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DYNAMICS AND DIVERSITY:  
ETHNIC EMPLOYMENT DIFFERENCES IN  
ENGLAND AND WALES, 1991 - 2001

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# **Dynamics and Diversity: Ethnic Employment Differences in England and Wales, 1991 - 2001**

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# **Dynamics and Diversity: Ethnic Employment Differences in England and Wales, 1991 - 2001**

## **Abstract**

This paper focuses on two main issues, firstly the extent to which the employment position of the main ethnic minority groups in England and Wales changed between 1991 and 2001 and secondly, a detailed examination of employment amongst ethnic groups in 2001. In relative terms, the employment position of most ethnic minority groups improved over the period, especially for males. Some of this improvement was due to enhanced levels of observable characteristics. However, the employment gap between Whites and some ethnic minority groups remains extremely large. Religion, local deprivation and educational qualifications are found to be important influences for many minority groups.

**JEL Classification:** J15, J21, J7.

**Keywords:** employment, ethnic minorities, discrimination.

## **1. Introduction**

The 1990s witnessed a large decline in unemployment in the United Kingdom (UK). OECD statistics indicate that the UK unemployment rate fell from 8.6 per cent in 1991 to 5.0 per cent in 2001. This improvement was, in absolute terms, better than the OECD as a whole, where unemployment only fell from 6.8 per cent to 6.5 per cent (OECD, 2003). Some European countries fared particularly badly in comparison to the UK. For example, unemployment rates in Germany and Italy rose from 4.2 and 8.5 per cent to 7.8 and 9.5 per cent respectively between these dates (OECD, 2003). However, some sections of the UK population continue to suffer from high rates of unemployment, and increasingly from high rates of economic inactivity as well. These factors combine to generate low employment rates for certain ethnic minority groups, which is the focus of this paper.

The UK's impressive recent labour market performance can partly be explained by the more active labour market policy stance taken by the government, particularly after New Labour came to power in 1997. Policies such as the New Deal and Employment Zones were introduced with the aim of reducing the high levels of unemployment amongst certain at risk groups such as youngsters, as well as those in particular areas such as inner cities. Since ethnic minorities are on average younger than the majority White community and overwhelmingly reside in urban areas, New Labour's labour market policies would be expected to disproportionately affect the employment prospects of minority individuals of working age. For example, Department of Work and Pensions (DWP) data indicate that around 17 per cent of British New Deal for Young Persons participants are from the ethnic communities, which is roughly double their proportion in the population as a whole. In this paper

we use Census microdata from 1991 and 2001 to investigate whether the employment position of ethnic minorities has improved relative to that of Whites. We then proceed to conduct a detailed analysis of the diversity of ethnic minority employment rates for the most recent Census year.

Ethnic variations in employment have not always been apparent in the UK labour market. For example, Smith (1976), using the National Survey of Ethnic Minorities, found small ethnic employment differences for males, with West Indian and Asian males experiencing unemployment rates of less than 3 per cent in the early 1970s. He did, however, report considerable ethnic differences in female employment rates. Neither was Brown (1984) able to find substantial ethnic employment differences amongst males in the early 1980s since the employment rates for West Indians and Asians were found to be 64 and 68 per cent respectively, compared to 67 per cent for Whites. However, unemployment rose amongst ethnic minorities in the 1980s and this continued in the 1990s. Analysis of General Household Survey (GHS) data by Blackaby *et al.* (1994) revealed that the employment disadvantage suffered by ethnic minorities compared to Whites increased from 2.6 percentage points in the 1970s to 10.9 percentage points in the 1980s. Therefore, the pattern of labour market disadvantage now widely recognised to affect ethnic minorities is therefore a relatively recent phenomenon, beginning with the recession of the 1980s.

Part of the reason for increased interest in the labour market performance of ethnic minorities is because of the population expansion of these groups, with the percentage of the population of England and Wales accounted for by individuals from the ethnic communities rising from 6 per cent in 1991 to 9 per cent in 2001. Growth rates for

some groups have been particularly large, with the population of Black Africans more than doubling between 1991 and 2001. There has also been an increase in the mixed population, for instance, Berthoud (2000) reports that a half of Black Caribbean males with a partner live with a white female. Furthermore, Black Africans, Bangladeshis and Pakistanis have relatively high proportions of their population in the 0-15 age category implying further growth in the population of working age from these groups in the future. Evidence from the Labour Force Survey (LFS) also indicates that the labour market performances of ethnic minority males varies widely, with Indians having similar outcomes to Whites and Pakistanis, Bangladeshis and the Black groups faring far less well (Blackaby *et al.*, 1999; Blackaby *et al.*, 2002).

There are also a number of other interesting aspects associated with the analysis of ethnic labour market differences. These include that ethnic minority groups tend to be concentrated in particular geographic areas (Clark and Drinkwater, 2002). Given that these are typically located within poor inner cities, there may be lower levels of labour demand in such areas. This may be exacerbated by the fact that some ethnic minorities have oppositional identities (Battu *et al.*, 2003) or a taste for isolation (Blackaby *et al.*, 1999). In the context of examining ethnic differences, religion is also likely to have an important impact on labour market choices but this is a comparatively under-researched area. Lindley (2002) began to examine some of the links between labour market activity, religion and ethnicity but was hindered by relatively low sample sizes for some groups. She did however find that of those from the ethnic communities, Muslims suffered a considerable employment disadvantage relative to non-Muslims, with around a half of this differential remaining unexplained by characteristics.

We use Census microdata to analyse the wide ranging issues associated with examining labour market differences between ethnic groups since these data offer a number of advantages. First, we have access to large sample sizes so the position of narrowly defined minority groups can be investigated for both sexes without the need to pool data over time. Second, since Census microdata are now available for both 1991 and 2001 and the variable definitions are relatively consistent for these two years, we can also analyse changes over time. Thirdly, the 2001 data contain an enhanced set of covariates that could potentially add to our understanding of the differences between ethnic groups. For example, a question on religion was asked for the first time, which should be important for labour market outcomes, especially for females. In addition, the 2001 microdata contains better information on certain variables such as educational qualifications, children in the household and health than in 1991. The 2001 Census also asked a more detailed question on ethnicity, which allows us to identify different groups among the White community and a range of mixed race groups. Finally, the 2001 data contains a local authority identifier which means that the impact of spatial factors can be examined.

Therefore, in the remainder of the paper we extend the existing literature by explicitly considering the dynamics of ethnic employment disadvantage in England and Wales over the period 1991-2001. Prior to the release of the 2001 Census data it was difficult to examine changes in employment over time for meaningful samples on an ethnically disaggregated basis, using a consistent definition of ethnicity. We further extend previous research by considering the diversity of ethnic employment disadvantage using the more detailed information available in the 2001 sample of

microdata. In particular, we are able to achieve a finer breakdown of ethnicity and to consider the impact of religion and local levels of deprivation on the employment performance of ethnic groups.

## **2. Data and Empirical Methods**

The ensuing empirical analysis makes use of microdata from the Population Censuses that took place in Great Britain in 1991 and 2001. Census microdata, unlike other surveys of the population, provide relatively large samples of individuals from ethnic minority groups. Datasets such as the LFS or GHS contain only small numbers of Non-White individuals at any given point in time and several periods must be pooled to achieve reasonable sample sizes. The labour market differences that have been found to exist between different ethnic minority groups (Blackaby *et al.*, 1999; 2002) also necessitate sample sizes that allow analyses that are specific to individual groups to be conducted. Census microdata, known as the SARs in 1991 and Controlled Access Microdata (CAMs) in 2001, are a 2 per cent sample of returns in 1991 and a 3 per cent sample in 2001, allowing us to analyse all ethnic groups, as well as males and females, separately. Note that we only focus on England and Wales because different ethnicity questions were asked in Scotland and Northern Ireland in 2001.<sup>1</sup>

The 2001 Census ethnicity question was different to that asked in 1991 hence in our comparison of employment rates across time we need to find a definition of ethnicity which is relatively constant across the period. In an authoritative study, Simpson and

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<sup>1</sup> There are also differences in the religion question asked in these two countries and in the qualifications information for Scotland in 2001. Moreover, the ethnic minority populations in each of these countries is small, with 2.01 per cent of the Scottish and 0.75 per cent of the Northern Irish populations from the ethnic minorities in 2001. Both of these amounts are lower than the percentage of ethnic minorities in the Welsh population (2.14 per cent). 9.08 per cent of residents in England were from the ethnic communities in 2001, ranging from 2.31 per cent in the South West to 28.86 per cent in London.



Akinwale (2004) exploit the Office of National Statistics Longitudinal Study of England and Wales (LS) to examine changes in ethnicity reported by individuals between 1991 and 2001.<sup>2</sup> They find that there are seven clearly defined groups which are relatively stable over the period – White, Caribbean, African, Indian, Pakistani, Bangladeshi and Chinese.<sup>3</sup> Thus we focus on these seven groups, as well as ethnic minorities as a whole, in our comparisons of the 1991 and 2001 data. We subsequently analyse the more detailed 2001 data using a finer breakdown of ethnicity which allows us to identify 16 groups.

Table 1 contains information on the sample sizes and labour market status for the seven consistently defined groups of males and females in 1991 and 2001. We report activity and unemployment rates as well as employment rates (measured over the working age population). Given that ethnic minorities are more likely to stay on in post compulsory education compared to Whites (Leslie and Drinkwater, 1999), deferring their labour market entry in anticipation of enhanced future earnings and employment opportunities, we also report employment rates after excluding students from the denominator.<sup>4</sup> This is done because the majority of students are not active in the labour market, which implies that the inclusion of students would reduce the employment rate considerably for some ethnic minority groups. While our total sample is large (over 315,000 males in 1991 and half a million in 2001 reflecting the larger sample of microdata selected from the 2001 Census) the fact that the ethnic

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<sup>2</sup> The LS contains, *inter alia*, information on the Census returns for the same individuals for approximately 1 per cent of the population of England and Wales since 1971. See the Data Appendix for details of the ethnicity questions asked in 1991 and 2001.

<sup>3</sup> In fact Simpson and Akinwale (2004) also include an ‘Other’ category making an 8-way classification but the ‘Other’ category dropped from our timewise comparison as it has no clear interpretation.

<sup>4</sup> Full-time students are also removed from the numerator in 2001 since some are recorded as economically active. Please see the Data Appendix for further details and for information on the other measures of labour market activity.

minority population is small is reflected in the varying sample sizes for the individual groups. Nevertheless, one year of LFS data would typically contain no more than a hundred Bangladeshi males compared to over 900 in the 1991 Census microdata.

The data in Table 1 on the labour market status of the main ethnic groups show that, although the absolute position of ethnic minorities improved between these two dates, large differences between groups remained, particularly in relation to Whites. For example, the unemployment rate for all ethnic minority males and females was still in excess of 10 per cent (13.2 and 11.1 per cent respectively) in 2001, compared with 5.8 per cent for White males and 4.3 per cent for White females. Despite the substantial decrease in joblessness over this period, unemployment rates in 2001 remained in excess of 16 percent for Black Caribbean males and for males and females from the Black African, Pakistani and Bangladeshi groups.

Pakistani and Bangladeshi females continued to have very low economic activity rates, which combined with high unemployment produces employment rates for these groups were less than 30 per cent in 2001, even after the exclusion of students. The comparable employment rates for White and Black Caribbean females were over 70 per cent. Relatively low employment rates were also observed in 2001 for Pakistani and Bangladeshi males, even after the removal of students. This contrasts with the situation for Chinese males for whom the exclusion of students implies that they have the highest employment rate. Given that this group displays a relatively low activity rate, this highlights the high proportion of Chinese males of working age who are currently in full time education. The employment rate for Chinese females is also

much higher when students are removed. A similar effect is observed for Indian males but it is not as pronounced as that seen for the Chinese.

In the subsequent econometric analysis we concentrate on the employment rate where students have been excluded. We choose to focus on employment rates because of the large amount of inactivity amongst certain groups, particularly Pakistani and Bangladeshi females (Dale and Holdsworth, 1997) and also amongst older males (Disney, 1999). A comparison of unemployment rates would fail to account for the economically inactive. For this reason, high employment rates are a target for policymakers in the UK and European Union. For example, employment rates are the focus of the UK government's labour market policy towards ethnic minorities, and more generally through its endorsement of the European Union's Lisbon Strategy (DWP, 2004). Previous research has also noted how, in the context of racial discrimination in the UK labour market, barriers to entry to the labour market are likely to be more important than other forms of discrimination, such as in the payment of wages, since discrimination at the hiring stage is potentially less easily observed than wage discrimination (Leslie, 1998). The importance of removing students is evident in Table 1 since employment rates vary in excess of twenty percentage points for some ethnic groups depending on whether students are included or not.

Our econometric analysis focuses on the probability that an individual is in employment, based on the following probit model:

$$E_i^* = x_i'\beta + u_i, \quad (1)$$

where  $x$  is a vector of explanatory variables,  $\beta$  a vector of associated coefficients and  $u$  a standard normal random error term. The binary dependent variable indicating employment status is defined as follows:

$$E_i = 1 \text{ if } E_i^* \geq 0, \text{ the individual is in employment (excluding students)}$$

$$E_i = 0 \text{ otherwise, the individual is out of employment (excluding students).}$$

Those in employment include the self-employed. The incidence of self-employment varies considerably by ethnic group, with the Chinese and Pakistanis experiencing relatively high rates, whilst self-employment is low amongst the Black groups (Clark and Drinkwater, 1998).

To fully account for ethnic differences in access to employment, separate probit equations are estimated for each of the seven ethnic groups described in Table 1, for each sex and for each year of Census microdata. We control for the following variables: age and its square, marital status, whether there were dependant children in household, whether the respondent had higher qualifications (defined here as any post-school qualification), country of birth, limiting long term illness and region.<sup>5</sup> Note that the Census did not collect data on English language ability or, for immigrants, the year of arrival in the UK.<sup>6</sup>

We then use the coefficients from the probit models in the following decomposition<sup>7</sup>:

$$\hat{E}^w - \hat{E}^j = \{\bar{P}(x^w \hat{\beta}^*) - \bar{P}(x^j \hat{\beta}^*)\} + \{[\bar{P}(x^w \hat{\beta}^w) - \bar{P}(x^w \hat{\beta}^*)] - [\bar{P}(x^j \hat{\beta}^j) - \bar{P}(x^j \hat{\beta}^*)]\}. \quad (2)$$

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<sup>5</sup> Further information on the construction of these variables can be found in the Data Appendix.

<sup>6</sup> The only language information available in the Census for England and Wales is the ability to speak, read and write Welsh in Wales. English language ability may also be less important now because of the lower proportion of ethnic minorities who were born overseas and changes in immigration policy.

<sup>7</sup> This decomposition is based on Gomulka and Stern (1990), as implemented in Blackaby *et al.* (2002). This is basically an extension of the Oaxaca (1973) decomposition to the case of a binary dependent variable.

Here  $\hat{E}^w$  is the average of the predicted employment probabilities for Whites and  $\hat{E}^j$  is the same for the ethnic minority group  $j$ .  $\hat{\beta}$  is the vector of estimated coefficients from the probit model and  $\hat{\beta}^*$  is a vector of estimated coefficients from a probit model estimated on a pooled sample (Whites and the ethnic minority comparison group),  $\bar{P}(x^j\hat{\beta}^j)$  is the average of the fitted probabilities from the probit model estimated using the observations in group  $j$  and the estimated coefficients from group  $j$  and so on. The first term in the braces is the component of the probability difference due to observed characteristics, while the second term in braces is the effect of coefficients which corresponds to unobservable, group-specific influences on the employment probability. The decomposition allows us to estimate what proportion of the difference between any ethnic minority group and the White majority is due to differences in observed characteristics. The remaining ‘unexplained’ component may reflect differential treatment by the labour market such as employer discrimination, or cultural/ethnic differences in motivation or preferences between groups.

To examine the detailed picture in 2001, we estimate Equation (1) for all 16 ethnic groups. The specification also differs from that used to analyse changes over time as we are able to exploit the greater detail on explanatory variables available in the 2001 sample. First, more detailed definitions are available for some of the variables that were present in 1991 such as marital status, ill health, children in the household and educational qualifications. For this latter variable there is now a 6 category breakdown as opposed to a single higher education identifier in the 1991 sample. Second, we have included a vector of dummy variables representing the individual’s religion. A question on the religion of household members was included for the first time in the 2001 Census. Recent research has analysed the linkages between religion

and economic outcomes. Barro and McCleary (2003) suggest that at the macroeconomic level the average level of religious belief is positively associated with a country's economic growth. They argue that "higher religious beliefs stimulate growth because they help to sustain aspects of individual behaviour that enhance productivity" (p. 39). Guiso *et al.* (2003) analyse religion and 'economic' attitudes towards such things as thriftiness, the market economy and working women. They conclude that the strength of religious beliefs are associated with attitudes favouring higher national income but are also associated with racist beliefs and negative attitudes towards female participation in the labour market. Finally, we have included the Index of Multiple Deprivation (IMD), a summary statistic used by the UK government to measure disadvantage at local area level along dimensions including income, employment, health, education, housing and crime. While the magnitude of the IMD has no natural interpretation and is scaled to lie between 0 and 100, we include it to reflect the idea that unobservable local area effects have an impact on the employment prospects of ethnic minority individuals over and above their personal characteristics. Clark and Drinkwater (2002) have explored similar issues for minorities in the UK, finding that area level effects influence labour market outcomes even when controlling for individual characteristics.

However we do not undertake any decomposition analysis for the 2001 data. The principal reason for this is because of the dominance of particular religions for certain ethnic groups e.g. Islam for Pakistani and Bangladeshis. The concentration within certain categories makes interpreting the components due to characteristics and coefficients more problematic. Given that we are especially interested in the influence of religion, as well as other key variables, on labour market outcomes, we report

estimates for the impact of religion, education and the IMD on the employment probabilities of members of the 16 ethnic groups.

### **3. Ethnic Employment Dynamics: 1991-2001**

Since the primary purpose for estimating the separate probit models is to use the coefficients as inputs within a decomposition procedure, we do not report the coefficient estimates from each equation in the interests of brevity. Instead, to give a flavour of the results, Tables A1 and A2 in the Appendix contain the estimates from pooled models containing dummy variables for each minority ethnic group. The signs of the estimated coefficients in the pooled models are broadly consistent with expectations and previous research. The employment probability is increasing in age, but at a declining rate and education (captured here by a dummy for higher qualifications) improves employment outcomes. There is a strong marriage premium for males in both years, whilst for females, the significantly negative effect in 1991 becomes a weak positive effect after controlling for other influences in 2001, relative to being single. Those with limiting long-term illnesses have substantially lower employment probabilities and the UK born have significantly higher employment rates compared to immigrants. Region of residence also impacts on employment as we would expect. Even after controlling for observable characteristics, however, there are significant employment differences between Whites and the minority groups. The only groups which did have not significantly lower employment rate than Whites at the 5 per cent level were Indian and Chinese females in 1991. Note that Black Caribbean females were more likely to be in employment than Whites in 1991 and 2001 after controlling for other characteristics.

The results of applying Equation (2) to the employment differential between Whites and the members of the six other consistently defined ethnic groups for 1991 and 2001 are reported for males in Table 2. Table 3 contains the equivalent information for females. In the tables, a positive entry indicates an advantage for Whites over the respective ethnic minority group, thus the first row confirms that in 1991 there were large employment differentials between White males and their counterparts from each of the other groups, apart from Indians and Chinese. The Chinese were actually very slightly more likely to be in employment, which is entirely due to this group possessing greater employment enhancing characteristics relative to Whites since these characteristics were less well rewarded in comparison. Indian males also possessed better characteristics than Whites but this was more than outweighed by lower rewards to these characteristics, producing a 2.4 percentage point lower employment rate compared to White males. The difference in employment rates between Pakistani and Bangladeshi males and Whites was more than 20 percentage points, a clear majority of which was left unexplained by characteristic differences. Males from the two Black groups also experienced far lower levels of employment than Whites. Again, very little of the differential between Whites and Black African males could be accounted for by characteristic differences, while for Caribbeans around half of the differential was explained.

The bottom panel of Table 2 shows that the relative position for males from each of the minority groups improved between the two Censuses. However, the extent of these improvements varied. While Black Africans, Pakistanis and Bangladeshis experienced fairly large falls (in percentage point terms) in their employment differential relative to Whites, this was not the case for Black Caribbeans. For the two



most successful minority groups, the small differential between Indians and Whites that existed in 1991 had further narrowed, whilst the Chinese extended their modest employment advantage over Whites between the two dates. The improvement in the relative employment prospects of Black Africans can be attributed to the possession of better characteristics than Whites in 2001, whilst the characteristics component also fell for both Pakistanis and Bangladeshis.

This characteristics component of the decomposition can be further broken down into its constituent parts using a technique described in Even and MacPherson (1993) and the results of this are also presented in Table 2. Age accounts for some of the improvement, especially for Bangladeshis, whilst a larger proportion of Pakistanis and Black Africans possessed higher qualifications than Whites in 2001. Leslie and Drinkwater (1999) identified the high proportion of ethnic minority individuals from these groups in higher and further education in 1991 and it is the movement of these cohorts into the labour market which helps to explain the improvement in the employment prospects of these groups and the relatively poorer performance of the Black Caribbean group, where educational participation is lower. The table also shows the impact of the much higher proportion of immigrants amongst the ethnic minority groups, which tends to reduce the employment probability. Although, in line with increasingly strict regulations on who can enter the UK, there was a decline in the percentage of immigrants amongst all ethnic minority groups between 1991 and 2001 apart from Black Africans.

Table 3 reports that the position for females is somewhat different. First, Black Caribbeans enjoyed a higher employment rate than Whites in 1991, despite having

lower endowments of employment enhancing characteristics. A potential explanation is that this group of women have higher proportions of single individuals and are thus under greater pressure to find employment as the sole earner in the household (Holdsworth and Dale, 1997). Second, the employment rate of White females was higher than that of all other groups in 1991, with the advantage over Pakistanis and Bangladeshis being particularly large. For both of these groups, the differential with Whites was more than 45 percentage points, less than a half of which could be explained by endowments of characteristics. In contrast to males, Chinese females had lower levels of employment than Whites, whilst the gap between Indian and White females was also greater than it was for males, with characteristics explaining most of the employment differences between these two groups and Whites in 1991.

For females there was less convergence between 1991 and 2001 in the employment rates of Whites and ethnic minorities than was observed for males. Black Africans and the South Asian groups did see some narrowing of the employment deficits with Whites but these reductions were small. Furthermore, unlike for males, this is not so much the outcome of rising endowments of employment-enhancing characteristics. For instance, while the explained component fell for each of the South Asian groups, it remains positive and fairly large in each case, with immigrant status and dependant children the most important factors. Furthermore, although the percentage of Pakistani and Bangladeshi females possessing higher qualifications increased between 1991 and 2001, they still lagged behind White females. The reduction in the contribution of the characteristics component for Indian females was due to this group having experienced a very large increase in the proportion with higher qualifications and also a reduction in the proportion with dependant children.

#### **4. Ethnic Employment Diversity in 2001**

In the preceding section we examined the relative employment experience of six ethnic minority groups using Census data from 1991 and 2001. In this section we use some of the additional information available for the first time in the 2001 Census to augment the analysis. In particular, we use the more detailed breakdown of ethnicity to describe the employment position of a larger set of ethnic groups and we examine the impact of religion, qualifications and local area effects on the employment rates of these ethnic groups.

To set the scene, Table 4 reports labour market activity, using the same definitions as Table 1, by narrow ethnic group for the 2001 sample. This represents the most ethnically disaggregated information that is available for the working age population of England and Wales. In particular, it allows those of mixed ethnicity to be identified, separates Whites into three groups and provides a more useful breakdown of the 'Other' group than previously available.

Despite the general reduction in unemployment rates over the 1990s, Table 4 shows that, allied to the earlier analysis, male unemployment rates were in excess of 10 per cent in 2001 for all ethnic minority groups apart from Indians, Chinese and the Mixed: White & Asian group. Furthermore, unemployment rates were in excess of 20 per cent for Bangladeshi males and males identifying themselves as Mixed: White & Black African. The employment rates of some of the Mixed groups are particularly low, with just over a half of Mixed: White & Black Africans in employment and less than two-thirds of this group in employment even after the exclusion of students.

White Britons had the highest employment rate of the White groups, with White Irish males experiencing relatively low levels of employment after the exclusion of students. Again the importance of excluding students from the employment rate is demonstrated. In addition to those groups already discussed in Table 1, the employment rate discrepancy when students were excluded was in excess of 10 percentage points for Mixed: White & Asian, Other and Other Mixed males.

The overall situation for females was slightly better with only 5 out of the 13 ethnic minority groups recording an unemployment rate in excess of 10 per cent in 2001. Some interesting anomalies are also observed for the mixed groups with Mixed: White & Black Caribbean females experiencing the lowest employment rate amongst the mixed groups despite the high employment rates for the White and Black Caribbean groups individually, whilst the Mixed group labelled White & Asians had the highest rate out of all of the Mixed and Other groups even though some of the Asian groups experience very low levels of employment. The factors underlying the employment rates of the mixed ethnicity groups are complex. For example, the social and cultural implications of belonging to, or declaring, a mixed ethnicity are likely to be important (Mansaray, 2003). How these factors interact in the determination of employment outcomes for mixed race individuals is an area where further research is required.

Pooled probit estimates for males and females including dummy variables for the 15 ethnic dummies (relative to the excluded category of White British) are presented in Table 5. The table highlights the impact of the more detailed information available in the 2001 Census. For both males and females, higher levels of qualifications

monotonically increase employment probabilities with the high marginal effects of qualifications for females, relative to the excluded category of no qualifications, particularly noticeable. The additional dummy variables providing more detail on family composition and health status are also statistically significant.

Turning to religion, compared to those with no religion, we find that Sikh and Hindu males and Buddhists of both sexes experienced significantly lower employment probabilities.<sup>8</sup> Furthermore, while Jewish males were significantly more likely to be in employment than Christians, the opposite was true for females. Christians, comprising the majority of our sample, were more likely to be in employment than those with no religious affiliation, while those who refused to answer the religion question on the Census form had significantly lower employment probabilities than those who declared themselves to have no religion. By far the biggest effect from the religion dummy variables, however, was for Muslims where males and females had employment rates which were significantly lower, in both economic and statistical senses, than the excluded category. This confirms the findings of Lindley (2002) who analyses data from the Fourth National Survey of Ethnic Minorities. Note, however, that in our pooled model, there is likely to be a high degree of correlation between religion and ethnicity and this may be influencing the results. In the pooled model, the IMD is also highly significant for males and females. The marginal effect is somewhat difficult to interpret given the nature of the variable, nonetheless it is clear that in areas which score highly on the deprivation scale individual employment probabilities are reduced.

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<sup>8</sup> The Census contains no information on religious devoutness or on how often an individual attends places of worship.

Controlling for this extended list of characteristics it is still the case that males from all ethnic minority groups had a significantly lower employment rate than White British at the 5 per cent level. Whilst the probability of employment is significantly lower at the 5 per cent level for females from all minority groups apart from Indians, Black Caribbeans, Other Blacks and Chinese. The differences are particularly noticeable for some of the mixed and other groups such as Mixed: White & Black Caribbean, Mixed: White & Black Africans, Other Black and Other males. However, some of the differences between White Britons and the South Asian groups have been considerably attenuated in the 2001 pooled probit results compared to both the raw data and the less detailed specification reported in Table A2. Investigation reveals that this is due to the inclusion of religion in the current specification: the vast majority of Pakistanis and Bangladeshis are Muslims whilst nine out of ten Sikhs were from an Indian background, hence there is considerable collinearity between religion and ethnicity. Separate estimation of the model by ethnic group is thus necessary to obtain a more reliable estimate of the impact of religion.

Tables 6 and 7 report the marginal effects for religion, qualifications and the IMD from probit models estimated separately for each of the disaggregated ethnic groups and for males and females. Note that each probit model contains the full set of explanatory variables, however we report only those effects relating to these three variables. For the religious effects, estimates are only reported if the cell size is at least 25.<sup>9</sup> If the cell size is less than 25 then that particular religious category is subsumed within the other religion category. Each of the religious effects is measured relative to those who stated that they had no religion. The results suggest that Muslim

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<sup>9</sup> The only exceptions to this are Bangladeshi males and females, for whom the cell sizes are 15 and 12 respectively for the no religion category, which is the comparison group.

males were less likely to be employed than those with no religion in 11 out of the 13 groups which had adequate sample sizes, although these differences were only statistically significant at the 10 per cent level or lower for 4 of the groups: White British, White Other, Pakistani and Other. The large (16-20 percentage points) penalty faced by White Muslims is particularly notable. Bangladeshi Muslims had an (insignificantly) higher probability of employment than those with no religion, although 93 per cent of Bangladeshis described themselves as Muslims. Pakistani Christians were significantly less likely to be employed but Christians accounted for only 1 per cent of this ethnic group. The other religious effects were relatively small for males, with only a few significant differences. For example, despite the religious diversity displayed by Indians, there were no significant employment differences compared to those with no religion.

Table 7 contains the results for females. Muslims had a lower employment rate for 12 out of the 13 groups, the exception being Other Blacks. The differences in employment rates between Muslims and those with no religion were in excess of 20 percentage points and significant at the 5 per cent level for 7 of the groups. The other religious effects were quite mixed for females: for example Christians had significantly higher employment rates for White British, Other Black, Mixed: White & Black Caribbean and Other at the 10 per cent level but significantly lower rates for White Other, Other Mixed and Indians.

Tables 6 and 7 also reveal that qualifications had a positive, increasing and significant effect on employment for virtually all ethnic groups. The marginal effects for qualifications were also generally higher for ethnic minority groups than for the White

British. For example, the employment advantage of Black African and Mixed: White & Black African males with a higher education qualification (Level 4 or 5 qualifications) over those with no qualifications was more than 30 percentage points, compared to less than 10 percentage points for White British males. However, Level 1 and Level 2 qualifications (equivalent to 1 'A' Level or lower) did not have a significant impact on the employment prospects of Chinese and Other Black males. For females, the impact of human capital is again more important for most ethnic minority groups compared to White British, especially for those with Level 4/5 qualifications. For instance, Bangladeshi and Black African female graduates had an employment rate more than 40 percentage points higher than those with no qualifications, compared to an equivalent advantage of just over 20 percentage points for the White groups.

Table 6 reports that the IMD had a negative and significant impact on employment probabilities at the 5 per cent level for 13 of the 16 male groups. The exceptions being Other Mixed (significant at 10 per cent), Mixed: White & Black African and Chinese, for whom employment rates are higher in more deprived areas. Whilst from Table 7 it can be seen that females from the majority of the groups had significantly higher employment rates in less deprived areas, with the largest effects observed for Pakistani and Bangladeshi females. In a sense it is not surprising that for those in more deprived areas there are fewer employment opportunities for most groups. That there is ethnic diversity in the extent of this effect is more interesting. Whilst Whites also suffer lower employment rates in highly deprived areas the marginal effects are generally larger for ethnic minority groups. Given the disproportionate representation of minorities in relatively deprived, urban areas, the impact of the local area on



employment, if not addressed by policy measures, has the potential to widen ethnic differences in labour market outcomes.

## **5. Conclusions**

Although the results of our comparative analysis of microdata from the two Censuses suggests that there was a general improvement in employment outcomes for ethnic minorities in England and Wales, the situation remains complicated. Whilst some groups – notably Indian and Chinese males as well as Caribbean females – have employment rates broadly comparable with the White majority, others experience extremely large employment gaps. Whilst most groups have improved their relative position over the period, others lag behind. Furthermore, although human capital deficits explain some of the differences in employment rates, this is not the whole story – the decomposition results show that individuals with identical characteristics can experience quite different employment probabilities and this may reflect discrimination in the labour market as well as between-group differences in labour supply behaviour related to tastes and preferences. The complexity of the picture implies that generalisations about the causes of ethnic gaps, or macro-level policy prescriptions which ignore the diversity of group-specific experiences, are unlikely to succeed.

Similarly, our analysis of responses to the 2001 Census emphasises the particular problems faced by ethnic minorities in terms of their geographical concentration in relatively deprived urban areas. It is well known that such concentration exists; what our results suggest is that the deprived nature of the local area is associated with lower employment rates, even when the impact of individual characteristics is held constant,

and that the penalty associated with local deprivation varies by ethnic group. Clearly there may be problems inferring causality here: are areas deprived because of the (observable and unobservable) characteristics of those who live there or does the general level of economic activity in the area influence individual probabilities? There is a sense in which, from a policy perspective, which explanation is correct is not important: policy resources and measures targeted at particular types of area could have disproportionately beneficial effects for ethnic communities. To this extent the approach taken by the UK Government's Ethnic Minority Employment Task Force in "providing greater discretion and flexibility for local delivery bodies and improved targeting of resources in disadvantaged areas" (DWP, 2004, p.5) is to be endorsed.

Another key policy challenge concerns education: much of the improved employment performance of Pakistanis, Bangladeshis and Black Africans is due to younger cohorts of workers, many of whom are native born and who have invested in human capital, entering the labour market and reaping a return on their investment. Our results suggest that the employment returns to educational qualifications for ethnic minorities are substantially greater than those for Whites. This is a success story, however the challenge for the UK Government is to promulgate this success to the groups which, thus far, have not improved their skills and employability and which, consequently, still suffer severe disadvantage in the labour market.

Our regression models suggested that religion is an additional source of variation in labour market behaviour. In particular there is some evidence that, controlling for other factors, Muslims have lower employment rates than individuals with another, or

indeed no, religion affiliation. Quantifying this is problematical for some of Britain's ethnic groups simply because ethnicity and religion are extremely highly correlated. Cultural attitudes and norms underlie some of the low employment rates, especially for Pakistani and Bangladeshi women, but separating the influences of ethnicity and religion is extremely difficult, both conceptually and empirically. It may also be misleading to label behaviour which is a potentially a choice as economic disadvantage. More interesting, and perhaps surprising, is that White Muslims experience an employment penalty, other things equal. Understanding the impact of religion in the UK labour market forms an important area for future research.

There are of course limits to how far government policy can impact on employment outcomes. Labour supply is driven by preferences as much as market incentives and some aspects of ethnicity or religion which reflect cultural differences may be unsuited to manipulation by the usual policy instruments. As a result, a framework which is sensitive to culture is required. Equally though, in spite of around 30 years of anti-discrimination legislation, the results presented here, as well as those from other empirical studies, inevitably leads to the conclusion that some amount of racial discrimination still exists in the UK labour market. Such considerations suggest that ethnic employment differences are unlikely to be greatly reduced in the immediate future.

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**Table 1. Labour Market Activity by Broad Ethnic Group: 1991-2001**

	Male					Female				
	Activity Rate	Emp. Rate	Emp. Rate (no students)	Unemp. Rate	Sample Size	Activity Rate	Emp. Rate	Emp. Rate (no students)	Unemp. Rate	Sample Size
<b>1991</b>										
White	86.1	76.8	81.1	10.9	297,205	67.3	62.9	67.0	6.5	274,501
Black Caribbean	84.7	63.4	66.8	25.1	3,220	72.3	63.1	67.9	12.7	3,473
Black African	64.8	45.8	62.6	29.4	1,372	56.2	42.4	52.2	24.6	1,354
Indian	81.4	69.8	78.8	14.2	5,455	59.1	51.7	57.9	12.6	5,206
Pakistani	73.7	50.8	59.7	31.0	2,585	26.6	18.6	20.8	30.3	2,333
Bangladeshi	73.1	48.5	56.4	33.7	922	20.0	12.4	14.1	38.1	776
Chinese	65.9	58.4	81.6	11.5	1,095	53.1	49.3	64.4	7.1	1,085
All Ethnic Minorities	77.5	61.0	70.9	21.3	18,420	54.7	46.4	53.0	15.2	18,012
<b>2001</b>										
White	82.3	77.5	81.1	5.8	467,739	71.9	68.8	71.8	4.3	432,473
Black Caribbean	77.5	64.5	68.9	16.8	5,361	72.8	66.1	71.0	9.3	6,239
Black African	71.7	59.2	72.0	17.4	4,818	60.1	50.0	58.8	16.8	5,136
Indian	77.4	71.3	80.5	7.9	11,087	63.7	59.2	65.2	7.2	10,746
Pakistani	68.0	57.0	66.4	16.2	6,810	31.0	25.4	27.4	18.0	6,541
Bangladeshi	68.6	54.7	63.3	20.3	2,586	27.9	21.4	22.2	23.0	2,430
Chinese	64.8	60.1	82.4	7.3	2,579	56.7	52.4	66.7	7.7	2,754
All Ethnic Minorities	72.3	62.7	72.9	13.2	43,962	56.1	50.0	56.0	10.9	44,762

*Sources:* Individual Sample of Anonymised Records (SARs) from the 1991 Census and Controlled Access Microdata (CAMs) from the 2001 Census.

*Notes:* Sample size relates to working age population (16-59/64). The All Ethnic Minorities category also includes those ethnic minority groups not in the table i.e. the other and mixed categories.

**Table 2. Male Probit Decompositions of the Employment Differential with Whites: 1991 and 2001**

<b>1991</b>						
	<b>Black Caribbean</b>	<b>Black African</b>	<b>Indian</b>	<b>Pakistani</b>	<b>Bangladeshi</b>	<b>Chinese</b>
Differences in means	0.142	0.186	0.024	0.214	0.248	-0.005
Differences in coefficients	0.073	0.176	0.032	0.155	0.137	0.020
Differences in characteristics	0.070	0.010	-0.008	0.059	0.111	-0.025
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Characteristics breakdown:						
<i>Age</i>	0.006	-0.016	-0.024	-0.008	0.010	-0.021
<i>Higher qualifications</i>	0.010	-0.007	-0.005	0.007	0.009	-0.015
<i>Marital status</i>	0.023	0.005	-0.030	-0.021	-0.019	-0.013
<i>Dependant children</i>	-0.001	0.001	0.010	0.011	0.013	0.004
<i>Immigrant status</i>	0.015	0.017	0.048	0.045	0.038	0.033
<i>Region</i>	0.012	0.014	-0.005	0.005	0.025	0.007
<i>Ill health</i>	0.005	-0.005	-0.001	0.021	0.035	-0.020
<b>2001</b>						
	<b>Black Caribbean</b>	<b>Black African</b>	<b>Indian</b>	<b>Pakistani</b>	<b>Bangladeshi</b>	<b>Chinese</b>
Differences in means	0.122	0.092	0.007	0.147	0.180	-0.013
Differences in coefficients	0.081	0.107	0.021	0.125	0.147	0.018
Differences in characteristics	0.041	-0.015	-0.014	0.022	0.033	-0.031
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Characteristics breakdown:						
<i>Age</i>	-0.011	-0.065	-0.015	-0.018	-0.021	-0.029
<i>Higher qualifications</i>	0.004	-0.039	-0.011	-0.002	0.002	-0.021
<i>Marital status</i>	0.019	-0.004	-0.019	-0.023	-0.021	-0.010
<i>Dependant children</i>	-0.000	0.000	-0.000	0.001	0.001	0.000
<i>Immigrant status</i>	0.021	0.101	0.038	0.049	0.049	0.065
<i>Region</i>	0.005	0.023	-0.004	0.005	0.016	0.001
<i>Ill health</i>	0.003	-0.031	-0.003	0.009	0.007	-0.036

*Notes:* Students are excluded. Data relate to working age population.

**Table 3. Female Probit Decompositions of the Employment Differential with Whites:  
1991 and 2001**

<b>1991</b>						
	<b>Black Caribbean</b>	<b>Black African</b>	<b>Indian</b>	<b>Pakistani</b>	<b>Bangladeshi</b>	<b>Chinese</b>
Differences in means	-0.008	0.148	0.092	0.463	0.531	0.027
Differences in coefficients	-0.047	0.087	-0.007	0.266	0.291	-0.002
Differences in characteristics	0.039	0.061	0.099	0.198	0.239	0.029
Characteristics breakdown:						
<i>Age</i>	-0.001	-0.026	-0.016	-0.006	-0.002	-0.022
<i>Higher qualifications</i>	0.001	-0.017	0.005	0.017	0.021	-0.024
<i>Marital status</i>	-0.018	-0.009	0.007	0.007	0.008	0.002
<i>Dependant children</i>	0.010	0.035	0.058	0.097	0.115	0.031
<i>Immigrant status</i>	0.016	0.040	0.037	0.066	0.055	0.048
<i>Region</i>	0.019	0.037	0.001	0.002	0.027	0.011
<i>Ill health</i>	0.012	0.001	0.008	0.015	0.017	-0.016
<b>2001</b>						
	<b>Black Caribbean</b>	<b>Black African</b>	<b>Indian</b>	<b>Pakistani</b>	<b>Bangladeshi</b>	<b>Chinese</b>
Differences in means	0.008	0.131	0.067	0.445	0.497	0.052
Differences in coefficients	-0.039	0.067	0.012	0.298	0.301	0.042
Differences in characteristics	0.031	0.064	0.054	0.147	0.197	0.010
Characteristics breakdown:						
<i>Age</i>	-0.020	-0.029	-0.015	-0.011	-0.009	-0.018
<i>Higher qualifications</i>	-0.010	-0.027	-0.016	0.007	0.015	-0.028
<i>Marital status</i>	0.005	0.001	-0.002	-0.001	-0.002	-0.001
<i>Dependant children</i>	0.014	0.026	0.022	0.051	0.065	0.008
<i>Immigrant status</i>	0.025	0.064	0.053	0.081	0.079	0.061
<i>Region</i>	0.023	0.039	0.005	0.004	0.036	0.011
<i>Ill health</i>	0.004	-0.009	0.007	0.016	0.014	-0.023

*Notes:* Students are excluded. Data relate to working age population.



**Table 4. Labour Market Activity by Narrow Ethnic Groups: 2001**

	Male					Female				
	Activity Rate	Emp. Rate	Emp. Rate (no students)	Unemp. Rate	Sample Size	Activity Rate	Emp. Rate	Emp. Rate (no students)	Unemp. Rate	Sample Size
<i>White</i>										
White British	82.5	77.8	81.2	5.7	446,470	72.2	69.1	72.0	4.2	410,539
White Irish	76.1	71.0	73.4	6.8	6,616	70.4	67.0	69.5	4.9	5,993
Other White	76.5	71.2	80.6	7.0	14,653	65.4	61.2	67.9	6.4	15,941
<i>Mixed</i>										
Mixed: Whi. & Bla. Car.	73.7	60.7	68.8	17.6	1,365	62.0	53.2	60.1	14.2	1,531
Mixed: Whi. & Bla. Afr.	70.9	55.4	64.0	21.8	662	60.2	54.3	60.6	9.8	659
Mixed: Whi. & Asian	70.9	64.2	77.5	9.4	1,410	62.2	57.1	65.2	8.2	1,354
Other Mixed	69.6	61.1	73.6	12.2	1,187	61.6	55.6	65.1	9.8	1,314
<i>Other</i>										
Other Asian	72.2	64.5	73.6	10.7	3,048	54.9	49.8	55.7	9.3	2,193
Other Black	72.5	58.7	67.8	19.1	808	66.9	57.0	64.2	14.7	917
Other	63.6	55.7	71.3	12.4	2,241	52.1	47.4	55.5	9.0	2,948

Sources: 2001 CAMs.

Note: Sample sizes relate to working age population. Figures for the remaining ethnic groups are reported in Table 1.

**Table 5. Probit Estimates of Employment Incidence, Detailed Specification: 2001**

	Males			Females		
	Mean	M.E.	S. E.	Mean	M.E.	S. E.
Age	40.913	0.026	0.000	39.128	0.036	0.001
Age squared/100	18.340	-0.036	0.000	16.590	-0.047	0.001
Married	0.455	0.116	0.002	0.465	0.005	0.002
Remarried	0.081	0.092	0.002	0.080	0.020	0.003
Separated	0.024	0.045	0.003	0.036	-0.022	0.004
Divorced	0.085	0.036	0.002	0.109	0.016	0.003
Widowed	0.009	0.026	0.005	0.019	-0.068	0.006
Only dep. children in household	0.325	0.001	0.001	0.427	-0.209	0.002
Non-dep. children in household	0.024	-0.006	0.004	0.024	-0.082	0.005
Dep. and non-dep. children	0.023	0.025	0.003	0.021	0.029	0.005
Level 1 qualifications	0.191	0.076	0.001	0.199	0.137	0.002
Level 2 qualifications	0.183	0.086	0.001	0.220	0.183	0.002
Level 3 qualifications	0.073	0.095	0.001	0.078	0.201	0.002
Level 4/5 qualifications	0.218	0.109	0.001	0.221	0.229	0.002
Other qualifications	0.092	0.071	0.001	0.047	0.118	0.003
UK Born	0.902	0.003	0.003	0.890	0.047	0.004
White Irish	0.013	-0.031	0.006	0.013	0.005	0.007
Other White	0.027	-0.054	0.005	0.031	-0.065	0.006
Mixed: White & Black Caribbean	0.002	-0.125	0.014	0.003	-0.087	0.014
Mixed: White & Black African	0.001	-0.181	0.022	0.001	-0.079	0.022
Mixed: White & Asian	0.002	-0.049	0.013	0.002	-0.069	0.016
Other Mixed	0.002	-0.091	0.016	0.002	-0.056	0.016
Indian	0.020	-0.018	0.008	0.021	-0.003	0.010
Pakistani	0.012	-0.045	0.008	0.013	-0.141	0.011
Bangladeshi	0.004	-0.065	0.011	0.005	-0.143	0.016
Other Asian	0.005	-0.083	0.011	0.004	-0.061	0.014
Black Caribbean	0.010	-0.109	0.007	0.013	0.019	0.007
Black African	0.008	-0.185	0.010	0.009	-0.085	0.009
Other Black	0.001	-0.144	0.019	0.002	-0.036	0.018
Chinese	0.004	-0.031	0.011	0.005	-0.018	0.012
Other Ethnic Group	0.003	-0.131	0.013	0.005	-0.116	0.012

**Table 5 (Continued)**

Christian	0.682	0.018	0.002	0.737	0.028	0.002
Buddhist	0.003	-0.030	0.011	0.003	-0.050	0.014
Hindu	0.011	-0.013	0.009	0.011	0.031	0.011
Jewish	0.005	0.037	0.008	0.005	-0.036	0.011
Muslim	0.027	-0.115	0.008	0.027	-0.180	0.009
Sikh	0.006	-0.046	0.012	0.007	0.050	0.012
Other religion	0.018	0.009	0.004	0.010	-0.006	0.008
Religion not stated	0.073	-0.014	0.003	0.063	-0.014	0.003
North East	0.048	-0.013	0.003	0.049	-0.005	0.004
North West	0.128	0.015	0.002	0.128	0.026	0.003
Yorkshire and the Humber	0.094	0.032	0.002	0.094	0.040	0.004
East Midlands	0.081	0.046	0.002	0.080	0.035	0.004
West Midlands	0.101	0.043	0.002	0.099	0.031	0.004
East of England	0.105	0.066	0.002	0.104	0.026	0.004
South East	0.155	0.066	0.002	0.154	0.028	0.003
South West	0.093	0.050	0.002	0.092	0.023	0.004
Inner London	0.055	0.024	0.003	0.058	-0.021	0.005
Outer London	0.084	0.054	0.002	0.089	0.019	0.004
In fairly good health	0.207	-0.118	0.002	0.240	-0.110	0.002
In not good health	0.085	-0.531	0.003	0.081	-0.464	0.003
Index of Multiple Deprivation/100	0.212	-0.079	0.003	0.215	-0.127	0.005
Pseudo R <sup>2</sup>		0.239			0.159	
N		470,603			433,754	

*Notes:* Default categories are single, no children in household, born overseas, no qualifications, White British, no religion, Wales and in good health. All full-time students have been excluded from the analysis. The table contains marginal effects and heteroscedasticity robust standard errors as well as the means of the explanatory variables.

**Table 6. Selected Marginal Effects for the Probability of Being in Employment, Males: 2001**

	<b>White British</b>	<b>White Irish</b>	<b>White Other</b>	<b>Mixed: W&amp;B.C.</b>	<b>Mixed: W&amp;B.A.</b>	<b>Mixed: W&amp;As.</b>	<b>Other Mixed</b>	<b>Indian</b>	<b>Pakist.</b>	<b>Bangla.</b>	<b>Other Asian</b>	<b>Black Carib.</b>	<b>Black African</b>	<b>Other Black</b>	<b>Chinese</b>	<b>Other</b>
Christian	0.018***	0.012	0.009	0.001	0.102	0.038	-0.019	-0.003	-0.291***	–	-0.024	0.039*	0.023	0.082	-0.029	-0.081*
Buddhist	-0.053***	–	-0.052	–	–	–	–	–	–	–	0.054	–	–	–	-0.032	-0.041
Hindu	-0.064	–	–	–	–	–	–	0.031	–	–	0.063	–	–	–	–	–
Jewish	0.041***	–	-0.011	–	–	–	–	–	–	–	–	–	–	–	–	–
Muslim	-0.159***	–	-0.194***	–	-0.138	-0.048	-0.081	-0.032	-0.118*	0.079	-0.051	-0.049	-0.055	0.045	–	-0.289***
Sikh	-0.127*	–	–	–	–	–	–	0.008	–	–	0.027	–	–	–	–	–
Other	0.009	-0.025	-0.012	-0.028	-0.005	0.048	0.142***	0.040	-0.307**	0.135	0.175***	-0.108*	0.007	0.032	-0.048	-0.121
Religion not stated	-0.008	-0.103***	-0.041***	-0.045	0.086	-0.112*	-0.117	-0.000	-0.153*	0.015	-0.003	0.023	0.010	-0.021	-0.070**	-0.225***
Level 1 quals	0.073***	0.062***	0.075***	0.206***	0.204***	0.139***	0.146***	0.064***	0.104***	0.078**	0.039	0.162***	0.160***	0.027	0.025	0.096**
Level 2 quals	0.082***	0.096***	0.077***	0.249***	0.211***	0.165***	0.186***	0.070***	0.129***	0.144***	0.095***	0.182***	0.213***	0.054	0.021	0.112***
Level 3 quals	0.091***	0.136***	0.080***	0.275***	0.229***	0.124***	0.172***	0.081***	0.168***	0.208***	0.147***	0.185***	0.204***	0.114*	0.052*	0.075**
Level 4/5 quals	0.099***	0.160***	0.142***	0.249***	0.342***	0.221***	0.214***	0.150***	0.218***	0.233***	0.185***	0.219***	0.304***	0.165***	0.104***	0.217***
Other quals	0.069***	0.108***	0.076***	0.189***	0.217***	0.117***	0.041	0.049***	0.066**	0.087*	0.099***	0.106***	0.155***	-0.277***	0.076***	0.082**
IMD/100	-0.066***	-0.107***	-0.163***	-0.338***	-0.141	-0.201**	-0.161**	-0.072***	-0.351***	-0.138**	-0.359***	-0.153***	-0.318***	-0.225***	0.027	-0.263***
N	416,391	6,285	12,527	1,099	528	1,072	903	9,306	5,515	2,077	2,510	4,832	3,542	661	1,723	1,632

Notes: Controls also included age, marital status, children in household, region, health and immigrant status. All full-time students have been excluded from the analysis.  
Data relate to working age population. \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$  (two-tailed tests).

**Table 7. Selected Marginal Effects for the Probability of Being in Employment, Females: 2001**

	White British	White Irish	White Other	Mixed: W&B.C.	Mixed: W&B.A.	Mixed: W&As.	Other Mixed	Indian	Pakist.	Bangla.	Other Asian	Black Carib.	Black African	Other Black	Chinese	Other
Christian	0.029***	-0.017	-0.040***	0.115***	0.056	0.016	-0.088**	-0.097*	0.129	–	0.015	0.037	-0.033	0.150**	0.019	0.180***
Buddhist	-0.063***	–	-0.184**	–	–	–	–	–	–	–	0.073	–	–	–	-0.002	-0.015
Hindu	-0.105	–	–	–	–	–	–	-0.034	–	–	-0.017	–	–	–	–	0.272***
Jewish	-0.036***	–	-0.055*	–	–	–	–	–	–	–	–	–	–	–	–	–
Muslim	-0.203***	–	-0.275***	–	-0.128	-0.256***	-0.248***	-0.307***	-0.008	-0.459**	-0.150*	-0.011	-0.248***	0.018	–	-0.030
Sikh	0.008	–	–	–	–	–	–	-0.026	–	–	0.139	–	–	–	–	–
Other	-0.010	-0.141**	-0.035	0.212**	0.154	-0.049	-0.107	-0.007	0.108	-0.129***	-0.002	0.080	-0.104	-0.144	-0.010	0.063
Religion not stated	-0.008	-0.079*	-0.054***	0.057	-0.004	-0.207***	-0.064	-0.083	-0.004	-0.145***	-0.095	-0.013	-0.137*	0.142**	-0.005	0.011
Level 1 quals	0.131***	0.106***	0.107***	0.256***	0.100	0.100**	0.162***	0.125***	0.207***	0.222***	0.117***	0.125***	0.207***	0.204***	0.127***	0.069
Level 2 quals	0.175***	0.164***	0.154***	0.253***	0.284***	0.205***	0.225***	0.200***	0.308***	0.296***	0.235***	0.148***	0.295***	0.250***	0.057*	0.113***
Level 3 quals	0.193***	0.171***	0.144***	0.332***	0.218***	0.265***	0.229***	0.182***	0.389***	0.318***	0.320***	0.176***	0.303***	0.296***	0.142***	0.147***
Level 4/5 quals	0.219***	0.242***	0.210***	0.349***	0.319***	0.265***	0.279***	0.187***	0.325***	0.454***	0.349***	0.227***	0.401***	0.324***	0.164***	0.169***
Other quals	0.111***	0.109***	0.138***	0.237***	0.288***	-0.061	0.235***	0.136***	0.163***	0.290***	0.161***	0.097***	0.177***	0.243***	0.027	0.075
IMD/100	-0.112***	-0.163***	-0.052*	-0.351***	-0.074	-0.321***	-0.238**	-0.151***	-0.455***	-0.389***	0.027	-0.150***	-0.315***	-0.005	-0.070	-0.048
N	377,911	5,565	13,602	1,207	513	1,068	1,011	9,087	5,525	2,035	1,826	5,507	3,824	759	1,958	2,356

Notes: Controls also included age, marital status, children in household, region, health and immigrant status. All full-time students have been excluded from the analysis.  
Data relate to working age population. \*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$  (two-tailed tests).

## DATA APPENDIX

### Ethnic Group

The Ethnicity question in the 1991 Census asked the person to tick the appropriate box from the following options:

- 0 White
- 1 Black-Caribbean
- 2 Black-African
- Black-Other (please describe)
- 3 Indian
- 4 Pakistani
- 5 Bangladeshi
- 6 Chinese
- Any other ethnic group (please describe)

The question also stated that “If the person is descended from more than one ethnic or racial group, please tick the group which the person considers he/she belongs, or tick the ‘Any other ethnic group’ box and describe the person’s ancestry in the space provided”.

The Ethnicity question in the 2001 Census asked the person to choose ONE section from A to E, then tick the appropriate box to indicate their cultural background:

- A White
  - British
  - Irish
  - Any other White background (please write in)
- B Mixed
  - White and Black Caribbean
  - White and Black African
  - White and Asian
  - Any other Mixed background (please write in)
- C Asian or Asian British
  - Indian
  - Pakistani
  - Bangladeshi
  - Any other Asian background (please write in)
- D Black or Black British
  - Caribbean
  - African
  - Any other Black background (please write in)
- E Chinese or other ethnic group
  - Chinese
  - Any other (please write in)

## Economic Activity

The Economic Activity question in the 1991 Census asked which of the following things was the person doing last week (more than one option could be chosen):

- 1 Was working for an employer full time (more than 30 hours a week)
- 2 Was working for an employer part time (one hour or more a week)
- 3 Was self-employed, employing other people
- 4 Was self-employed, not employing other people
- 5 Was on a government employment or training scheme
- 6 Was waiting to start a job he/she had already accepted
- 7 Was unemployed and looking for a job
- 8 Was at school or in full time education
- 9 Was unable to work because of long term sickness or disability
- 10 Was retired from paid work
- 11 Was looking after the home or family
- Other (please specify)

From the responses to these question, the following categories were created to described the respondent's primary economic position in the 1991 SARs:

- 1 Full-time employee
- 2 Part-time employee
- 3 Self-employed, with employees
- 4 Self-employed, no employees
- 5 On a government scheme
- 6 Unemployed
- 7 Student
- 8 Permanently sick
- 9 Retired
- 10 Other

In Table 1, the economic outcomes were derived from the above categories as follows:

$$\text{Activity Rate} = ((1+2+3+4+5+6)/(1+2+3+4+5+6+7+8+9+10))*100$$

$$\text{Employment Rate} = ((1+2+3+4+5)/(1+2+3+4+5+6+7+8+9+10))*100$$

$$\text{Employment Rate (no students)} = ((1+2+3+4+5)/(1+2+3+4+5+6+8+9+10))*100$$

$$\text{Unemployment Rate} = (6/(1+2+3+4+5+6))*100$$

The following Economic Activity questions were asked in the 2001 Census:

18. Last week, were you doing any paid work:

- as an employee, or on a Government sponsored scheme,
- as a self-employed/freelance, or in your own/family business

(Tick 'Yes' if away from work ill, on maternity leave, on holiday or temporarily laid off. Tick 'Yes' for any paid work, including casual or temporary work, even if for only one hour. Tick 'Yes' if you worked, paid or unpaid, in your own/family business.)

Yes => go to Question 24

No => go to Question 19

19. Were you actively looking for any kind of work during the last 4 weeks?

Yes or No.

20. If a job had been available last week, could you have started it within 2 weeks?

Yes or No.

21. Last week, were you waiting to start a job already obtained?

Yes or no.

22. Last week, were you any of the following? (tick all the boxes that apply)

Retired

Student

Looking after home/family

Permanently sick/disabled

None of the above

The change in the nature of the economic activity questions to some extent reflected the intention to make the statistics compatible with the ILO definition of economic status.

From the responses to these questions, the following categories could be identified in the 2001 SARs:

1 Employee part-time

2 Employee full-time

3 Self-employed with employees – part-time

4 Self-employed with employees – full-time

5 Self-employed without employees – part-time

6 Self-employed without employees – full-time

7 Unemployed, seeking work and available to start within 2 weeks

8 Unemployed, waiting to start a job already obtained and available to start within 2 weeks

9 Retired

10 Student (not economically active)

11 Looking after the home or family

12 Permanently sick or disabled

13 Other

Students who were economically active were coded in categories 1-8 above if they reported that they did some form of economic activity.



In Tables 1 and 4, the economic outcomes were derived from the above questions as follows:

$$\text{Activity Rate} = ((1+2+3+4+5+6+7+8)/(1+2+3+4+5+6+7+8+9+10+11+12+13))*100$$

$$\text{Employment Rate} = ((1+2+3+4+5+6)/(1+2+3+4+5+6+7+8+9+10+11+12+13))*100$$

$$\text{Employment Rate (no students)} = ((1+2+3+4+5+6)/(1+2+3+4+5+6+7+8+9+11+12+13))*100$$

N. B. All full-time students are removed from both the numerator and denominator under this definition i.e. economically active students are excluded from this definition.

$$\text{Unemployment Rate} = ((7+8)/(1+2+3+4+5+6+7+8))*100$$

### **Information on selected explanatory variables**

*Higher qualifications:* An individual was identified as having a higher qualification in 1991 if they responded that they had any post-school qualification. In 2001, those with Level 4 or Level 5 qualifications were deemed to have a higher qualification.

*Qualification levels in 2001:*

Level 1: 1+ 'O' level passes; 1+ CSE/GCSE any grades; NVQ level 1; Foundation GNVQ.

Level 2: 5+ 'O' level passes; 5+ CSE (grade 1); 5+ GCSEs (grades A-C); School Certificate; 1+ 'A' Levels/AS levels; NVQ level 2; Intermediate GNVQ.

Level 3: 2+ 'A' Levels; 4+ AS levels; Higher School certificate; NVQ Level 3; Advanced GNVQ.

Level 4/5: First degree; Higher degree; NVQ Levels 4 and 5; HNC; HND; Qualified teacher status; Qualified medical doctor; Qualified dentist; Qualified nurse; Midwife; Health visitor.

*Dependent children in household:* In both years, residents of communal establishments were defined as having no dependent children in their household.

*Index of Multiple Deprivation (IMD):* Published by the Office of the Deputy Prime Minister, 2004. The IMD is constructed using seven Super Output Area level Domain Indices. These domains are income deprivation; employment deprivation; health deprivation & disability; education, skills & training deprivation; barriers to housing & services; crime and living environment deprivation. The indicators used to construct the domains generally relate to 2001. It should be noted that the IMD scores for England and Wales are constructed slightly differently. The IMD is only available in the CAMs since no local authority identifiers are present in the 2001 Individual Licensed SARs, which is available through the Cathie Marsh Centre for Census and Survey Research at the University of Manchester.

**Table A1. Probit Estimates of Employment Incidence: 1991**

	Males			Females		
	Mean	M. E.	S. E.	Mean	M. E.	S. E.
Age	39.316	0.023	0.000	37.318	0.038	0.001
Age Squared/100	17.211	-0.034	0.001	15.314	0.054	0.001
Married	0.620	0.119	0.003	0.647	-0.073	0.003
Divorced/Widowed	0.072	-0.002	0.003	0.106	-0.095	0.004
Dependant children in household	0.377	-0.024	0.002	0.460	-0.267	0.002
Higher qualifications	0.167	0.082	0.002	0.138	0.159	0.002
UK Born	0.923	0.021	0.004	0.916	0.045	0.004
Black Caribbean	0.010	-0.078	0.008	0.012	0.054	0.009
Black African	0.003	-0.218	0.017	0.004	-0.106	0.017
Indian	0.016	-0.053	0.007	0.017	0.003	0.008
Pakistani	0.007	-0.209	0.012	0.008	-0.359	0.012
Bangladeshi	0.003	-0.161	0.019	0.003	-0.401	0.021
Chinese	0.003	-0.034	0.016	0.003	-0.005	0.018
North East	0.062	-0.007	0.004	0.062	0.014	0.005
Yorkshire and Humberside	0.098	0.019	0.003	0.097	0.036	0.005
East Midlands	0.081	0.043	0.003	0.081	0.047	0.005
East Anglia	0.041	0.064	0.003	0.040	0.043	0.006
Inner London	0.046	-0.020	0.005	0.049	-0.035	0.006
Outer London	0.081	0.049	0.003	0.084	0.035	0.005
South East	0.214	0.065	0.003	0.213	0.047	0.004
South West	0.092	0.048	0.003	0.090	0.039	0.005
West Midlands	0.105	0.039	0.003	0.104	0.038	0.005
North West	0.125	0.009	0.003	0.125	0.037	0.005
Limiting long term illness	0.101	-0.491	0.003	0.077	-0.457	0.003
Pseudo R <sup>2</sup>		0.213			0.120	
N		293,928			270,611	

*Notes:* Default categories are single, no dependant children in household, born overseas, no higher qualifications, White and Wales. Students are excluded from the analysis. Table reports marginal effects and heteroscedasticity robust standard errors as well as the means of the explanatory variables.

**Table A2. Probit Estimates of Employment Incidence: 2001**

	Males			Females		
	Mean	M. E.	S. E.	Mean	M. E.	S. E.
Age	40.992	0.024	0.000	39.194	0.035	0.001
Age Squared/100	18.406	-0.035	0.000	16.644	-0.048	0.001
Married	0.561	0.113	0.002	0.581	0.009	0.002
Divorced/Widowed	0.094	0.024	0.002	0.129	-0.000	0.003
Dependant children in household	0.348	0.001	0.001	0.450	-0.177	0.002
Higher qualifications	0.215	0.063	0.001	0.219	0.136	0.002
UK Born	0.911	0.040	0.003	0.901	0.086	0.003
Black Caribbean	0.010	-0.098	0.007	0.013	0.032	0.006
Black African	0.008	-0.162	0.009	0.009	-0.085	0.009
Indian	0.020	-0.040	0.005	0.021	-0.014	0.006
Pakistani	0.012	-0.184	0.008	0.013	-0.385	0.008
Bangladeshi	0.004	-0.202	0.012	0.005	-0.382	0.013
Chinese	0.004	-0.035	0.011	0.005	-0.047	0.012
North East	0.049	-0.015	0.003	0.049	-0.009	0.004
North West	0.129	0.013	0.003	0.129	0.025	0.003
Yorkshire and the Humber	0.095	0.025	0.003	0.095	0.031	0.004
East Midlands	0.082	0.043	0.002	0.081	0.034	0.004
West Midlands	0.101	0.035	0.002	0.100	0.027	0.004
East of England	0.106	0.065	0.002	0.105	0.033	0.004
South East	0.156	0.069	0.002	0.154	0.041	0.003
South West	0.094	0.054	0.002	0.093	0.034	0.004
Inner London	0.052	0.009	0.003	0.055	-0.039	0.005
Outer London	0.081	0.050	0.002	0.085	0.019	0.004
Limiting long term illness	0.153	-0.460	0.002	0.133	-0.447	0.002
Pseudo R <sup>2</sup>		0.251			0.144	
N		462,198			425,013	

*Notes:* Default categories are single, no dependant children in household, born overseas, no higher qualifications, White and Wales. Regions are slightly different to Table A1 because of the regional boundary changes that took place between 1991 and 2001. All full-time students are excluded from the analysis. Table reports marginal effects and heteroscedasticity robust standard errors as well as the means of the explanatory variables.