segregation (measured by the modified index of isolation) is negative too, though unlike the impact of deprivation, it is not significant.

Model 2 that we want to highlight in Table 1 is the one for the match returns. Unlike in the previous model, being overseas born significantly increases the log-odds for the match level of returns indicating that people who have born overseas are more likely than UK born people to have jobs that match their qualifications. Being unmarried has negative impact suggesting that unmarried people are less likely to be within the match level relative to married people. While JWB, HI and CWI are more likely than CWB to receive returns that match their qualification, MP, MB and CBC are significantly less likely than CWB to receive returns that match their qualification. People who rent their homes either privately or from councils are less likely than people who own their homes to be represented within the match level of returns. People who live as individuals or as a couple with no parents are more likely to be in the match level rather than in any other level relative to couple with children.

With respect to the impact of the neighbourhood-based factors, the multi-level analysis reveals that the higher the deprivation level of the neighbourhood, the lower will be the likelihood of being in the match level of returns (log-odds of –0.01). However, while the impact of deprivation is negative, the effect of segregation is positive and both are statistically significant. The greater the level of segregation, the higher the likelihood of being within the match level (0.64).

The last model we wish to highlight on Table 1 is the lowest level of returns. This model is even more interesting than the other two models because most of the coefficients are statistically significant revealing much clearer patterns than in the previous two models. Unlike the previous two models, overseas born is not significant. However, unmarried is significant and suggests that unmarried people are more likely to be presented in the lowest level of returns than in any of the other levels relatively to married people. In terms of the impact of the ethno-religious background, while all of the ethno-religious groups are more likely to be presented in the lowest level than in the other levels, the result is insignificant for JWB and Chinese. This indicates that except for the former two groups, all other groups face substantially lower returns to their qualification than CWB. It seems that JWB and Chinese are as likely as CWB to experience the lowest level of returns. If we take into account that these two groups were more likely to be represented in the highest level of returns more than the CWB, then the conclusion that they (more than any other groups) are the most advantaged and the most successful is in place (this is of course in relation to men).

No doubt that the results from the multi-level analysis (especially those concerning Chinese) are surprising. When we looked at Figure 2, Chinese were found to be over-represented within the lowest level. However, in our multi-level analysis we control for individual (micro) and macro factors, so it appears that when we control for age, place of birth and for the neighbourhood factors, Chinese as a group seem to be highly successful in terms of converting their qualification into labour market positions that generate high levels of returns and help them to avoid experiencing the lowest levels of returns. This issue will be further discussed in the next section.

The most disadvantaged of these groups who experience the lowest level of returns are CBA (2.25), MO (1.63), MI (1.27), MP (1.20) and SI (1.11). The other groups are too disadvantaged though to a lesser extent than the former. Interestingly, groups like CWI and HI as well as OW are also experiencing the lowest returns indicating that despite their initial similarity with the CWB, after controlling for age, place of birth and other individual factors as

well as the two neighbourhood-based factors it seems that these groups experience some kind of labour market penalties. These issues will be discussed further in the next section.

The relevant results for the neighbourhood impact reveal that the deprivation level of the neighbourhood is not significant, whereas segregation significantly increases the log-odds of being in the lowest level. In other words, the greater the segregation is the higher are the chances of falling within the lowest level of returns suggesting that within segregated areas people are likely to experience the lowest level of returns more than in less segregated areas. This issue will be discussed further in the next section.

Now we turn to report the results from Table 2. It is worth noting that because the model for the highest level did not converge for women, we will restrict our reporting of the results to the remaining two models, namely the match level and the lowest. Table 2 suggests that unmarried women are less likely to be in the match level than in the other levels. In terms of ethno-religious background, JWB, NRWB and O women are more likely to be in the match level relatively to CWB women. In contrast, Chinese women and SI women are less likely to be in the match level relatively to CWB. The results for the other groups are insignificant indicating no differences between them and CWB women. The impact of tenure of accommodation for women seems to be significant and in the same direction as for men. The same can be said about age suggesting that age decreases the log-odds of being in the match level. The impact of living as individual is positive and significant, but for a woman living with partner with no children the impact is negative.

The level-two predictors are both significant. The level of deprivation decreases the log-odds of being within the match level, whereas the level of segregation, like in the case of men, increases the chances of receiving returns that match the qualifications. This latter point will be discussed in more details in the next section.

The last model we are reporting here is the one for the lowest returns. Being overseas born and unmarried significantly increase the log-odds of experiencing the lowest level of returns. CWI and MI women are less likely to be in the lowest level of returns relatively to CWB, though the coefficients are insignificant. All the other coefficients are positive and significant indicating that all these groups including Chinese women and JWB are more likely to experience the lowest level of returns than CWB. The highest coefficients are those of CBA and MB (1.65 and 1.61 respectively) followed by Chinese and MO (1.45 and 1.36 respectively). Tenure of accommodation and age increase the log-odds, though it is insignificant for the council rent. The same can be said about family type. Individuals and lone parents are more likely to be presented within the lowest levels of returns. For couple without children the coefficient is negative but not significant suggesting that this type of family is as likely as couple with children to be represented in the lowest level. With what we know about the impact of marriage, it is reasonable to conclude that families with traditional structure of married couple with children are more likely than others to successfully convert their qualification into higher levels of returns.

The level of deprivation, as well as the level of segregation increases the log-odds of people being at the lowest level of returns to their qualifications. It seems that women living in deprived areas and segregated areas are likely to have severed difficulties in converting their qualifications to labour market outcomes.

The results regarding the impact of segregation on the match level seem to contradict the equivalent impact on the lowest level of returns. This point needs to be discussed further.

MULTILEVEL DIFFERENCES FOR ETHNORELIGIOUS GROUPS

In this study we used raw data as well as multi-level analysis in order to study the influence of segregation and ethno-religious background in addition to other predictors on the

transition from school to work among ethno-religious groups in England and Wales. The analysis has revealed significant differences between the picture obtained from the raw data and the one obtained from the analytical multivariate multi-level models. For example, while on the one hand Figure 1 suggested that Chinese people are more likely than any other group to encounter the lowest level of returns, the multi-level analysis on the other hand has revealed that Chinese are in fact not different from CWB and their relative position is better than all the other non-white groups. Similarly, from the raw data in Figure 3 MB women seem to be under-represented within the highest level of returns to qualifications; however Table 2 suggested a completely different picture with MB women being significantly more likely than CWB women to be represented within the highest level of returns. Because of these differences, and because the raw data can mislead us in making any conclusion about the nature of the differences between the groups, we will base our discussion upon the multi-level analysis.

The multi-level analysis has revealed very interesting and complex ethno-religious differences for both men and women. With respect to men, while Chinese and JWB appear to be the most successful groups in terms of returns to their qualification, CBA is the most disadvantaged group.

The two main predictors in this study were ethno-religious background and residential segregation. We will discuss first the impact of the ethno-religious background and then move on to discuss the impact of segregation. At the end we will discuss the impact of the other factors. In relation to the ethno-religious differences, the findings of this study confirm that these differences are indeed very complex and perhaps more complex than it has been revealed by previous studies such as the 4th National Survey of Ethnic Minorities (Modood 2005; Modood, et al. 1997) or the studies carried out by Heath and McMahon (1997; 1999). For example, we have seen that Chinese and JWB men as groups were relatively more successful than CWB in converting their qualification into the highest level of returns. At the other end of the scale, we found CBA to be the most disadvantaged group (for both men and women). It seems that CBA encounter sever difficulties in converting their qualification into salaried jobs as pointed out by Heath and McMahon (1997). It is possible that the language skills and length of stay may explain some of these disadvantageous, nevertheless other groups who may encounter similar language barriers are less disadvantaged such as MB for example suggesting that the explanation might lie elsewhere. One may include social networks and job seeking patterns as well as type of qualifications and not only level of qualifications. A better control for UK/overseas qualifications should also be introduced in addition to place of birth, as it is possible that many people have born overseas but have obtained their qualification in the UK. This applies not to CBA only but to all the other groups.

All the other ethno-religious groups situated between Chinese and JWB on the one hand and CBA on the other hand. We can see however that the white groups such as CWI and NR fall closer to the former groups and the non-white ethno-religious groups such as MI, MP, MB, HI, SI and CBC are positioned more closer to the latter group especially in terms of the lowest levels of return to qualifications. The pattern that emerges for men here is that non-white ethno-religious groups encounter more penalties than the other white groups with Chinese as the only exception. Within this general pattern it seems that three out of four Muslim groups (MI, MP and MO) tend to face the lowest level of returns more than the other remaining non-white groups (HI, SI and CBC) suggesting that there might be two levels or dimensions of differences between the ethno-religious groups. One dimension is captured by colour and the other dimensioned is being captured by religion or culture. Despite the fact that CBA (who are obviously not a Muslim group) are more disadvantaged than the other groups including the four Muslim groups, this finding is in line with Modood's argument that racialised groups who hold (and perceived by the majority to hold) a different culture and life-style will encounter additional level of discrimination and hostility (2005:38). In his own words:

> The hostility against the non-white minority is likely to be particularly sharp if the minority is sufficiently numerous to reproduce itself as a community and has a distinctive and cohesive value system that can be perceived as an alternative, and a possible challenge, to the norm. (2005: 38)

In the case of Chinese, the majority may perceive them as a different group because of their non-European physical appearance. Yet, in terms of skin colour and cultural distinctiveness, they might be less invisible than the other groups, and therefore they are less likely to encounter the same level of discrimination and hostility. This is of course can only be part of the explanation why are they so successful, and no doubt that their educational profile and the kind of qualifications they obtain (in terms of areas and subject matter) should also be taken into account in explaining their successful. Unlike Chinese, the other Asian or South-Asian groups do experience low returns to their qualifications. However, it is worth noting that MI are not only more disadvantaged than the other two Indian groups (HI and SI), but also slightly more disadvantaged than the other two South-Asian Muslim groups (MP and MB). Similarly, the two black groups (CBC and CBA) are different from each other with CBC are ahead of CBA. This shows how complex the differences between the ethno-religious groups are and the importance of looking at theses differences through ethnicity and religion rather than through one of them only.

The pattern that has emerged from the comparable models for women is different from that of men. The only exception here is CBA women who similarly to CBA men are the most disadvantages group. Unlike the former, CWI women and MI women are very much similar to CWB. Except for these two groups, all other groups are more likely than CWB to experience the lowest level of returns. However, there is no evidence (at least no clear evidence) that the pattern that emerged from the model for men is being replicated here, suggesting that the transition process for women is different from that of men. In other words, it is not clear here that the levels of return or the transition process among women is being determined along colour or cultural lines. One possible explanation is the low levels of qualification among some groups such as the Muslim groups (Khattab 2005) and the fact that the participation rate in the labour market among these women is rather low and is highly driven by culture and traditions (Ahmad, et al. 2003; Brown 2000; Dale 2002; Dale, et al. 2002).

As with respect to the influence of the macro level factors and in particular residential segregation, it is worth noting that its impact in the model for the highest level of returns was negative though failed to reach the 5% of significance. However, in the model for the lowest returns, its impact was significant suggesting that living in highly segregated areas would increase the chances for lower returns to qualifications. This finding is in line with previous research about the impact of segregation on labour market outcomes and particularly on unemployment (Fieldhouse and Gould 1998; Fieldhouse and Tranmer 2001; Khattab 2006).

In the model for the match level of returns, segregation appears to increase the chances of people living in these segregated areas to receive levels of returns that suit their qualifications. However, the match level can be misleading as it can reflect the match between no qualifications and economic inactivity and unemployment rather than a real substantial match between various levels of qualifications and the equivalent skill level. However, a recent study has revealed that people in segregated areas are more likely to be self-employed, less likely to be economically inactive and unemployed (Khattab et al 2005). Therefore, the most reasonable explanation for this contradiction is that some highly qualified people living in segregated areas can secure a suitable level of returns by choosing the track of self-employment such as accountants, solicitors and dentists. Others with lower levels of qualifications can still receive proper returns via self-employment such as shops and restaurants owners and taxi drivers. Similarly, people with low qualifications can find jobs locally as shopkeepers and waiters in restaurants. However, people with high qualifications that cannot become self-employed, but prefers to work locally within their area of residence, or are forced to work locally as the case

with Palestinians in Israel (Khattab 2006), they might be willing to accept low paid jobs or jobs below their qualifications.

The deprivation level of the neighbourhood is significantly related to levels of returns to qualifications. However, while the impact for men is in the expected direction, for women the impact of deprivation is in the opposite direction. This may be related to the employment patterns of both men and women and the kind of local jobs available for both of them.

Now we would like to re-visit some of the individual factors used in this study and in particular place of birth and family structure including marital status. The findings presented in this paper suggest that being born overseas is associated with lowest returns to qualification. This was found in relation to men and women, though one of the parameters in the model of men wasn't significant despite being in the correct direction. These findings challenges that conclusion of Heath and McMahon (1997: 658) that "being born in this country is not associated with any improvement in competitive chances" to access higher occupational positions. Therefore, contrary to the previous conclusion made by heath and McMahon (1997), we think that at least some of the penalties in the labour market faced by ethno-religious groups can be ascribed to their overseas qualifications.

Like being born overseas, being unmarried (with no partner) is negatively associated with transition from school to work, though for women the parameter is only significant in the model for lowest levels of returns. It is rather hard to establish here any causality or whether marriage can lead to economic success or vice versa, but no doubt this relationship between both factors cannot be overlooked. Taking the impact of family type into account, we can conclude that in general lone parents (for both men and women) may suffer from low returns to their qualification. This may be the case because of the extra family responsibility that prevents people from taking on jobs that require long hours and less flexibility that lone parents need in order for them to look after their children. The existence of children in the family seems to restrict the returns to qualification for women, but not for men confirming what we already know about the division of labour within the household and that women are more likely than men to look after kids and to work part-time.

CONCLUSIONS

In this study we were concerned with the question of how ethno-religious background and residential segregation affect the transition from school to work measured by the distance between someone's formal qualification and the actual skill level required for his or her occupational class. Due to the differences between men and women, we have fitted different multi-level models for both genders. The models fitted for men have revealed that combining both ethnicity and religion was useful in exploring the complex nature of the differences between the groups confirming that using ethnicity without taking religion into account is insufficient and can be misleading. These models have provided an empirical evidence for the existence of multi-dimensional penalties or discrimination, one associated to skin colour and one associated to culture. However, the models fitted for women have revealed a different pattern despite the fact that some white groups were more similar to CWB (like CWI women and NR who are mainly white) than all the other non-white groups. We suspect that these differences stem from the very different employment patterns of some non-white groups and in particular the four Muslim groups.

Residential segregation was found to be associated with the level of returns to qualification supporting the argument that high levels of segregation restrict economic success and significantly lowering the returns for qualifications. From these findings we only can conclude about the negative influence on returns to qualifications, but we should make no conclusions about whether segregation also contributes to increasing unemployment and economic inactivity. It is possible that within segregated areas, members of the minority groups

may be able to find local jobs either as employees or as self-employed and to avoid unemployment, however whether then they can also secure high returns to their qualification is a different question, and as the findings of this study suggest, the answer is no.

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Appendix I

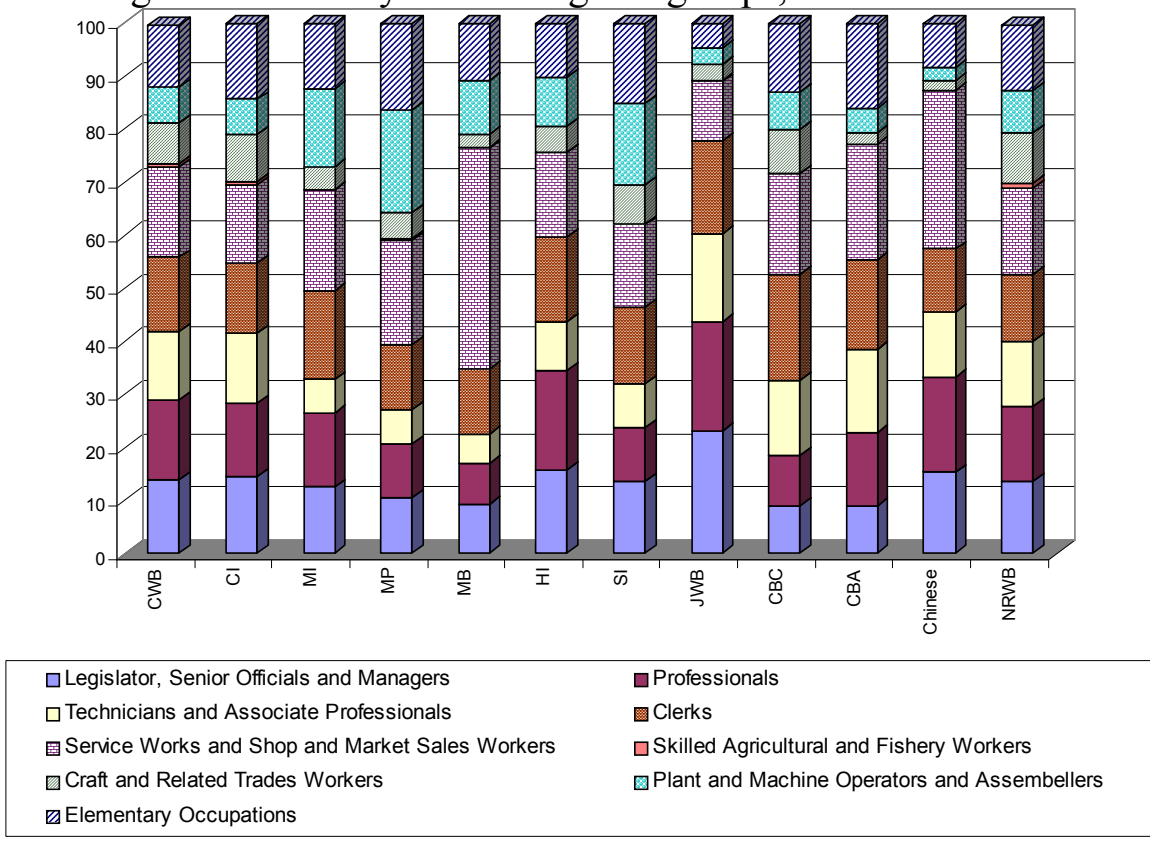
ISCO-88 major groups and skill level

Major occupational group	Skill level	Qualification level
Legislator, Senior Officials and Managers	level 4	Level 4/5 (Degree+)
Professionals		
Technicians and Associate Professionals	level 3	Level 3 (A/AS level)
Clerks	level 2	Level 2 (O level, GCSE grade A-C)
Service Works and Shop and Market Sales Workers		
Skilled Agricultural and Fishery Workers		
Craft and Related Trades Workers		
Plant and Machine Operators and Assemblers		
Elementary Occupations	Elementary (1)	Level 1 (GCSE grade D-G)
Unemployed/inactive	Level 0	No qualification

Skill level – qualification level = transition score (return to education)

Range: -4 to +4 with 0 indicating complete match between skill level and qualification

Figure 1: ISCO by ethno-religious groups, men and women



Appendix II

The equation used for the analysis

$$y_{ij} \sim \text{Binomial}(n_{ij}, \pi_{ij})$$

$$\text{logit}(\pi_{ij}) = \beta_{0j}x_0 + \beta_1 x_{1ij} + \beta_2 x_{2ij} + \beta_3 x_{3ij} + \beta_4 x_{4ij} + \beta_5 x_{5ij} + \beta_6 x_{6ij} + \beta_7 x_{7ij} + \beta_8 x_{8ij} + \beta_9 x_{9ij} + \beta_{10} x_{10ij} + \beta_{11} x_{11ij} + \beta_{12} x_{12ij} + \beta_{13} x_{13ij} + \beta_{14} x_{14ij} + \beta_{15} x_{15ij} + \beta_{16} x_{16ij} + \beta_{17} x_{17ij} + \beta_{18} x_{18ij} + \beta_{19} x_{19ij} + \beta_{20} x_{20ij} + \beta_{21} x_{21ij} + \beta_{22} x_{22ij} + \beta_{23} x_{23ij} + \beta_{24} x_{24ij} + \beta_{25} x_{25ij} + \beta_{26} x_{26ij} + \beta_{27} x_{27ij} + \beta_{28j} x_{28ij} + \beta_{29j} x_{29j}$$

$$\beta_{0j} = \beta_0 + u_{0j}$$

$$\beta_{28j} = \beta_{28} + u_{28j}$$

$$\beta_{29j} = \beta_{29} + u_{29j}$$

$$\begin{bmatrix} u_{0j} \\ u_{28j} \\ u_{29j} \end{bmatrix} \sim N(0,\ \Omega_u) \ :\ \Omega_u = \begin{bmatrix} \sigma^2_{u0} & & \\ \sigma_{u0\,28} & \sigma^2_{u\,28} & \\ \sigma_{u0\,29} & \sigma_{u\,28\,29} & \sigma^2_{u\,29} \end{bmatrix}$$

$$\text{var}(y_{ij}|\pi_{ij}) = \pi_{ij}(1 - \pi_{ij})/n_{ij}$$

Appendix 3

Returns to education, 16-64 by sex, England and Wales, 2001

		Returns to education									
Ethno-religious identity	Sex	**-4**	**-3**	**-2**	**-1**	**0**	**1**	**2**	**3**	**4**	Total
Muslim Indian	Male	3.9	5.6	10.4	10.9	36.0	12.2	15.9	1.5	3.5	1258
	Female	6.0	4.1	14.1	13.7	44.0	8.8	6.7	1.1	1.7	1124
Muslim Pakistani	Male	5.1	6.0	13.2	11.8	30.4	12.4	17.4	1.6	2.2	5933
	Female	7.5	6.3	14.4	14.6	44.9	6.1	4.9	.7	.7	5360
Muslim	Male	4.0	5.1	12.4	11.5	29.6	11.3	21.7	1.9	2.5	2212
Bangladeshi	Female	4.4	5.8	14.0	14.6	49.8	6.0	4.3	.5	.6	1992
Muslim others	Male	7.7	8.9	19.0	17.3	32.7	8.1	5.1	.6	.6	943
	Female	8.5	7.3	15.8	18.3	39.7	5.5	3.3	1.0	.5	796
Jewish	Male	3.5	4.7	8.4	10.2	37.1	12.7	14.4	5.5	3.5	1929
	Female	6.4	6.2	13.6	15.5	33.0	12.0	9.6	2.3	1.4	1825
Hindu Indian	Male	4.5	5.8	11.8	10.9	39.5	10.7	11.5	2.5	2.8	4842
	Female	8.3	5.7	15.4	13.7	33.4	10.8	9.8	1.2	1.6	4775
Sikh Indian	Male	3.5	5.6	11.4	12.3	30.4	15.1	15.6	2.5	3.5	2986
	Female	4.7	5.7	13.8	14.6	32.5	13.9	11.4	1.2	2.3	2973
Chinese	Male	11.4	11.0	12.0	10.9	30.4	6.4	13.2	1.1	3.7	2438
	Female	13.7	9.1	15.2	14.9	27.5	6.8	9.0	1.2	2.6	2633
No-religion White	Male	2.7	3.3	8.2	12.9	36.2	18.2	13.7	3.5	1.3	76594
British	Female	3.5	3.9	11.4	18.2	36.2	14.9	9.2	1.9	.7	58968
Christian Irish	Male	2.9	2.8	6.1	10.6	39.6	16.4	15.8	3.0	2.8	4835
	Female	5.3	3.5	9.2	18.9	35.3	13.2	11.8	1.3	1.3	4925
Christian	Male	2.7	2.9	9.6	13.6	32.2	19.8	14.6	3.5	1.1	3231
Caribbean	Female	4.8	3.4	13.0	21.4	29.0	16.9	8.7	2.3	.4	4562
Christian African	Male	10.2	10.5	21.3	18.4	30.8	4.5	3.5	.6	.2	3025
	Female	10.9	7.1	22.3	22.2	25.9	7.1	3.5	.8	.2	3568
Others	Male	7.3	5.9	11.3	13.8	37.3	11.0	9.7	2.0	1.7	27915
	Female	11.4	7.2	14.8	18.0	32.1	8.6	6.2	1.0	.7	29434
Other White	Male	3.3	4.7	8.7	12.9	34.4	17.0	14.0	3.6	1.5	39750
British	Female	3.8	4.3	11.3	16.4	34.4	15.3	11.4	2.1	1.0	29855
Christian White	Male	2.0	2.0	6.8	10.4	34.1	20.4	17.7	4.6	2.1	282221
British	Female	2.9	2.5	9.4	15.9	34.5	18.2	13.0	2.4	1.1	301057
TOTAL											

Figure 2: Lowest, match and highest returns (transition score) by ethno-religious groups - Men

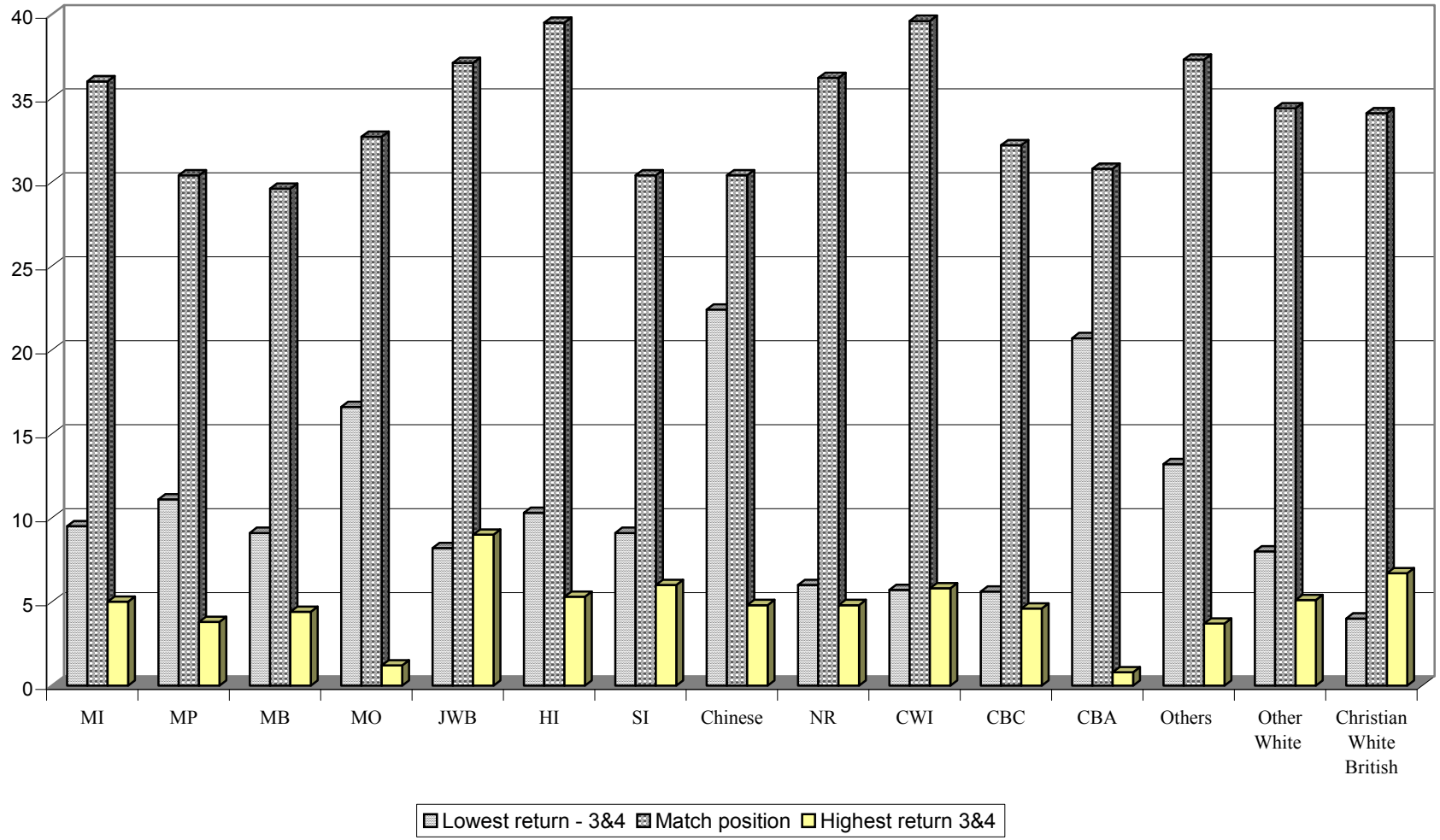


Figure 3: Lowest, match and highest returns (transition score) by ethno-religious groups - Women

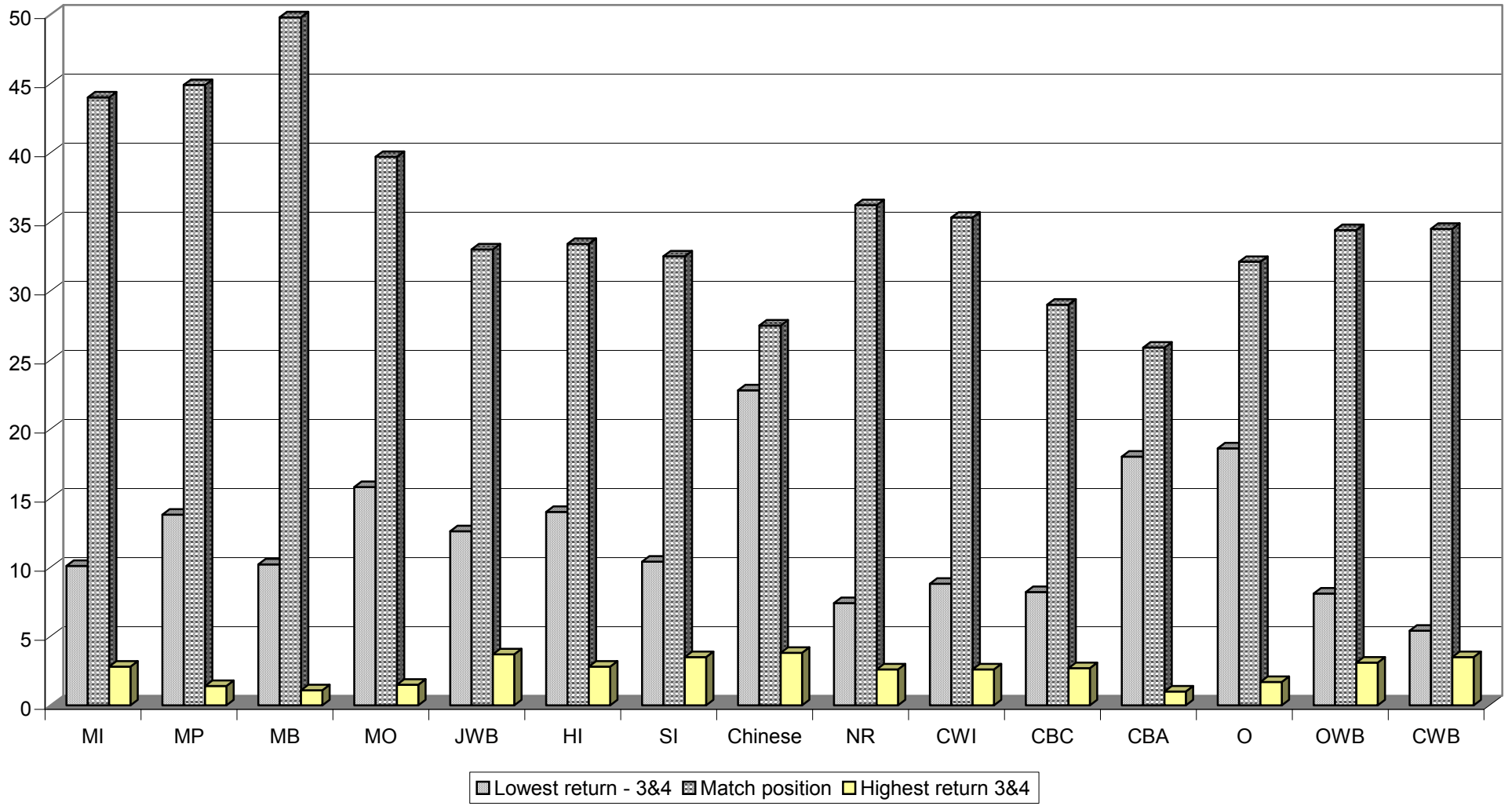


Figure 4: Log-odds for the highest, match and lowest returns to education - Men

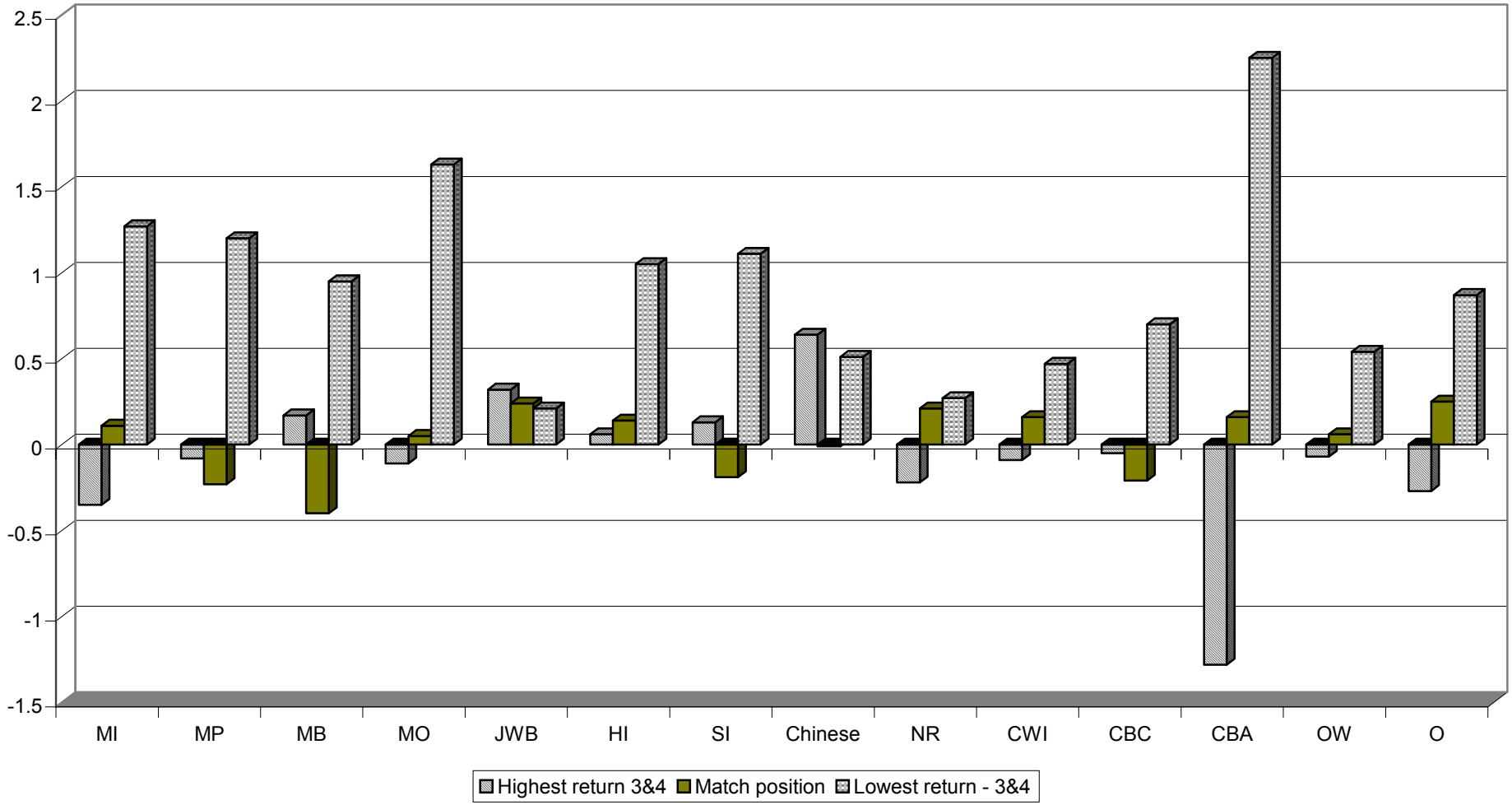


Figure 5: Log-odds for the highest, match and lowest returns to education - Women

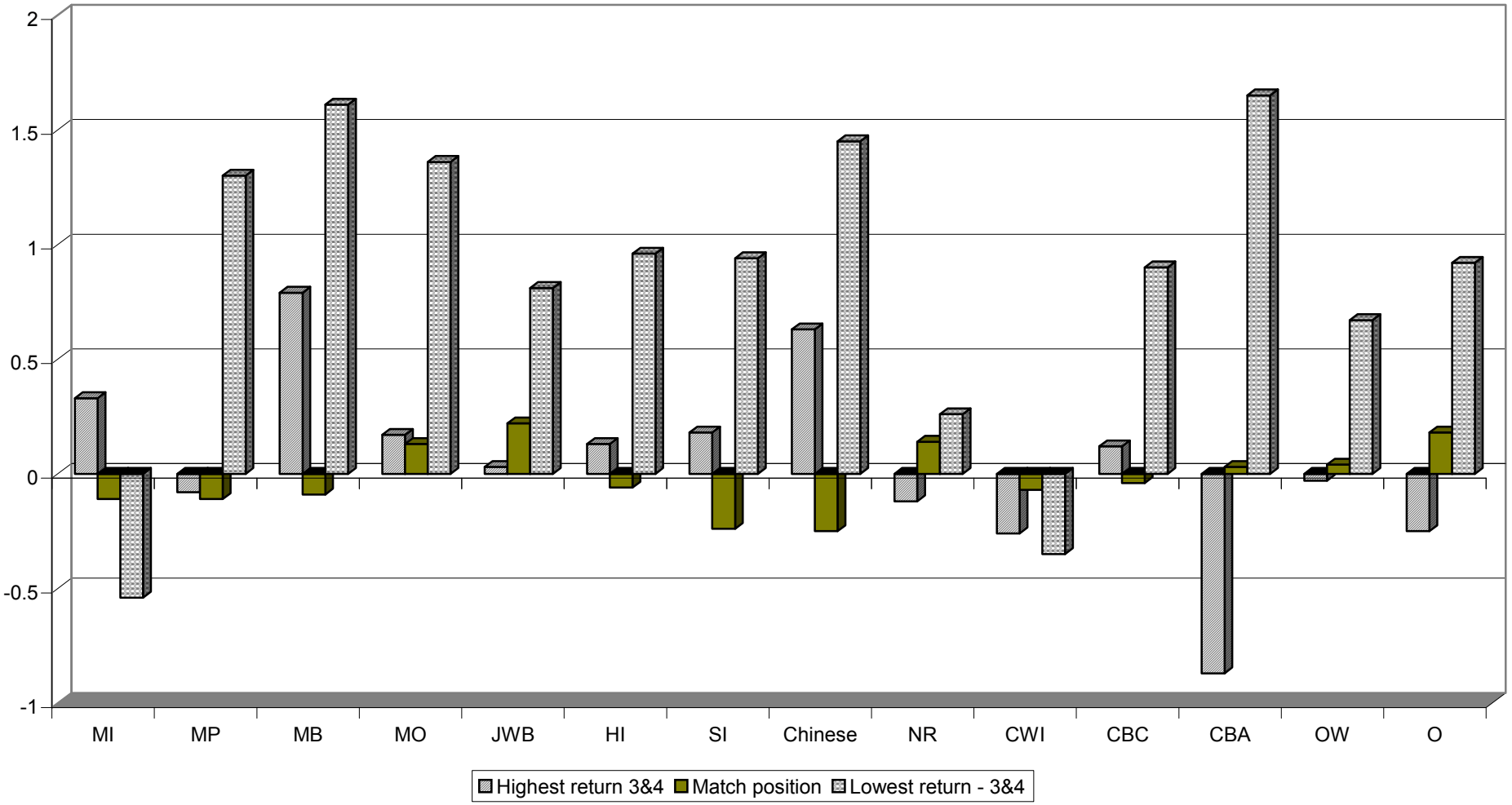


Table 1: Multilevel logistic regression (log-odds) for returns to education (Men)

Independent variables	Highest	M2	M3	Match	M5	M6	Lowest7
Level 1							
Overseas born	-0.27*	-0.07	-0.18*	0.17*	0.07	0.17*	0.07
Unmarried	-0.30*	0.019	-0.03	-0.15*	0.24*	0.27*	0.62*
Ethno-religious background (base: CWB)							
MI	-0.35	0.31	-0.41*	0.11	-0.42	0.39	1.27*
MP	-0.08	0.41*	-0.25*	-0.23*	-0.20	0.52*	1.20*
MB	0.17	0.77*	-0.38*	-0.40*	-0.33*	0.38	0.95*
MO	-0.11	-0.21	-0.48*	0.05	0.09	0.60*	1.63*
JWB	0.32*	-0.24	-0.45*	0.24*	0.19	-0.09	0.21
HI	0.06	-0.19*	-0.41*	0.14*	0.09	0.48*	1.05*
SI	0.13	0.17	-0.18*	-0.19	-0.08	0.52*	1.11*
Chinese	0.64*	0.06	-0.82*	-0.01	0.33*	0.17	0.51
NR	-0.22*	-0.14*	-0.16*	0.21*	0.12*	0.19*	0.27*
CWI	-0.09	-0.14	-0.02	0.16*	0.06	-0.23	0.47*
CBC	-0.05	-0.12	0.23*	-0.21*	0.20	0.26	0.70*
CBA	-1.28*	-1.76*	-1.29*	0.16	0.69*	1.25*	2.25*
OW	-0.07	-0.16*	-0.15*	0.06*	0.22*	0.28*	0.54*
O	-0.27*	-0.67*	-0.34*	0.25*	0.15*	0.40*	0.87*
Tenure of accommodation (Base: owners)							
Private rented	0.04	-0.03	-0.13*	-0.10*	0.01	0.20*	0.48*
Council rented	-0.07	0.27*	0.20*	-0.33*	-0.18*	-0.15*	0.24*
Age	0.03*	0.04*	-0.001	-0.02*	-0.04*	-0.02*	0.00
Family type (Base: couple with children)							
Individual	-0.07	-0.21*	-0.13*	0.19*	0.07*	0.18*	0.10
Lone parent	-0.13	0.02	-0.4	-0.2	0.02	0.08	0.24*
Couple with no children	-0.03	-0.05*	-0.12	0.04*	0.05	0.05	-0.06
Level 2							
Index of deprivation (ID)	-0.01*	0.01*	0.005*	-0.01*	-0.002	0.15	0.004
Modified index of isolation MII	-0.07	-0.56*	-0.72*	0.64*	0.38*	0.001	0.41*
Level 2 variance	0.073 (0.03)	0.00 (0.00)	0.00 (0.00)	0.066 (0.01)	0.00 (0.00)	0.038 (0.031)	

Table 2: Multilevel logistic regression (log-odds) for returns to education (Women)

Independent variables	Highest	M2	M3	Match	M5	M6	Lowest7
Level 1							
Overseas born	-0.32*	-0.14*	-0.21*	-0.03	0.31*	0.31*	0.29*
Unmarried	-0.03	0.00	-0.12*	-0.06*	0.09*	0.20*	0.30*
Ethno-religious background (base: CWB)							
MI	0.33	-0.01	0.39*	-0.11	-0.60*	0.38	-0.54
MP	-0.08	0.21	-0.31*	-0.11	-0.08	0.60*	1.30*
MB	0.79*	0.34	-0.15	-0.09	-0.91*	0.63*	1.61*
MO	0.17	-0.32	-0.44*	0.13	-0.06	0.75*	1.36*
JWB	0.03	-0.24	-0.21	0.22*	-0.03	0.21	0.81*
HI	0.13	0.11	-0.34*	-0.06	-0.18	0.67*	0.96*
SI	0.18	0.36*	-0.23	-0.24*	-0.18	0.55*	0.94*
Chinese	0.63*	0.33*	-0.65*	-0.25*	0.25	0.22	1.45*
NR	-0.12*	-0.14*	-0.12*	0.14*	0.03	0.26*	0.26*
CWI	-0.26	-0.06	-0.35*	-0.07	0.65*	0.24	-0.35
CBC	0.12	-0.60*	-0.15	-0.04	0.57*	0.57*	0.90*
CBA	-0.87*	-1.42*	-0.78*	0.03	0.75*	1.17*	1.65*
OW	-0.03	-0.10*	-0.08*	0.04	0.06	0.18*	0.67*
O	-0.25*	-0.53*	-0.43*	0.18*	0.22*	0.60*	0.92*
Tenure of accommodation (Base: owners)							
Private rented	0.16*	0.06	-0.06*	-0.15*	-0.07*	0.22*	0.49*
Council rented	0.07	0.53*	0.28*	-0.40*	-0.44*	-0.36*	0.12
Age	0.04*	0.05*	0.005*	-0.02*	-0.03*	0.02*	0.20*
Family type (Base: couple with children)							
Individual	0.05	-0.14*	-0.28*	0.14*	0.13*	0.13*	0.26*
Lone parent	0.01	0.05	0.07*	-0.02	-0.03	-0.05	0.25*
Couple with no children	0.13*	0.13*	-0.21*	-0.04*	0.02	-0.00	-0.02
Level 2							
Index of deprivation (ID)	0.003*	0.01*	0.007*	-0.01*	-0.007*	-0.01*	-0.006*
Modified index of isolation MII	-0.21	-0.48*	-0.63*	0.49*	0.14	0.55*	0.94*
Level 2 variance	0.040 (0.145)	0.031 (0.015)	0.009 (0.011)	0.047 (0.009)	0.015 (0.014)	0.088 (0.033)	0.107 (0.045)