

Ethnic Differences in Women's Employment:

The changing role of qualifications

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Abstract

We pool eight Spring QLFS quarters for 1992-1995 and 2000-2003 to examine female employment changes by ethnic group. We find that employment has significantly increased for all women except Black Caribbean/Other women. We show that qualifications have played an increasingly important role and there has been increased polarisation between the employment of women with a degree compared to those without. This is especially large for Pakistani/Bangladeshi women. Our decomposition analysis shows that employment changes between the early 1990s and the 2000s are mainly a consequence of changes in characteristics. However, decomposing white/non-white mean employment differences demonstrates a fall in the unexplained discriminatory component for most ethnic groups. Hence differences in white and non-white characteristics explain more of the 2000-3 employment differential than in 1993-5. Furthermore, significant unexplained ethnic penalties of up to 50 percent still exist for South Asian women.

Keywords: Qualifications; discrimination; employment; non-whites

JEL Classification: J15 J61

1. Introduction

Increases in women's levels of qualification level over recent decades have been important in — influencing higher levels of employment. (Elliott, J., Dale, A. and Egerton, M., 2001). An increasing percentage of minority ethnic women have been born and educated in the UK and are thus obtaining UK based qualifications. Previous research indicates substantial employment differences between immigrant and UK-born women (Leslie and Lindley, 2001 and Dale et al, 2002), which have been partly explained by differences in qualification levels and fluency in English. Thus for recently-settled groups such as Pakistanis and Bangladeshis one may expect a large disparity in employment rates between women born and education overseas and women born in the UK. However, for minority ethnic groups of longer standing in the UK, for example, Indians, one might expect cohort changes more similar to white women. In this paper we use logistic and linear probability regression models, as well as the Gomulka and Stern (1990) decomposition method to examine female employment changes over the last decade. We pay particular attention to differences between ethnic groups and to changes for women with a degree, compared to women without a degree.

Changes in women's employment status by ethnic origin can be examined using the Quarterly Labour Force Survey (QLFS) data. Using four pooled Spring QLFS data sets for two periods, 1992-1995 and 2000-2003, sufficient sample sizes for examining minority ethnic groups can be constructed and compared over time. The data capture the end of the recession in the early 1990s and then the recovery in the 2000s.

The rest of this paper first reviews the background literature that is relevant to our topic (Section 2). Section 3 describes the data in more detail with descriptive statistics presented in Section 4. Section 5 outlines the model used. The results of estimating the model are presented in Section 6 and the decomposition results in Section 7. Conclusions are presented in Section 8.

2. Background

Studies of employment (and unemployment) among Britain's minority ethnic groups have tended to focus mainly on men (Berthoud, 2000; Blackaby et al, 2002), with relatively few studies examining the position of women. There is great diversity in the employment profiles of minority ethnic men and women. Smith (2002) used LFS data from the summer quarters and found increased employment levels for women of all ethnic groups between 1997 and 2002. The largest increase was for Chinese women (6% in 1997 to 58% in 2002) and Asian and Asian British women (5% in 1997 to 47% in 2002). What does 6% and 5% refer to? Is it the amount of increase in employment? Need to word more clearly.

A range of factors has been shown to explain the observed increases in women's employment levels. . As well as increases in qualification levels, other factor include increased opportunities and work experience in the labour market; smaller family size; declines in men's real wages; and changes in attitudes towards women's role in the family (Dex and Joshi, 1996). During the time period with which we are concerned there was also an increase in the buoyancy of the labour market, A polarisation has been noted between well-qualified and poorly-qualified women, in terms of continuity

of employment and earnings. Women with higher qualifications – a growing percentage – are increasingly likely to retain continuous full-time employment during family formation whilst women without qualifications are still likely to leave the labour force when they have children (Dex, et al, 1998; Macran et al, (1996); Elliott, et al 2001). Cohort comparisons show that the ‘educational differential’ has become wider and this has resulted in an increase in wage dispersion for women (Rake, 2000; Joshi and Davies, 2002).

However, all women from minority ethnic groups have higher post-16 staying-on rates than white women (Drew et al, 1997) and entry to higher education is increasing more rapidly for South Asian women than for other ethnic groups (UCAS statistics). Again, amongst the more recent migrants (Pakistanis and Bangladeshis in particular) there is a considerable gap between the qualifications of first generation women and those of young women born or educated in the UK. In short, explaining employment changes over time for women from minority ethnic groups involves many considerations. Changes in human capital as well as demographic and socio-economic characteristics need to be controlled for.

Against the background of multiple explanations, this paper focuses on one main element, educational qualifications, and the effect that qualifications have on the employment levels of women from different ethnic groups.

. We investigate whether increases in human capital accumulation have resulted in the same level of employment change for women from all ethnic groups and whether the last decade witnessed polarisation in the employment of women with a degree compared to those without a degree.

3. The data

The Labour Force Survey is conducted by the Office for National Statistics and available for academic use through the UK Data Archive. Since 1992 the Quarterly LFS (QLFS) has been based on a systematic random sample design, which makes it representative of the whole of Great Britain. Each quarter's LFS sample of 60,000 private households is made up of 5 'waves', each of approximately 12,000 households. Each wave is interviewed in 5 successive quarters, such that in any one quarter, one wave will be receiving their first interview, one wave their second, and so on, with one wave receiving their fifth and final interview.

The QLFS collects family and demographic information on each member of the household and therefore allows for the identification of household and family structure. One can relate information about one family member to that of others in the family. It also asks extensive information on employment and unemployment, as well as ethnicity, country of birth and year of arrival in the UK. In Spring 2001 the ethnicity questions were changed. It was therefore necessary to reclassify data after Spring 2001 into the old ethnicity categories.¹ A detailed discussion of this process is provided in Lindley et al (2004).² The ethnicity categories we could identify are as follows: white, Caribbean, African, Black other, Indian, Pakistani, Bangladeshi, Chinese and other. Respondents who answered 'Black Other' or 'Other' were also asked to further classify themselves as 'Mixed' or 'Non-Mixed'. We do not disaggregate further into these mixed and non-mixed groups. The numbers of Chinese women were too small to be reliable in most analyses and were combined, therefore,

with 'other' groups. Clearly this 'other' group is too heterogeneous to be of analytic value. We have included this group in most analyses for completeness. However, this category and the Chinese are not considered in this paper.

The QLFS also asks questions on qualifications and provides derived variables to capture a respondent's highest qualification. The approach here was to group highest qualifications into five broad categories (degree or higher degree), A level, O level, other qualifications and no qualifications). This procedure is based on the recommendations outlined in the LFS user guide (Volume 5 pp107-108). Table A1 in the Appendix provides the details of these reclassifications.

A respondent is 'in (paid) work' if they are employed or self-employed. They are 'not in work' otherwise (ie unemployed or economically inactive).(explain here by we group unemployed and inactive) We excluded full-time students from our sample. However, because we restrict the sample to women age 22-59 most full-time students will fall outside this age range. Combining eight years of QLFS Spring quarters for 1992-5 and 2000-3 gives information for 252,350 British women aged between 22 and 60.³ This provided adequate sample sizes for comparing minority ethnic groups (see Table 4 in Lindley et al, 2004). Minority ethnic groups make up 6 percent of this total sample; Indians were the largest of the minority ethnic groups, and Black Other the smallest. Despite the large sample size of the LFS, there is still a need in some analyses to combine ethnic groups. The broader ethnic categories we have used are: White, Black Caribbean and Black Other, Black African, Indian, Pakistani and Bangladeshi, Chinese and Other groups.

The rationale for our aggregation of ethnic groups is as follows. Black Caribbean and Black Other groups generally both share a Caribbean background (Holdsworth and Dale 1999). Whilst Pakistani and Bangladeshi women share a common religion and, before 1971, a common country, nonetheless the former East and West Pakistan were brought together into the same country following partition and have very different historical origins. Despite this, Pakistani and Bangladeshi women's labour market patterns tend to be very similar and qualitative research has shown that the factors that influence employment are very similar in the two groups.

4. Descriptive statistics

Table 1 contrasts the percentages of women in our sample with a degree and without any qualifications by ethnicity across the two time periods. Comparing across ethnic groups, Pakistani/Bangladeshi women demonstrate the lowest percentage with a degree (12.8 percent in 2000-3) and the highest percentage with no qualifications (48.8 percent in 2000-3). It is important to recognise why this might occur. Pakistani and Bangladeshi women's education and employment choices are influenced not just by structural and human capital factors but also by cultural expectations and family and community pressures (Dale et al, 2001 and Dale et al, 2002). In more traditional families girls are often prevented from going into higher education, particularly if it means moving away from home.

Comparing cohorts, the percentage of women of labour market age (22-60) with a degree has increased substantially between 1992-5 and 2000-3 (18.4% to 27.4%),

whereas the percentage without any qualifications has fallen (32.2% to 20.61%). Standard t-tests show changes for all ethnic groups to be statistically significant at the 5 per cent level. The largest percentage increase was for Pakistani and Bangladeshi women who have more than doubled the percentage with a degree level qualification over this period. The largest absolute increase was for Indian women, an increase of 13 percentage points (15.9% to 29.1%) between the two time periods. There was also a fall in the percentage of Indian women without any qualifications of 17 percentage points (41.9% to 24.4%). By 2000-3 all ethnic groups except (Indians higher than whites) Pakistani and Bangladeshi women, had a higher percentage with degree level qualification than white women.

The percentage of women in paid work in the two periods is compared in Table 2. The final row shows significant increases in employment for all women. Separate comparisons by ethnic groups show these increases were statistically significant only for white, Black African, Indian and Pakistani/Bangladeshi women. So over a decade when unemployment rates fell steadily, not all minority ethnic groups exhibited significant increases in employment levels. The econometric models in the next section will establish the extent to which observed increases in employment were a consequence of changes in human capital and other socio-economic characteristics and the extent to which they were unexplainable and possibly due to 'demand side' factors.

Table 3 shows employment levels for women with and without degree level qualifications, in 1992-5 and 2000-3. As expected, levels of employment are higher in all ethnic groups for women with degree level qualifications but the difference is greatest for Pakistani and Bangladeshi women and smallest for white women. This is

consistent with earlier research comparing white and Pakistani and Bangladeshi women (Dale et al, 2002) which showed a much stronger effect of qualification for the latter group.

Across the time period there was a significant increase in employment for white, Black African and Pakistani/Bangladeshi women.⁴ For the latter group employment rose from 56 to 71 percent. For women without a degree level qualification only the white group showed a significant increase in employment over time. Thus minority groups without degrees do not seem to have benefited from the greater buoyancy in the labour market.

In summary, over the decade we see a large increase in the percentage of women with degree level qualifications across all ethnic groups; much higher levels of employment for women with degrees, but particularly for Pakistani and Bangladeshis; an increase in employment for degree-level women in some ethnic groups – particularly Pakistani and Bangladeshi; and no significant increase in employment over time for minority ethnic groups without degree level qualifications.

We may therefore expect that, holding constant other factors, the increase in levels of employment amongst women with degrees will result in an overall increased level of employment which will be particularly marked for Pakistani and Bangladeshi women. .

5. Modelling ethnic employment

We estimate a multivariate parametric model to identify the extent to which qualification, personal and socio-economic factors explain levels of and changes in women's employment. This is a behavioural model for the choice whether to take

paid work. The choices are therefore between being ‘employed’ (employee or self employed) and ‘out of paid work’ (unemployed or inactive).⁵ Full-time students were excluded from our sample because our models were not designed to explain their employment choices. We estimated the model of being in employment as follows

$$y_i^* = X_i' \alpha + u_i \quad (1)$$

where y_i^* refers to the propensity to be employed and is unobservable. X_i' is a vector of human capital qualification levels, personal and socio-economic characteristics. We only observe, y_i , whether an individual is in employment or not and this binary employment variable is determined according to

$$\begin{aligned} y_i &= 1 \text{ if } y_i^* > 0 \\ y_i &= 0 \text{ otherwise} \end{aligned} \quad (2)$$

The underlying statistical model is probabilistic. We estimated equation (1) using a logit model where the residual term u_i is assumed to follow a logistic distribution.

The probability, therefore, of the i th individual being employed is given by

$$P(y_i) = \frac{1}{1 + \exp(-\alpha X_i')} \quad (3)$$

Since our primary concern is with ethnic differences in women’s employment we included in X_i' those covariates related to human capital (highest qualifications) and family composition (partnership status, presence of children and partner’s

employment status), as well as age, age squared, age on arrival in the UK and ethnicity.⁶ We also controlled for regional variations in employment and included a period dummy to capture changes over time. Given there was a change in the economic climate between these two periods, the period dummies will be partly capturing the change in demand between the two time periods. In addition, we estimated difference in differences of qualifications between periods. Hence we included interactions between each qualification dummy and the period dummy. We reported only marginal effects throughout the paper and estimated difference in differences using a linear probability model.⁷

Table 2 suggests that the structural determinants of employment might be specific to each ethnic group. Indeed the statistical significance of the ethnic group dummies in our logit estimates confirm this. In order to allow for coefficients to vary by ethnic origin, we estimated equation (1) separately for each ethnic group. In particular, we wanted to examine whether returns to qualifications were different for each ethnic group and whether the employment returns to a degree were larger for Pakistani/Bangladeshi women than for white women. Period dummies and interactions were again included in the separate sample estimations of each ethnic group in order to capture changes between the two time periods that were over and above changes in individual characteristics. Finally, we estimated equation (1) separately by both ethnic group and period. This set of estimations provided the opportunity for a series of decompositions to identify the relative importance of the characteristic and coefficient factors.

6. Results

Single equation model

Table 4 displays the two models for the likelihood of being employed for all women (excluding full-time students) aged between 22 and 60. We present only the marginal effects for the logit models. The default category consisted of women who were white, single, UK born, without children, living in London, having a degree (or higher degree) as their highest qualification and who were in earlier 1992-5 data. The first model refers to the logit equation, whilst the second model refers to the linear probability model, whereby the latter includes interactions between qualifications and period dummies.

In the logit model, all terms were significant at the 99 per cent level of confidence except the effect of living in the north or the Celtic fringe, being of Black African decent and of arriving in the UK as a child. Qualifications showed the expected strong relationship with the likelihood of being employed. Women with degree level qualifications were most likely to be employed followed by those with A-level, then O-level/GCSE. Finally women without any qualifications were least likely to be employed.

The negative effect of a non-employed partner was as expected from the literature. The marginal effects for regions were small with a positive effect associated with living in the South or the Midlands by comparison with London.

By comparison with being UK born, there was a negative effect for being born overseas which was largest for women who arrived in the UK less than 5 years ago.⁸

Black Caribbean/Other women displayed a higher propensity for being employed, compared to white women. Asian women were less likely to be employed than white women. Pakistani and Bangladeshi women both had very large negative marginal effects on the ethnic group dummy suggesting they were far less likely than white women to be employed. The expected gradient was present for age of youngest child. The period dummy was positive and significant suggesting an increase in female employment took place over this period, over and above changes in other employment-related characteristics.

In the linear probability model, the interactions demonstrated no significant change for A-levels and O-levels by comparison with a degree between the two periods. However, the negative return to having ‘other’ or no qualifications, relative to having a degree, has increased between 1992-5 and 2000-3, again suggesting a polarization between the highest and lowest qualified groups of women. . Similar results hold for men, although relative to having a degree, negative returns to all qualifications are smaller than those for women (see Table A3 in the appendix). Other covariates demonstrate similar marginal effects to those in the logit model.

The statistical significance of the ethnicity variables in Table 4 confirmed our expectation that the structural determinants of employment might vary significantly by ethnic origin. As a consequence we re-estimated equation (1) separately by ethnic group. The default categories were the same as in Table 4, women with degree level qualifications women chosen in order to provide levels of employment as similar as possible across all ethnic groups (Table 3).

Separate ethnic origin equation models

The results of the separate estimations for each ethnic group are presented in Tables 5 and 6. The logit marginal effects are contained in Table 5, whilst the linear probability model with the interactions between qualifications and period are contained in Table 6. The category of ‘Other’ women has been omitted because it is not a coherent ethnic group.

In table 5, we performed a chi squared likelihood ratio test for the joint hypothesis of coefficient equality across the 5 equations (one for each separate ethnic group). A test statistic of 1959.38 with 19 degrees of freedom suggested the null hypothesis of common slope coefficients should be rejected.

For all groups there was a steady negative gradient as level of qualification fell although the size of the coefficient on ‘no qualifications’ is larger for ethnic minority women than for the white group suggesting a greater difference in the likelihood of being employed between those with higher qualifications and those with no qualifications.

Comparing across ethnic groups, the effects of age were similar (Table 5). Generally, an employed partner had a significant positive effect whilst a non-employed partner had a significant negative effect by comparison with the reference group (no partner). However, the well-established negative effect of a non-employed partner is only significant for white women, suggesting that women’s decision-making processes cannot be inferred from white to minority ethnic groups. . However, the positive effect of an employed partner is present across all ethnic groups although not significant for Pakistani and Bangladeshi women. For all groups, arrival in the UK in

the last 5 years had a large negative effect although this was smaller for white and Black women than for others. For white and Pakistani/Bangladeshi women, arrival as an adult more than 5 years ago was also negative and statistically significant. Generally, the negative effect reduced in size with increased length of residence in the UK. Children had a negative effect on employment across all groups, with largest coefficients for white women. In general coefficients declined as the age of the youngest child increased. However, having a child aged 10 and over was statistically insignificant for Black African and Indian women.

The period effect was positive and significant for white women and negative and significant for Pakistani/Bangladeshi women (and insignificant for other groups). Thus, although the raw percentages in Table 2 showed a significant increase in employment for Pakistani/Bangladeshi women over the period, this is accounted for by the variables included in the model. The period effect, capturing the change in the economy over the decade, was, therefore, found to be beneficial only to white women and detrimental to the employment of Pakistani and Bangladeshi women.

In Table 6, the linear probability model showed that the change in the effect of qualifications between the two periods was very different for each ethnic group. For white women, there was a significant increase in the return to A-levels (2.7 percent) and a small but significant decrease in the return to O-levels (0.14 percent) and no qualification (6.9 per cent) between the two periods. Hence, relative to having a degree, the return of A-levels for white women has increased, whilst the return of O-levels and less has decreased. For all minority ethnic groups (except Indians) there are significant decreases in the employment return to associated with 'other' and no

qualifications, relative to having a degree. Therefore our results support a polarisation in the effect of education between well qualified and less well qualified women that is apparent for all groups except Indians. For white women the greatest differential is between degree/Alevel and below whilst for Pakistani and Bangladeshi women it is for degree level and below degree.

Separate ethnic origin and period equations

Finally, we allowed for variation in the coefficients by both ethnic origin and period. Thus the structural determinants of employment were allowed to be both period-specific and ethnicity -specific. This breakdown offers a more detailed perspective on the way in which policy changes over the period in question may be having an impact on minority ethnic women's employment opportunities. From a largely non-interventionist approach to race relations from the passing of the Race Relations Act in 1976 to the early 1990s, the period 2000-3 saw a new era of government intervention. The *Race Relations (Amendment) Act* was passed in November 2000 in response to the Macpherson Report in 1999. I'm a bit unhappy about this reference to policy. I think it needs to be much more developed to be viable. I would therefore suggest omitting it unless Shirley can expand it.

Key estimates are provided in Table 7.⁹ Two chi squared likelihood ratio tests were carried out to test for the joint hypothesis of coefficient equality across the two equations (one for each separate period) separately for each of the five equations in Table 5. The null hypothesis of common slope coefficients across periods was rejected for the white and Pakistani/Bangladeshi equations only.¹⁰ The parameters in

Table 5 were found to be period-specific, therefore, only for white and Pakistani/Bangladeshi women. (How do we square this with the stat sig. Interaction terms in the previous model?)

These results allow us to compare qualification marginal effects across the two periods. We focus on white and Pakistani/Bangladeshi women since the chi squared likelihood ratio tests suggested that parameters were only significantly different between periods for these two groups of women. Women without any qualification were less likely to be employed by comparison with those having a degree. . This is consistent with previous evidence of polarisation between women with higher level qualifications compared to those with other or no qualifications over this period. For white (and Indian) women the effect of having an A-level qualification increased (become less negative) compared to having a degree over the period For Pakistani/Bangladeshi women the effect of having an A-level qualification became negative and significant in 2000-2002 where it was statistically insignificant in the earlier period, 1992-5.

In order to illustrate the marginal effects and the impact of having a degree, Figure 1 presents the predicted probabilities of being employed (from Table 7) for a hypothetical woman when the parameters in our model are allowed to vary both across ethnic groups and periods. Our hypothetical woman is age 35, with an employed partner and a youngest child age less than 5, lives in London and is British born. (The full set of estimates are provided in Table A4 of the Appendix). The predicted probabilities of being employed increased over the decade for all women with a degree, except Indian women, whereas they fell for minority ethnic women

without a degree - except Black Caribbean women – and remained static for white women. Figure 1 clearly illustrates a dichotomy between the employment chances of all women with a degree compared to those without a degree.

7. Decomposition Analysis

The separate estimates of equation (1) for each ethnic group and period, allow us to use the Gomulka and Stern (1990) method to decompose the variation in likelihood of employment into the amount explained by characteristic differences and the amount explained by coefficient differences. The analysis leads to two alternative decompositions, which are as follows:

$$\hat{I}^A - \hat{I}^B = [\bar{P}(\hat{\alpha}^A X^B) - \bar{P}(\hat{\alpha}^B X^B)] + [\bar{P}(\hat{\alpha}^A X^A) - \bar{P}(\hat{\alpha}^A X^B)] \quad (4)$$

or

$$\hat{I}^A - \hat{I}^B = [\bar{P}(\hat{\alpha}^A X^A) - \bar{P}(\hat{\alpha}^B X^A)] + [\bar{P}(\hat{\alpha}^B X^A) - \bar{P}(\hat{\alpha}^B X^B)] \quad (5)$$

where A refers to those respondents in group A and B refers to group B, with $\hat{\alpha}^A$ and $\hat{\alpha}^B$ the vectors of estimated coefficients from the logit equations. \hat{I}^A and \hat{I}^B are the respective **predicted** (is the average predicted? Or is it the average of the predicted probabilities?) average of the predicted probabilities of being employed for group A and group B. $\bar{P}(\hat{\alpha}^A X^A)$ is the average predicted probability of being employed across the sample using group A coefficients and group A characteristics and similarly for the other terms. The first term in square brackets in Equations 4 and 5 measures the difference in means which is attributable to differences in coefficients

and the second term measures the differences attributable to differences in the individual characteristics of group A and B. Equation (4) decomposes around average group B characteristics and equation (5) decomposes around average group A characteristics.

Results of decomposition

The results of the Gomulka and Stern (1990) decompositions across the period estimates are displayed in Table 8 based on equations (4) and (5). The mean employment rates shown in Table 2 were decomposed into their coefficient (demand side) and characteristic components using the estimates from Table A4. Table 2 showed a significant increase in the percentage of white, Black African, Indian and Pakistani/Bangladeshi women in employment between 1992-5 and 2000-3. Because the samples are split only by period, coefficient differences can be identified as the cohort effect, the latter picking up any unexplained 'demand-side' changes in employment. Furthermore, estimating equations (4) and (5) for each separate ethnic groups identifies ethnic- specific cohort changes.

Table 8 – I think the difference in means for white women should be 0.0415 not 0.0429.

NB: this is labeled table 7

In Table 8 decomposition results we can see that the characteristics effect (which contains differences in qualifications) dominates in all cases. For our sample of all women the characteristics component accounts for around 60 percent of the total period 2/period 1 employment differential (68% when decomposing around average period 2 characteristics and 50% when decomposing average period 1 characteristics).

Estimating separate equations by ethnic group shows that non-white women generally demonstrate much larger characteristic effects than white women, with negative coefficient (demand side) components for Black Caribbean/Other and Pakistani/Bangladeshi women. (All minority women are negative on coefficients for one or other of the decompositions) For these (latter) minority ethnic groups of women, all of the cohort increase in employment can be explained by differences in characteristics (including having a degree). This is consistent with Table 5 where the period effect (holding constant characteristics) was not significant for any minority groups - except Pakistani and Bangladeshis for whom it was negative.

Finally, following Gomulka and Stern (1990), we decompose the white/non-white employment differential, where white women are the benchmark comparison group. We do this for separate periods and then compare changes between the two periods. Because women are now split only by ethnicity, coefficient differences can be identified as the 'ethnic' effect. In this case, equation 5 is the preferable decomposition method, since non-white workers (group B) constitute a small minority of the workforce and average white activity rates are almost identical to those for the overall sample. The results are displayed in Table 9. (do you need to show results for equation 4?)

The first row presents the raw mean differential in employment rates between white and non-white women separately by period (again from Table 2). Generally, the relative employment rate of non-white women compared to whites has remained fairly constant over the last decade. Only Black Caribbean women have experienced any slight decrease compared to whites although the employment gap between these

two groups is the smallest; the white/Black Caribbean employment differential increased from 4.3 percentage points in 1992-5 to 5.6 percentage points in 2000-3. The relative position of Black African women improved slightly since the white/Black African differential decreased from 16.8 percentage points in 1992-5 to 14.7 percentage points in 2000-3. For Indian women, the raw White/Indian mean employment differential suggests there has been little change between the two periods (around 9 percent in 1992-5 and 2000-3). The largest employment differential is for the White/Pakistani and Bangladeshi comparison (50.5 percentage points in 2000-3).

Turning to the decomposition, for white in comparison with Indian women, (it would seem more logical to start with Black Caribbean) the decomposition displays a large fall in the unexplained component (113% to 54% of the total differential) and an increase in the component explained by characteristics over the period. Of course this unexplained component contains language fluency, cultural and religious effects, as well as discrimination. Pakistani/Bangladeshi women also display a small fall in the unexplained component although they also demonstrate much stronger characteristic differences (46% of the total differential in 1992-5) than Indian women. Moreover, this characteristic component increased over the period (at 55% of the total differential in 2000-3). This suggests that even though there has only been a slight fall in the employment differential between whites and Pakistani/Bangladeshi women, there has also been a fall in the unexplained discriminatory component. Even though Table 8 showed that period changes can be mainly attributed to changes in characteristics it appears that the improved relative position of South Asian women compared to whites can be mainly attributed to a fall in the discriminatory

component. This may either reflect labour market discrimination or a change in the level of language fluency or an increase in women's wish to take paid work.

For Black Caribbean/Other women, the proportion of variation explained by the characteristic component fell between the two periods. In period 1 the proportion of the employment gap due to characteristics was even bigger than it was in period 2, although in period 1 it was counterbalanced by a sizeable difference in coefficients promoting Black Caribbean/Black Other over white women's employment. In period 2 the coefficient difference has fallen to approximately zero. It would be possible to argue that this change represented an increase in discrimination between the two periods. However, the overall gap is small and changes should not be over interpreted therefore. For Black African women, an increasing coefficient effect (from -8% in 1992-5 to 53% in 2000-3 of the total White/Black African employment differential) in favour of white women's employment could more confidently be interpreted as reflecting an increase in discrimination, although language fluency, cultural and religious differences are likely to account for more of the unexplained difference in this case.

8. Conclusions

Employment has significantly increased among white, Black African, Indian and Pakistani/Bangladeshi women between the early 1990s and the early 2000s. Women from other minority ethnic groups (including Black Caribbean/Other) did not exhibit significant employment increases even in a period of relatively high employment. The

overall employment position of Black African and Pakistani/Bangladeshi women has improved very slightly, relative to white women. (How is this measured? Its tiny in Table 9 for P/B but we've seen the big relative increase for P and B women with degrees?? For Indian women there has been little change relative to white women. For Black Caribbean/Black Other women the employment gap relative to white women got slightly worse over the period. The employment differential between Pakistani/Bangladeshi and white women still remained the largest at 50.5 percentage points in 2000-03.

Our results suggest that qualifications have played an increasingly important role in predicting women's employment. Indeed the evidence presented here suggests there is increasing polarisation between women with a degree compared to those without a degree for all ethnic groups, and this is especially large for Pakistani/Bangladeshi women. The Gomulka and Stern period decompositions supported this finding. Decomposing mean period differences into their coefficient and characteristic component shows that employment increases are mainly a consequence of differences in characteristics.

Decomposing white/non-white mean employment differences demonstrated that the observed fall in the white-Pakistani/Bangladeshi differential could be mainly attributed to a fall in the unexplained component. The characteristic component increased for all South Asian women suggesting inequality across qualifications and other socio-economic characteristics. However, there is still a large unexplained component in the case of Indian and Pakistani/Bangladeshi women and this explained around half of the total differential. So white/non-white employment differences

cannot be dismissed as a characteristic problem (such as poor qualifications or unfavourable regional distributions). Even after the *Race Relations (Amendment) Act (2000)* and with increased employment levels for everyone, a significant unexplained racial discriminatory component may still exist.

Jo: I thought your point 1 to referee A was a really good summary of the paper and could be used either as an abstract or included in the conclusion.

Table 1 Percentage of women in each ethnic group a) with a degree and b) without any qualifications.

	1992-1995			2000-2003		
	With a Degree	No qualifications	N	With a Degree	No qualifications	N
White	18.46 (0.001)	31.8 (0.001)	126,789	27.34 (0.001)	20.2 (0.001)	109,919
Black Caribbean & Other	20.29 (0.01)	28.81 (0.011)	1,562	29.29 (0.012)	14.68 (0.009)	1,458
Black African	23.34 (0.018)	23.34 (0.018)	574	34.86 (0.016)	17.26 (0.013)	898
Indian	15.92 (0.008)	41.95 (0.011)	2,179	29.08 (0.01)	24.4 (0.009)	2,094
Pakistani & Bangladeshi	6.19 (0.007)	63.29 (0.013)	1,324	12.79 (0.008)	48.83 (0.012)	1,626
Chinese & Other	23.42 (0.011)	29.41 (0.012)	1,554	32.03 (0.01)	18.67 (0.008)	2,373
Total	18.4 (0.001)	32.18 (0.001)	133,982	27.35 (0.001)	20.55 (0.001)	118,368

Source QLFS Spring Quarters for GB

Notes: For women age 22-60, excluding full time students. Data are unweighted.
Figures in parentheses are standard errors.

Table 2 Percentage of British women employed, by ethnic group.

	1992-1995		2000-2003	
	Percentage employed	N	Percentage employed	N
White	68.58 (0.001)	126,789	73.14* (0.001)	109,919
Black Caribbean & Other	64.34 (0.012)	1,562	67.56 (0.012)	1,458
Black African	51.74 (0.021)	574	58.46* (0.016)	898
Indian	59.52 (0.011)	2,179	63.85* (0.011)	2,094
Pakistani & Bangladeshi	17.3 (0.01)	1,324	22.63* (0.01)	1,626
Chinese & other	54.7 (0.013)	1,554	57.35 (0.01)	2,373
Total	67.64 (0.001)	133,982	71.79* (0.001)	118,368

Source *QLFS Spring Quarters for GB*

Notes: *For women age 22-60, excluding full time students. Data are unweighted.*

Figures in parentheses are standard errors.

** Denotes a statistical significance between the two means for period 1992-1995 period 2000-2003.*

Table 3 Percentage employed for those with a degree/without a degree.

	1992-1995				2000-2003			
	With a degree		Without a degree		With a degree		Without a degree	
	Percentage employed	N	Percentage employed	N	Percentage employed	N	Percentage employed	N
White	84.48 (0.002)	23,403	64.98 (0.001)	103,386	87.16* (0.002)	30,055	67.86* (0.002)	79,864
Black Caribbean & Other	84.54 (0.02)	317	59.2 (0.014)	1,245	85.48 (0.017)	427	60.14 (0.015)	1,031
Black African	70.9 (0.039)	134	45.91 (0.024)	440	79.87* (0.027)	313	47.01 (0.021)	585
Indian	84.44 (0.019)	347	54.8 (0.012)	1,832	84.24 (0.015)	609	55.49 (0.013)	1,485
Pakistani & Bangladeshi	56.1 (0.055)	82	14.73 (0.01)	1,242	71.15* (0.031)	208	15.51 (0.009)	1,418
Chinese & other	79.4 (0.021)	364	47.14 (0.015)	1,190	77.11 (0.015)	760	48.05 (0.012)	1,613
Total	84.23 (0.002)	24,647	63.9 (0.001)	109,335	86.67* (0.002)	32,372	66.18* (0.002)	85,996

Source: QLFS Spring Quarters for GB

Notes: For women age 22-60, excluding full time students. Data are unweighted.

Figures in parentheses are standard errors.

* Denotes a statistical significance between the two means for period 1992-1995 and period 2000-2003.

Table 4 Logit Marginal Effects and Linear Probability Model with Difference in Differences for all women, QLFS 1992-1995 & 2000-2003.

Dependant variable = 1 if employed and zero otherwise

Variable	Logit		Linear Probability Model	
	Marginal Effect	Standard Error	Coefficient	Standard Error
Age	0.0280*	0.0008	0.0302*	0.0007
Age Squared*100	-0.0004*	0.0000	-0.0005*	0.0000
A Level	-0.1214*	0.0034	-0.0945*	0.0039
O Level	-0.1356*	0.0032	-0.0946*	0.0037
Other Qual	-0.1748*	0.0034	-0.1300*	0.0039
No Qual	-0.3135*	0.0030	-0.2540*	0.0033
A Level* Period 2	-	-	0.0243	0.0054
O Level* Period 2	-	-	-0.0023	0.0050
Other Qual* Period 2	-	-	-0.0045*	0.0055
No Qual* Period 2	-	-	-0.0720*	0.0048
Partner Not Employed	-0.0643*	0.0048	-0.0832*	0.0045
Partner Employed	0.1900*	0.0021	0.1720*	0.0018
Youngest Child <5	-0.4210*	0.0030	-0.3790*	0.0025
Youngest Child 5-10	-0.2159*	0.0031	-0.1789*	0.0027
Youngest Child >10	-0.0953*	0.0036	-0.0761*	0.0029
Lives in North	0.0075	0.0035	0.0056	0.0031
Lives in Midlands	0.021*	0.0038	0.0191*	0.0033
Lives in South (Not London)	0.0226*	0.0034	0.0198*	0.0030
Lives in Celtic Fringe	-0.0045	0.0039	-0.0038	0.0034
Black Caribbean or Black Other	0.0237*	0.0087	0.0190*	0.0078
Black African	-0.0186	0.0125	-0.0205	0.0113
Indian	-0.0436*	0.0078	-0.0397*	0.0069
Pakistani or Bangladeshi	-0.3325*	0.0105	-0.2961*	0.0082
Chinese or Other	-0.0850*	0.0080	-0.0803*	0.0072
Arrived UK age <15	-0.0104	0.0060	-0.0081	0.0052
Arrived UK >16 & more than 5 years ago	-0.0237*	0.0053	-0.0268*	0.0047
Arrived UK >16 & less than 5 years ago	-0.1671*	0.0078	-0.1443*	0.0069
Period (2000-2003)	0.0196*	0.0019	0.0302*	0.0035
Constant	0.0011	0.0160	0.3872*	0.0136
N	252350		252350	
Log Likelihood	-127667.8		-	
Pseudo R Squared/R Squared	0.1765		0.2042	

Source QLFS Spring Quarters 1992-1995 & 2000-2003 for UK.

Notes: For women age 22-60, excluding full time students.

* denotes significant at the 1 percent level.

The default category consist of women who are white, single, UK born, without children, living in London, have a degree (or higher degree) as their highest qualification and were sampled in from the earlier 1992-1995 data.

Table 5. Logit Marginal Effects estimated separately by ethnic group

QLFS 1992-1995 & 2000-2003.

Dependant variable = 1 if employed and zero otherwise

Variable	Whites		Black Caribbean & Black Other		Black African		Indian		Pakistani & Bangladeshi	
	MFX	S.E.	MFX	S.E.	MFX	S.E.	MFX	S.E.	MFX	S.E.
Age	0.0274*	0.0008	0.0443*	0.0080	0.0199	0.0142	0.0230*	0.0079	0.0172*	0.0062
Age Squared	-0.0004*	0.0000	-0.0006*	0.0001	-0.0003	0.0002	-0.0004*	0.0001	-0.0003*	0.0001
A Level	-0.1164*	0.0035	-0.1828*	0.0311	-0.1821*	0.0482	-0.1530*	0.0348	-0.0777*	0.0234
O Level	-0.1293*	0.0032	-0.1702*	0.0308	-0.0989	0.0641	-0.1708*	0.0341	-0.1462*	0.0240
Other Qual	-0.1643*	0.0035	-0.2623*	0.0308	-0.2491*	0.0392	-0.2607*	0.0286	-0.2093*	0.0228
No Qual	-0.2996*	0.0030	-0.3648*	0.0297	-0.5137*	0.0457	-0.4321*	0.0273	-0.3378*	0.0222
Partner Not Employed	-0.0657*	0.0049	-0.0561	0.0481	0.0086	0.0585	-0.0486	0.0380	-0.0180	0.0253
Partner Employed	0.1852*	0.0021	0.2451*	0.0226	0.2312*	0.0356	0.2331*	0.0196	0.0761*	0.0153
Lives in North Midlands	0.0092*	0.0037	-0.0273	0.0299	-0.0226	0.0664	-0.1186*	0.0273	0.0034	0.0163
Lives in South (Not London)	0.0217*	0.0040	0.0325	0.0245	0.0410*	0.0689	0.0187	0.0204	-0.0016	0.0182
Lives in Celtic Fringe	0.0221*	0.0036	0.0070	0.0282	0.1381*	0.0568	0.0503	0.0257	0.0280	0.0211
Arrived UK age <15	-0.0036	0.0040	0.0274	0.0715	-0.1598	0.1019	0.0972	0.0641	0.0117	0.0308
Arrived UK >16 & more han 5 years ago	-0.0196*	0.0071	-0.0296	0.0273	0.0154	0.0686	0.0335	0.0301	-0.0258	0.0185
Arrived UK >16 & less than 5 years ago	-0.0202*	0.0067	0.0033	0.0350	0.0053	0.0475	0.0235*	0.0318	-0.0739*	0.0208
Youngest Child <5	-0.1337*	0.0098	-0.1481*	0.0501	-0.1028*	0.0498	-0.2780*	0.0402	-0.1601*	0.0299
Youngest Child 5-10	-0.4163*	0.0029	-0.3557*	0.0253	-0.3318*	0.0387	-0.3601*	0.0258	-0.1725*	0.0186
Youngest Child >10	-0.2119*	0.0031	-0.1917*	0.0267	-0.2255*	0.0435	-0.1568*	0.0268	-0.0883**	0.0201
Period (2000-2003)	-0.0943*	0.0036	-0.1200*	0.0342	-0.0925	0.0583	0.0102	0.0292	-0.0641*	0.0244
Constant	0.0208*	0.0020	-0.0069	0.0197	0.0145	0.0314	-0.0080	0.0180	-0.0271*	0.0136
N	-0.0033	0.0158	-0.3271*	0.1499	0.0405	0.2605	0.1574	0.1452	-0.0923	0.1093
	236708		3020		1472		4273		2950	
Log Likelihood	-119367.84		-1640.7056		-832.31503		-2283.7075		-1066.8994	
Pseudo R Squared	0.1663		0.1534		0.1761		0.1973		0.2820	

Source *QLFS Spring Quarters 1992-1995 & 2000-2003 for UK.*

Notes: *For women age 22-60, excluding full time students.*

** denotes significant at the 5 percent level.*

The default category consist of women who are single, UK born, without children, living in London, have a degree (or higher degree) as their highest qualification and were sampled in from the earlier 1992-1995 data.

**Table 6. Linear Probability Model with Difference in Differences,
estimated separately by ethnic group,
QLFS 1992-1995 & 2000-2003.**

Dependant variable = 1 if employed and zero otherwise

Variable	Whites		Black Caribbean & Black Other		Black African		Indian		Pakistani & Bangladeshi	
	Coef	S.E.	Coef	S.E.	Coef	S.E.	Coef	S.E.	Coef	S.E.
Age	0.0307*	0.0007	0.0411*	0.0070	0.0156	0.0111	0.0209*	0.0061	0.0148*	0.0052
Age Squared	-0.0005*	0.0000	-0.0006*	0.0001	-0.0002	0.0001	-0.0004*	0.0001	-0.0002*	0.0001
A Level	-0.0934*	0.0037	-0.1018*	0.0343	-0.1202	0.0651	-0.0987*	0.0368	0.0704	0.0796
O Level	-0.0921*	0.0034	-0.1111*	0.0343	0.0661	0.0767	-0.1191*	0.0341	-0.1785*	0.0750
Other Qual	-0.1250*	0.0039	-0.1708*	0.0357	-0.1757*	0.0546	-0.1813*	0.0279	-0.3012*	0.0593
No Qual	-0.2499*	0.0033	-0.2742*	0.0303	-0.3368*	0.0557	-0.3323*	0.0255	-0.4066*	0.0552
A Level* Period	0.0267*	0.0051	-0.0566	0.0467	-0.0298	0.0819	0.0087	0.0484	-0.3133*	0.0945
O Level* Period	-0.0014	0.0047	-0.0145	0.0457	-0.2418	0.1023	0.0185	0.0466	-0.1491	0.0891
Oth Qual* Period	0.0014	0.0056	-0.0789	0.0500	-0.0471*	0.0652	-0.0205	0.0378	-0.1525*	0.0689
No Qual* Period	-0.0693*	0.0049	-0.1004*	0.0463	-0.1604*	0.0664	-0.0477	0.0346	-0.1489*	0.0626
Partner Not Employed	-0.0907*	0.0053	-0.0635	0.0468	-0.0086	0.0470	-0.0574	0.0310	-0.0180	0.0188
Partner Employed	0.1724*	0.0019	0.2052*	0.0168	0.1771*	0.0270	0.1920*	0.0157	0.0677*	0.0152
Lives in North	0.0069	0.0033	-0.0236	0.0265	-0.0141	0.0520	-0.0967*	0.0224	-0.0005	0.0158
Lives in Midlands	0.0193*	0.0035	0.0328	0.0211	0.0383	0.0542	0.0156	0.0163	-0.0034	0.0173
Lives in South (Not London)	0.0195*	0.0032	0.0031	0.0228	0.1105*	0.0406	0.0374*	0.0189	0.0286	0.0226
Lives in Celtic Fringe	-0.0034	0.0036	0.0321	0.0640	-0.1249	0.0840	0.0767	0.0475	0.0076	0.0365
Arrived UK age <15	-0.0166	0.0061	-0.0196	0.0235	0.0117	0.0528	0.0306	0.0220	-0.0372	0.0265
Arrived UK >16 & more than 5 years ago	-0.0222*	0.0062	0.0091	0.0294	0.0048	0.0364	0.0218	0.0243	-0.0896*	0.0252
Arrived UK >16 & less than 5 years ago	-0.1174*	0.0094	-0.1211*	0.0451	-0.0783*	0.0391	-0.2270*	0.0316	-0.1419*	0.0274
Youngest Child <5	-0.3849*	0.0026	-0.3270*	0.0216	-0.2649*	0.0297	-0.2922*	0.0200	-0.1947*	0.0212
Youngest Child 5-10	-0.1785*	0.0027	-0.1676*	0.0229	-0.1806*	0.0345	-0.1193*	0.0213	-0.1079*	0.0215
Youngest Child >10	-0.0768*	0.0029	-0.1000*	0.0283	-0.0596	0.0479	0.0135	0.0223	-0.0774*	0.0225
Period (2000-2003)	0.0293*	0.0030	0.0408	0.0268	0.0813	0.0444	0.0097	0.0246	0.1190*	0.0615
Constant	0.3762*	0.0136	0.1401	0.1332	0.4954*	0.2083	0.5688*	0.1108	0.4500*	0.1096
N	236708		3020		1472		4273		2950	
Pseudo R Squared	0.4092		0.4037		0.4406		0.4252		0.3372	

Source *QLFS Spring Quarters 1992-1995 & 2000-2003 for UK.*

Notes: *For women age 19-60, excluding full time students.*

** denotes significant at the 5 percent level.*

The default category consist of women who are single, UK born, without children, living in London, have a degree (or higher degree) as their highest qualification and were sampled in from the earlier 1992-1995 data.

Table 7. Selection of logit marginal effects (qualifications only) estimated separately by ethnic group and period
 Dependant variable = 1 if employed and zero otherwise

QLFS 1992-1995

Variable	Whites		Black Caribbean & Black Other		Black African		Indian		Pakistani & Bangladeshi	
	MFX	S.E.	MFX	S.E.	MFX	S.E.	MFX	S.E.	MFX	S.E.
A Level	-0.1323*	0.0052	-0.1384*	0.0486	-0.1319	0.0754	-0.1694*	0.0573	0.0275	0.0373
O Level	-0.1282*	0.0049	-0.1480*	0.0477	0.1127	0.1022	-0.1932*	0.0544	-0.0950*	0.0358
Other Qual	-0.1648*	0.0052	-0.2093*	0.0472	-0.1892*	0.0663	-0.2671*	0.0448	-0.1389*	0.0308
No Qual	-0.2853*	0.0045	-0.3313*	0.0424	-0.3697*	0.0718	-0.4215*	0.0424	-0.2551*	0.0309
N	126789		1562		574		2179		1324	
Log Likelihood	-65882.8		-857.50803		-341.90988		-1158.9006		-458.61076	
Pseudo R Squared	0.1652		0.1573		0.1399		0.2120		0.2479	

QLFS 2000-2003

Variable	Whites		Black Caribbean & Black Other		Black African		Indian		Pakistani & Bangladeshi	
	MFX	S.E.	MFX	S.E.	MFX	S.E.	MFX	S.E.	MFX	S.E.
A Level	-0.0963*	0.0046	-0.2121*	0.0397	-0.1830*	0.0637	-0.1289*	0.0433	-0.1409*	0.0323
O Level	-0.1258*	0.0041	-0.1759*	0.0401	-0.2260*	0.0811	-0.1437*	0.0436	-0.1802*	0.0333
Other Qual	-0.1577*	0.0046	-0.2927*	0.0404	-0.2720*	0.0494	-0.2447*	0.0369	-0.2555*	0.0337
No Qual	-0.3166*	0.0041	-0.4000*	0.0427	-0.5865*	0.0616	-0.4472*	0.0357	-0.3964*	0.0318
N	109919		1458		898		2094		1626	
Log Likelihood	-53248.829		-771.70625		-476.68519		-1110.8573		-591.17338	
Pseudo R Squared	0.1674		0.1458		0.2179		0.1892		0.3202	

Figure 1 (a)

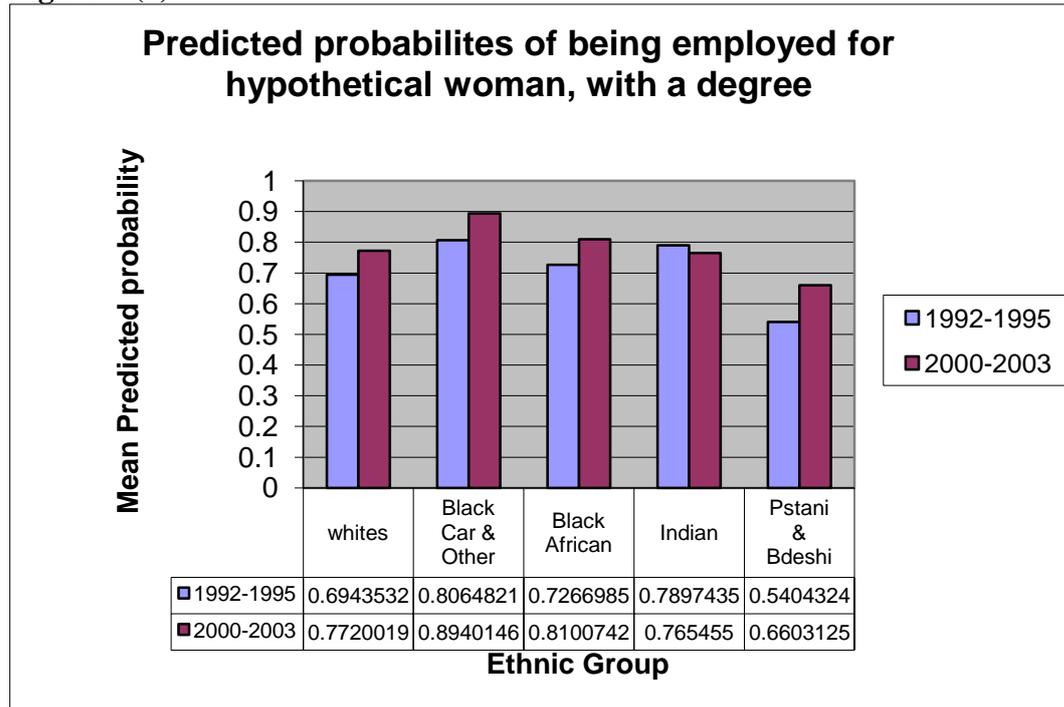
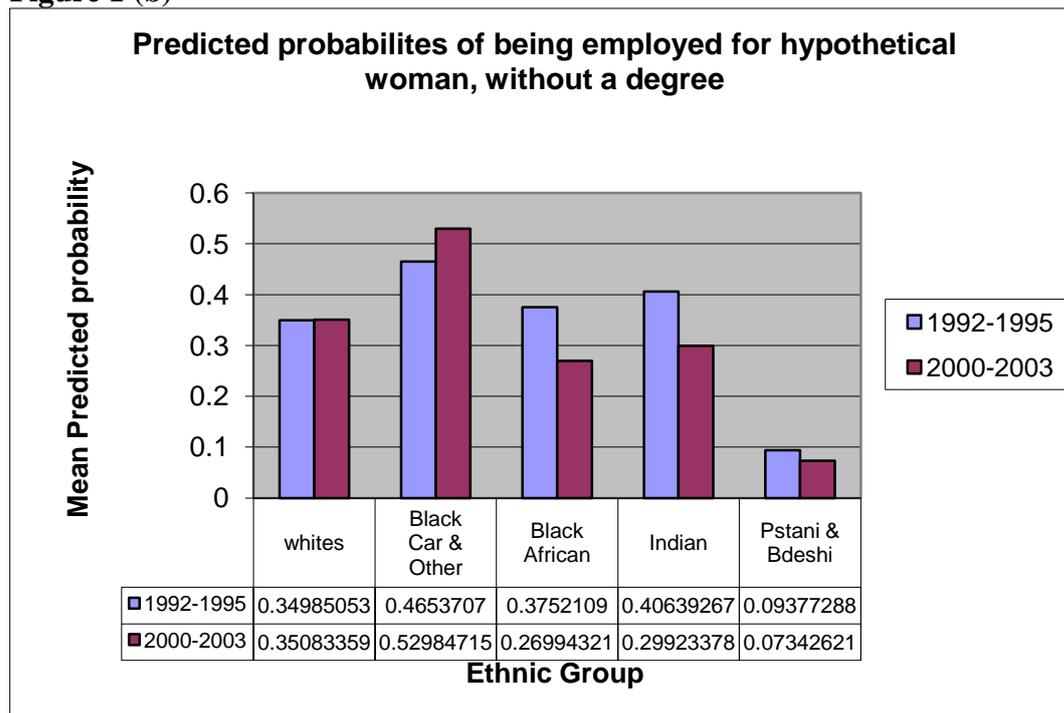


Figure 1 (b)



Based on the coefficients from Tables A4a and A4b.

Hypothetical woman is age 35 with youngest child aged less than 5, partner employed, lives in London and British born.

**Table 8 Decomposition result across two periods,
QLFS 1992-1995 & 2000-2003.**
Dependant variable = 1 if employed and zero otherwise
A= Period 2000-2003 and B= Period 1992-1995

	All Women	White Women	Black Caribbean and Black Other Women	Black African Women	Indian Women	Pakistani and Bangladeshi Women
Differences in Means $\hat{I}^A - \hat{I}^B$	0.0429	0.0456	0.0322	0.0672	0.0433	0.0534
Differences in Coefficients						
$[\bar{P}(\hat{\alpha}^{AX^B}) - \bar{P}(\hat{\alpha}^{BX^B})]$	0.0135 (32%)	0.0152 (33%)	-0.0126 (-39%)	0.0061 (9%)	-0.019 (-44%)	-0.0215 (-40%)
$[\bar{P}(\hat{\alpha}^{AX^A}) - \bar{P}(\hat{\alpha}^{BX^A})]$	0.0215 (50%)	0.0213 (47%)	-0.0045 (-14%)	-0.0176 (26%)	0.0056 (13%)	-0.0268 (-50%)
Differences in Characteristics						
$[\bar{P}(\hat{\alpha}^{AX^A}) - \bar{P}(\hat{\alpha}^{AX^B})]$	0.0295 (68%)	0.0304 (67%)	0.0448 (139%)	0.0611 (91%)	0.062 (144%)	0.0749 (140%)
$[\bar{P}(\hat{\alpha}^{BX^A}) - \bar{P}(\hat{\alpha}^{BX^B})]$	0.0215 (50%)	0.0243 (53%)	0.0367 (114%)	0.0496 (74%)	0.038 (87%)	0.0802 (150%)
N	252350 ^a	236708	3020	1472	4273	2950

Source QLFS Spring Quarters 1992-1995 & 2000-2003 for UK.

Notes: For white women age 19-60, excluding full time students.

^a This includes 3927 Chinese and Other women. Figures in parentheses are percentages of the total differential.

**Table 9 Decomposition across White/Non-white groups,
QLFS 1992-1995 & 2000-2003.**

Dependant variable = 1 if active and zero otherwise
A= White Women and B= Non-White Women

	White/Black Caribbean and Black Other Women		White/Black African Women		White/Indian Women		White/ Pakistani& Bangladeshi	
	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2	Period 1	Period 2
Differences in Means $\hat{I}^A - \hat{I}^B$	0.0424	0.0558	0.1684	0.1468	0.0906	0.093	0.5129	0.5051
Differences in Coefficients $[\bar{P}(\hat{\alpha}^{AX^B}) - \bar{P}(\hat{\alpha}^{BX^B})]$	-0.0347 (-82%)	0.0065 (-12%)	0.0119 (7%)	0.0358 (24%)	0.0245 (27%)	0.0599 (64.%)	0.2704 (53%)	0.3032 (60%)
$[\bar{P}(\hat{\alpha}^{AX^A}) - \bar{P}(\hat{\alpha}^{BX^A})]$	-0.0523 (-123%)	-0.007 (-13%)	-0.0141 (-8%)	0.0783 (53%)	0.1026 (113%)	0.051 (54%)	0.2766 (54%)	0.227 (45%)
Differences in Characteristics $[\bar{P}(\hat{\alpha}^{AX^A}) - \bar{P}(\hat{\alpha}^{AX^B})]$	0.0771 (182%)	0.0623 (112%)	0.1565 (93%)	0.111 (76%)	0.0661 (73%)	0.033 (36%)	0.2425 (47%)	0.2019 (40%)
$[\bar{P}(\hat{\alpha}^{BX^A}) - \bar{P}(\hat{\alpha}^{BX^B})]$	0.0947 (223%)	0.0628 (113%)	0.1825(108%)	0.0685 (47%)	-0.012 (-13%)	0.0424 (46%)	0.2363 (46%)	0.2784 (55%)

QLFS Highest Qualification Variables

	Hiquap 1992	Hiquap 1993-1995	Hiqua 2000-2003
Degree	(1) Higher degree (2) First degree (3) Other degree (4) HND-HNC, BTEC etc Higher (5) Teaching-further education (6) Teaching-secondary (7) Teaching-primary (8) Teaching-level not stated (9) Nursing	(1) Higher degree (2) First degree (3) Other degree (4) Diploma in higher education (5) HND-HNC, BTEC etc Higher (6) Teaching-further education (7) Teaching-secondary (8) Teaching-primary (9) Teaching-level not stated (10) Nursing (11) Other higher education degree (12) RSA higher diploma	(1) Higher degree (2) NVQ level 5 (3) First degree (4) Other degree (5) NVQ level 4 (6) Diploma in higher education (7) HNC/HND, BTEC higher etc (8) Teaching, further education (9) Teaching, secondary (10) Teaching, primary (11) Teaching, level not stated (12) Nursing etc (13) RSA higher diploma (14) Other higher education below degree level (15) NVQ level 3 (16) GNVQ advanced
A Level	(11) City & Guilds craft (12) A-level or equivalent (13) Trade apprentice	(13) A level or equivalent (14) RSA advanced diploma (15) OND/ONC, BTEC etc National (16) City & Guilds advanced craft (17) Scottish 6th year certificate or (18) SCE higher or equivalent (19) AS level or equivalent (20) Trade apprenticeship (21) RSA diploma (22) City & Guilds craft (23) BTEC etc First or General diploma (28) SCOTVEC National certificate	(17) A level or equivalent (18) RSA advanced diploma or certificate (19) OND/ONC, BTEC/SCOTVEC national (20) City and Guilds advanced craft (21) Scottish 6th year certificate (CSYS) (22) SCE higher or equivalent (23) AS level or equivalent (24) Trade apprenticeship (25) NVQ level 2 or equivalent (26) GNVQ intermediate (27) RSA diploma (28) City and Guilds craft (29) BTEC/SCOTVEC first or general diploma
O Level	(14) O-level or equivalent	(24) O-level or equivalent	(30) O level, GCSE grade A- C or equivalent (31) NVQ level 1 or equivalent (32) GNVQ/GSVQ foundation level
Other	(10) BTEC etc First or General certificate (15) CSE below grade (16) YT/YTP certificate (17) RSA (18) Other	(25) CSE below grade 1 (26) BTEC etc First or General certificate (27) YT/YTP certificate (29) RSA other (30) City & Guilds other (31) Other	(33) CSE below grade 1,GCSE below grade C (34) BTEC first or general certificate (35) SCOTVEC modules or equivalent (36) RSA other (37) City and Guilds other (38) YT/YTP certificate (39) Other qualification
None	(19) No qualification (20) No answer	(32) No qualification (33) No answer	(40) No qualifications (41) Don't know (-8) No answer

Table A2 Percent of ethnic group economically active by highest qualifications.

	1992-1995				2000-2003			
	With a degree		Without a degree		With a degree		Without a degree	
	Percentage Active	N	Percentage Active	N	Percentage Active	N	Percentage Active	N
White	87.35 0.002	23,403	69.84 0.001	103,386	88.75* 0.002	30,055	70.72 0.002	79,864
Black Caribbean & Other	89.91	317	71.08	1,245	88.76	427	69.74	1,031
	0.017		0.013		0.015		0.014	
Black African	88.06 0.028	134	63.64 0.023	440	86.9 0.019	313	57.44 0.02	585
Indian	89.34 0.017	347	62.28 0.011	1,832	87.03 0.014	609	59.93 0.013	1,485
Pakistani & Bangladeshi	62.2	82	20.05	1,242	74.52*	208	19.18	1,418
	0.054		0.011		0.03		0.01	
Chinese & other	85.44	364	56.13	1,190	82.76	760	52.88	1,613
	0.019		0.014		0.014		0.012	
Total	87.3 0.002	24,647	68.99 0.001	109,335	88.47* 0.002	32,372	69.24 0.002	85,996

Source: QLFS Spring Quarters for GB

Notes: For women age 22-60, excluding full time students. Data are unweighted.

Figures in parentheses are standard errors, whilst sample sizes are in square brackets.

* Denotes a statistical significance between the two means for period 1992-1995 and period 2000-2003.

**Table A3 Linear Probability Model for all Men,
Difference in Differences.
QLFS 1992-1995 & 2000-2003.**
Dependant variable = 1 if employed and zero otherwise

	Coefficient	Standard Error
Age	0.0204*	0.0006
Age Squared	-0.0003*	0.0000
A Level	-0.0601*	0.0027
O Level	-0.0537*	0.0036
Other Qual	-0.0916*	0.0034
No Qual	-0.1949*	0.0029
A Level* Period 2	0.0223*	0.0038
O Level* Period 2	0.0015	0.0050
Other Qual* Period 2	0.0185*	0.0048
No Qual* Period 2	-0.0275*	0.0044
Partner Not Employed	0.0183*	0.0045
Partner Employed	0.1790*	0.0015
Youngest Child <5	-0.0075*	0.0021
Youngest Child 5-10	-0.0216*	0.0024
Youngest Child >10	-0.0058*	0.0026
Lives in North	-0.0299*	0.0026
Lives in Midlands	0.0077*	0.0028
Lives in South (Not London)	0.0270*	0.0025
Lives in Celtic Fringe	-0.0340*	0.0029
Black Caribbean or Black Other	-0.1064*	0.0074
Black African	-0.1494*	0.0105
Indian	-0.0218*	0.0060
Pakistani or Bangladeshi	-0.0723*	0.0072
Chinese or Other	-0.0549*	0.0065
Arrived UK age <15	0.0004	0.0044
Arrived UK >16 & more than 5 years ago	0.0023	0.0045
Arrived UK >16 & less than 5 years ago	-0.0346*	0.0063
Period (2000-2003)	0.0105*	0.0028
Constant	0.5329*	0.0116
	235880	
N		
R Squared	0.1446	

Table A4a. Logit coefficient estimates by ethnic group and period
 Dependant variable = 1 if in work and zero otherwise
QLFS 1992-1995

Variable	Whites		Black Caribbean & Black Other		Black African		Indian		Pakistani & Bangladeshi	
	MFx	S.E.	MFx	S.E.	MFx	S.E.	MFx	S.E.	MFx	S.E.
Age	0.0266	0.0011	0.0629	0.0122	0.0171	0.0242	0.0419	0.0121	0.0022	0.0077
Age Squared	-0.0004	0.0000	-0.0008	0.0002	-0.0002	0.0003	-0.0007	0.0001	-0.0001	0.0001
A Level	-0.1323	0.0052	-0.1384	0.0486	-0.1319	0.0754	-0.1694	0.0573	0.0275	0.0373
O Level	-0.1282	0.0049	-0.1480	0.0477	0.1127	0.1022	-0.1932	0.0544	-0.0950	0.0358
Other Qual	-0.1648	0.0052	-0.2093	0.0472	-0.1892	0.0663	-0.2671	0.0448	-0.1389	0.0308
No Qual	-0.2853	0.0045	-0.3313	0.0424	-0.3697	0.0718	-0.4215	0.0424	-0.2551	0.0309
Partner Not Employed	-0.0911	0.0062	-0.0057	0.0610	-0.0394	0.0764	-0.0514	0.0479	-0.0453	0.0320
Partner Employed	0.1987	0.0030	0.2460	0.0326	0.1613	0.0589	0.2754	0.0296	0.0666	0.0212
Lives in North	0.0178	0.0052	0.0234	0.0424	0.0167	0.0837	-0.1757	0.0394	0.0116	0.0216
Lives in Midlands	0.0293	0.0056	0.0848	0.0351	-0.0231	0.1208	-0.0011	0.0298	0.0057	0.0244
Lives in South (Not London)	0.0251	0.0051	0.0393	0.0411	0.1196	0.0988	0.0648	0.0380	-0.0228	0.0295
Lives in Celtic Fringe	-0.0008	0.0056	0.0446	0.1509	0.1640	0.1609	0.0911	0.0929	-0.0207	0.0442
Arrived UK age <15	-0.0170	0.0103	-0.0691	0.0411	-0.0047	0.1097	0.0697	0.0496	0.0009	0.0292
Arrived UK >16 & more than 5 years ago	-0.0247	0.0096	0.0173	0.0569	-0.0159	0.0751	0.0732	0.0534	-0.0365	0.0323
Arrived UK >16 & less than 5 years ago	-0.1544	0.0162	-0.1670	0.0981	-0.1406	0.0743	-0.2632	0.0665	-0.1562	0.0414
Youngest Child <5	-0.4580	0.0041	-0.4130	0.0367	-0.2689	0.0593	-0.3948	0.0382	-0.1246	0.0257
Youngest Child 5-10	-0.2318	0.0044	-0.2261	0.0386	-0.2170	0.0674	-0.2001	0.0389	-0.0493	0.0254
Youngest Child >10	-0.0957	0.0052	-0.1380	0.0507	0.1046	0.1108	-0.0253	0.0430	-0.0277	0.0312
Constant	0.0365	0.0222	-0.6891	0.2280	-0.0313	0.4332	-0.1643	0.2183	0.0710	0.1395
N	126789		1562		574		2179		1324	
Log Likelihood	-65882.8		-857.50803		-341.90988		-1158.9006		-458.61076	
Pseudo R Squared	0.1652		0.1573		0.1399		0.2120		0.2479	

Table A4b. Logit coefficient estimates by ethnic group and period
 Dependant variable = 1 if employed and zero otherwise
QLFS 2000-2003

Variable	Whites		Black Caribbean & Black Other		Black African		Indian		Pakistani & Bangladeshi	
	MFx	S.E.	MFx	S.E.	MFx	S.E.	MFx	S.E.	MFx	S.E.
Age	0.0268	0.0011	0.0264	0.0112	0.0217	0.0182	0.0028	0.0109	0.0334	0.0099
Age Squared	-0.0004	0.0000	-0.0004	0.0001	-0.0003	0.0002	-0.0002	0.0001	-0.0005	0.0001
A Level	-0.0963	0.0046	-0.2121	0.0397	-0.1830	0.0637	-0.1289	0.0433	-0.1409	0.0323
O Level	-0.1258	0.0041	-0.1759	0.0401	-0.2260	0.0811	-0.1437	0.0436	-0.1802	0.0333
Other Qual	-0.1577	0.0046	-0.2927	0.0404	-0.2720	0.0494	-0.2447	0.0369	-0.2555	0.0337
No Qual	-0.3166	0.0041	-0.4000	0.0427	-0.5865	0.0616	-0.4472	0.0357	-0.3964	0.0318
Partner Not Employed	-0.0053	0.0090	-0.1613	0.0803	0.0264	0.0960	-0.0048	0.0712	0.0268	0.0396
Partner Employed	0.1695	0.0028	0.2502	0.0316	0.2614	0.0454	0.1949	0.0263	0.0798	0.0217
Lives in North	-0.0027	0.0052	-0.0800	0.0429	-0.0502	0.0986	-0.0663	0.0386	0.0018	0.0237
Lives in Midlands	0.0113	0.0056	-0.0215	0.0346	0.0964	0.0835	0.0347	0.0282	-0.0044	0.0266
Lives in South (Not London)	0.0166	0.0051	-0.0291	0.0390	0.1692	0.0716	0.0336	0.0350	0.0803	0.0301
Lives in Celtic Fringe	-0.0074	0.0056	0.0089	0.0774	-0.3675	0.1388	0.0766	0.0903	0.0300	0.0450
Arrived UK age <15	-0.0211	0.0098	0.0070	0.0388	0.0242	0.0910	0.0087	0.0397	-0.0319	0.0253
Arrived UK >16 & more than 5 years ago	-0.0187	0.0092	-0.0377	0.0456	0.0192	0.0624	-0.0258	0.0401	-0.0931	0.0289
Arrived UK >16 & less than 5 years ago	-0.1197	0.0119	-0.1301	0.0577	-0.0906	0.0681	-0.2752	0.0512	-0.1328	0.0421
Youngest Child <5	-0.3681	0.0042	-0.3079	0.0355	-0.3744	0.0507	-0.3378	0.0353	-0.2149	0.0266
Youngest Child 5-10	-0.1882	0.0043	-0.1603	0.0372	-0.2317	0.0584	-0.1260	0.0376	-0.1281	0.0307
Youngest Child >10	-0.0910	0.0050	-0.0966	0.0468	-0.1686	0.0729	0.0429	0.0400	-0.0981	0.0364
Constant	-0.0062	0.0226	0.0184	0.2143	0.0753	0.3389	0.4865	0.2059	-0.3430	0.1687
N	109919		1458		898		2094		1626	
Log Likelihood	-53248.829		-771.70625		-476.68519		-1110.8573		-591.17338	
Pseudo R Squared	0.1674		0.1458		0.2179		0.1892		0.3202	

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Notes

¹ The consequences of this recoding are as follows. First the composition of 'Black-Other' is not entirely comparable between the two time points. Second, one is unable to make any comparison over time between the 'other' and 'other mixed race groups'. Finally, there are likely to be differences in the definitions of black, Asian or Chinese over the two time periods, because of the wording and ordering of the questions.

² The introduction of the new ethnicity questions in Spring 2001 resulted in missing ethnicity data for 7188 respondents. It was therefore necessary to roll forward their ethnicity from Winter 2000. Lindley et. al (2004) provide a detailed discussion.

³ These include respondents who have no missing data.

⁴ These are a consequence of higher economic activity levels amongst white and Pakistani/Bangladeshi women with degrees. (See Table A2 in the appendix).

⁵ The authors have combined unemployment and economically active because they feel that the distinction between unemployment and economic inactivity for women is much more blurred than for men. Women are less likely than men to think of themselves as unemployed when they are out of work. Data from the QLFS 1993-2003 shows that a much larger percentage of white men are ILO unemployed (6.5 percent) compared to women (3.5 percent). However, those who are 'not seeking but would like to work' is much larger for women (6.7 percent) than for men (3.7 percent). In part this may be because many women fulfil an additional or alternative role in the home. It may also relate to the fact that, once the period of unemployment benefit is over, women will not qualify for benefit if their partner is in paid work. In this situation there is no benefit-related incentive to be actively looking for work.

⁶ See Lindley et al (2004) for a discussion on the effects of these covariates.

⁷ Following Chunrong and Norton (2003) we do not estimate marginal effects for interactions using a logit model. Instead we estimate a linear probability model.

⁸ This could be associated with cultural differences between cohorts, since ethnicity is held constant. According to Bell (1997) the 1960's and 1970's saw increases in immigrants from India, East Africa, the Caribbean and Pakistan. However from the 1980's onwards there were large declines in the flows of immigrants coming from India and East Africa and rises in the numbers coming from Ireland and Europe. See Clark and Lindley (2004) for a detailed discussion of this issue.

⁹ Estimates are for all women are provided in Table A3 in the Appendix.

¹⁰ Test statistics for white, Black Caribbean/other, Black African, Indian and Pakistani/Bangladeshi with 18 degrees of freedom are 604.08, 24.75, 28.36, 26.07 and 36.63 respectively.