
# The incidence of worklessness among new immigrants in England*

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**Abstract**

This paper investigates the incidence of worklessness among recent immigrants in England using data from the Labour Force Survey (LFS)[1] and logistic multilevel modelling. The model takes into account individual, household and neighbourhood factors expected to influence worklessness and differentiates between immigrants from both 'established' and 'new' immigrant groups according to country of origin and ethnicity. The results suggest that the labour market disadvantage of non-white immigrants in England persists, with recent immigrants from Bangladesh and Pakistan found to have higher odds of worklessness than other immigrants. Non-white immigrants originating in countries outside the Commonwealth are found to be nearly as disadvantaged in the labour market. Conversely, immigrants from the EU Accession countries are found to be less likely to be workless compared to other immigrant groups. The results also suggest that contextual factors influence the incidence of worklessness among new immigrants with those living in the most deprived areas and ethically dense areas generally facing a higher risk of worklessness.



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[1] Office for National Statistics. Social Survey Division and Northern Ireland Statistics and Research Agency. Central Survey Unit, Quarterly Labour Force Survey, 1992-2010: Secure Data Service Access [computer file]. Colchester, Essex: UK Data Archive [distributor], March 2011. SN: 6727.

## 1. Introduction

Immigration in the UK has changed dramatically in recent years with a marked rise in net flows and increased diversity in the countries of origin of immigrants that are increasingly outside the former British colonies (Kyambi, 2005; Vertovec, 2006). According to the Annual Population Survey (APS), in 2008 immigrants accounted for 12 % of the British workforce with a third of immigrants originating in European Union (EU) countries. The preponderance of immigrants from the EU reflects to a large extent the large scale immigration from the eight Accession (A8) countries of the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovenia, and Slovakia that joined the EU in 2004, the largest single wave of migration ever experienced in Britain (Bauere *et al*., 2007). In 2007 two more accession countries (A2), Bulgaria and Romania, joined the EU increasing the Accession countries from Central and Eastern Europe from eight to ten (A10).

Another important feature of recent immigration in the UK and elsewhere has been the growth in asylum seekers and refugees. Since the 1990's many African countries experienced political unrest and conflict resulting in an increase in the number of asylum applications in the UK, particularly from Zimbabwe, Somalia, Congo, and Nigeria (Owen, 2008). During the 1990's asylum applications from within Europe, Asia and the Middle East also rose, particularly from Afghanistan, Iraq, Somalia, Sri Lanka and Turkey (Home Office statistics online)[2]. The number of asylum applications in the 1990's rose from an annual rate of between 2,500 and 4,000 in the 1980s, to between 22,000 and 46,000 in the 1990's, rising further to between 70,000 and 84,000 between 1999 and 2002 (Berkeley *et al*, 2006). Asylum applications decreased significantly in subsequent years, from around 84,000 in 2002 to 49,400 in 2003, dropping further to between 23,600 and 25,900 between 2006 and 2008 (Home Office statistics online).[3] The scale of new immigration has important implications about the composition of the British population and the labour market. Establishing the extent of integration of immigrants in the labour market is important as this

[2] http://rds.homeoffice.gov.uk/rds/pdfs2/hosb902.pdf.
[3] http://rds.homeoffice.gov.uk/rds/immigration-asylum-stats.html.

determines to a large extent their economic impact and social integration in Britain (Dustmann and Fabbri, 2005). The economic position of immigrants also determines to a large extent their impact on local areas, particularly deprived areas, where many immigrants move to benefit from the availability of cheap housing. If immigrants moving into deprived neighbourhoods have higher skills and are more likely to be in employment than existing residents then this could result in an improvement in the skills and employment profile of deprived neighbourhoods. On the other hand, if the majority of immigrants in these neighbourhoods are low skilled, unemployed or economically inactive, this is likely to reinforce levels of worklessness and deprivation.

The majority of studies in the UK have examined the economic position of immigrants from established ethnic minority groups in terms of earnings, unemployment and self-employment (Clark and Drinkwater, 2000; Wheatley Price, 2001; Haque et al., 2002; Dustmann and Fabbri, 2003; Dustmann and Fabbri, 2005). These studies have generally shown that non-white ethnic minority immigrant groups are particularly disadvantaged with significantly lower labour force participation, employment and earnings prospects compared to white immigrant groups and white natives. These differences have been explained by underlying investments in human capital such as education, job specific skills and other individual characteristics. Ethnic penalties are the disadvantage that remains after controlling for these characteristics, often associated with the existence of discrimination in the labour market. In the majority of these studies, the role of neighbourhood characteristics such as area deprivation levels and ethnic density are largely ignored despite evidence suggesting that these may also be important in determining individual labour market outcomes (Wang, 2008; Wang, 2009; Buck, 2001; Simpson et al., 2006).

This study differs from previous studies in a number of respects. First the analysis takes into account individual, household and neighbourhood characteristics that are shown to influence individual labour market outcomes. Second, the analysis focuses on those who settled in the UK after the second half of the 1990's in order to capture recent immigrants distinguishing between those from established and new immigrant communities. Unlike most previous studies the analysis examines the economic position of A10 Accession nationals and classifies other new immigrants

from smaller groups into Commonwealth and non-Commonwealth country groupings. This distinction is important for new immigrants since tighter immigration controls in recent years has meant that those coming from non-Western countries are less likely to be admitted in the UK without restrictions to work. For many Commonwealth citizens from Asia and Africa the main route of entry to the UK has been family reunification. Many non-Commonwealth citizens on the other hand, particularly from Africa, had to apply for asylum, as this is the main legal route of entry to the UK for most non-Western immigrants (Styan, 2003). Finally, the outcome investigated is worklessness which refers to the incidence of unemployment or economic inactivity. Upon arrival to the host country, immigrants are likely to experience unemployment due to a lack of language and other country specific skills. They are also more likely to be economically inactive as a result of restrictions to work imposed by their immigration status or due to family formation practices and cultural expectations towards work as in the case of some immigrant women. The concentration of workless adults has been a major feature of deprived neighbourhoods and since many immigrants are likely to settle in these areas faced with limited financial resources upon arrival, the employment status of new immigrants has implications for the fortunes of deprived areas.

## 2. Immigration policy and recent immigration trends

Immigration legislation has played a central role in influencing both the number and characteristics of migrants coming to Britain (Heath and Yu, 2005). British government policy prior to 1962 applied restrictions only to non-British subjects resulting in strong flows of immigrants from the West Indies and subsequently from India who came to Britain to fill in labour shortages in the expanding economy (Wheatley Price, 2001; Berkeley *et al*., 2006). Immigration from Pakistan and Bangladesh followed which peaked in the 1970's and 1980's respectively (Hatton and Wheatley Price, 1998). Despite a series of immigration acts during the 1960's, 1970's and 1980's aimed at restricting immigration from the former British colonies, flows from the new commonwealth countries continued, as a consequence of 'friends and family' migration (Berkeley *et al*, 2006).

European Union (EU) membership was accompanied by new immigration regulations permitting the free movement of nationals of member countries in the EU area. The flows between EU member countries were strengthened by subsequent waves of EU enlargements in the 1980's and 1990's. The 2004 EU enlargement was the largest to date and concerns about potential large scale migration flows from Central and Eastern Europe lead to migration restrictions imposed by EU-15 states with the exception of UK, Ireland and Sweden which allowed the free movement of A8 nationals. The Worker Registration Scheme (WRS) administered by the Home Office was introduced to ensure that immigrants coming to the UK were in employment and to restrict their access to benefits and welfare services (Gilpin *et al.,* 2006; *et al.,* 2007). A8 migrants, who were registered under the WRS, were entitled to work in the UK although they were only able to access the benefits system after 12 months of continuous employment, at which time they could apply for a residence permit[4].

During the 1990's increased numbers of asylum seekers in the UK and widespread perceptions that most were poor unskilled 'economic migrants' led to a series of Asylum and Immigration Acts which had the effect of removing rights of appeal for those refused entry, benefits claims, and enhancing enforcement powers (Hatton and Wheatley Price, 1998). Immigration restrictions in the UK have meant that applying for asylum is the only legal way of entry for many new immigrants in the UK, as there are increasingly fewer opportunities for labour migration from outside Europe (Koser, 2003).

The 2004 Immigration Order also strengthened the requirements for immigrants wishing to take up employment by revising the documents required as evidence for entitlement to work followed by a series of enforcement efforts that aimed to clamp down on illegal immigrants (Anderson *et al.,* 2006). In 2008 further amendments applicable to non-EU nationals were introduced through a points Tier system that simplified work and study routes of entry to Britain to just five, aiming to restrict low skill immigration further, as such migration is now expected to be sourced within the EU, and particularly the EU accession countries (Anderson *et al.,* 2006).

[4] The WRS was a transitional measure that was in operation in the UK between 2004 and 2011.

As shown in figure 1 in the first year of the EU enlargement 79,000 National Insurance Number (NINo) registrations were issued to nationals from the EU accession countries, nearly three and a half times higher than in the previous year. In 2005 around a quarter of a million NINos were issued to A10 nationals, more than twice the number issued to nationals from Asian and Middle Eastern countries, accounting for nearly two fifths of all registrations. The number of NINo registrations to A10 nationals continued to rise, by 16 % between 2005 and 2006 and by another 30 % between 2006 and 2007, to 368,000 registrations.

**[Figure 1]**

As shown in figure 2 the majority of recent immigrants between 2002 and 2008 were Poles, accounting for one fifth of all NINos and three fifths of NINos issued to A10 nationals. In contrast, during the same period Indian nationals accounted for 7 % of all NINos and Pakistani nationals for another 4 %. Other nationalities that were represented in significant numbers were from the old commonwealth countries such as Australia (4 %) and South Africa (3 %), EU countries such as France (3 %) and Germany (2 %), and other A10 countries such as Slovakia (3 %) and Lithuania (3 %).

**[Figure 2]**

Following the poor assessments about the scale of immigration from the A8 countries which took the government by surprise (Anderson *et al*., 2006) the British government imposed restrictions to Bulgaria and Romania that joined the EU in 2007, but these largely applied to unskilled workers. A2 nationals are required to apply for an Accession Worker Card (AWC) unless they have other work permits while highly skilled A2 immigrants, students, the self-employed, those who are self-sufficient and their dependents can apply for a registration certificate. Like A8 nationals, A2 nationals who have been working legally for twelve months without breaks do not require an AWC.

The number of workers coming from the A2 countries is somewhat small, with only 6,475 AWC approved applications made between 2007 and 2009[5]. The majority of AWC applications were made by Romanian nationals (58 %) and related to work permits although approximately a third of Romanian applications related to other categories of the AWC such as the Sectors Based Scheme (SBS). In addition to AWC applications there were 41,675 approved applications for registration certificates, the majority relating to self-employment (38 %), family reunification (20 %) and study purposes (19 %).

The different routes of entry to Britain may provide an indication about the economic position and future success of immigrants; for instance economic migrants could be more likely to be skilled and integrated in the labour market compared to other types of migrants such as 'family reunion' migrants and asylum seekers and refugees (Constant and Zimmermann, 2005). The selectivity of British immigration policy in terms of skills has undoubtedly implications about the labour market allocation of immigrants. More crucially, the economic position of immigrants and their success in the labour market depends on a combination of individual and institutional characteristics.

## 3. The determinants of labour market outcomes of immigrants

The literature on the labour market performance of immigrants has largely focused in explaining differences in economic outcomes relating to earnings, unemployment, and self-employment. Chiswick (1980) first showed that the earnings between white immigrants and the white UK born population were somewhat similar but the earnings of non-white immigrants were significantly lower compared to the white UK born population. More recent studies have confirmed the finding that ethnic minority immigrant earnings lag behind those of white immigrants and white natives (Denny *et al*, 1997; Blackaby *et al*., 2002; Dustmann and Fabbri, 2003; Dustmann and Fabbri

[5] Evidence on immigration from Bulgaria and Romania comes from the UK Border Agency Accession Statistics produced in quarterly intervals. The figures presented here have been extracted from the individual quarterly reports and aggregated to correspond to the whole period from January 2007 to March 2009.

2005; Clark and Lindley, 2009). The Bangladeshi and Pakistani are thought to be particularly disadvantaged, together with Black Caribbean and Black African immigrants, facing a higher risk of unemployment compared to white immigrants and white natives (Blackaby *et al*., 1997; Dustmann and Fabbri, 2003; Dustmann and Fabbri, 2005).

Explanations about the factors that affect individual labour market outcomes lie in neoclassical economic theory and immigration theories from sociology the first emphasising the role of human capital and the second the role of social context in determining individual outcomes. Investments in human capital such as educational qualifications, and work related experience and skills are expected to improve individual job-specific skills and job prospects (Mincer 1974). As newly arrived immigrants often lack host country specific capital, reflecting perhaps the quality of education they received in their origin country, possess qualifications that are not directly transferable or of limited use to employers in the host country, or face language barriers, they are more likely to face disadvantage in the labour market (Berthoud, 2000a). Studies have shown that immigrants in the UK are more likely to face labour market disadvantage if they hold foreign qualifications with significantly lower returns to their education levels (Blackaby *et al*., 2002; Shields and Wheatley Price, 1998).

Length of stay in the host country is central in theories of assimilation and adjustment (Clark and Drinkwater, 2008). Immigrants are more likely to lack knowledge in terms of job-search and networks required to obtain jobs but with time this knowledge is likely to increase (Berthoud, 2000a). The initial disadvantage in the labour market position of immigrants is expected to diminish over time with integration, as language skills improve along with labour market knowledge and the acquisition of training and education in the host country (Chiswick, 1980).

Employer discrimination has played a central role in explaining the differential labour market outcomes of immigrants as it is thought to be a major component of 'ethnic penalties' a term used to refer to the disadvantage that remains after controlling for individual observable socio-economic characteristics. Immigrants are thought to face a disadvantage in the labour market because they are

more likely to experience employer discrimination which can affect their labour market position, their earnings, and career progression opportunities (Berthoud, 2000a). As previous studies have shown that white immigrant groups face lower ethnic penalties in the labour market it would be expected that the incidence of worklessness among recent immigrants from Central and Eastern Europe would be lower compared to non-white immigrant groups.

Studies investigating the labour market position of immigrants have also examined contextual effects arising from the presence of 'enclaves' and the influence these exert on immigrant labour market decisions. The spatial concentration and growth of ethnic minority populations has been associated with the expansion of the enclave economy which offers higher returns than alternative opportunities through 'protected' markets for ethnic minority entrepreneurs and new employment opportunities for the ethnic and immigrant communities in which they operate (Clark and Drinkwater, 2008). However, the effect of ethnic concentration is not always favourable. Clark and Drinkwater's (1998) study showed that ethnic clusters in the UK have adverse effects on the employment outcomes of immigrants. As immigrants who depend on employment opportunities within the ethnic economy are less likely to invest in country specific skills such as language skills, they face a disadvantage when competing for jobs in the wider labour market. Modood and Berthoud (1997) provided support for this view suggesting that English language fluency is poorer in areas of high ethnic concentration.

The role of social networks in the neighbourhood is pertinent in terms of linking people to employment opportunities, acting as a 'perceptual filter' through which information is received which often acts as an advantage in the labour market since employers have a preference in hiring through informal recruitment mechanisms (Dickens, 1999; Sanderson, 2006). Forrest and Kearns (1999) found that in deprived areas mono-cultural communities social networks are likely to be locally constrained and the community more introverted, while in ethnically diverse areas, they found evidence of overlapping social networks, strong traditions of mutual aid and assistance and more outward looking communities. Nevertheless, if immigrant social networks consist of links to co-ethnics who are economically disadvantaged the effectiveness of these links may be diminished. Since those who are out of work often

find out about employment opportunities from others who are in employment, in neighbourhoods where there is a high concentration of individuals out of work there may be 'network failure' as there are fewer people to provide job information diminishing the likelihood of access to employment (Dickens, 1999). Buck's (2001) study of the effects of area deprivation on social exclusion using the British Household Panel Study provided support for this view. He found that a higher neighbourhood unemployment rate is associated with increased likelihood of having no employed friends as well as not starting work and not leaving poverty.

Many studies have demonstrated that in deprived neighbourhoods people are well connected through bonding ties but have scarce assess to bridging ties (Forrest and Kearns, 1999; Taylor, 2000; Warr, 2005; Power and Willmot, 2007). Mark Granovetter's (1973) seminal study highlighted the influence of social networks in accessing employment opportunities by placing emphasis on the importance of personal contacts in passing on important information about employment opportunities. Granovetter suggested that it is the 'weak' (bridging) ties from outside the family and close friends that are most valuable to employment outcomes by providing access to a more diverse set of opportunities although more recent studies have suggested that bonding ties, or the ties with close friends and family, are as effective for accessing opportunities in the labour market (Field, 2008). On the one hand, immigrants may have limited contact with natives restricting their access to information about employment opportunities although links with co-ethnics are likely to improve employment prospects, particularly in the enclave economy. In ethnically diverse neighbourhoods immigrants can have access to ethnic networks which may improve access to information about employment opportunities although these are likely to be characterised by poor pay and employment conditions (Waldinger, 2005).

These propositions are tested through a multilevel model examining the incidence of worklessness given a set of individual, household and neighbourhood characteristics. The main objectives of the study are to examine the economic prospects of new immigrants in relation to established groups and the British born and how these vary depending on local socio-economic conditions including area deprivation and ethnic minority density.

## 4. Data and Methods

The Labour Force Survey (LFS) is a national survey of around 60,000 households drawn from five waves conducted at quarterly intervals. The LFS is based on a single stage sample of addresses with a random start and constant interval drawn from the Postcode Address File (PAF) with the sampling frame covering around 97 % of private addresses in Great Britain.

As the sample of households within each quarter is not sufficiently large to examine different immigrant groups it is necessary to pool together quarters from different years. The analysis presented here is based on a pooled sample of the quarterly LFS individual datasets comprising of July-September quarters based on wave 1-4 respondents for the years 2004-2009. The sample consists of working age males and females aged 16-64 and 16-59 respectively (excluding students) living in urban areas in England as defined in the Department for Environment for Food and Rural Affairs (DEFRA) district urban-rural classification.

Let $y_{ijk}$ be a binary indicator variable taking the value of 1 if workless and 0 otherwise for individual *i* living in household *j* and neighborhood *k*. Workless individuals are defined as those who are either unemployed or economically inactive. The probability of worklessness is defined as $p_{ijk}$=Pr ( $y_{ijk}$ =1).

Following Guo and Zhao (2000) a three level model allowing for the clustering of the household and the neighbourhood with a single explanatory variable $X_{ijk}$ can be written as:

$$Log\left(\frac{p_{ijk}}{1-p_{ijk}}\right) = Logit(y_{ijk}) = \beta_0 + \beta_1 X_{ijk} + u_{0jk} + v_{0k}$$

where $\beta_0$ and $\beta_1$ are the coefficients to be estimated and $u_{0jk}$ and $v_{0k}$ are the random effects representing unobserved household and neighbourhood characteristics which follow a Normal distribution with mean 0 and variance $\sigma^2_{u0}$ and $\sigma^2_{v0}$ respectively.

In this model, household and neighbourhood conditions are expected to give rise to contextual effects which can influence individual outcomes by affecting differentially individual opportunity structures and employment outcomes (Baum *et al*., 2008). Multilevel models effectively account for the hierarchical structure in the data, whereby individuals are nested within households and neighbourhoods by modelling the variation at all levels, allowing for individuals belonging to a particular household and neighbourhood to be more alike than those belonging to other groups (Goldstein, 2003).

To identify and group immigrants a combination of characteristics relating to ethnicity and country of birth were used as shown in table 1. The Pakistani and Bangladeshi are combined in line with other studies on the basis of similarities of pre-migration characteristics and their similarities in terms of socio-economic characteristics in Britain (Modood *et al*., 1997, Berthoud, 2000a; Lindley *et al*., 2004). Non-white immigrants from Commonwealth and non-Commonwealth countries are grouped separately as they are expected to differ in terms of economic outcomes given the differences in immigration routes and access to employment which may exist between these two groups. Additionally, as the majority of observations in the pooled dataset were white British a 50 % random sample from this group was included in the analysis[6].

Consistent with previous research individual level predictors in the model include age, sex, marital status, education and length of stay in the UK. Previous studies have shown that there are significant differences between males and females and young and older groups in labour market participation and employment outcomes (Dustmann and Fabbri, 2005). Those who are married are also more likely to be in employment as they have more stable employment histories and more motivation to work (Wheatley Price, 2001). As discussed earlier, education and skills are the main determinants of labour market performance. Qualifications have been grouped into four categories as shown in table 1. 'Other' qualifications are included separately as they include foreign qualifications. Even though the majority of studies investigating labour market outcomes do not make this distinction, Blackaby *et al.*, (2002) have showed that

[6] The models were estimated using different random samples of white British and the results were generally consistent.

regarding the valuation of education on labour market outcomes the distinction between foreign and domestic qualifications is very important. Furthermore, at the household level, the presence of children is another consideration determining labour force participation and employment. The presence of several children has been associated with higher propensities of unemployment not just for women but also for men (Blackaby *et al.,* 1997; Wheatley Price, 2001). The effect of neighbourhood characteristics including deprivation levels and ethnic density are also explored in the model (Wang, 2008; Wang, 2009; Buck, 2001; Simpson *et al*., 2006). The full list of explanatory variables are shown in table 1.

**[Table 1]**

## 5. Descriptive analysis

Table 2 shows that on average, Central and Eastern Europeans were younger upon arrival to the UK than most other immigrant groups with the majority arriving in the five years following the EU Accession. The majority of Commonwealth Africans and new immigrants from outside the Commonwealth in the sample were older at time of arrival than other groups with the majority arriving between 2000 and 2004. Conversely, over a third of EU, Pakistani and Bangladeshi immigrants arrived to the UK between 1995 and 1999.

**[Table 2]**

As shown in table 3, South Asian households are larger, compared to other households, particularly the Bangladeshi and Pakistani with 74 percent of the Bangladeshi and Pakistani born in Britain and 68 percent of Bangladeshi and Pakistani immigrants being in households with four or more persons. This is likely to reflect high fertility rates and the 'three-generation' household pattern among the Bangladeshi and Pakistani whereby married couples live with their parents (Berthoud, 2000b). In contrast, EU immigrants, the white British and other British born groups have a higher occurrence of single person households. White groups are less likely to

be in large households with the exception of A10 immigrants who are more likely to be in households with four or more persons compared to other white groups. This is likely to reflect the large numbers of Eastern European immigrants living in Houses of Multiple Occupancy (Spencer *et al*., 2007) [7].

**[Table 3]**

The educational attainment of immigrants is diverse with some immigrant groups having lower qualifications than others. The least qualified are the Bangladeshi and Pakistani with 32 percent having no qualifications. A quarter of non-white immigrants from outside the Commonwealth are also without qualifications. Among the British born, the Bangladeshi and Pakistani are also the least qualified. This is in part a reflection of the lower educational attainment among South Asian women due to marriage, family formation and cultural factors (Dale, 2002). In contrast, white immigrant groups tend to have lower numbers without any qualifications although there are both white and non-white immigrant groups with high level qualifications. For instance, over a third of EU, old Commonwealth, Black Commonwealth Africans and Indian immigrants have NVQ level 4 or above qualifications. British Indians are also amongst the most qualified. A10 immigrants on the other hand, have the lowest levels of degree level qualifications together with the Pakistani and Bangladeshi. Unlike the Pakistani and Bangladeshi, the low incidence of Central and Eastern Europeans with degree level education reflects the large numbers (61 percent) with 'other' qualifications, suggesting that qualifications are likely to have been acquired abroad[8].

**[Table 4]**

As shown in table 5, white immigrant groups have the highest employment rates and lower unemployment rates among immigrant groups. Unemployment rates are highest

[7] A household comprises of one or more people who may or may not be related, living (or staying temporarily) at the same address, with common housekeeping, who either share at least one meal a day or share common living accommodation.

[8] Qualifications are classified as "foreign" in situations whereby LFS respondents hold qualifications that they do not recognise in the LFS qualification categories. Degree level qualifications form a separate category and as long as LFS respondents identify themselves as being in this category, regardless of where the degree is obtained, they will be categorised as having a degree.

among the British Bangladeshi and Pakistani and the other non-white British group together with Black Africans. The highest inactivity rates are amongst Bangladeshi and Pakistani and non-white immigrants outside the Commonwealth. On the other hand, immigrants from the A10 accession countries have higher employment and lower unemployment rates than ethnic minority immigrant groups. Gender inequalities in participation and employment patterns among some ethnic minority immigrant groups, in terms of lower female educational attainment, early marriage and family formation and cultural expectations, are expected to account for some of the differences in the overall economic position between white and ethnic minority immigrants groups (Dale, 2002). The exception are Indian groups showing significantly higher employment and lower worklessness rates than the other non-white groups. Over half of the Pakistani and Bangladeshi immigrants and just under half of non-white immigrants from non-Commonwealth countries and British born Pakistani and Bangladeshi in the sample are workless. In comparison, the average worklessness rate for white immigrants is just 15 percent.

As expected, non-white immigrants and ethnic minorities are more likely to live in areas with higher ethnic density levels. As shown in table 6, 43 percent of Pakistani and Bangladeshi immigrants and 39 percent of the British born Pakistani and Bangladeshi live in wards with more than 50 percent of the population belonging to an ethnic group. Conversely, 88 percent of the white British live in areas with less than 25 percent ethnic minority population. Around half of Black Commonwealth Africans and A10 immigrants in the sample also live in areas with a small ethnic minority population. The Pakistani and Bangladeshi are overwhelmingly concentrated in deprived areas, with 80 percent of immigrants and 76 percent of the British born Pakistani and Bangladeshi living in one of the 20 percent most deprived areas in England compared to 37 percent of the white British[9].

**[Table 5]**

**[Table 6]**

[9] The large numbers of people living in deprived areas reflects the overrepresentation of urban wards classified as deprived and the exclusion of wards in non-urban areas from the sample.

## 6. Multilevel modelling results

The modelling strategy adopted to estimate the incidence of worklessness among new immigrants in England involved a number of stages. First, single level logistic models were estimated, and then two and three level random intercepts models were estimated based on individual characteristics with individuals at the first level, households at the second level and neighbourhoods at the third level. In the final stage the random intercept models were estimated using both individual and contextual variables and cross-level interactions. The models were first estimated using Marginal Quasi-Likelihood (MQL) and Penalised Quasi-Likelihood (PQL) methods and then Markov Chain Monte Carlo (MCMC) methods. These are simulation-based methods producing point estimates on a specific number of iterations and they are commonly used for logistic multilevel estimation as they are known to improve on results obtained through MQL and PQL methods (Hox, 2002). The models presented in the next sections are based on MCMC methods and were assessed using MCMC diagnostic plots[10]. The models were estimated in MLwiN (Rasbash *et al*., 2005).

### 6.1 Individual characteristics

Table 8 shows the results from the three-level model with individual level predictors. The results suggest that increases in age are associated with lower probabilities of worklessness but at an increasing rate, as indicated by the positive coefficient for age squared. Consistent with previous findings higher educational attainment levels are associated with a lower incidence of unemployment or non-participation in the labour market. Those with qualifications have lower odds of worklessness than individuals without qualifications, with the odds being lower the higher the qualification levels. Specifically, the odds of being workless for those with NVQ level 4 and NVQ level 1 to 3 qualifications are 89 percent and 77 percent lower than for those without qualifications. Consistent with previous findings, the odds of being workless for males and those who are married are lower compared to those who are not married

[10] As the results are based on a number of models it was not practical to report these here.

while a shorter length of stay in Britain is associated with a higher probability of being workless.

The results suggest that after controlling for individual characteristics, non white immigrants are more likely to be workless than the white Britons and white immigrants. The odds of being workless are 3.9 times higher for the British Bangladeshi than for the white UK born while for Bangladeshi and Pakistani immigrants and non white immigrants originating outside the commonwealth countries the odds of being workless are 5.2 and 3.9 times higher respectively than the white UK born. Similarly, the odds of worklessness for immigrants from India and British Indians are 1.4 and 2.2 times higher than for the white British. Conversely, the odds of being workless for A10 and Old Commonwealth immigrants are 39 percent and 33 percent lower respectively than for the white UK born. The lower odds of worklessnes for A10 immigrants is not surprising given the majority enter Britain

through the employment route and the benefit restrictions applying to newly arrived immigrants.

**[Table 8]**

### 6.2 Household and neighbourhood characteristics

As shown in table 9 the presence of children in the household increases the risk of worklessness. The results also suggest that neighbourhood deprivation levels and ethnic density are significant predictors of individual worklessness. Specifically, higher area deprivation levels are associated with a higher propensity of being workless with those living in the most deprived areas in the country being more likely to be workless. The odds of being workless are 60 percent higher for those who live in the most deprived areas in the country compared to those who live in less deprived areas. The odds of being workless are 27 percent higher for those who live in ethnic enclaves where the majority of the population (more than 50 percent) belong to an ethnic minority group compared to those who live in areas with a majority white population (with less than 25 percent ethnic minorities). Similarly, the odds of being

workless are 15 percent higher for those who live in areas with moderate and high ethnic density levels (25-50 percent ethnic minorities).

The results in table 10 include interaction terms to investigate whether the effect of ethnic density on worklessness depends on ethnicity and country of birth. As shown, there are significant interactions between ethnic density (25-50 percent ethnic minorities) and the Bangladeshi and Pakistani, and between ethnic density (50 percent ethnic minorities) and non-white immigrants. The effect of ethnic density on worklessness is positive and strongest for non-white immigrants from non-Commonwealth countries while it is weakest for the Bangladeshi and Pakistani. As the interaction term is negative the odds of being workless are lower for the Bangladeshi and Pakistani who live in ethnically diverse areas compared to the Bangladeshi and Pakistani who do not. However, the deviance information criterion (DIC) suggests that the inclusion of the interaction terms does not improve the fit of the model. Conversely, the inclusion of interactions between ethnic group and area deprivation improves the fit of the model suggesting that the effect of area deprivation on individual worklessness depends on ethnicity. As shown in table 11, there are significant interactions between area deprivation and ethnicity for all immigrants groups apart from the A10, Black Africans from Commonwealth countries and other non-white immigrants from outside the Commonwealth countries. The odds of worklessness of immigrants who live in deprived areas are higher than those who live in less deprived areas although the negative sign of the interaction terms suggests that area deprivation reduces the risk of worklessness associated with ethnicity. This effect is most pronounced for immigrants from Bangladesh, Pakistan and India who are less disadvantaged in terms of worklessness relative to the UK born if they live in the most deprived than in less deprived areas.

**[Table 9]**

**[Table 10]**

**[Table 11]**

To evaluate the extent of homogeneity between individuals in the same neighbourhoods the intra-class correlation (ICC) was estimated using the latent variable method as:

$$ICC = \frac{\sigma_v^2}{\sigma_u^2 + \sigma_v^2 + \pi^2/3}$$

The ICC suggests that an estimated 31 percent of the total variation in the incidence of worklessness is attributable to differences between households and 5 percent to differences in ward of residence (Table 7). Even after controlling for ward level characteristics the ICC suggests that there are significant differences in worklessness attributed to differences between neighbourhoods[11]. Neighbourhood deprivation and ethnic density account for some of this variation although there is some unexplained variation at the neighbourhood level that remains which could be explained by additional variables measured either at the area level, the individual or household levels. In other words, the analysis provides additional support about the importance of contextual as well as individual level characteristics in explaining the incidence of worklessness among immigrants with the variation largely explained by differences between households and to a much smaller extent between neighbourhoods.

## 7. Discussion

The results of this study suggest that the labour market disadvantage of non-white immigrants and ethnic minorities in England persists with recent immigrants from Bangladesh and Pakistan and the British Bangladeshi and Pakistani found to have higher odds of worklessness than any other ethnic group. Consistent with previous studies, the results suggest that disadvantage in the labour market is related to poor skills. Improvements in employment levels could therefore be achieved to some extent through targeted labour market programmes that aim to improve education and language skills levels among the most disadvantaged groups.

[11] Estimation of the dependency of observations at higher levels for binary outcomes can vary depending on the preferred estimation approach (see Snijders & Bosker, 1999).

This study also suggests that recent non-white immigrants from countries outside the Commonwealth are nearly as disadvantaged in the labour market. This is likely to reflect the restrictions to employment facing non- Commonwealth citizens upon arrival but also discrimination in the labour market. A fifth of non-white non-Commonwealth immigrants in the sample are Black Africans. It has been reported that a large number of African immigrants from non- Commonwealth countries enter the UK through the asylum route as it is one of the only legal routes of entry to the UK (Styan, 2003). The experiences of asylum seekers are influenced by their immigration status in a profound way. Asylum seekers have the highest rates of worklessness despite many being skilled, as they face restrictions to work which often persist after they are granted refugee status as a result of discrimination (Bloch, 2000; Sanderson, 2006; CRESR, 2003, Phillimore and Goodson, 2006). As highlighted by some authors an assessment of existing policies towards employment restrictions on asylum seekers alongside targeted employment programmes that are sensitive to the complexities they face can help improve the employability of refugees (Phillimore and Goodson, 2006).

Non-white immigrants whether from established or new communities are found to face a higher risk of worklessness than white immigrants and these differences remain after controlling for personal and contextual characteristics. The higher incidence of worklessness of ethnic minorities and non-white immigrants suggests that these groups continue to face employer discrimination and therefore policies need to be more effective in terms of reducing discrimination and promoting racial equality in the UK.

Although A10 immigrants are the most recent arrivals in the UK they fare better in the labour market than other white and non-white immigrants, providing further support for the proposition that white immigrant groups are better integrated in the British labour market than ethnic minority immigrant groups. Increasing evidence however, suggests that they are also more likely to be in employment with poor working conditions and low earnings (for example, see Anderson *et al*., 2006; Markova and Black, 2007). A10 immigrants are thought to be more reliant on informal recruitment mechanisms to find employment which can help explain their

high employment and participation rates but also their tendency to be in low paid and temporary employment (Sumption, 2009).

The lower incidence of worklessness among A10 immigrants has implications for the areas in which they settle, particularly for deprived areas where they are more likely to locate upon arrival and settle in large numbers (Lymperopoulou, forthcoming). These are areas which have experienced population decline, poor housing conditions, poor services, poor local resources and large concentrations of workless households. Since A10 immigrants are more likely to be in employment than existing residents they are likely to contribute towards tackling problems of worklessness in deprived areas although the overall effect on worklessness will depend on the extent to which there will be displacement effects on local labour markets, for instance through competition for low-skill jobs, lower wages and higher unemployment levels for existing residents. (Power and Wilson, 2000; Green *et al.*, 2007). The concentrations of A10 immigrants in deprived areas is also likely to be a potential driver for turning around the fortunes of these areas by providing the critical mass of people needed to support services, facilities and shops and the revitalization of these areas (Robinson and Reeve, 2006; Stenning et al, 2006).

Finally, the results suggest that variations in worklessness among immigrants and the UK born are largely explained by individual and household characteristics and to a much smaller extent by differences among neighbourhoods. Neighbourhood characteristics such as area deprivation levels and ethnic composition account for some of the variation in the incidence of worklessness. Those living in the most deprived areas have a higher probability of being workless, so are those who live in ethnic minority enclaves and areas with a sizeable ethnic minority population. Those living in ethnic enclaves may be more disadvantaged due to a lack of host country specific skills such as language or lack of information about employment opportunities in the wider labour market.

The effect of area deprivation on worklessness is shown to depend on ethnicity with the Bangladeshi and Pakistani and Indians found to be less disadvantaged than white Britons if they live in deprived areas. This suggests that these groups may be living in deprived areas despite having various economic resources available, perhaps due to

motives like proximity to ethnic networks and cheap housing. These motives may not apply to the white British, who generally end up in the most deprived areas because they have no resources to live anywhere else.

The significant variation in worklessness that can be attributed to differences between neighbourhoods may suggest that policies aimed at reducing inequalities between neighbourhoods could reduce the risk of worklessness of immigrants and ethnic minorities in the UK.

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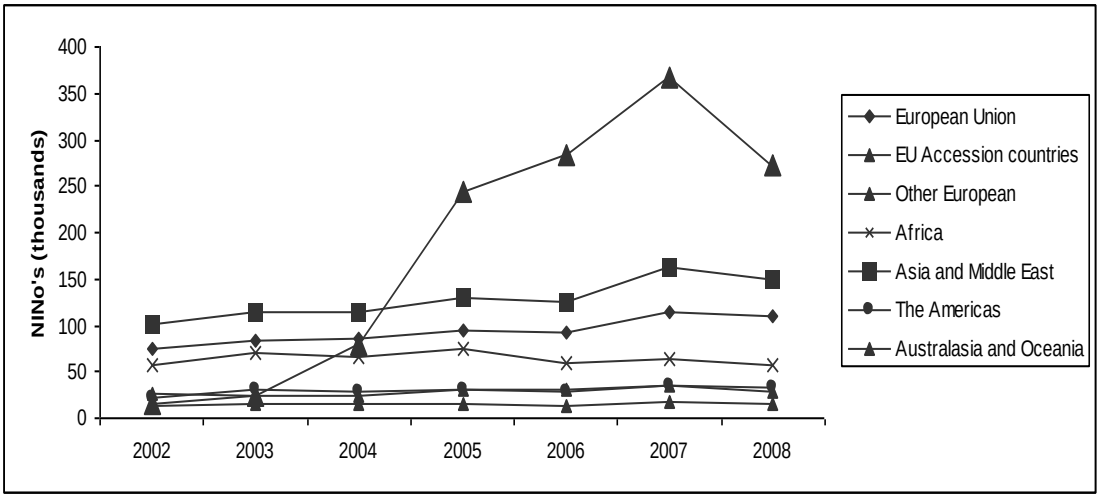
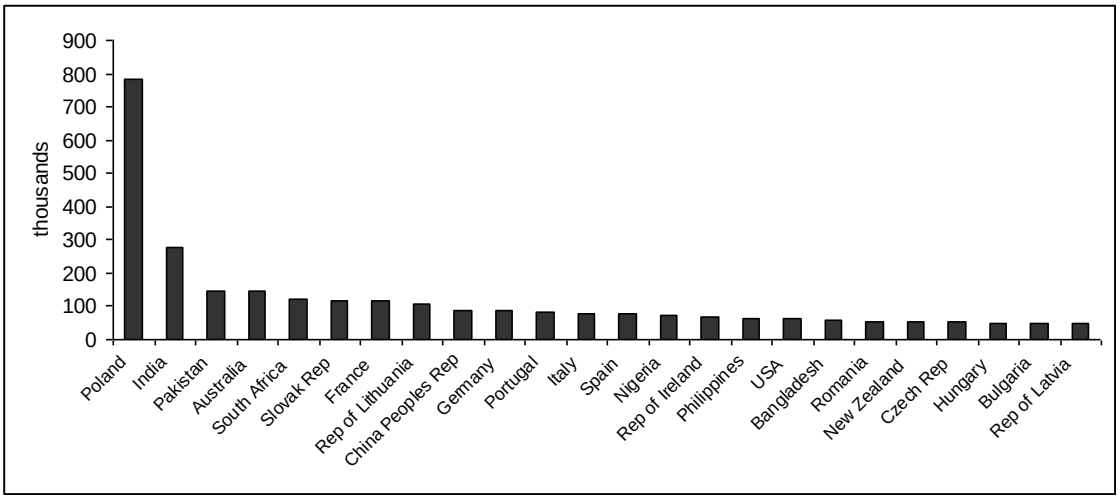
**Figure 1: NINos to overseas nationals 2002-08**




Source: Department of Work and Pensions National Insurance Recording System

**Figure 2: NINos to overseas nationals by nationality 2002-08**




Source: Department of Work and Pensions National Insurance Recording System

**Table 1: Regression variables and description**

| | |
|---|---|
| **Dependent variable** | |
| **Workless** | Unemployed or economically inactive |
| **Individual and household characteristics** | |
| **Age** | Age in years |
| **Sex** | Male |
| **Marital status** | Married or cohabiting |
| **Ethnic group** | |
| White British born | Born in Great Britain and ethnicity White |
| Indian British born | Born in Great Britain and ethnicity Indian |
| Bangladeshi and Pakistani British born | Born in Great Britain and ethnicity Bangladeshi or Pakistani |
| Other non white British born | Born in Great Britain and other non-white ethnicity |
| A10 | Born in EU Accession countries and ethnicity White (including Switzerland, Norway and Iceland) |
| EU | Born in the EU-15 countries ethnicity and White |
| Old Commonwealth | Born in South Africa, New Zealand, Canada and Australia and ethnicity White (including USA) |
| Bangladeshi and Pakistani | Born in Bangladesh or Pakistan and ethnicity Asian |
| Indian | Born in India and ethnicity Asian |
| Black Caribbean | Born in the Caribbean and ethnicity Black |
| Black African Commonwealth | Born in Commonwealth Africa and ethnicity Black |
| Other Non Commonwealth non-white | Born in countries not specified above |
| **Highest qualification** | NVQ Level 4 |
| | NVQ Level1-3 or Apprenticeship |
| | Other qualifications |
| | No qualifications |
| **Length of stay** | Lives in the UK for less than five years |
| **Children** | One or more child (aged under 16) in household |
| **Contextual characteristics** | |
| **Deprived** | Lives in one of the 20% most deprived wards in England |
| **Ethnic minority density** | Lives in a ward with 50% or more people belonging to an ethnic minority group |
| | Lives in a ward with 25-50% people belonging to a ethnic minority group |
| | Lives in a ward with under 25 % or more people belonging to an ethnic minority group |

Note: The ethnic minority density indicator was drawn from the 2001 Census. Population weighted ward deprivation scores were calculated from the 2007 IMD for Lower Super Output Areas available from the Department of Communities and Local Government.

**Table 2: Age and decade of arrival**

| | Age at arrival | Year of Arrival (%) | | | N |
|---|---|---|---|---|---|
| | Median Age | 1995-1999 | 2000-2004 | 2005-2009 | |
| EU | 26 | 36.0 | 45.0 | 19.0 | 1352 |
| A10 | 25 | 9.3 | 40.0 | 51.0 | 1917 |
| Old Commonwealth | 27 | 22.8 | 52.1 | 25.0 | 1153 |
| Indian | 27 | 21.2 | 54.9 | 23.9 | 1123 |
| Pakistani and Bangladeshi | 24 | 36.1 | 47.5 | 16.3 | 1016 |
| African Black Commonwealth | 28 | 25.7 | 59.0 | 15.3 | 972 |
| Other non-Commonwealth non white | 28 | 26.2 | 55.7 | 18.0 | 2340 |
| Other | 27 | 36.3 | 46.8 | 16.9 | 1429 |

Notes: (1) The tables are based on un-weighted LFS July to September quarters for 2004-2009. (2)N denotes the sample size for each group. (3) Figures show percentages within each group.
Source: ONS

**Table 3: Number of persons in household**

| | Persons in household | | | | N |
|---|---|---|---|---|---|
| | 1 person | 2 persons | 3 persons | 4 persons or more | |
| British white | 11.6 | 31.5 | 23.5 | 33.4 | 63049 |
| British Indian | 5.9 | 15.9 | 18.4 | 59.7 | 1721 |
| British Pakistani and Bangladeshi | 2.8 | 9.1 | 14.1 | 73.9 | 1478 |
| British other non-white | 16.9 | 24.0 | 23.1 | 36.1 | 4139 |
| EU | 13.5 | 39.1 | 21.3 | 26.0 | 1352 |
| A10 | 6.1 | 25.0 | 27.0 | 41.9 | 1917 |
| Old Commonwealth | 8.5 | 43.4 | 19.4 | 28.7 | 1153 |
| India | 4.5 | 25.4 | 26.2 | 43.9 | 1123 |
| Pakistani and Bangladeshi | 3.3 | 9.5 | 19.5 | 67.8 | 1016 |
| African Black Commonwealth | 10.7 | 22.4 | 23.7 | 43.2 | 972 |
| Other non-Commonwealth non-white | 10.2 | 23.0 | 22.6 | 44.2 | 2340 |
| Other | 9.1 | 24.0 | 21.6 | 45.6 | 1429 |

Source: ONS

Notes: (1) The tables are based on un-weighted LFS July to September quarters for 2004-2009. (2)N denotes the sample size for each group. (3) Figures show percentages within each group.
Source: ONS

**Table 4: Level of highest qualification**

| | Qualifications | | | | N |
|---|---|---|---|---|---|
| | NVQ Level 4 or above | NVQ Level 3 or below | Other | No quals | |
| British white | 27.2 | 53.4 | 5.6 | 13.7 | 63049 |
| British Indian | 45.5 | 45.2 | 2.4 | 6.9 | 1721 |
| British Pakistani and Bangladeshi | 24.4 | 55.4 | 4.6 | 15.6 | 1478 |
| British other non-white | 33.1 | 51.9 | 4.7 | 10.3 | 4139 |
| EU | 40.6 | 13.8 | 38.0 | 7.6 | 1352 |
| A10 | 12.9 | 10.1 | 60.7 | 16.3 | 1917 |
| Old Commonwealth | 37.6 | 11.0 | 48.9 | 2.5 | 1153 |
| India | 35.6 | 8.1 | 44.4 | 11.8 | 1123 |
| Pakistani and Bangladeshi | 12.5 | 12.7 | 42.9 | 31.9 | 1016 |
| African Black Commonwealth | 34.1 | 26.2 | 31.2 | 8.5 | 972 |
| Other non-Commonwealth non-white | 22.7 | 14.2 | 38.5 | 24.7 | 2340 |
| Other | 23.2 | 17.8 | 39.9 | 19.2 | 1429 |

Notes: (1) The tables are based on un-weighted LFS July to September quarters for 2004-2009. (2)N denotes the sample size for each group. (3) Figures show percentages within each group.
Source:ONS.

**Table 5: Economic activity**

| | Economic Activity | | | | N |
|---|---|---|---|---|---|
| | Employed | Unemployed | Inactive | Workless | |
| British white | 77.9 | 4.8 | 17.3 | 22.1 | 63049 |
| British Indian | 78.2 | 10.0 | 11.9 | 21.9 | 1721 |
| British Pakistani and Bangladeshi | 55.5 | 15.0 | 29.5 | 44.5 | 1478 |
| British other non-white | 71.6 | 12.8 | 15.6 | 28.4 | 4139 |
| EU | 83.3 | 4.5 | 12.2 | 16.7 | 1352 |
| A10 | 83.2 | 5.1 | 11.8 | 16.9 | 1917 |
| Old Commonwealth | 87.0 | 4.2 | 8.9 | 13.0 | 1153 |
| India | 71.6 | 6.6 | 21.8 | 28.4 | 1123 |
| Pakistani and Bangladeshi | 49.5 | 8.1 | 42.4 | 50.5 | 1016 |
| African Black Commonwealth | 74.3 | 11.7 | 14.0 | 25.7 | 972 |
| Other non-Commonwealth non-white | 55.5 | 9.9 | 34.6 | 44.5 | 2340 |
| Other | 63.3 | 8.7 | 28.1 | 36.7 | 1429 |

Notes: (1)The tables are based on un-weighted LFS July to September quarters for 2004-2009. (2) N denotes the sample size for each group.
Source:ONS

**Table 6: Neighbourhood ethnic density levels and deprivation**

| | Ethnic density levels | | | Deprivation | N |
|---|---|---|---|---|---|
| | Lives in ward with less than 25% ethnic minorities | Lives in ward with 25-50% ethnic minorities | Lives in ward with 50% or more ethnic minorities | Lives in 25% most deprived ward | |
| British white | 87.9 | 9.2 | 2.9 | 36.8 | 63049 |
| British Indian | 41.3 | 25.9 | 32.8 | 48.3 | 1721 |
| British Pakistani and Bangladeshi | 31.1 | 30.0 | 39.0 | 76.5 | 1478 |
| British other non-white | 42.5 | 30.3 | 27.2 | 58.0 | 4139 |
| EU | 45.9 | 33.1 | 20.9 | 41.1 | 1352 |
| A10 | 53.4 | 22.8 | 23.8 | 53.9 | 1917 |
| Old Commonwealth | 42.4 | 43.0 | 14.6 | 30.4 | 1153 |
| India | 42.5 | 23.3 | 34.2 | 50.8 | 1123 |
| Pakistani and Bangladeshi | 28.3 | 28.9 | 42.8 | 79.9 | 1016 |
| African Black Commonwealth | 49.7 | 29.1 | 21.2 | 63.6 | 972 |
| Other non-Commonwealth non-white | 43.5 | 28.1 | 28.5 | 58.1 | 2340 |
| Other | 39.4 | 31.4 | 29.2 | 50.2 | 1429 |

Notes: (1)The tables are based on un-weighted LFS July to September quarters for 2004-2009. (2) N denotes the sample size for each group.
Source:ONS.

**Table 7: Multilevel model for worklessness without predictors**

| | B | S.E. |
|---|---|---|
| Constant | -1.50** | 0.02 |
| $\sigma_v^2$ | 0.28** | 0.02 |
| $\sigma_u^2$ | 1.60** | 0.07 |
| DIC | 84738.75 | |
| N | 81689 | |

**Table 8: Multilevel model for worklessness with individual level predictors**

| | B | S.E. | Exp (B) |
|---|---|---|---|
| Age | -0.19** | 0.01 | 0.83 |
| Age squared | 0.00** | 0.00† | 1.00 |
| Male | -0.88** | 0.02 | 0.41 |
| Married or cohabiting | -0.52** | 0.02 | 0.59 |
| NVQ Level 4 | -2.25** | 0.04 | 0.11 |
| NVQ Level 1-3 | -1.45** | 0.03 | 0.23 |
| Other qualifications | -1.21** | 0.04 | 0.30 |
| Length of stay <5 years | 0.50** | 0.06 | 1.65 |
| British Indian | 0.35** | 0.08 | 1.42 |
| British Bangladeshi and Pakistani | 1.37** | 0.08 | 3.94 |
| British other non-white | 0.51** | 0.05 | 1.67 |
| A10 | -0.50** | 0.10 | 0.61 |
| EU | -0.10 | 0.10 | 0.90 |
| Old Commonwealth | -0.40** | 0.12 | 0.67 |
| Bangladeshi and Pakistani | 1.65** | 0.10 | 5.21 |
| Indian | 0.78** | 0.10 | 2.18 |
| African Black Commonwealth | 0.50* | 0.11 | 1.65 |
| Other non-Commonwealth non-white | 1.35** | 0.07 | 3.86 |
| Other | 1.00** | 0.08 | 2.72 |
| Constant | 0.40** | 0.02 | |
| $\sigma_v^2$ | 0.12** | 0.07 | |
| $\sigma_u^2$ | 1.40** | 0.01 | |
| *DIC* | 75619.70 | | |
| N | 81689 | | |

Source: ONS

Notes: (1) Reference categories are female, non-married, without qualifications, length of stay more than 5 years and white British (2) To test the significance of the coefficients Z ratios are compared with the standard normal distribution for the fixed parameters and the DIC was used for the random parameters (3) † <0.005, *p<0.05, ** p<001

**Table 9: Multilevel model for worklessness with individual and contextual predictors**

| | B | S.E. | Exp (B) |
|---|---|---|---|
| Age | -0.23** | 0.01 | 0.79 |
| Age squared | 0.00** | 0.00† | 1.00 |
| Male | -0.83** | 0.02 | 0.44 |
| Married or cohabiting | -0.66** | 0.03 | 0.52 |
| NVQ Level 4 | -2.08** | 0.04 | 0.12 |
| NVQ Level 1-3 | -1.39** | 0.03 | 0.25 |
| Other qualifications | -1.17** | 0.04 | 0.31 |
| Length of stay <5 years | 0.16** | 0.06 | 1.17 |
| British Indian | 0.20** | 0.08 | 1.22 |
| British Bangladeshi and Pakistani | 0.97** | 0.08 | 2.64 |
| British other non-white | 0.31** | 0.05 | 1.36 |
| A10 | -0.59** | 0.10 | 0.55 |
| EU | 0.18 | 0.12 | 1.20 |
| Old Commonwealth | -0.32** | 0.12 | 1.38 |
| Bangladeshi and Pakistani | 1.20** | 0.10 | 3.32 |
| Indian | 0.57** | 0.10 | 1.77 |
| African Black Commonwealth | 0.22* | 0.11 | 1.25 |
| Other non-Commonwealth non-white | 1.14** | 0.07 | 3.13 |
| Other | 0.82** | 0.09 | 2.27 |
| Children in the household | 0.82** | 0.03 | 2.27 |
| Deprived ward | 0.46** | 0.03 | 1.58 |
| Ward ethnic pop 25-50% | 0.14** | 0.04 | 1.15 |
| Ward ethnic pop>50% | 0.24** | 0.05 | 1.27 |
| Constant | -0.14** | 0.04 | 0.87 |
| $\sigma_v^2$ | 0.05* | 0.01 | |
| $\sigma_u^2$ | 1.32** | 0.07 | |
| *DIC* | 74629.28 | | |
| N | 81689 | | |

Source: ONS

Notes: (1) Reference categories are female, non-married, without qualifications, length of stay more than 5 years, white British, Non deprived ward and ward ethnic pop<25% (2) To test the significance of the coefficients Z ratios are compared with the standard normal distribution for the fixed parameters and the DIC was used for the random parameters (3) † <0.005, *p<0.05, ** p<001

**Table 10: Multilevel model for worklessness with interactions-ethnic group and ethnic density**

| | B | S.E. | Exp (B) |
|---|---|---|---|
| British Indian | 0.21 | 0.13 | 1.23 |
| British Bangladeshi and Pakistani | 1.18** | 0.14 | 3.25 |
| British other non-white | 0.24** | 0.08 | 1.27 |
| A10 | -0.66** | 0.13 | 0.52 |
| EU | -0.05 | 0.14 | 0.95 |
| Old Commonwealth | -0.13 | 0.16 | 0.88 |
| Bangladeshi and Pakistani | 1.44** | 0.17 | 4.22 |
| Indian | 0.51** | 0.15 | 1.67 |
| African Black Commonwealth | 0.18 | 0.15 | 1.20 |
| Other non-Commonwealth non-white | 0.96** | 0.10 | 2.61 |
| Other | 0.99** | 0.13 | 2.69 |
| Deprived ward | 0.46** | 0.03 | 1.58 |
| Ward ethnic pop 25-50% | 0.10** | 0.04 | 1.11 |
| Ward ethnic pop>50% | 0.35** | 0.08 | 1.42 |
| British Indian x Ward ethnic pop>50% | 0.14 | 0.20 | 1.15 |
| British Bangladeshi and Pakistani x Ward ethnic pop >50% | -0.22 | 0.20 | 0.80 |
| British other non-white x Ward ethnic pop >50% | 0.17 | 0.12 | 1.19 |
| A10 x Ward ethnic pop>50% | 0.18 | 0.21 | 1.20 |
| EU x Ward ethnic pop>50% | -0.15 | 0.23 | 0.86 |
| Old Commonwealth x Ward ethnic pop>50% | -0.32 | 0.25 | 0.73 |
| Bangladeshi and Pakistani x Ward ethnic pop>50% | -0.24 | 0.23 | 0.79 |
| Indian x Ward ethnic pop520% | 0.29 | 0.24 | 1.34 |
| African Black Commonwealth x Ward ethnic pop>50% | 0.05 | 0.24 | 1.05 |
| Other non-Commonwealth non-white x Ward ethnic pop>50% | 0.43* | 0.15 | 1.54 |
| Other x Ward ethnic pop>50% | -0.14 | 0.19 | 0.87 |
| British Indian x Ward ethnic pop 25- 50% | -0.21 | 0.20 | 0.81 |
| British Bangladeshi and Pakistani x Ward ethnic pop 25- 50% | -0.45* | 0.20 | 0.64 |
| British other non-white x Ward ethnic pop 25- 50% | 0.01 | 0.14 | 1.01 |
| A10 x Ward ethnic pop 25- 50% | -0.03 | 0.21 | 0.97 |
| EU x Ward ethnic pop 25- 50% | -0.17 | 0.25 | 0.84 |
| Old Commonwealth x Ward ethnic pop 25- 50% | -0.47 | 0.33 | 0.63 |
| Bangladeshi and Pakistani x Ward ethnic pop 25- 50% | -0.53* | 0.23 | 0.59 |
| Indian x Ward ethnic pop 25- 50% | -0.15 | 0.23 | 0.86 |
| African Black Commonwealth x Ward ethnic pop 25- 50% | 0.18 | 0.26 | 1.20 |
| Other non-Commonwealth non-white x Ward ethnic pop 25- 50% | 0.13 | 0.16 | 1.14 |
| Other x Ward ethnic pop 25- 50% | -0.52* | 0.20 | 0.59 |
| Constant | -0.14** | 0.04 | |
| $\sigma_v^2$ | 0.05* | 0.01 | |
| $\sigma_u^2$ | 1.32** | 0.07 | |
| *DIC* | 74631.06 | | |
| N | 81689 | | |

Source: ONS

Notes: (1) The model controls for age, sex, qualifications, marital status, length of stay and children as shown in previous tables. (2) To test the significance of the coefficients Z ratios are compared with the standard normal distribution for the fixed parameters and the DIC was used for the random parameters (3) † <0.005, *p<0.05, ** p<001

**Table 11: Multilevel model for worklessness with interactions-ethnic group and area deprivation**

| | B | S.E. | Exp (B) |
|---|---|---|---|
| British Indian | 0.21 | 0.12 | 1.23 |
| British Bangladeshi and Pakistani | 1.06** | 0.16 | 2.89 |
| British other non-white | 0.40** | 0.08 | 1.49 |
| A10 | -0.45** | 0.14 | 0.64 |
| EU | 0.18 | 0.12 | 1.20 |
| Old Commonwealth | 0.00 | 0.14 | 1.00 |
| Bangladeshi and Pakistani | 1.74** | 0.20 | 5.70 |
| Indian | 0.90** | 0.14 | 2.46 |
| African Black Commonwealth | 0.05 | 0.18 | 1.05 |
| Other non-Commonwealth non-white | 1.24** | 0.10 | 3.46 |
| Other | 1.00** | 0.12 | 2.72 |
| Deprived ward | 0.53** | 0.03 | 1.70 |
| Ward ethnic pop 25-50% | 0.14** | 0.04 | 1.15 |
| Ward ethnic pop>50% | 0.28** | 0.05 | 1.32 |
| British Indian x deprived ward | -0.06 | 0.16 | 0.94 |
| British Bangladeshi and Pakistani x deprived ward | -0.18 | 0.18 | 0.84 |
| British other non-white x deprived ward | -0.18 | 0.10 | 0.84 |
| A10 x deprived ward | -0.29 | 0.17 | 0.75 |
| EU x deprived ward | -0.70** | 0.20 | 0.50 |
| Old Commonwealth x deprived ward | -1.06** | 0.25 | 0.35 |
| Bangladeshi and Pakistani x deprived ward | -0.74** | 0.22 | 0.48 |
| Indian x deprived ward | -0.64** | 0.19 | 0.53 |
| African Black Commonwealth x deprived ward | 0.20 | 0.22 | 1.22 |
| Other non-Commonwealth non-white x deprived ward | -0.21 | 0.13 | 0.81 |
| Other x deprived ward | -0.37* | 0.16 | 0.69 |
| Constant | -0.17** | 0.04 | |
| $\sigma_v^2$ | 0.05** | 0.01 | |
| $\sigma_u^2$ | 1.32** | 0.07 | |
| *DIC* | 74587.98 | | |
| N | 81689 | | |

Source: ONS

Notes: (1) The model controls for age, sex, qualifications, marital status, length of stay and children as shown in previous tables. (2) To test the significance of the coefficients Z ratios are compared with the standard normal distribution for the fixed parameters and the DIC was used for the random parameters (3) † <0.005, *p<0.05, ** p<001