PROJECTING EMPLOYMENT BY ETHNIC GROUP TO 2022

Technical Report

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WARWICK INSTITUTE *for* EMPLOYMENT RESEARCH

CONTENTS

1. INTRODUCTION

This report explains in greater detail how the two existing sets of projections of the population by ethnic group and of employment by industry and occupation were brought together in order to produce the first projections of employment by ethnic group, industry and occupation in the UK.

In order to understand the outputs of the research project, it is important to understand the properties of the projections and other data sources used in the project. These are discussed in Chapter 2. Chapter 3 provides further information about how the key variables in the data sets were harmonised over time and geographically.

Chapter 4 is concerned with the methods used to create projections of employment by ethnic group. This provides a non-technical summary of the approach taken to building quantitative models of labour market activity and their use in creating estimates of employment by ethnic group.

Chapter 5 presents an analysis of the factors underlying labour market participation and employment by ethnic group and gender.

2. DATA SOURCES

This project draws (primarily) upon three large data sets: the UK Labour Force Survey, ETHPOP projections of the population by ethnic group and Working Futures 5 projections of employment by industry and occupation. Their characteristics and the way in which they have been used in the project will now be described.

a) Labour Force Survey

The UK Labour Force Survey (LFS) is the key source of regular information on the labour market in the UK. It is a quarterly survey of households living at private addresses (together with people in NHS accommodation and students at the parental home), and has been conducted for every quarter from Spring1992. It samples 60 thousand households per quarter in Great Britain. The quarterly LFS is based on a panel design in which a fifth of the sample each quarter is replaced, with individuals remaining in the sample for 5 consecutive waves or quarters. The reason for this design was to improve the precision of quarterly estimates of change, and to trace the experience of individual members of the sample over 12 months. Households in the survey are drawn from a geographically un-clustered random sample of addresses. The quarterly LFS was introduced in Northern Ireland from the winter of 1994/95, with a sample size of 3 thousand households per quarter (600 in each wave). The questions in Northern Ireland are slightly different from the rest of the UK. One key difference of relevance to this project is the ethnic group question, only introduced in late 1996. It is also different from the question(s) used in Great Britain.

Individual-level data from the LFS is available from the UK Data Service. The Warwick Institute for Employment Research has created a complete time-series of individual data from 1975 onwards. This was used to create two time-series of quarterly LFS data covering the period 1992 to 2013, containing key labour market and demographic variables. The first contains all records from the survey and is used for the descriptive analysis of employment and labour market participation patterns. The second selects unique individuals, for use in the regression modelling of labour market participation and employment rates by ethnic group. The latter only includes individuals who are in wave 1 of the survey (in which the demographic and socio-economic questions appear).

b) ETHPOP projections

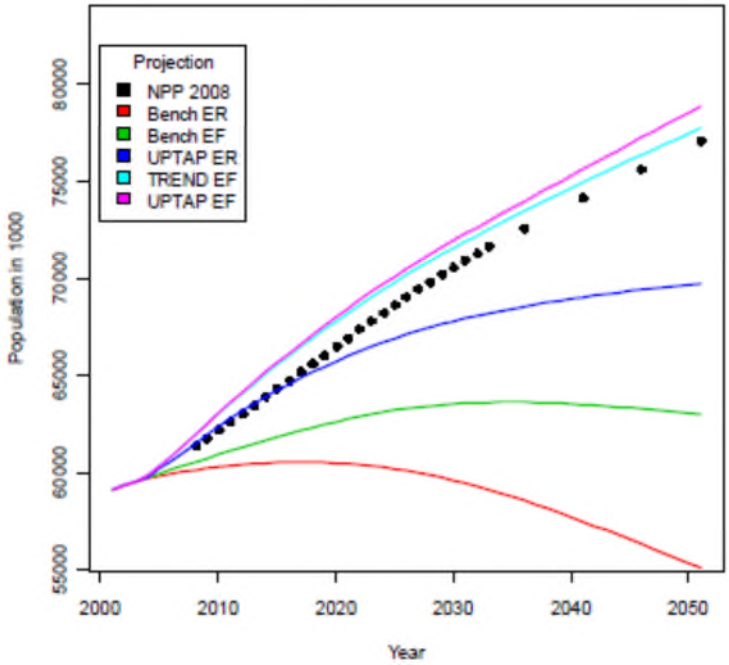
This data set contains the first comprehensive set of projections of the population by 2001 Census ethnic groups, covering the period from 2001 to 2050. The projections were created by a research team based in the School of Geography at Leeds University, funded by an ESRC research grant within the Understanding Population Trends and Processes (UPTAP) programme (Wohland et al., 2010; Rees, et al., 2011; Rees et al., 2012a). Their bi-regional projection model projected births, deaths and migration (both international and internal) by ethnic group and also estimated the probability of children being of mixed parentage. The data set is broken down by gender, individual year of age (from 0 to 100) and the 16 ethnic groups of the 2001 (England and Wales) Census of Population ethnic group classification. Projections are produced for each year 352 local authority districts (in England) and national totals for Wales, Scotland and Northern Ireland.

The ETHPOP projections are generated through use of a demographic cohort component model. The population is disaggregated by age (at single year detail), sex and ethnic group (EG) for each local authority district (LAD) in England plus Wales, Scotland and Northern Ireland (treated as single zones). The model runs separately for each local authority and ethnic group using a bi-regional structure to handle internal migration to and from each local authority. The bi-regional system consists of the local authority and the rest of the UK. Out-

migration from each LAD and EG is a result of multiplying the LAD origin population by an out-migration rate. In-migration to each LAD and EG is a result of multiplying an origin population which is the UK population minus the LAD population. At the end of each time interval a small adjustment is made to match the total of in-migrants to the total of out-migrants. One additional feature, which connects together the ethnic groups, is included in the projection model: the generation of new-born infants of mixed ethnicity, using the choice of ethnicity reported by parents in the census. Generating the projections required the estimation of ethnic group fertility rates (Norman et al., 2014), ethnic group mortality rates (a first for the UK; Rees et al., 2009), ethnic group internal migration rates and ethnic group immigration rates, all with age and sex detail, using a combination of 2001 census, vital and migration statistics. Assumptions were made about these rates for the future, using leading indicators at national scale, drawing or adapting those used in the National Population Projections (Rees et al., 2012b).

The ETHPOP projections were produced for five scenarios (Figure 1). Two of these were benchmark projections which took as their starting point the 2001 mid-year ethnic group population estimates produced by the Office for National Statistics (ONS) for local authorities in England (derived from the 2001 Census of Population adjusted to match ONS estimates of the mid-year population) and Leeds' own estimates of the ethnic group populations of Wales, Scotland and Northern Ireland. They made estimates of the components of population change for 2001-2 and assumed that these benchmark component intensities (rates, probabilities or flows) continued unchanged into the future. There are two versions of the benchmark projections, one of which (EF) projects emigration assuming a constant count of migration by zone, age, sex and ethnicity, while the other (ER) projects emigration as the product of a constant rate of emigration multiplied by the starting population at risk, by zone, age, sex and ethnicity. The EF variant matches the method used by the ONS to project the population, but the Leeds team preferred the ER methodology. Comparison of the projections for 2011 with 2011 Census of Population data revealed that these benchmark projections underestimated the growth of the ethnic minority population in the first decade of the 21st century.

Figure 1: Projected populations by scenario



Source: Figure 11.1 of Wohland et al. (2010)

Their third scenario (the Trend projection) estimated the components of change for each year (e.g. the fertility and international migration components) by assuming that trends for the population as a whole applied to individual ethnic groups (e.g. the mortality and internal migration components). From mid-2007 onwards estimates of rates, probabilities and flows were aligned (as far as possible) to the assumptions made in the Office for National Statistics (ONS) 2008-based National Population Projections. Assumptions about internal migration were derived from the Sub-National Population Projections for England. These were probably too low, leading to an under-estimation of net in-migration. Figure 2 presents details of the assumptions made in producing each scenario.

Figure 2: Assumptions made by the ETHPOP projections

Projection title	Component	2001-2002	2002-2007	2007 to Target Year	Target Year 2051
BENCHMARK	Fertility	Estimated 2001-2 ASFRs	Constant from 2001-2	Constant from 2001-2	Constant from 2001-2
	Mortality	Estimated 2001-2 Survivorship Probabilities	Constant from 2001-2	Constant from 2001-2	Constant from 2001-2
	Internal migration	2000-1 Conditional Probabilities	Constant from 2000-1	Constant from 2000-1	Constant from 2000-1
	Immigration	2001-2 Immigration flows	Constant from 2001-2	Constant from 2001-2	Constant from 2001-2
BENCHMARK-EF	Emigration flows	2001-2 Emigration flows	Constant from 2001-2	Constant from 2001-2	Constant from 2001-2
BENCHMARK-ER	Emigration rates	2001-2 Emigration rates	Constant from 2001-2	Constant from 2001-2	Constant from 2001-2
TREND-EF	Fertility	Estimated 2001-2 ASFRs	Adjusted to all groups ASFRs 2002-7	Adjusted to ONS assumptions for TFRs	Adjusted to ONS assumptions for TFRs
	Mortality	Estimated 2001-2 Survivorship Probabilities	Adjusted to life tables for years	Adjusted to ONS assumptions for mortality decline	ONS mortality decline at 1% per annum
	Internal migration	2000-1 Conditional Probabilities	Local Time Series Indexes applied to 2000-2001 probabilities	Held constant at 2005-6 levels	Held constant at 2005-6 levels
	Immigration	2001-2 Immigration flows	Time series of total immigration used	Adjusted to ONS assumptions on total immigration	Adjusted to ONS assumptions on total immigration
	Emigration flows	2001-2 Emigration flows	Time series of emigration used	Adjusted to ONS assumptions on total emigration	Adjusted to ONS assumptions on total emigration
UPTAP	Fertility	Estimated 2001-2 ASFRs	Adjusted to all groups ASFRs 2002-7	New assumptions on TFR	New assumptions on TFR
	Mortality	Estimated 2001-2 Survivorship Probabilities	Adjusted to life tables for years 2002 to 2007	Adjusted to ONS assumptions for mortality decline	Mortality decline at 2% pa
	Internal migration	2000-1 Conditional Probabilities	Local Time Series Indexes applied to 2000-2001 probabilities	Held constant at 2005-6 levels	Held constant at 2005-6 levels
	Immigration	2001-2 Immigration flows	Time series of total immigration used	New assumptions on total immigration	New assumptions on total immigration
UPTAP-EF	Emigration flows	2001-2 Emigration flows	Time series of emigration used	New assumptions on emigration flows	New assumptions on emigration flows
UPTAP-ER	Emigration rates	2001-2 Emigration rates	Time series of emigration used	New assumptions on emigration rates	New assumptions on emigration rates

Source: Table 10.2 of Wohland et al. (2010)).

In their fourth and fifth scenarios (termed the UPTAP projections), the Leeds team made their own assumptions about population change for the period from 2006 onwards. They assumed higher minority ethnic fertility rates than ONS and more optimistic mortality assumptions than ONS. The UPTAP-EF (emigration flows) and UPTAP-ER (emigration rates) variants both assume lower levels of net international migration than in the ONS projections.

The UPTAP-ER variant is presented as the preferred choice in the final report of the Leeds project (Wohland et al., 2010), judging this to be the most plausible. However, in a recent exercise to produce projections of the ethnic composition of parliamentary constituencies (on behalf of Policy Exchange), Rees and Clark (2014) preferred the UPTAP-EF variant. Rees et al (2013) acknowledged that their projections under-estimated the working age population in 2011, as a result of under-estimating immigration (notably immigration by the Other White group). The projections also over-estimated the White population in total in 2011. Rees et al. (2013) suggest that the best approach to using their projections is to take the average of the TREND and UPTAP-ER variants, because the TREND projection is closest to the 2008-based ONS National Population Projection and the average of the two projections comes closest to the 2011 Census of Population results. This recommendation is adopted by this research.

c) *Working Futures*

Sponsored by the UK Commission for Employment and Skills (UKCES), the Warwick Institute for Employment Research and Cambridge Econometrics have created a set of

projections of employment by occupation, industry and region based on the outputs of a multi-sector macro-economic model of the UK economy. The Working Futures 5 projections (finalised in March 2014) comprise a time-series database of employment broken down by region, gender, industry, occupation, qualification and type of employment (e.g. employed, self-employed, working full- or part-time) for each year from 1990 to 2022 (Wilson et al., 2014). Estimates of labour supply and labour market participation rates for this period have also been made for UK nations and English regions by CE. These are presented in Chapter 3 of the project report. There are extensive technical reports detailing the projections and the methods used to create them on the UKCES website at: https://www.gov.uk/government/publications/working-futures-2012-to-2022.

The occupational and industrial information in the projections is based on the SOC2010 occupational classification and the SIC2007 industry classification. There are 25 occupations and 22 industries distinguished. Employment is broken down into full- and part-time employment and self-employment by gender and the nine qualification levels of the National Qualifications Framework are distinguished.

The projections used in this project are of expansion demand. This provides an indication of the net increase in employment resulting from the pattern of economic growth. Working Futures also make estimates of 'replacement demand' by occupation and industry. These estimates are of the number of people required to replace people leaving employment (e.g. due to retirement) in that industry, occupation or region for a given level of employment. Replacement demand vastly exceeds expansion demand and occurs even in industries and occupations in which total employment is contracting. Hence, the analysis of net employment change understates the job opportunities that will become available over the period 2012 to 2022.

3. CLASSIFICATION CHALLENGES

This project has had to find ways of dealing with changes in the classification of a number of the variables measured by the data sources used. The key problems encountered have been around the measurement of ethnicity, industry and occupation. Here the ways in which the classification challenges faced by the project have been addressed are explored.

a) Ethnic group

The 1991 Census of Population was the first to ask a question on ethnic group. The number of categories in the ethnic group question used in the Census of Population for England & Wales has increased from 10 in 1991 to 16 in 2001 to 18 in 2011. The White-Gypsy/Roma/Traveller and Arab categories were new categories added for the 2011 Census. There were further differences between the three Censuses (for England & Wales, Scotland and Northern Ireland) from 2001. In the 2001 Census, the ethnic group question in Scotland changed, not distinguishing Black-Caribbean or Black-African people, but distinguishing between White people of Scottish and other British origin. In 2011, a much more detailed question compatible with England and Wales was used, which also identified White Polish people. The ethnic group question was first asked in 2001 in Northern Ireland, and used in the same format in the 2011 Census. This question does not identify White-Irish people (in order to comply with the Good Friday Agreement). In Scotland and Northern Ireland, the Mixed parentage category is only published as an aggregate total, not broken down by component. The ETHPOP database created by Leeds University uses the England and Wales 2001 Census ethnic group classification. Because of the differences between the England and Wales, Scotland and Northern Ireland ethnic group classifications for 2001, the ETHPOP projections had to estimate population totals for the 16 England and Wales categories. When adjusting the ETHPOP projections using the 2011 Census, it was also necessary to estimate from less detailed categories in Scotland and Northern Ireland to the more detailed England & Wales ethnic group categories.

In order to create as long a time series of labour market data by ethnic group as possible, it was necessary to resolve differences in the ethnicity information contained within the LFS. The biennial, then annual LFS was one of the earliest ONS surveys to include an ethnic group question. The survey became quarterly from 1992, when it switched to the ethnic group question used in the 1991 Census in Great Britain. The LFS question has been changed after each Census to be broadly consistent with the question used in the most recent Census, but with some differences. The LFS variable *ethcen* which was included from 1992 to 2000 included additional 'mixed' categories not present in the Census output. The *ethcen15* variable included from 2001 to 2010 differed from the Census question in not including a "White-Irish" category. A further complication was that the ethnic group question was not introduced to the Northern Ireland LFS until 1996.

Nevertheless, it was possible to produce ethnicity classifications which resolved the differences between the two ethnic group questions for a smaller number of ethnicity categories which could be applied to all parts of the UK and which could be applied to most or all of the quarterly LFS time series. Three classifications were created: A nine-fold classification for the whole UK from 1992 to 2013; an eleven-fold classification for all UK countries for the period 1992 to 2010; and a 12-fold classification for England and Wales covering the period from 2001 to 2013. These classifications are presented in Table 1.

Table 1: Ethnic group classifications

9 categories	11 categories	12 categories
UK-wide, 1996-2013	UK-wide, 1992-2010	England & Wales, 2001-13
White	White	White – UK origin
		White -Other
Ethnic minorities	*Ethnic minorities*	*Non-White Ethnic minorities*
Mixed parentage	Mixed parentage	Mixed parentage
Indian	Indian	Indian
Pakistani	Pakistani	Pakistani
Bangladeshi	Bangladeshi	Bangladeshi
Other Asian	Other Asian	Other Asian
Black ethnic groups	Black-African	Black-African
Chinese	Black-Caribbean	Black-Caribbean
Other ethnic group	Black-Other	Black-Other
	Chinese	Chinese
	Other ethnic group	Other ethnic group

The changes following the 2011 Census were the most disruptive, making it difficult to create a series of data by ethnic group which is consistent across the nations of the UK and over time. The ethnic group classification used in the LFS changed twice in 2011, with a temporary classification used in the first quarter (which was actually not populated with data in the LFS data sets produced by the UK Data Service) and three different classifications for England and Wales, Scotland and Northern Ireland from the second quarter onwards.

Though it was possible to derive nine ethnic group categories for the whole of the UK and for the whole period for which ethnicity data is available from the quarterly LFS, important ethnic groups are missing from the classification. It is not possible to identify White people with origins outside Britain and Ireland, or to distinguish between Black-Caribbean and Black-African people for the whole time period. It is possible to distinguish these groups from 2001 onwards, but only for England and Wales. Because the ethnic minority population of the UK is still highly concentrated in the populous parts of England, it was decided that the priority was to achieve the greatest amount of ethnic detail possible for England, and hence the analysis for England was conducted fusing the 12-fold classification, concentrating on the period 2001 to 2013. For UK-level analysis, the 9-fold classification was used. In the remainder of the UK, the small sample sizes available for analysis meant that projections were limited to the white/ethnic minority breakdown.

Industry sector

There have been three versions of the Standard Industrial Classification (SIC) used by the Office for National Statistics (ONS) since 1992. These were introduced in 1992 (SIC92), 2003 (SIC2003) and 2007 (SIC2007). The first two were very similar, but the third of these represented a substantial revision, undertaken to represent the dramatic changes in the nature of industry and the emergence of wholly new kinds of economic activity since the previous classification was created. The discontinuity between SIC2003 and SIC2007 is so great that comparability over time can only be achieved for broad aggregations of industries. The time-series database of employment for 22 industries presented in the Working Futures 5 projections is estimated from the proportion of industries defined using the SIC92/2003 classification falling within industries defined by the SIC2007 classifications. This approach cannot be used to create estimates of employment by ethnic group, because the matrices used to reconcile the two classifications are created from aggregate employment data. Since the employment profiles of individual ethnic groups differ greatly, using this kind of estimation procedure would have distorted the data extracted to an unacceptable degree.

Since the sample size available for data analysis by ethnic group and region was already small, it was decided that an acceptable compromise would be to work at a lower level of industrial detail. This meant that industry classifications which could be created by simply grouping SIC industry codes could be employed. Two levels of detail were considered: 14 industry groupings as used by the UK Commission for Employment and Skills to produce its 'Almanac'; and the six broad sectors used to present the regional projections from Working Futures. In practice, sample size issues proved a challenge and the six Working Futures sectors were adopted as the industrial breakdown for the projections of employment by ethnic group (Table 2).

Table 2: Industrial sectors used in projections

Sector	*Exemplar industries*	SIC92/2003 sections	SIC 2007 sections
Primary sector and utilities	Agriculture; Mining and quarrying; Energy	01-09,35-39	01-14,40,41
Manufacturing	Engineering; Chemicals; Metal manufacture	10-33	15-37
Construction	Construction	41-43	45
Trade, accommodation and transport	Wholesale and retail distribution; Accommodation and food	45-56	50-64
Business and other services	Financial services; Real estate; Information Technology	58-82,90-99	65-74,90-93,95,99
Non-market services	Health; Education; Social Services	84-88	75,80,85

Occupation

Three Standard Occupational Classifications have been implemented by ONS over the period since 1992 (SOC90, SOC2000 and SOC2010). All three differ significantly, as the classification system has been changed to represent the changing nature of jobs. The LFS applies the classification current at the time of each quarter to job descriptions. Table 3 demonstrates the extent of the difference between the three classifications. The differences between the SOC90 and SOC2010 classifications even at this broad level are quite substantial, with only half of those coded to SOC major groups 1 and 6 in the SOC90 classification coded to the equivalent major group in the SOC2000 classification. SOC2000 and SOC2010 are much more similar, but less than three-quarters of those coded to major group 1 in SOC 2000 are also coded to major group 1 in SOC2010. Major groups 2 and 8 are most stable across the three classifications.

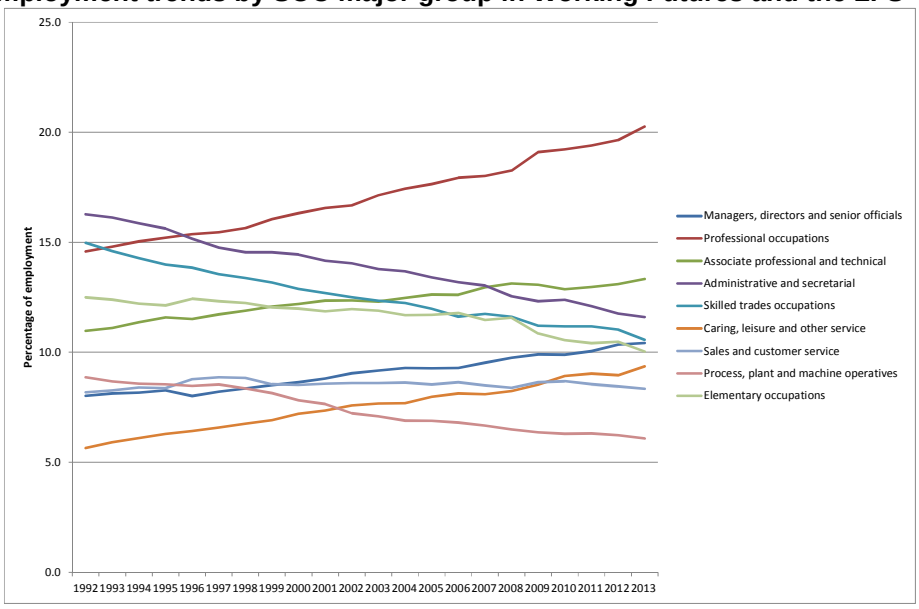
Table 3: Percentage of occupations coded to SOC2000 and SOC2000 major groups coded to the equivalent Major Group of the 2010 Standard Occupational Classification.

SOC90 major group	Percent	SOC2000 major group	Percent
Managers and Administrators	50.4	Managers and Senior Officials	72.8
Professional	94.9	Professional Occupations	98.0
Associate professional and technical	76.0	Associate Professional and Technical Occupations	86.6
Clerical and secretarial	66.4	Administrative and secretarial	91.7
Craft and related	78.4	Skilled trades occupations	99.4
Personal and protective services	46.8	Personal Service Occupations	98.0
Sales	67.9	Sales and Customer Service Occupations	97.0
Plant and machine operatives	91.9	Process, Plant and Machine Operatives	96.4
Other occupations	82.0	Elementary Occupations	94.0

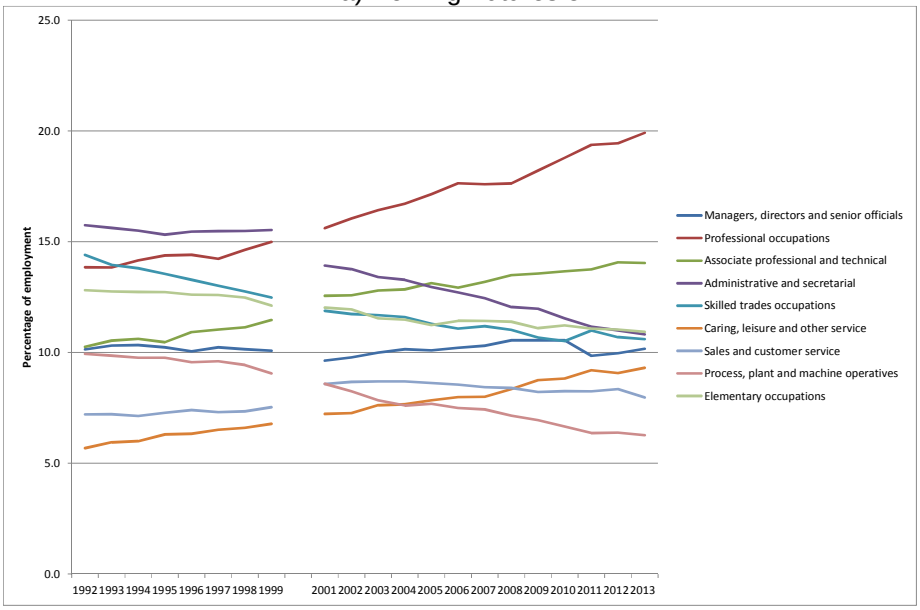
In order to identify genuine trends in occupational distribution over time by ethnic group, it is necessary to apply an occupational classification which is stable over time to the LFS database. Since occupational data is available for the most detailed level of the classification prevailing at the time of data collection, it is possible to recode the data if such a stable classification can be devised. It is desirable to use the SOC2010 classification as the basis of this classification, because the Working Futures projections are based on this classification (and because it corrects some of the anomalies of earlier SOCs).

The ONS has produced a file which lists (c. 24 thousand) job titles and the SOC90, SOC2000 and SOC2010 occupational codes to which they have been assigned. This was used to recode the 3 digit level of the SOC90 and SOC2000 classifications (the level to which occupational information is classified in the LFS) to the 1 and 2 digit level of the SOC2010 classification by identifying the SOC2010 sub-major or major group which accounted for the largest percentage of job titles coded to the unit group.

Figure 2: Employment trends by SOC major group in Working Futures and the LFS



a)Working Futures 5



b)Labour Force Survey recoded to SOC2010

Figure 2 provides an assessment of the outcome of this recoding exercise, by comparing the trend in employment between 1992 and 2013 by SOC2010 major group from Working Futures 5 with that obtained by recoding occupation unit groups to SOC2010 major groups (there is a break in the latter diagram in 2000 because of the switch in classification from SOC90 to SOC2000). Trends over time in the Working Futures and recoded LFS data are similar. The greatest discrepancy is for SOC Major Group 1 (as might be expected from Table 3). When the same comparison is made at the sub-major group level, much greater differences between the two data sets are revealed.

Therefore, most of the occupational analysis was conducted at the major group level. Moreover, because the match of SOC2000 with SOC2010 was much better than that between SOC90 and SOC2010, the historical data analysis for individual ethnic groups focused on the period from 2001 to 2013. Because of small sample sizes for individual ethnic minority groups, the projections are presented for three groupings of major groups (Table 4): higher earning (major groups 1 to 3), intermediate earning (major groups 4, 5 and 8); and Lower earning (major groups 6, 7 and 9).

Table 4: Groupings of SOC Major Groups

Occupation group	*SOC Major Groups*	*Exemplar occupations*
High pay	1: Managers and Administrators	Chief executives; Managers and proprietors; Production Managers.
	2: Professionals	Doctor; Judge, Solicitor; Teacher; Scientist.
	3. Associate professional and technical occupations	Nurse; Technician; Laboratory Analyst; Estate Agent.
Intermediate	4. Administrative and secretarial	Administrative officer; Book-keeper; Secretary; Typist.
	5. Skilled trades occupations	Welder; Carpenter; Tool-maker.
	8. Process, plant and machine operatives	Quarry worker; Scaffolder; Driver; Handyman.
Low Pay	6. Caring, leisure and other service	Nursery nurses; Teaching assistants; Travel agents; Hairdressers.
	7. Sales and customer service	Sales Assistant; Cashier; Telephonist.
	9. Elementary occupations	Labourer; Postal worker; Security guard.

4. METHODOLOGY

This section explains key elements of the methods used by this project.

4.1 Creating a time-series database of population by ethnic group, age and gender

The first stage of the analysis was to create a time-series of population by 5-year age group, ethnic group, gender and Government Office Region (in England), and national totals for Wales, Scotland and Northern Ireland for each year from 2001 to 2022. This was based upon the Leeds University ETHPOP population projections described in Chapter 2. As noted above, Rees et al. (2014) recommend users of the ETHPOP projections to take the average of the TREND and UPTAP-ER variants. The projected population values for the two variants were added and divided by 2 to yield the unadjusted projected population estimate.

As noted in Chapter 2, the ETHPOP population projections were created before the 2011 Census of Population. When the Census results were published, it was found that these projections underestimated the ethnic minority population in 2011, primarily because they failed to replicate the high levels of international net migration experienced after 2001. Rees et al. (2014) argue that the averaged ETHPOP projections provide the best indication of the trend over time in the population of individual ethnic groups. They suggest adjusting the projections to match the Census data in 2011 (which is regarded as the most reliable estimate of the population by ethnic group) and then apply the projected trends in population to this base year.

The database of projected population by ethnic group, gender, region/nation and five-year age group (within the age range 16 to 64) for each year from 2001 to 2022 was created from the average of the TREND and UPTAP-ER projections by:

1. Calculating the ratio of the projected population for year 2011+t (where t runs from -10 to +11) to the projected population in 2011.
2. Multiplying this against the 2011 Census population to give an estimate of the population in year 2011+t (for each age group, gender and ethnic group). This step is repeated for each year in order to create a time-series for 2001 to 2022. The population for 2011 is thus the Census estimate.

Some manipulation and estimation of data was necessary in order to undertake the first step. Census of Population 2011 Detailed Characteristics Table DC2101 was extracted for regions in England and the nations of Wales, Scotland and Northern Ireland. This table contains the number of people by five-year age group, ethnic group and gender. The design of the table differs slightly from the England and Wales version in both Scotland and Northern Ireland, mainly due to differences in ethnic classification between the three Censuses. In Scotland and Northern Ireland, there is only one group for people of mixed parentage, compared to four in England and Wales. Additionally, the White British and White Other ethnic groups are not distinguished in Northern Ireland. Ratios were calculated for the 'mixed parentage' group in Scotland and Northern Ireland and the white group in Northern Ireland by summing the total in the ETHPOP projections and taking the ratio of this quantity to the Census estimate. The ratio for the aggregate grouping was applied to each of the component parts of the ETHPOP projections.

A further challenge arose due to differences in the Census ethnic group question between 2001 and 2011. The ETHPOP projections use the 2001 Census 16-fold ethnic group classification employed in England and Wales. The 2011 Census ethnic group classification differs through the addition of two categories: 'White: Gypsy and Irish Traveller' and 'Other ethnic groups: Arab". The two classifications were reconciled by adding the "White: Gypsy

and Irish Traveller' to the 'White-Other' category and adding the 'Other ethnic groups: Arab' category to the 'Other ethnic groups: Other' category in the 2011 Census data.

Another complication for Northern Ireland was that age groups were slightly different to the rest of the UK. There were only two ten-year age groups for the age range 45 to 64 (i.e. 45-54 year olds and 55-64 year olds). Hence, five-year population totals were created by dividing the population in each ten-year age group in half and allocating half the population to each 5-year age group.

The ratios of projected population for a given year to population in 2011 were applied to the adjusted Census data for 2011. This yielded a set of population projections by gender and 5-year age group for the 2001 ethnic group classification for the regions of England, and the nations of Wales, Scotland and Northern Ireland for each year from 2001 to 2022. The calculations were only performed for age groups within the range 16 to 64 in each year.

4.2 Method for projecting aggregate employment by ethnic group

There were three steps involved in generating projections of employment by ethnic group:

1. Using annual data from the LFS, employment rates (the share of individuals in employment) for each ethnic group (by gender and geography) were calculated. This can be denoted for a particular ethnic group (*eth*) and gender (*sex*) in a particular region/area (*geog*) at time *t* as:

$$\widehat{emprate}_{eth,sex,geog,t}.$$

   A logarithmic function was fitted to the time series of employment probabilities. This predicted the employment rate for a particular ethnic group (eth) and gender (sex) at time t. In order to smooth the series, the logarithm function was fitted for the period 2001 to 2022.

2. The appropriate employment rate for each ethnic group and gender in each geography was applied to the projection of working age population for the particular group ($\widehat{pop}_{eth,sex,geog,t}$ for each period *t*) as below:

$$\widehat{pop}_{eth,sex,t} \times \widehat{emprate}_{eth,sex,t} = \widehat{emp}_{eth,sex,t}$$

   Where $\widehat{pop}_{eth,sex,t}$ represents the estimated working population of ethnic group *eth* and gender *sex* at time *t* and $\widehat{emp}_{eth,sex,t}$ is the estimated number of people between the ages of 16 and 64 years in employment within ethnic group *eth* and of gender *sex* at time *t*.

3. In order to ensure the projections of employment by ethnic group are constrained within the overall projections set out in Working Futures an adjustment was made to the employment figures generated in the previous step. The total employment across all ethnic groups within a region and for each gender was calculated as:

   $\sum_{eth=i}^{j} \widehat{emp}_{eth}$ for each gender within each geography at time *t*

   and the share of this total employment by ethnic group ($S_{eth,t}$), by gender and ethnicity, for each year was calculated as:

$$S_{eth,t} = \frac{\widehat{emp}_{eth,t}}{\sum_{eth=i}^{j} \widehat{emp}_{eth,t}}$$ for each gender within each geography.

   These shares were then applied to the respective Working Futures total employment figure for each gender within each geographical area in order to produce a figure of

employment for each ethnic group (by gender and geography) in each year from 2001 to 2022.

4.3 Method for projecting employment by occupation and by industry

Breaking down aggregate employment projections by industry and occupation required further assumptions and analysis, especially in using the LFS data. Unsurprisingly, problems were encountered with these further breakdowns, especially in particular geographies where there are gaps in the data on occupations and industries for certain ethnic groups. Results have been obtained for the largest geographical areas, i.e. London, England (excluding London) and the UK, but when an analogous approach to analysing the data and producing the projections was undertaken for the remaining geographical areas (Wales, Scotland and Northern Ireland), the results produced were unsatisfactory. In the devolved nations, results were obtained only for white ethnic group and all ethnic minorities.

The main steps in producing projections of employment by industry or occupation were as follows:

1. Using LFS data from 2001 to 2013, the shares of employment within each industry (occupation) for each gender by geographical area were calculated.
2. A logarithmic function[1] was fitted to the time-series and this was used to extrapolate over the period 2014 to 2022.
3. Using the total employment figures for each ethnic group by gender in each geographical area, the actual and projected shares of employment for each industry (occupation) was applied in order to produce a figure for employment for each industry (occupation).
4. The industry (occupation) employment figures were then used to calculate each ethnic group's share of total employment in a particular industry (occupation) by gender and geography. The sum of all ethnic group shares of employment in industry (occupation) 1, for example, was equal to 100 per cent.
5. These ethnic group shares were then applied to the employment figures for each industry (occupation) (by gender and geography) contained in the Working Futures projections. This provided an estimated figure for employment by industry (occupation) for each ethnic group, by gender and geography.

Analysis of employment patterns for detailed ethnic groups by region and gender sometimes proved problematic due to small cell sizes. It proved not to be possible to break down employment for the nine SOC major groups, especially for regions and nations with small samples. Therefore, in the final set of projections, three occupational groups were used which broadly correspond to occupations with high, intermediate and low pay levels. On the industry dimension, the problem of empty/small cells also led to the decision to only present results for the six broad sectors used by Working Futures 5.

For Wales, Scotland and Northern Ireland, a number of issues arose in trying to carry out the above procedure to produce figures for 2001 to 2013 and the projections for 2014 to 2022. In analysing the LFS data it was apparent that for these smaller geographies, there were insufficient observations for all ethnic groups across all time periods. These gaps in the time series of employment by occupation resulted in the analysis being unsatisfactory as it was not possible to discern a pattern for some ethnic groups of how occupational structure has been changing over time. The problems were more acute for particular groups which do not represent large shares of employment in these geographies – this was especially apparent when taking men and women's employment separately, and where the occupation and / or industry was not recorded. Table 5 highlights the main areas of difficulty.

[1] For the analysis of employment by industry, rather than occupation, a moving average over 4 periods (3 in some cases where data did not permit use of four years) was used in order to extrapolate the shares to 2022 as the data did not exhibit any strong patterns of change over time.

Table 5: Most problematic gaps in occupational data for Wales, Scotland and Northern Ireland

Country	Gender	Most problematic groups	Nature of problem(s)
Wales	Male	Pakistani, Bangladeshi, Chinese, Black (Caribbean, African, Other), Other Asian	Empty cells; inconsistent series (gaps in years)
	Female	Pakistani, Bangladeshi, Black Caribbean, Black (Caribbean, African, Other), Other Asian	Empty cells; inconsistent series (gaps in years)
Scotland	Male	Mixed Parentage, Bangladeshi, Other Asian, Black	Empty cells; inconsistent series (gaps in years)
	Female	Mixed Parentage, Bangladeshi, Other Asian, Black, Other Ethnic Groups	Empty cells; inconsistent series (gaps in years)
Northern Ireland	Male	All excluding White	Empty cells; inconsistent series (gaps in years)
	Female	All excluding White	Empty cells; inconsistent series (gaps in years)

A number of different options were considered (and tried) in order to get a sense of how the occupational structure of employment might evolve in these geographies for different ethnic groups including aggregating occupations to increase cell sizes and using moving averages (or alternative functions) to analyse the data and extrapolate to 2022. While the aim was to avoid aggregating ethnic groups, it proved possible only to use the White/ethnic minority breakdown in these three countries.

5. REGRESSION MODELS OF THE FACTORS INFLUENCING ECONOMIC ACTIVITY AND EMPLOYMENT BY ETHNIC GROUP

The initial intention in this research was to project employment by ethnic group by applying the parameters from a regression model of the relationship between employment and a number of explanatory variables to the population projections by region and nation. Unfortunately, the problems of sample size discussed in chapter 4 meant that insufficient statistically significant parameter estimates were obtained for this approach to be employed. Hence the simpler approach described in the preceding chapter was used. This chapter presents the results of the regression modelling exercise.

Theoretical background

Empirical evidence shows that a number of variables affect labour market status in a significant way. For example, female economic activity and employment rates tend to be lower than those of males. These rates also vary with age, first increasing with increasing age, then decreasing as retirement age is reached. Participation and employment rates vary by ethnic group, tending to be higher for white people and lower for ethnic minorities, with great variation between ethnic minority groups. There are also geographical variations, with these rates being highest in more prosperous and more central regions and lower in peripheral and poorer regions. People with higher levels of educational qualification tend to have higher levels of attachment to the labour market, while participation may be lower for married women (especially for those ethnic groups where women tend to withdraw from the labour force upon marriage) and may also be deterred by the need to care for dependent children or others. The influence of foreign birth may vary by ethic group. Some migrant groups may be more likely to participate in the labour market (e.g. Eastern Europeans), while other may be less likely to be economically active (e.g. some South Asian ethnic groups).

A number of econometric studies have used Labour Force Survey or similar large household surveys in order to analyse the factors underlying differential labour market participation by ethnic groups of ethnic minority employment (e.g. Battu, and Mwale, 2004; Clark and Drinkwater [1998, 2002, 2007, 2010]; Ahmed and Dale, 2007; Lindley, 2005; Dex et al., 2007). Key factors identified in these studies include whether born in the UK (Christian and Fabbri, 2005); gender (Ahmed and Dale, 2007, Lindley et al., 2006, Dale et al., 2006, Dale et al., 2008); education – i.e. education within or outside UK or level of highest qualification (Christie and Shannon, 2001); family background (i.e. marital status or number of dependent children: Dale, 2008, Lindley et al., 2004, Dale, 2005, Dex et al., 2005) and region (Robson, 2009). While ethnic minorities on the whole have lower economic activity and employment rates than White people, and men have higher rates than women in most ethnic groups, these differentials vary by ethnic group.

Estimating the models

The probability of an individual from an individual ethnic group, gender and age group participating in the labour market or being employed was estimated using multinomial logistic regression models. The multinomial logit model is appropriate where there are more than two possible discrete outcomes, treating all outcomes equally and assuming they have no natural ordering. The model predicts the probabilities of each possible outcome of a categorically distributed dependent variable for a given set of independent variables. A reference outcome group must be selected against which the probability of other outcomes is compared. For example, if there are three possible outcomes A, B and C, we may select A as the reference group and the multinomial logit regression will produce two sets of results as if two logit regressions were performed, one for comparing the probability of outcome B

compared to A and one for comparing the probability of outcome C compared to A. Selection of the reference category does not affect the prediction of probabilities of each outcome. Three labour market states were considered for each individual: employed, unemployed or economically inactive. The third of these is the 'reference category' against which the probability of being in the other two states (which together represent people in the labour market) is estimated. The analysis was undertaken using LFS data, restricted to individuals in the first wave in order to exclude duplication.

The independent variables included in the regression models were: age, age squared, gender, whether born in the UK, whether educated in the UK, number of dependent children under 16, region, highest qualification, marital status, year dummies and an interaction term between gender and region (Table 6).

Table 6: Definition of independent variables

Variable	Definitions and coding
Age	Continuous variable from 16 to 64
Age squared	Continuous variable from 256 to 4096
Gender	1. Male (base category) 2. 2. Female
Region or nation	1. North East 2. North West 3. Yorkshire and the Humber 4. East Midlands 5. West Midlands 6. East of England 7. London (base category) 8. South East 9. South West 10. Wales 11. Scotland 12. Northern Ireland
Highest qualification	0. Entry level 1. GCSE, grades D to G 2. GCSE. Grades A* to C 3. A-Level 4. Diploma, Certificate of HE 5. Foundation degree 6. Undergraduate degree 7. Postgraduate degree 8. PhD and above (base category)
Born in the UK	0. Not born in the UK (base category) 1. Born in the UK;
Educated in the UK	1. Educated in the UK (base category) 2. No formal education 3. Wholly non-UK education 4. Partly non-UK education
Number of dependent children	Continuous variable from 0 to 11
Marital status	0. Not married (base category) 1. Married;
Year dummies	Year dummies (base category: first year)
Interaction terms	Gender by region dummies to differentiate gender differences between male and female in each region.
Calendar quarter	1 to 4; base=1 (January to March).

The three categories of the dependent variable are as follows:

- *Employed*: this category includes employed people who are in paid work and self-employed people; people on government-supported training and employment schemes; and those doing unpaid family work. In general, people who carry out at least one hour's paid work in a week, or who is temporally away from a job is in employment.
- *ILO unemployed*: the International Labour Organisation (ILO) defines the unemployed people as people who are without a job, want a job, have actively sought work in the last four weeks and are available to start working in the next two weeks; or people who are out of work but have found a job and are waiting to start it in the next two weeks. The UK LFS uses the same unemployment measure.
- *Economically inactive*: people who are out of work but have not actively sought work in the last four weeks and/or are not available to start working in the next two weeks are classified as economically inactive. Alternatively, people who are out of work but do not meet the criteria of unemployment are economically inactive.

Two sets of results were obtained: the probability of being employed against the probability of being economically inactive, and the probability of being unemployed against the probability of being economically inactive. The probability of being economically active is the sum of the probability of being employed plus the probability of being unemployed. Because of changes in the ethnic group classification and differences in this classification within the UK, separate regressions were estimated for the UK over the period 1994 to 2011 (for 9 ethnic groups) and for England over the period 2001 to 2011 (for 12 ethnic groups) [2].

Table 7: Sample sizes for of each ethnic group in the regressions

England 2001-2011	*Number*	*Percentage*	*UK 1994-2011*	*Number*	*Percentage*
White British	438877	84.47	White	1094243	92.15
White other	24689	4.75			
Mixed parentage	3762	0.72	Mixed parentage	6343	0.53
Asian - Indian	13137	2.53	Asian – Indian	23284	1.96
Asian - Pakistani	8902	1.71	Asian - Pakistani	15081	1.27
Asian - Bangladeshi	3081	0.59	Asian - Bangladeshi	5105	0.43
Asian - Chinese	2672	0.51	Asian - Chinese	4850	0.41
Asian - Other	4425	0.85	Asian - Other	6890	0.58
Back Caribbean	5704	1.10	Black	22461	1.89
Black African	6645	1.28			
Black other	578	0.11			
Other ethnic groups	7109	1.37	Other ethnic groups	9264	0.78
Total	519581	100.00	Total	1187521	100.00

Note: the sample includes respondents with complete information only. Source: Labour Force Survey.

Table 7 shows the sample size of each ethnic group at England and UK levels, after dropping all individuals with one or more missing values for any of the variables included in equation (1). White British comprise 84 per cent of the sample for England, while the White group (White British and White other) makes up over 92 per cent of the UK sample. The Indian group is the second largest group following the White groups representing around 2 per cent in the UK and 2.5 per cent in England. The Black Other group has the smallest population compared to other ethnicity groups. The groups of Mixed parentage, Bangladeshi, Chinese, Any other Asian and Black other all form less than one per cent each of the sample. The Pakistani, Black Caribbean and Black African, and other ethnic groups are also small, with just over one per cent each. For many groups, the sample size for less

[2]Data for the first quarter of 2006 is not available, as this is the changeover point from seasonal to calendar quarters. All data prior to 2006 has been converted to calendar quarters by the ONS.

populous regions is extremely small. Thus, caution needs to be taken when interpreting regression results from the small groups as their sample size in LFS might not be large enough to represent the behaviour of their whole population in the UK or in England.

Results

The results for England and the UK are presented in Tables 8 to 15. These tables do not present conventional regression outputs, because the coefficients from a multinomial regression cannot be interpreted in the same way as the coefficients of a linear regression (because of their non-linear nature). Instead, the relative risk ratio and the level of statistical significance is presented. The relative risk ratio for any level of an independent variable is the ratio of the probability of an outcome to the probability for the reference category. For example, in Table 8, the relative risk associated with being born in the UK is 1.816 in the employed versus inactive comparison, it means people who were born in the UK have 1.816 times higher chance of being employed compared to people who were not born in the UK.

Common patterns

Some similar trends across ethnic groups can be identified. The most common factors determining employment and unemployment are age, dependent children, gender and marital status, at both the England and UK levels. All the regression analyses show that the probability of being economically active, compared to the probability of being inactive, first increases with age until a certain age and then starts to decrease with age. The South and East Asian ethnic groups (Chinese, Indian, Bangladeshi, Asian other and Pakistani groups) in general have a steeper age and employment rate profile which means their employment rates increase faster with age in the younger age range compared to other ethnic groups. People having more dependent children are less likely to be employed or unemployed, and are more likely to be inactive. For most ethnic groups, women have lower economic activity rates than men except the Black other group which shows no gender difference. Being born in the UK tends to increase the chances of being employed and being unemployed, except for the Indian, Bangladeshi, Black Caribbean and Black other groups. It does not seem to affect the Chinese group's unemployment rate either. Married people exhibit higher employment probabilities for all but the Bangladeshi and Chinese ethnic groups and the likelihood of unemployment is higher for all but the Indian, Asian Other, Black Caribbean and Black African groups.

Variations between ethnic groups

Significant variations were observed across ethnic groups for most of the factors considered. At the *England* level, the White British and the White other group had the most statistically significant coefficients compared to other ethnic groups, while the Black other group has the fewest significant coefficients. This is due to the much larger sample size of the White groups and the relatively small number of observations available for estimating models for the Black other group. Turning to individual independent variables, having been educated outside the UK (either wholly or partly) benefits the White British, White Other, Mixed parentage, Asian other, Black African and other ethnicity groups in terms of increasing their chances of being economically active. Regional differences are the most significant for the White British, Pakistani and White Other group where London (the base category) tends to be associated with lower employment rates compared to other regions, except the North East and North West for the White British and White Other. Qualifications also affect people's economic activity in different ways. Higher qualification is found to be consistently correlated with higher chance of being employed for the White British, White Other, Indian, Pakistani, Chinese, Asian other, Black African, other ethnicity groups although significant changes in the employment rates start at different level of highest educational qualification. For the White British, employment rates of people having NQF8 and NQF7 are not

significantly different, but employment rates of people having a qualification lower than NQF6 starts to decrease significantly. For the White Other and the Chinese group, it is always the case that higher NQF levels lead to higher employment rates. For the Indian and Asian other group, once the level of qualification is higher than NQF3, the chance of being employed stays the same. Similarly, for the Pakistani, Black other and other ethnicity groups, their employment rate starts to stabilise once the qualification gets above NQF4. The probability of being unemployed is less affected by qualification levels, except for the White Other and Other ethnic groups where higher qualification does lead to higher chance of unemployment compared to chance of inactivity. Coefficients on the time trend dummies reveal that employment rates for most of the ethnic groups changed little or did not show any consistent changes over the period of 2001 to 2011. These were statistically insignificant and inconsistent for most of the ethnic groups, except the White British and White Other groups. The employment rate of the White British group remained similar from 2001 until 2007, and started to decrease significantly as the economic crisis broke out in 2008. However, the White other group did not get hit by the crisis and has presented a consistently increasing employment rate since 2003. The unemployment rates of the two groups are similar after the economic crisis and have been increasing in recent years showing more people in these groups are looking for a job actively.

The employment regression for the Black Other group at the England level did not converge when the inactive category is used as the base outcome, thus the base outcome for this regression is the unemployed category. This was a consequence of small sample size (only 712 observations). The small sample sizes for a number of ethnic groups resulted in the regression coefficients estimated being statistically insignificant.

Goodness of fit

Goodness of fit statistics are used to evaluate how well a model fits a set of data, but conventional measures such as R^2 cannot be applied to logit models and multinomial logit models. Statistical packages such as Stata and SPSS calculate a “Pseudo R squared” measure, but this is not as accurate as the R^2 measure for linear models. Pseudo R squared values for each ethnic group regression, together with detailed regression outputs for each ethnic group are presented for each regression in Table 16. The generalised Hosmer–Lemeshow goodness-of-fit test (Fagerland and Hosmer, 2012) offers another approach to testing goodness-of-fit. This test is not reported, but confirms a reasonably good degree of fit to the data. The Chi-square statistic was also statistically significant for all models. However, despite this, the coefficients estimated for smaller ethnic groups were unstable and they could not be used to project employment and participation rates forward.

Table 8: England: Regression model for the probability of employment relative to economic inactivity (part 1)

	White British		White-Other		Mixed parentage		Indian		Pakistani		Bangladeshi	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
Age	1.359	0.000	1.375	0.000	1.306	0.000	1.613	0.000	1.462	0.000	1.564	0.000
Age squared	0.996	0.000	0.996	0.000	0.997	0.000	0.994	0.000	0.995	0.000	0.994	0.000
Born in the UK	1.816	0.000	1.269	0.029	2.458	0.004	1.251	0.111	1.527	0.003	1.006	0.977
UK-educated	0.229	0.000	0.359	0.000	0.490	0.148	0.336	0.000	0.510	0.001	0.281	0.000
Educated partly non-UK	1.521	0.000	1.307	0.011	3.019	0.001	0.869	0.291	0.876	0.343	0.625	0.027
Educated wholly non-UK	1.687	0.000	1.023	0.833	2.276	0.014	0.998	0.990	1.239	0.132	1.010	0.962
Dependent children	0.671	0.000	0.602	0.000	0.710	0.000	0.747	0.000	0.799	0.000	0.778	0.000
Region/nation dummy												
North East	0.741	0.000	0.495	0.000	1.648	0.234	0.433	0.002	1.641	0.054	1.585	0.302
North West	0.874	0.000	0.942	0.574	1.167	0.479	1.056	0.689	1.504	0.001	1.925	0.006
Yorkshire & Humber	0.998	0.941	1.111	0.391	1.336	0.242	1.029	0.861	1.732	0.000	0.791	0.484
East Midlands	1.157	0.000	1.436	0.002	1.074	0.777	1.245	0.053	1.981	0.001	1.670	0.252
West Midlands	1.159	0.000	1.033	0.789	1.308	0.246	1.067	0.538	1.532	0.001	1.142	0.577
East of England	1.435	0.000	1.480	0.000	1.871	0.007	2.143	0.000	1.826	0.001	1.359	0.270
South East	1.380	0.000	1.663	0.000	1.946	0.001	1.717	0.000	2.209	0.000	3.482	0.002
South West	1.213	0.000	1.217	0.056	1.771	0.075	1.784	0.040	3.024	0.102	2.079	0.159
Highest qualification												
Postgraduate degree	0.999	0.993	0.577	0.010	0.789	0.728	0.824	0.624	0.419	0.131	0.000	0.985
Undergraduate degree	0.859	0.024	0.435	0.000	0.721	0.617	0.679	0.315	0.482	0.195	0.000	0.985
Foundation degree	0.788	0.000	0.479	0.001	0.544	0.363	0.813	0.602	0.453	0.175	0.000	0.983
Diploma, Certificate of HE	0.719	0.000	0.313	0.000	0.618	0.496	0.583	0.194	0.328	0.064	0.000	0.982
A-Level	0.548	0.000	0.290	0.000	0.325	0.081	0.315	0.003	0.154	0.001	0.000	0.983
GCSE. Grades A* to C	0.547	0.000	0.334	0.000	0.357	0.110	0.287	0.001	0.137	0.000	0.000	0.983
GCSE, grades D to G	0.466	0.000	0.306	0.000	0.307	0.067	0.256	0.000	0.126	0.000	0.000	0.983
Entry level	0.191	0.000	0.138	0.000	0.136	0.002	0.101	0.000	0.049	0.000	0.000	0.981
Female	0.472	0.000	0.369	0.000	0.724	0.029	0.376	0.000	0.166	0.000	0.113	0.000
Married	1.525	0.000	1.074	0.077	1.540	0.000	1.345	0.000	1.725	0.000	1.176	0.303
Year dummy												
2002	1.000	0.980	0.995	0.951	0.811	0.300	1.170	0.117	0.803	0.083	0.982	0.937
2003	0.975	0.142	1.163	0.063	1.006	0.977	1.205	0.073	0.844	0.193	1.096	0.672

Table 8: England: Regression model for the probability of employment relative to economic inactivity (part 1) (continued)

	White British	White-Other	Mixed parentage	Indian	Pakistani	Bangladeshi	1.123	0.269	0.878	0.306	0.848	0.498
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
2006	0.983	0.370	1.404	0.000	1.003	0.989	1.209	0.090	0.875	0.326	1.106	0.681
2007	1.018	0.315	1.466	0.000	0.788	0.212	1.279	0.018	0.884	0.321	0.848	0.475
2008	0.919	0.000	1.343	0.000	0.810	0.259	1.258	0.024	0.857	0.215	1.244	0.316
2009	0.853	0.000	1.261	0.003	0.876	0.486	1.034	0.748	0.882	0.315	1.108	0.638
2010	0.814	0.000	1.262	0.003	0.924	0.687	1.163	0.151	0.731	0.017	0.940	0.782
2011	0.820	0.000	1.470	0.000	0.648	0.027	1.000	0.997	0.814	0.147	0.975	0.914
Region/nation and female												
North East	1.303	0.000	1.881	0.015	0.707	0.545	1.549	0.248	0.737	0.405	0.488	0.256
North West	1.259	0.000	1.478	0.005	0.943	0.837	0.577	0.002	0.762	0.130	0.616	0.152
Yorkshire & Humber	1.161	0.000	1.322	0.078	1.289	0.434	0.853	0.448	0.552	0.001	1.775	0.233
East Midlands	1.069	0.090	1.032	0.835	1.136	0.706	0.877	0.373	0.537	0.030	1.200	0.755
West Midlands	1.016	0.676	1.301	0.100	1.082	0.789	0.991	0.948	0.583	0.003	0.938	0.850
East of England	0.865	0.000	1.064	0.589	1.131	0.695	0.580	0.023	0.786	0.342	0.476	0.086
South East	0.916	0.015	0.951	0.627	0.821	0.444	0.861	0.428	0.590	0.022	0.333	0.030
South West	1.074	0.067	1.412	0.008	0.900	0.796	0.670	0.267	0.209	0.056	0.480	0.296
Apr-Jun	0.981	0.113	1.045	0.384	1.043	0.735	0.932	0.324	1.002	0.977	0.826	0.192
Jul-Sep	1.014	0.258	1.028	0.582	1.049	0.693	1.066	0.354	1.025	0.758	0.886	0.414
Oct-Dec	0.992	0.525	0.967	0.492	1.395	0.007	0.976	0.726	1.130	0.130	0.943	0.693
Constant	0.040	0.000	0.057	0.000	0.032	0.000	0.002	0.000	0.019	0.000	6521.882	0.990

Table 9: England: Regression model for the probability of employment relative to economic inactivity (part 2)

	Chinese		Other Asian		Black-Caribbean		Black-African		Black-Other		Other ethnic group	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
Age	1.726	0.000	1.511	0.000	1.341	0.000	1.420	0.000	1.099	0.312	1.383	0.000
Age squared	0.994	0.000	0.995	0.000	0.996	0.000	0.996	0.000	0.999	0.631	0.996	0.000
Born in the UK	2.035	0.036	1.696	0.013	1.263	0.336	1.671	0.002	0.570	0.629	2.222	0.000
UK-educated	0.179	0.002	0.476	0.028	0.379	0.019	0.488	0.005	2680283	0.996	0.716	0.180
Educated partly non-UK	0.512	0.036	1.442	0.047	0.991	0.971	1.285	0.081	0.413	0.457	1.416	0.015
Educated wholly non-UK	0.670	0.212	1.415	0.077	1.015	0.951	1.245	0.155	0.658	0.731	1.315	0.072
Dependent children	0.781	0.000	0.693	0.000	0.680	0.000	0.710	0.000	1.040	0.818	0.669	0.000
Region/nation dummy												
North East	0.677	0.364	0.488	0.040	1.129	0.890	0.538	0.130	1828250	0.999	0.803	0.449
North West	0.903	0.684	0.824	0.427	0.797	0.327	1.094	0.667	0.475	0.317	0.779	0.097
Yorkshire & Humber	0.578	0.038	0.697	0.187	1.441	0.157	0.767	0.253	2.288	0.466	0.817	0.230
East Midlands	0.410	0.007	1.658	0.081	1.361	0.220	0.624	0.034	6437917	0.996	1.375	0.146
West Midlands	0.529	0.017	0.801	0.325	0.856	0.304	0.642	0.024	0.987	0.985	0.850	0.320
East of England	1.316	0.340	1.646	0.058	2.184	0.010	1.992	0.004	1.448	0.630	2.007	0.000
South East	1.118	0.655	1.677	0.007	1.445	0.115	2.602	0.000	9499004	0.990	1.848	0.000
South West	1.191	0.629	2.253	0.032	1.024	0.945	1.152	0.706	5.337	0.139	1.640	0.025
Highest qualification												
Postgraduate degree	0.353	0.030	0.768	0.650	1.737	0.617	0.331	0.138	0.000	0.997	0.739	0.363
Undergraduate degree	0.279	0.006	0.607	0.372	1.665	0.637	0.293	0.096	0.000	0.997	0.604	0.115
Foundation degree	0.312	0.017	0.509	0.231	1.193	0.870	0.406	0.223	0.000	0.997	0.612	0.134
Diploma, Certificate of HE	0.187	0.002	0.691	0.549	0.930	0.947	0.186	0.025	0.000	0.997	0.399	0.013
A-Level	0.237	0.002	0.301	0.031	0.761	0.799	0.129	0.005	0.000	0.997	0.357	0.001
GCSE. Grades A* to C	0.167	0.000	0.306	0.033	0.697	0.737	0.144	0.008	0.000	0.997	0.280	0.000
GCSE, grades D to G	0.179	0.000	0.256	0.014	0.526	0.548	0.099	0.002	0.000	0.997	0.277	0.000
Entry level	0.118	0.000	0.132	0.000	0.261	0.210	0.040	0.000	0.000	0.997	0.123	0.000
Female	0.413	0.000	0.304	0.000	0.668	0.000	0.436	0.000	0.904	0.794	0.344	0.000
Married	1.145	0.343	1.236	0.045	2.114	0.000	1.620	0.000	3.298	0.006	1.199	0.012
Year dummy												
2002	0.819	0.378	0.705	0.061	0.982	0.898	1.201	0.227	2.324	0.225	0.877	0.392
2003	1.036	0.882	1.184	0.383	1.251	0.126	1.374	0.039	1.143	0.838	1.159	0.347

Table 9: England: Regression model for the probability of employment relative to economic inactivity (part 2) (continued)

	Chinese		Other Asian		Black-Caribbean		Black-African		Black-Other		Other ethnic group	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
2004	0.796	0.294	1.322	0.160	1.029	0.849	0.963	0.800	0.757	0.692	1.153	0.361
2005	0.966	0.890	0.972	0.889	1.029	0.860	1.444	0.028	0.899	0.866	1.147	0.384
2006	0.738	0.216	0.966	0.864	0.860	0.322	1.721	0.001	0.690	0.616	1.062	0.693
2007	0.802	0.325	1.073	0.696	1.068	0.651	1.704	0.000	0.872	0.828	1.245	0.135
2008	1.120	0.614	1.207	0.288	1.136	0.394	1.235	0.150	0.610	0.388	1.408	0.019
2009	0.982	0.940	1.093	0.626	1.011	0.941	1.090	0.556	0.447	0.194	1.175	0.280
2010	0.658	0.062	1.054	0.767	1.203	0.242	1.038	0.799	1.336	0.704	1.088	0.571
2011	0.695	0.140	1.037	0.850	0.878	0.443	1.135	0.412	0.608	0.428	1.287	0.113
Region/nation and female												
North East	1.439	0.553	2.804	0.034	0.549	0.633	1.997	0.240	2.535	1.000	0.940	0.878
North West	1.272	0.472	1.348	0.341	0.823	0.518	1.006	0.982	3.328	0.286	1.141	0.524
Yorkshire & Humber	1.510	0.255	1.304	0.458	1.112	0.756	1.474	0.209	0.853	0.925	1.420	0.138
East Midlands	1.505	0.347	0.930	0.846	0.840	0.585	2.234	0.008	0.000	0.996	0.876	0.646
West Midlands	1.556	0.247	1.430	0.225	1.192	0.376	1.628	0.070	0.499	0.514	1.242	0.345
East of England	0.843	0.639	0.993	0.983	0.626	0.203	0.687	0.203	1.663	0.646	0.870	0.563
South East	1.267	0.457	1.162	0.533	0.980	0.946	0.952	0.859	0.000	0.991	1.018	0.930
South West	1.331	0.547	1.298	0.572	1.190	0.704	1.121	0.811	0.130	0.125	1.167	0.595
Apr-Jun	1.229	0.160	0.910	0.423	0.927	0.479	0.928	0.449	0.801	0.651	0.847	0.057
Jul-Sep	1.338	0.039	0.892	0.317	0.990	0.922	0.990	0.916	0.907	0.837	0.964	0.665
Oct-Dec	1.339	0.039	1.043	0.715	1.007	0.944	0.969	0.743	1.057	0.907	0.880	0.135
Constant	0.001	0.000	0.004	0.000	0.020	0.001	0.017	0.000	7464905	0.997	0.016	0.000

Table 10: England: Regression model for the probability of unemployment relative to economic inactivity (part 1)

	White British		White-Other		Mixed parentage		Indian		Pakistani		Bangladeshi	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
Age	1.181	0.000	1.225	0.000	1.161	0.000	1.251	0.000	1.191	0.000	1.280	0.000
Age squared	0.997	0.000	0.997	0.000	0.998	0.000	0.997	0.000	0.998	0.000	0.997	0.000
Born in the UK	1.955	0.000	3.381	0.000	3.492	0.093	1.170	0.550	1.972	0.007	1.276	0.510
UK-educated	0.227	0.000	0.504	0.370	0.000	0.987	0.734	0.416	0.903	0.757	0.862	0.772
Educated partly non-UK	2.468	0.000	3.408	0.000	3.791	0.086	0.980	0.936	1.145	0.593	1.549	0.236
Educated wholly non-UK	2.462	0.000	2.404	0.007	3.589	0.096	0.949	0.842	1.571	0.077	1.958	0.063
Dependent children	0.785	0.000	0.707	0.000	0.875	0.047	0.830	0.000	0.832	0.000	0.928	0.150
Region/nation dummy												
North East	1.111	0.062	0.927	0.811	0.989	0.987	0.407	0.105	0.544	0.230	1.048	0.942
North West	0.917	0.076	0.980	0.918	0.879	0.702	1.332	0.181	1.236	0.279	1.336	0.363
Yorkshire & Humber	1.042	0.429	1.568	0.024	1.089	0.815	0.441	0.028	1.566	0.015	0.740	0.520
East Midlands	1.046	0.412	1.329	0.168	1.005	0.988	1.165	0.423	1.500	0.182	1.091	0.891
West Midlands	1.129	0.023	1.146	0.535	1.657	0.097	1.300	0.123	1.312	0.156	0.923	0.807
East of England	1.125	0.029	0.909	0.602	1.908	0.040	1.140	0.689	1.168	0.590	0.768	0.523
South East	1.096	0.072	1.307	0.083	1.085	0.787	1.169	0.530	1.029	0.919	0.728	0.648
South West	0.956	0.424	0.886	0.556	1.140	0.797	0.821	0.703	2.072	0.442	1.159	0.839
Highest qualification												
Postgraduate degree	0.940	0.702	0.524	0.088	0.597	0.614	0.979	0.973	0.501	0.456	10.231	0.999
Undergraduate degree	0.986	0.924	0.435	0.024	0.716	0.729	0.794	0.715	0.732	0.727	6.074	0.999
Foundation degree	0.845	0.287	0.396	0.017	0.393	0.365	0.968	0.960	0.758	0.766	1.567	1.000
Diploma, Certificate of HE	0.973	0.862	0.317	0.008	0.413	0.422	0.863	0.828	0.606	0.603	1.213	1.000
A-Level	0.721	0.031	0.353	0.004	0.355	0.279	0.403	0.150	0.327	0.209	2.223	1.000
GCSE. Grades A* to C	0.941	0.688	0.439	0.021	0.424	0.369	0.547	0.336	0.362	0.252	1.962	1.000
GCSE, grades D to G	1.190	0.250	0.402	0.011	0.583	0.571	0.511	0.283	0.535	0.480	2.311	1.000
Entry level	0.756	0.065	0.325	0.002	0.443	0.394	0.231	0.020	0.254	0.122	1.319	1.000
Female	0.399	0.000	0.368	0.000	0.602	0.028	0.492	0.000	0.283	0.000	0.094	0.000
Married	0.598	0.000	0.744	0.000	0.695	0.090	0.886	0.344	0.707	0.008	0.547	0.011
Year dummy												
2002	1.011	0.765	1.100	0.577	1.060	0.854	1.274	0.216	1.240	0.307	0.723	0.343
2003	0.900	0.007	0.982	0.923	1.045	0.889	1.490	0.043	0.895	0.636	0.762	0.405

Table 10: England: Regression model for the probability of unemployment relative to economic inactivity (part 1) (continued)

	White British		White-Other		Mixed parentage		Indian		Pakistani		Bangladeshi	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
2004	0.874	0.001	1.233	0.230	0.679	0.248	0.861	0.505	0.918	0.706	0.646	0.226
2005	0.903	0.021	1.384	0.071	0.980	0.951	1.378	0.136	0.904	0.683	1.438	0.290
2006	1.053	0.218	1.184	0.341	0.653	0.240	1.602	0.024	1.565	0.044	1.034	0.925
2007	1.003	0.936	1.455	0.022	0.672	0.214	1.239	0.298	1.039	0.858	0.775	0.449
2008	1.110	0.006	1.218	0.232	0.840	0.561	1.425	0.069	1.194	0.403	1.057	0.863
2009	1.503	0.000	1.393	0.043	1.003	0.991	1.363	0.116	1.488	0.054	1.155	0.643
2010	1.442	0.000	1.496	0.013	1.459	0.208	1.634	0.012	1.254	0.295	1.052	0.876
2011	1.522	0.000	1.558	0.015	1.061	0.845	1.460	0.071	1.659	0.025	1.013	0.969
Region/nation and female												
North East	0.976	0.773	1.390	0.515	0.336	0.389	3.841	0.046	0.638	0.616	1.083	0.936
North West	0.975	0.732	1.282	0.383	0.636	0.378	0.310	0.001	0.648	0.149	1.144	0.797
Yorkshire & Humber	0.993	0.928	1.134	0.659	1.217	0.694	1.336	0.543	0.474	0.010	2.081	0.351
East Midlands	1.070	0.404	1.001	0.998	1.286	0.622	0.784	0.371	1.226	0.628	2.244	0.370
West Midlands	0.984	0.834	1.395	0.282	0.754	0.504	0.758	0.249	0.740	0.295	2.404	0.071
East of England	0.928	0.346	1.361	0.213	0.866	0.753	1.020	0.962	1.007	0.988	1.348	0.665
South East	0.999	0.985	1.112	0.607	0.829	0.673	0.771	0.453	0.515	0.147	1.262	0.803
South West	1.066	0.438	1.732	0.048	0.947	0.936	0.776	0.734	0.000	0.978	0.760	0.830
Apr-Jun	0.944	0.025	0.950	0.629	0.858	0.471	1.018	0.894	1.116	0.417	1.113	0.647
Jul-Sep	1.093	0.000	1.124	0.247	1.284	0.208	1.286	0.050	0.930	0.577	1.271	0.302
Oct-Dec	1.054	0.036	0.954	0.640	1.567	0.025	1.125	0.370	0.874	0.314	1.402	0.146
Constant	0.024	0.000	0.014	0.000	0.029	0.008	0.015	0.000	0.040	0.002	0.005	0.998

Table 11: England: Regression model for the probability of unemployment relative to economic inactivity (part 2)

	Chinese		Other Asian		Black-Caribbean		Black-African		Black-Other		Other ethnic group	
	RRR	P>|z|	RRR	P>|z|	RRR	P>|z|	RRR	P>|z|	RRR	P>|z|	RRR	P>|z|
Age	1.441	0.000	1.216	0.000	1.149	0.000	1.263	0.000	0.715	0.001	1.207	0.000
Age squared	0.996	0.000	0.997	0.000	0.998	0.000	0.997	0.000	1.005	0.001	0.998	0.000
Born in the UK	1.979	0.293	2.542	0.022	1.033	0.932	1.517	0.096	1.025	0.985	1.993	0.022
UK-educated	0.321	0.333	2.277	0.085	0.453	0.161	0.818	0.583	39800000	0.995	1.388	0.425
Educated partly non-UK	0.474	0.243	2.472	0.018	0.751	0.479	1.450	0.101	0.907	0.943	1.617	0.079
Educated wholly non-UK	0.640	0.482	2.066	0.070	0.862	0.708	1.372	0.184	1.297	0.851	1.312	0.344
Dependent children	0.898	0.472	0.798	0.001	0.725	0.000	0.792	0.000	1.531	0.017	0.867	0.002
Region/nation dummy												
North East	0.838	0.829	0.192	0.115	0.000	0.988	0.896	0.835	0.285	1.000	0.149	0.065
North West	1.293	0.560	1.659	0.135	1.037	0.904	1.421	0.178	1.722	0.500	0.489	0.020
Yorkshire & Humber	0.297	0.066	2.089	0.041	1.678	0.104	0.999	0.997	0.000	0.991	1.001	0.996
East Midlands	0.561	0.391	1.771	0.184	1.067	0.852	0.434	0.019	21500000	0.995	1.418	0.288
West Midlands	0.480	0.218	2.013	0.020	0.874	0.510	0.710	0.201	0.438	0.355	1.309	0.261
East of England	1.034	0.952	0.460	0.218	2.760	0.005	1.055	0.874	0.383	0.318	0.974	0.939
South East	1.182	0.717	0.763	0.473	1.159	0.658	0.823	0.584	6938723	0.991	1.260	0.394
South West	1.249	0.748	1.029	0.966	0.569	0.340	0.549	0.319	0.413	0.557	1.282	0.486
Highest qualification												
Postgraduate degree	2.1E+06	0.991	1.034	0.972	419467	0.990	1.145	0.914	0.048	1.000	0.475	0.148
Undergraduate degree	1.7E+06	0.991	0.585	0.558	840208	0.990	1.138	0.917	0.251	1.000	0.433	0.087
Foundation degree	2.5E+05	0.992	0.450	0.395	740779	0.990	1.226	0.870	0.733	1.000	0.394	0.069
Diploma, Certificate of HE	2.0E+06	0.991	0.879	0.897	221867	0.991	0.644	0.728	0.473	1.000	0.459	0.176
A-Level	1.6E+06	0.991	0.403	0.318	556845	0.990	0.858	0.901	1.049	1.000	0.376	0.044
GCSE. Grades A* to C	1.6E+06	0.991	0.510	0.455	807069	0.990	0.950	0.967	0.509	1.000	0.261	0.005
GCSE, grades D to G	1.4E+06	0.991	0.458	0.385	705243	0.990	0.773	0.835	0.530	1.000	0.356	0.028
Entry level	8.5E+05	0.992	0.384	0.288	480127	0.990	0.498	0.573	0.705	1.000	0.208	0.001
Female	0.573	0.107	0.404	0.000	0.474	0.000	0.418	0.000	1.245	0.615	0.426	0.000
Married	0.474	0.016	0.877	0.495	0.843	0.276	1.105	0.394	3.304	0.014	0.720	0.010
Year dummy												
2002	0.987	0.981	0.516	0.048	1.366	0.166	0.966	0.885	1.639	0.512	0.857	0.611
2003	1.478	0.464	0.698	0.294	1.554	0.059	1.026	0.917	0.967	0.963	1.486	0.172

Table 11: England: Regression model for the probability of unemployment relative to economic inactivity (part 2) (continued)

	Chinese		Other Asian		Black-Caribbean		Black-African		Black-Other		Other ethnic group	
	RRR	P>|z|	RRR	P>|z|	RRR	P>|z|	RRR	P>|z|	RRR	P>|z|	RRR	P>|z|
2004	1.335	0.562	0.825	0.576	1.185	0.488	1.015	0.949	0.386	0.242	1.023	0.942
2005	1.209	0.735	0.792	0.507	1.542	0.099	1.416	0.168	0.595	0.462	1.292	0.388
2006	1.295	0.645	0.589	0.164	1.093	0.722	1.634	0.045	0.549	0.497	1.459	0.183
2007	1.332	0.575	0.903	0.734	1.214	0.426	1.272	0.308	0.680	0.581	1.456	0.173
2008	1.444	0.482	0.577	0.090	1.881	0.006	1.090	0.707	0.475	0.247	1.466	0.165
2009	1.203	0.735	0.698	0.266	1.905	0.004	1.690	0.014	1.124	0.855	1.372	0.264
2010	1.075	0.889	0.973	0.925	1.860	0.011	1.224	0.364	0.488	0.432	1.484	0.153
2011	1.091	0.878	0.963	0.906	2.251	0.001	2.035	0.001	0.598	0.460	1.729	0.059
Region/nation and female												
North East	0.000	0.994	11.917	0.035	1825664	0.988	1.188	0.838	67900000	0.999	6.010	0.123
North West	0.481	0.286	0.632	0.369	0.574	0.249	0.531	0.120	1.455	0.752	1.685	0.211
Yorkshire & Humber	0.551	0.628	0.321	0.080	0.325	0.055	1.120	0.788	7475191	0.991	0.951	0.905
East Midlands	1.408	0.700	1.089	0.884	0.973	0.954	3.653	0.005	0.000	0.995	0.673	0.423
West Midlands	1.509	0.641	0.277	0.024	1.202	0.531	1.400	0.387	4.136	0.232	0.770	0.499
East of England	1.031	0.967	2.552	0.204	0.184	0.006	0.414	0.095	1.648	0.715	1.754	0.190
South East	0.612	0.462	1.539	0.377	1.081	0.869	1.818	0.179	0.000	0.991	0.868	0.710
South West	0.000	0.990	1.663	0.548	0.977	0.978	1.323	0.732	0.974	0.988	1.647	0.298
Apr-Jun	2.204	0.016	1.319	0.202	0.847	0.320	0.998	0.991	1.819	0.274	0.875	0.404
Jul-Sep	1.651	0.131	1.186	0.429	1.033	0.836	1.027	0.855	1.129	0.822	1.033	0.833
Oct-Dec	2.069	0.025	1.120	0.608	1.173	0.304	0.873	0.355	0.727	0.556	0.983	0.912
Constant	0.000	0.986	0.014	0.001	0.000	0.988	0.007	0.000	370.766	0.999	0.025	0.000

Table 12: UK: Regression model for the probability of employment relative to economic inactivity (part 1)

	White		Mixed parentage		Indian		Pakistani		Bangladeshi	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
Age	1.332	0.000	1.295	0.000	1.546	0.000	1.440	0.000	1.498	0.000
Age squared	0.996	0.000	0.997	0.000	0.995	0.000	0.995	0.000	0.995	0.000
Born in the UK	1.752	0.000	2.257	0.001	1.483	0.000	2.166	0.000	1.196	0.313
UK-educated	0.195	0.000	0.415	0.038	0.478	0.000	0.561	0.000	0.307	0.000
Educated partly non-UK	1.405	0.000	2.128	0.003	0.928	0.434	1.178	0.126	0.673	0.020
Educated wholly non-UK	1.381	0.000	1.873	0.012	1.228	0.036	1.890	0.000	1.333	0.087
fdpch16	0.672	0.000	0.677	0.000	0.791	0.000	0.806	0.000	0.813	0.000
Region/nation dummy										
North East	0.689	0.000	1.847	0.129	0.496	0.002	1.647	0.022	1.842	0.077
North West	0.827	0.000	1.181	0.344	0.742	0.003	1.320	0.005	1.950	0.000
Yorkshire & Humber	0.951	0.009	1.242	0.265	1.135	0.317	1.363	0.001	0.706	0.161
East Midlands	1.150	0.000	1.145	0.524	1.161	0.085	1.649	0.003	1.819	0.109
West Midlands	1.168	0.000	1.308	0.151	0.975	0.737	1.334	0.003	1.373	0.071
East of England	1.386	0.000	1.942	0.000	1.304	0.037	1.517	0.004	1.273	0.264
South East	1.399	0.000	2.048	0.000	1.601	0.000	2.090	0.000	2.874	0.000
South West	1.203	0.000	1.523	0.095	1.470	0.085	1.628	0.227	3.176	0.014
Wales	0.733	0.000	0.681	0.181	0.847	0.573	1.833	0.046	2.376	0.014
Scotland	0.849	0.000	0.873	0.627	0.816	0.343	1.541	0.007	1.191	0.791
Northern Ireland	0.794	0.000	1.005	0.993	4.630	0.143	3.077	0.304	3650949	0.996
Highest qualification										
Postgraduate degree	0.933	0.166	0.806	0.679	0.681	0.204	0.545	0.185	0.000	0.983
Undergraduate degree	0.757	0.000	0.713	0.496	0.537	0.033	0.528	0.150	0.000	0.983
Foundation degree	0.691	0.000	0.620	0.346	0.592	0.081	0.540	0.181	0.000	0.982
Diploma, Certificate of HE	0.656	0.000	0.503	0.191	0.446	0.009	0.385	0.040	0.000	0.981
A-Level	0.440	0.000	0.345	0.030	0.237	0.000	0.201	0.000	0.000	0.981
GCSE. Grades A* to C	0.456	0.000	0.390	0.055	0.233	0.000	0.174	0.000	0.000	0.981
GCSE, grades D to G	0.409	0.000	0.315	0.019	0.223	0.000	0.164	0.000	0.000	0.981
Entry level	0.173	0.000	0.139	0.000	0.093	0.000	0.070	0.000	0.000	0.980
Female	0.431	0.000	0.715	0.002	0.349	0.000	0.167	0.000	0.112	0.000
Married	1.555	0.000	1.736	0.000	1.490	0.000	1.642	0.000	1.175	0.182

Table 12: UK: Regression model for the probability of employment relative to economic inactivity (part 1) (continued)

	White		Mixed parentage		Indian		Pakistani		Bangladeshi	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
Year dummy										
1994	0.990	0.495	0.791	0.285	1.034	0.752	0.722	0.030	0.617	0.084
1995	1.040	0.005	0.927	0.722	0.910	0.369	0.681	0.010	0.543	0.027
1996	1.003	0.812	1.124	0.584	0.843	0.103	0.833	0.205	1.181	0.525
1997	0.991	0.528	1.037	0.862	0.911	0.371	0.801	0.122	0.680	0.145
1998	1.022	0.122	1.001	0.995	0.874	0.191	0.789	0.096	0.491	0.005
1999	1.040	0.007	1.103	0.650	0.883	0.233	0.780	0.076	0.557	0.019
2000	1.042	0.010	1.130	0.593	0.894	0.347	0.836	0.228	0.567	0.036
2001	1.048	0.001	1.145	0.509	0.743	0.004	0.796	0.096	0.569	0.020
2002	1.061	0.000	0.941	0.769	0.885	0.235	0.660	0.002	0.586	0.031
2003	1.037	0.014	1.212	0.350	0.903	0.338	0.663	0.003	0.632	0.056
2004	1.073	0.000	1.260	0.253	0.845	0.115	0.708	0.011	0.557	0.023
2005	1.094	0.000	1.200	0.400	0.900	0.357	0.711	0.019	0.728	0.237
2006	1.091	0.000	1.269	0.267	0.925	0.493	0.718	0.020	0.616	0.062
2007	1.103	0.000	0.962	0.845	0.974	0.805	0.730	0.018	0.496	0.005
2008	1.012	0.424	0.980	0.918	0.966	0.736	0.686	0.004	0.749	0.224
2009	0.937	0.000	1.021	0.917	0.801	0.036	0.735	0.021	0.654	0.076
2010	0.906	0.000	1.051	0.806	0.901	0.329	0.600	0.000	0.569	0.022
2011	0.910	0.000	0.768	0.169	0.754	0.008	0.689	0.007	0.583	0.025
Region/nation and female										
North East	1.358	0.000	0.556	0.263	1.321	0.373	0.775	0.403	0.747	0.549
North West	1.286	0.000	0.875	0.558	0.740	0.021	0.800	0.109	0.565	0.037
Yorkshire & Humber	1.227	0.000	1.195	0.483	0.839	0.273	0.649	0.001	1.749	0.136
East Midlands	1.079	0.004	0.841	0.533	0.897	0.332	0.727	0.171	0.927	0.878
West Midlands	1.014	0.585	1.000	1.000	1.080	0.436	0.609	0.000	0.975	0.921
East of England	0.891	0.000	0.879	0.603	0.879	0.427	0.774	0.208	0.622	0.161
South East	0.914	0.000	0.633	0.028	0.868	0.339	0.513	0.000	0.439	0.028
South West	1.080	0.003	0.920	0.794	0.963	0.898	0.472	0.155	0.518	0.282
Wales	1.294	0.000	1.183	0.646	1.020	0.957	0.941	0.883	0.690	0.463
Scotland	1.293	0.000	1.169	0.683	1.259	0.427	0.723	0.139	0.435	0.390

Table 12: UK: Regression model for the probability of employment relative to economic inactivity (part 1) (continued)

	White		Mixed parentage		Indian		Pakistani		Bangladeshi	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
Northern Ireland	1.014	0.669	1.165	0.869	0.380	0.406	0.077	0.107	0.000	0.994
Apr-Jun	1.000	0.980	1.068	0.469	0.989	0.834	0.987	0.840	0.853	0.149
Jul-Sep	1.039	0.000	1.033	0.717	1.114	0.030	1.046	0.458	0.934	0.545
Oct-Dec	1.008	0.278	1.211	0.036	1.021	0.675	1.103	0.107	0.927	0.498
Constant	0.074	0.000	0.037	0.000	0.007	0.000	0.019	0.000	24326	0.987

Table 13: UK: Regression model for the probability of employment relative to economic inactivity (part 2)

	Asian Other		Black		Chinese		Other	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
Age	1.644	0.000	1.490	0.000	1.377	0.000	1.383	0.000
Age squared	0.994	0.000	0.995	0.000	0.996	0.000	0.996	0.000
Born in the UK	2.473	0.000	2.031	0.000	2.034	0.000	2.517	0.000
UK-educated	0.179	0.000	0.321	0.000	0.364	0.000	0.602	0.024
Educated partly non-UK	0.492	0.001	1.224	0.204	1.067	0.484	1.296	0.044
Educated wholly non-UK	0.744	0.184	1.577	0.007	1.210	0.049	1.321	0.041
fdpch16	0.817	0.000	0.679	0.000	0.703	0.000	0.678	0.000
Region/nation dummy								
North East	0.966	0.916	0.459	0.011	0.664	0.176	0.648	0.079
North West	0.874	0.474	0.653	0.024	0.915	0.446	0.707	0.012
Yorkshire & Humber	0.586	0.014	0.736	0.191	1.153	0.267	0.850	0.295
East Midlands	0.487	0.004	1.557	0.073	1.029	0.823	1.178	0.419
West Midlands	0.637	0.032	0.742	0.125	1.066	0.485	0.839	0.252
East of England	1.138	0.534	1.479	0.079	2.164	0.000	1.859	0.001
South East	1.114	0.570	1.592	0.003	2.034	0.000	1.750	0.000
South West	1.197	0.557	1.869	0.050	1.839	0.002	1.664	0.015
Wales	1.220	0.521	0.724	0.400	1.289	0.423	1.422	0.149
Scotland	1.042	0.856	0.671	0.195	1.307	0.282	0.558	0.004
Northern Ireland	2.097	0.182	1528748	0.982	3.120	0.083	1.379	0.495
Highest qualification								
Postgraduate degree	0.410	0.016	0.568	0.227	0.698	0.380	0.662	0.121
Undergraduate degree	0.295	0.001	0.569	0.214	0.614	0.225	0.648	0.091
Foundation degree	0.338	0.004	0.629	0.313	0.674	0.327	0.617	0.068
Diploma, Certificate of HE	0.230	0.000	0.572	0.256	0.407	0.028	0.379	0.001
A-Level	0.183	0.000	0.268	0.003	0.291	0.002	0.328	0.000
GCSE. Grades A* to C	0.204	0.000	0.246	0.002	0.278	0.001	0.278	0.000
GCSE, grades D to G	0.172	0.000	0.241	0.001	0.230	0.000	0.282	0.000
Entry level	0.140	0.000	0.148	0.000	0.106	0.000	0.136	0.000
Female	0.427	0.000	0.343	0.000	0.576	0.000	0.345	0.000
Married	1.254	0.030	1.414	0.000	1.718	0.000	1.224	0.002

Table 13: UK: Regression model for the probability of employment relative to economic inactivity (part 2) (continued)

	Asian Other		Black		Chinese		Other	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
Year dummy								
1994	1.797	0.009	1.220	0.359	0.816	0.063	0.806	0.410
1995	1.015	0.947	1.281	0.256	0.889	0.290	1.049	0.851
1996	1.696	0.019	1.486	0.069	0.944	0.592	1.107	0.697
1997	1.192	0.396	1.078	0.719	0.960	0.705	1.282	0.322
1998	0.875	0.530	1.368	0.137	0.886	0.259	1.053	0.832
1999	0.935	0.758	1.713	0.010	0.817	0.061	0.901	0.661
2000	0.699	0.127	0.886	0.588	0.700	0.002	0.895	0.662
2001	1.258	0.271	1.713	0.009	0.795	0.025	1.099	0.654
2002	1.146	0.503	1.253	0.257	0.813	0.051	0.947	0.785
2003	1.341	0.173	1.992	0.001	0.988	0.915	1.251	0.266
2004	1.036	0.859	2.069	0.000	0.731	0.004	1.268	0.236
2005	1.280	0.265	1.760	0.008	0.927	0.519	1.202	0.362
2006	0.986	0.951	1.712	0.011	0.939	0.581	1.237	0.284
2007	1.068	0.739	1.890	0.001	1.032	0.773	1.317	0.156
2008	1.475	0.054	2.077	0.000	0.868	0.181	1.600	0.015
2009	1.316	0.194	1.967	0.001	0.778	0.018	1.322	0.153
2010	0.866	0.476	1.790	0.002	0.807	0.047	1.178	0.400
2011	1.042	0.839	1.726	0.004	0.697	0.001	1.383	0.098
Region/nation and female								
North East	1.455	0.425	2.250	0.059	1.016	0.970	0.998	0.996
North West	1.037	0.883	1.315	0.277	0.906	0.526	1.210	0.320
Yorkshire & Humber	1.653	0.088	0.931	0.813	1.237	0.214	1.249	0.310
East Midlands	1.554	0.195	0.734	0.327	1.127	0.472	0.978	0.934
West Midlands	1.198	0.543	1.298	0.308	1.031	0.797	1.369	0.144
East of England	0.992	0.975	0.948	0.842	0.657	0.014	0.893	0.614
South East	1.153	0.557	1.027	0.893	0.741	0.055	1.005	0.978
South West	1.176	0.680	1.028	0.943	0.746	0.245	1.189	0.530
Wales	1.020	0.962	1.074	0.882	0.733	0.450	0.855	0.639
Scotland	1.016	0.957	1.195	0.651	0.830	0.568	1.492	0.162

Table 13: UK: Regression model for the probability of employment relative to economic inactivity (part 2) (continued)

	Asian Other		Black		Chinese		Other	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
Northern Ireland	0.598	0.477	0.000	0.982	0.658	0.644	1.384	0.609
Apr-Jun	1.212	0.064	0.929	0.400	0.997	0.953	0.862	0.045
Jul-Sep	1.215	0.055	0.957	0.615	1.041	0.418	0.979	0.773
Oct-Dec	1.105	0.318	1.099	0.273	1.024	0.639	0.905	0.169
Constant	0.001	0.000	0.003	0.000	0.020	0.000	0.014	0.000

Table 14: UK: Regression model for the probability of unemployment relative to economic inactivity (part 1)

	White		Mixed parentage		Indian		Pakistani		Bangladeshi	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
Age	1.189	0.000	1.153	0.000	1.265	0.000	1.212	0.000	1.173	0.000
Age squared	0.997	0.000	0.998	0.000	0.997	0.000	0.997	0.000	0.998	0.000
Born in the UK	1.936	0.000	2.608	0.047	1.652	0.009	2.935	0.000	1.914	0.026
UK-educated	0.192	0.000	0.000	0.992	0.886	0.639	0.993	0.976	1.324	0.451
Educated partly non-UK	2.001	0.000	2.722	0.047	1.377	0.088	1.822	0.001	1.793	0.046
Educated wholly non-UK	1.813	0.000	2.300	0.095	1.343	0.124	2.644	0.000	2.963	0.000
fdpch16	0.820	0.000	0.845	0.001	0.893	0.000	0.848	0.000	0.951	0.167
Region/nation dummy										
North East	1.014	0.696	1.231	0.739	0.543	0.132	0.489	0.093	0.597	0.375
North West	0.823	0.000	0.764	0.319	0.930	0.644	1.019	0.895	1.289	0.305
Yorkshire & Humber	0.959	0.188	0.940	0.825	0.973	0.895	1.435	0.006	0.671	0.234
East Midlands	0.915	0.010	1.226	0.473	1.234	0.117	1.141	0.599	1.300	0.593
West Midlands	1.057	0.084	1.629	0.038	1.200	0.120	1.293	0.060	0.954	0.841
East of England	1.018	0.582	1.547	0.091	0.904	0.638	1.019	0.932	0.620	0.140
South East	1.012	0.699	1.320	0.228	1.223	0.272	1.200	0.362	0.509	0.192
South West	0.919	0.014	1.071	0.856	0.614	0.259	1.229	0.710	1.902	0.271
Wales	0.799	0.000	0.386	0.088	0.243	0.060	1.262	0.599	1.883	0.149
Scotland	0.986	0.641	0.805	0.612	0.613	0.206	0.980	0.934	1.555	0.580
Northern Ireland	0.829	0.000	0.629	0.677	2.285	0.563	3.622	0.368	0.212	1.000
Highest qualification										
Postgraduate degree	1.145	0.209	0.701	0.662	1.094	0.862	1.245	0.798	0.000	0.984
Undergraduate degree	1.089	0.404	0.819	0.793	0.865	0.773	1.248	0.791	0.000	0.984
Foundation degree	0.836	0.088	0.524	0.420	0.931	0.890	1.367	0.715	0.000	0.983
Diploma, Certificate of HE	0.985	0.883	0.676	0.631	0.645	0.411	1.107	0.906	0.000	0.982
A-Level	0.775	0.012	0.451	0.292	0.468	0.130	0.654	0.608	0.000	0.982
GCSE. Grades A* to C	0.987	0.898	0.550	0.428	0.521	0.191	0.730	0.703	0.000	0.982
GCSE, grades D to G	1.182	0.098	0.662	0.584	0.613	0.325	0.938	0.938	0.000	0.982
Entry level	0.824	0.055	0.497	0.354	0.339	0.030	0.541	0.457	0.000	0.982
Female	0.317	0.000	0.637	0.005	0.390	0.000	0.215	0.000	0.108	0.000
Married	0.605	0.000	0.718	0.030	0.790	0.008	0.742	0.001	0.729	0.065

Table 14: UK: Regression model for the probability of unemployment relative to economic inactivity (part 1) (continued)

	White		Mixed parentage		Indian		Pakistani		Bangladeshi	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
Year dummy										
1994	0.914	0.000	0.695	0.216	0.693	0.021	0.785	0.187	0.931	0.826
1995	0.869	0.000	0.566	0.058	0.765	0.080	0.687	0.043	0.719	0.312
1996	0.766	0.000	0.931	0.799	0.516	0.000	0.695	0.047	0.543	0.094
1997	0.674	0.000	0.598	0.078	0.519	0.000	0.542	0.001	0.421	0.016
1998	0.613	0.000	0.581	0.062	0.507	0.000	0.514	0.001	0.469	0.020
1999	0.597	0.000	0.620	0.120	0.372	0.000	0.392	0.000	0.637	0.144
2000	0.508	0.000	0.629	0.150	0.418	0.000	0.430	0.000	0.590	0.124
2001	0.506	0.000	0.534	0.034	0.312	0.000	0.338	0.000	0.468	0.016
2002	0.506	0.000	0.642	0.118	0.386	0.000	0.366	0.000	0.375	0.005
2003	0.457	0.000	0.622	0.097	0.451	0.000	0.266	0.000	0.397	0.005
2004	0.447	0.000	0.418	0.005	0.262	0.000	0.280	0.000	0.405	0.009
2005	0.464	0.000	0.558	0.061	0.405	0.000	0.257	0.000	0.702	0.309
2006	0.525	0.000	0.377	0.004	0.487	0.000	0.433	0.000	0.496	0.044
2007	0.493	0.000	0.374	0.001	0.377	0.000	0.305	0.000	0.350	0.002
2008	0.530	0.000	0.468	0.005	0.447	0.000	0.351	0.000	0.502	0.035
2009	0.712	0.000	0.539	0.026	0.419	0.000	0.463	0.000	0.541	0.054
2010	0.714	0.000	0.787	0.384	0.505	0.000	0.383	0.000	0.534	0.056
2011	0.725	0.000	0.667	0.116	0.441	0.000	0.467	0.000	0.554	0.062
Region/nation and female										
North East	1.020	0.708	0.173	0.146	2.261	0.126	1.486	0.517	3.790	0.073
North West	1.054	0.231	0.799	0.554	0.575	0.023	0.644	0.061	1.116	0.782
Yorkshire & Humber	1.109	0.026	0.919	0.829	0.744	0.314	0.606	0.018	2.382	0.107
East Midlands	1.125	0.020	0.719	0.413	0.712	0.087	1.308	0.451	1.640	0.478
West Midlands	1.002	0.970	0.560	0.082	0.886	0.473	0.817	0.339	1.694	0.154
East of England	1.046	0.349	0.752	0.430	1.330	0.313	1.058	0.864	0.914	0.884
South East	1.012	0.785	0.490	0.036	0.907	0.698	0.678	0.217	2.921	0.094
South West	1.145	0.007	0.735	0.553	1.082	0.898	0.462	0.406	0.698	0.705
Wales	1.132	0.021	2.386	0.188	2.811	0.263	1.079	0.904	1.087	0.905
Scotland	1.165	0.001	0.913	0.885	0.972	0.963	0.657	0.276	0.000	0.988

Table 14: UK: Regression model for the probability of unemployment relative to economic inactivity (part 1) (continued)

	White		Mixed parentage		Indian		Pakistani		Bangladeshi	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
Northern Ireland	0.947	0.427	0.000	0.995	1.311	0.866	0.000	0.986	0.000	0.999
Apr-Jun	1.001	0.967	0.829	0.206	1.122	0.208	1.084	0.397	0.881	0.434
Jul-Sep	1.109	0.000	1.276	0.078	1.265	0.008	1.146	0.141	1.247	0.160
Oct-Dec	1.016	0.260	1.385	0.020	1.148	0.119	0.946	0.562	1.031	0.850
Constant	0.047	0.000	0.070	0.008	0.026	0.000	0.033	0.000	70314.7	0.986

Table 15: UK: Regression model for the probability of unemployment relative to economic inactivity (part 2)

	Asian Other		Black		Chinese		Other	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
Age	1.489	0.000	1.208	0.000	1.215	0.000	1.204	0.000
Age squared	0.995	0.000	0.998	0.000	0.997	0.000	0.998	0.000
Born in the UK	1.185	0.654	2.259	0.011	1.647	0.000	2.298	0.002
UK-educated	0.308	0.062	1.111	0.804	0.623	0.053	1.370	0.397
Educated partly non-UK	0.370	0.007	1.460	0.198	1.304	0.063	1.733	0.028
Educated wholly non-UK	0.370	0.006	1.424	0.249	1.126	0.418	1.401	0.193
fdpch16	0.824	0.042	0.877	0.013	0.806	0.000	0.835	0.000
Region/nation dummy								
North East	0.797	0.728	0.128	0.046	0.617	0.266	0.245	0.022
North West	0.991	0.978	0.970	0.911	0.994	0.969	0.434	0.002
Yorkshire & Humber	0.372	0.036	1.596	0.136	0.964	0.827	0.899	0.658
East Midlands	0.446	0.113	1.694	0.130	0.462	0.000	1.304	0.364
West Midlands	0.803	0.542	1.584	0.073	0.938	0.583	1.124	0.596
East of England	0.549	0.175	0.364	0.062	1.107	0.577	0.947	0.860
South East	0.876	0.696	0.673	0.193	0.946	0.752	0.914	0.716
South West	1.087	0.876	0.790	0.684	0.723	0.276	1.252	0.486
Wales	0.415	0.252	0.442	0.294	0.580	0.264	0.620	0.305
Scotland	0.431	0.099	0.537	0.269	0.637	0.208	0.617	0.145
Northern Ireland	0.000	0.994	2099089	0.982	1.834	0.436	0.436	0.444
Highest qualification								
Postgraduate degree	2886720	0.987	0.671	0.568	0.773	0.658	0.462	0.056
Undergraduate degree	1939453	0.988	0.460	0.256	0.840	0.759	0.482	0.058
Foundation degree	790182	0.988	0.483	0.298	0.712	0.554	0.414	0.030
Diploma, Certificate of HE	1984297	0.988	0.569	0.451	0.451	0.172	0.519	0.136
A-Level	1571949	0.988	0.343	0.113	0.488	0.205	0.360	0.007
GCSE. Grades A* to C	1991607	0.988	0.349	0.117	0.623	0.403	0.290	0.001
GCSE, grades D to G	1395746	0.988	0.334	0.101	0.576	0.328	0.354	0.005
Entry level	1231802	0.988	0.295	0.069	0.376	0.083	0.222	0.000
Female	0.431	0.000	0.342	0.000	0.424	0.000	0.361	0.000
Married	0.585	0.010	0.869	0.344	0.904	0.108	0.756	0.011

Table 15: UK: Regression model for the probability of unemployment relative to economic inactivity (part 2) (continued)

	Asian Other		Black		Chinese		Other	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
Year dummy								
1994	1.395	0.409	0.990	0.975	0.686	0.005	1.549	0.199
1995	0.648	0.347	0.489	0.073	0.747	0.031	0.750	0.470
1996	1.747	0.141	1.101	0.774	0.783	0.060	0.800	0.572
1997	1.005	0.990	0.667	0.240	0.539	0.000	1.210	0.591
1998	0.562	0.181	0.668	0.262	0.398	0.000	0.880	0.721
1999	0.902	0.799	0.744	0.399	0.460	0.000	0.889	0.730
2000	0.557	0.210	0.662	0.257	0.344	0.000	0.454	0.063
2001	0.656	0.329	0.956	0.890	0.306	0.000	0.516	0.046
2002	0.543	0.154	0.512	0.047	0.329	0.000	0.420	0.006
2003	0.838	0.671	0.756	0.409	0.356	0.000	0.723	0.279
2004	0.635	0.247	0.785	0.481	0.322	0.000	0.472	0.018
2005	0.574	0.234	0.830	0.598	0.416	0.000	0.576	0.074
2006	0.626	0.317	0.572	0.145	0.414	0.000	0.778	0.393
2007	0.653	0.274	0.979	0.945	0.368	0.000	0.679	0.180
2008	0.771	0.521	0.603	0.119	0.416	0.000	0.736	0.288
2009	0.691	0.397	0.750	0.372	0.526	0.000	0.633	0.121
2010	0.590	0.188	0.924	0.790	0.428	0.000	0.676	0.177
2011	0.614	0.249	1.000	1.000	0.589	0.000	0.758	0.340
Region/nation and female								
North East	1.659	0.581	19.279	0.009	1.229	0.743	2.853	0.198
North West	0.533	0.206	1.097	0.822	0.617	0.035	1.765	0.136
Yorkshire & Humber	0.321	0.312	0.567	0.242	0.811	0.415	1.131	0.744
East Midlands	1.347	0.690	0.915	0.856	1.887	0.019	0.707	0.444
West Midlands	0.589	0.418	0.429	0.067	0.937	0.697	0.976	0.945
East of England	1.128	0.845	2.748	0.113	0.581	0.046	1.729	0.156
South East	1.118	0.812	1.645	0.211	1.009	0.971	1.316	0.412
South West	0.443	0.376	1.882	0.378	0.982	0.965	1.522	0.349
Wales	2.284	0.384	1.167	0.886	1.326	0.671	1.355	0.650
Scotland	2.298	0.195	1.034	0.968	1.113	0.836	1.660	0.295

Table 15: UK: Regression model for the probability of unemployment relative to economic inactivity (part 2) (continued)

	Asian Other		Black		Chinese		Other	
	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.	Ratio	Prob.
Northern Ireland	1.161	1.000	0.000	0.982	0.485	0.597	1.981	0.651
Apr-Jun	2.042	0.002	1.082	0.617	1.133	0.085	0.954	0.723
Jul-Sep	1.610	0.038	1.115	0.492	1.203	0.009	1.189	0.167
Oct-Dec	1.752	0.011	1.007	0.963	1.052	0.487	1.090	0.495
Constant	0.000	0.981	0.034	0.000	0.089	0.000	0.049	0.000

Table 16: Pseudo R^2 values for regression models.

England		UK	
Ethnic group	Pseudo R^2 value	Ethnic group	Pseudo R^2 value
White-British	0.1337	White	0.1264
White-Other	0.1134	Mixed parentage	0.1283
Mixed parentage	0.1290	Indian	0.1760
Indian	0.1922	Pakistani	0.2739
Pakistani	0.2368	Bangladeshi	0.2639
Bangladeshi	0.2803	Other Asian	0.1857
Chinese	-	Black ethnic groups	0.1683
Other Asian	0.1772	Chinese	0.1498
Black-Caribbean	0.1405	Other ethnic groups	0.1431
Black-African	0.1941		
Black-Other	0.2170		
Other ethnic groups	0.1427		

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