

WARWICK INSTITUTE *for*  
EMPLOYMENT RESEARCH



# ***Changing Patterns of Employment by Ethnic Group and for Migrant Workers***

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**Technical Report**

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## 1. Background, Aims and Objectives

The aim of this project is to provide a succinct analysis of changing patterns of employment by ethnic groups and for migrants. The objective is to provide a set of national and regional profiles of employment patterns, focussing upon gender, age and ethnic group, including variations across occupation and sector dimensions (as far as the data will allow). This report provides a technical description of sources and methods as well as covering other issues related to definition and classification

The main results are presented in a *National Report*. (Green *et al.* (2005). This is complemented by a series of 9 *Regional Profiles*. The *National Report*, provides an overview and some cross-regional comparisons. The *Regional Profiles* focus in more detail on each English Region, presenting results in a common and consistent fashion. A key objective is to provide consistent and comparable data by region to help users to identify how they sit in the broader national picture.

The prime audience is high level policy makers and administrators within the LSC although the intention is to provide reports which will be of interest and value to a broader audience, including the Sector Skills development Agency (SSDA), Sector Skills Councils (SSCs) and other employer bodies, Regional Development Agencies (RDAs), the Department for Education and Skills (DfES), etc.

It is important to recognise that there are a number of conceptual and practical problems in defining and measuring ethnicity and migrants. These issues are discussed in detail in the *National Report*. They include the small sample sizes in many of the surveys which make obtaining robust estimates difficult. Originally, it had been hoped to present some benchmark projections by ethnic group. However, it has become clear in the course of the project that this is not feasible without a complete and robust demographic model of changing ethnic patterns. Such work is currently underway within ONS which will facilitate such projections in due course.

The results presented use a variety of sources and methods. These are discussed in more detail here. The key sources of data are the LFS and the Census of Population. These are complemented by a major secondary data source: *Working Futures*. The latter includes some new more detailed demographic and labour supply projections – although these exclude ethnicity.

A standard set of “profiles” is therefore developed for each region and the whole of England. These present information in a consistent and comparable format, enabling direct comparisons to be made. These profiles are primarily in the form of a standard set of tables and charts, with only limited text. The latter is confined to a few bullet points highlighting key features.

## 2. Key Official Data Sources

The analysis is largely based on two official primary data sources, collected under the auspices of the Office for National Statistics:

- 1) The Census of Population
- 2) The Labour Force Survey

1. The Census of Population aims to cover all households in the UK and is collected once every ten years. Because of the need to maximise response rates from a self-completion form, the questionnaire (completed by a Household Reference Person on behalf of every person in the household) is kept short and simple. It therefore asks for only basic details about employment. The 1991 and 2001 Censuses included a question on ethnic origin. The 2001 question added questions on the Irish, and people of mixed parentage and changed the way in which people from minority ethnic groups who identified as Asian British or Black British answered the question. Slightly different versions of the question were asked in Scotland and Northern Ireland to that used in England and Wales.

Data from the Census is published in three forms:

- a) pre-designed tables;
- b) microdata which enables bespoke tables to be produced for a small anonymised sample of the population;
- c) user-commissioned tables.

a) A limited number of pre-designed tables (Census Area Statistics, Standard Tables and Univariate Statistics) contain data on employment and economic activity by ethnic group. These include data on economic activity patterns and employment by industry, age group, gender, social class and occupation. There are also pre-specified tables detailing flows of commuters (Special Workplace Statistics) and migrants (Special Migration Statistics).

b) Microdata is published in two forms; the public access Sample of Anonymised Records (SAR) and the Controlled Access Microdata Sample (CAMS). Both are based on a 3% sample of Census returns, but the latter contains much more geographical detail. The use of CAMS is tightly controlled by ONS to prevent release of confidential data.

c) Tables commissioned by Census users are made publicly available by ONS after 6 months. Most of these provide more detailed information at the regional or national scale, or replicate a table only available at a larger scale in the standard output for a particular locality. They are carefully checked by ONS to prevent the release of data which is disclosive of individual details, and thus do not provide more local detail than the published tables.

The economic activity tables publish data on industry using the SIC92 industrial classification and by occupation using the SOC 2000 classification. A cross tabulation of employment by both industry and occupation is available for workplace employment in each local authority district. There are differences between England and Wales, Scotland and Northern Ireland in the employment tables published.

The Census measures migration by comparing the place of residence one year before the Census and the address at the time of the Census. The Special Migration

Statistics analyse migration between local authority districts and wards. Because of the need to prevent the release of data which might disclose data on individuals, data for smaller areas is simplified and subject to random perturbation. There is very limited information on migration cross-tabulated by economic variables. The Census also asks a question on country of birth, which is not cross-tabulated against economic variables, but which could be used to produce such data in commissioned tables.

The 2001 Census of Population 3% Sample of Anonymised Records was used here to produce the tables on rates of inter-regional and international migration by age group, ethnic group, occupation and industry. These rates take the number of people living in a region in April 2001 and living in another region of the UK in April 2000 (inter-regional migrants) or the number of people living in a region in April 2001 and resident outside the UK in April 2000 (international migrants) and express these quantities as a percentage of the resident population in April 2001.

2. The Labour Force Survey (LFS) has been collected quarterly since Spring 1992. It is a household survey, covering about 60,000 households, which each remain in the sample for 5 'waves'. The survey collects detailed information on employment status, industry, occupation, education and qualifications and demographic details. It includes questions on ethnic group, country of birth, year of entry to the UK and migration. However, it represents a sample of only 0.25 per cent of the population and therefore cannot yield reliable information for areas smaller than Government Office regions. The Local Area LFSs for England, Wales and Scotland add booster samples and the new Annual Population Survey brings these booster samples together in a database of c.500,000 individuals, which is large enough to yield data on economic activity by local authority district (but still not large enough to produce data on economic activity by ethnic group for smaller local authorities).

Migration is measured in the LFS through two questions in the Spring quarter. The first asks for the individual's place of residence one year previously and the second asks for place of residence 3 months previously. Unfortunately, very small numbers of migrants are picked up by this question, and the numbers in each ethnic group by region are too small to publish (and use of one quarter data would run the risk of yielding misleading results for individual regions).

Thus, the decision was made to use the LFS question on country of origin, focusing on the geographical origins of the workforce. The question on country of birth is asked in each quarter. Four broad 'regions' were distinguished at global scale; the UK, the rest of the 15-member EU (EU15), the ten accession countries and the rest of the world.

### *Confidentiality and Statistical Robustness*

The LFS provides the primary source of data for much of the analysis of patterns by ethnicity and for migrant workers. Because the LFS covers a very small percentage of the population, data on ethnicity for a single quarter will be subject to a great deal of uncertainty. This is reduced by creating estimates for a calendar year by taking data from the first and fifth wave of the survey for four successive quarters, in which

each respondent is included only once. The selected records are weighted according to the latest mid-year population estimates. ONS has calculated that estimates should only be published when they are based on a weighted sample size of 6 thousand or more (for which the 95% confidence interval is +/- 2,640) and this practice has been followed in the reporting of LFS data.

Where the data have been combined with *Working Futures* estimates, the estimates have been reported even if they are based on small “populations” but readers are advised to treat them with caution. Further guidelines are given in Section 3.

3. Additional data sources: Information on numbers of migrant workers in the UK is available from a range of administrative statistics. Those used in the overview of migration in the National Report are mentioned below.

National Insurance Number (NINo) allocations to overseas nationals entering the UK (ONS and DWP, 2005). The NINo registration date is sometimes thought of as a proxy for when migrants become active in the labour market. Annual statistics on NINo allocations to overseas (non-UK) nationals entering the UK are available via the DWP website.

Work Permits: (permits for a person to do a specific job at a specific location). The work permit system is employer driven, in that they can only be applied for and obtained by employers on behalf of the foreign worker they wish to employ. With some exceptions the employer must show that the vacancy was advertised widely and there were no suitable resident workers to fill the vacancy. Work Permits are not part of National Statistics. Information on Work Permits by region may be sought from Work Permits (UK) by request under the Freedom of Information Act.

Special Worker Schemes focusing on specific sectors – including *Sector Based Scheme* (covering hospitality and food processing) and the *Seasonal Agricultural Workers Scheme (SAWS)* - mainly focusing on younger workers results in various estimates of numbers covered. The latter scheme forms an important underpinning for some local economies in rural areas, but are subject to change over time.

Highly Skilled Migrant Programme: designed to facilitate entry of the highly qualified into the UK to meet labour market needs – especially in finance, business management, ICT and medical occupations. The Programme started in 2002 and the individual concerned does not require a job or work permit before entry. (Along with Australia and Canada, the UK has moved far and fast in terms of the range of schemes and initiatives designed to attract highly qualified workers in a global market.)

Worker Registration Scheme - In May 2004 the UK put in place transitional measures to regulate access to labour market by nationals of eight EU accession countries – the ‘Accession 8’ (or ‘A8’). Data are available on those registering. Statistics are disaggregated by sector and occupation, but the disaggregations are not the same as used in the *Regional Profiles*. A breakdown of nationality by sector is also provided in the statistics. Early information on the impact of such migration is reported in Portes and French (2005).

*Refugees and asylum seekers:* various data are available on those seeking asylum. While asylum claims are being processed, claimants are allowed to claim support from the *National Asylum Support Services (NASS)*, who provide services such as accommodation and financial support. The Home Office also publishes data on the numbers of Asylum Seekers, while for details of numbers estimated to have been unsuccessful in their asylum application see National Audit Office (2005). An estimate of the numbers thought to be entering the UK illegally was published by the Home Office in 2005 (Woodbridge, (2005)).

*General Migration trends:* For an overall picture of migration in the UK in recent years see reviews such as those published by the Centre for Research and Analysis of Migration (2005) and Salt and Clarke (2005).

### 3. Building on *Working Futures*

The results build upon *Working Futures 2004-2014*. *Working Futures* presents the most detailed and comprehensive set of employment and labour market projections ever produced for the UK.<sup>12</sup> *Working Futures* already provides a comprehensive analysis of changing patterns of employment by gender, status, sector and occupation for all the countries of the UK and the English regions. The present report adds value to this by extending the analysis in a number of important respects.

First, a detailed analysis of historical patterns of employment, distinguishing ethnicity and migrant workers, is conducted across the 9 regions of England and at national (England, and in some cases at a GB) level. This is based on an interrogation of data from the Labour Force Survey (LFS) and the Census of Population (CoP). Where possible, the historical profiles of changing by ethnic group patterns have been explored in greater detail (as far as the available data permit), including analyses by industry and by occupation. The available historical information on migrant workers is also highlighted, including some of the issues surrounding factors influencing migration flows, relevant policies and measurement issues. This information is more limited than that available on ethnicity generally.

Second, the *Working Futures* analysis of labour supply is extended to cover age as well as gender. Again this covers both historical patterns and expected future trends for each of the English regions. Detailed profiles of the changing age structure of the population and workforce are presented. It is important to note that at present no projections of labour supply by ethnic group have been produced as part of this project. At present ONS do not produce projections of population by ethnic group although such analysis is planned. Once available this will enable projections of labour supply by ethnic group to be produced.

Third, material taken from *Working Futures* is repackaged in a novel fashion to focus attention on the different patterns of employment, both historical and projected, in the 9 regions of England. This analysis focuses upon gender, status, sector and occupation. This section focuses on providing a brief graphical and tabular summary of the main characteristics of the national and regional economies in terms of current employment patterns and expected future change (2004-14), with particular emphasis on expected structural change by sector and occupation (including replacement demands).

The main *Working Futures* database relates to workplace employment (jobs). Employment matrices are developed using LFS data (residence/heads), showing how patterns of employment by ethnic group and migrant workers vary across both sector and occupation. These matrices are then applied to the estimated levels of workplace employment (jobs) by sector and occupation taken from *Working Futures* to give estimates of jobs by ethnic group. Because of data limitations (and also the difficulty of taking into account underlying demographic changes), the exploration of

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<sup>1</sup> The results of *Working Futures 2004-2014* are available in 5 separate volumes.

<sup>2</sup> *Working Futures 2004-2014* was commissioned by the SSSA and funded by the SSSA and its partners (including the LSC).

trends in the numbers of migrant workers is much less comprehensive than that for ethnicity and the analysis for neither group includes projections.<sup>3</sup>

A standard set of “profiles” is developed for each region and the whole of England. These present information in a consistent and comparable format, enabling direct comparisons to be made. These profiles are primarily in the form of a standard set of tables and charts, with only limited text. The latter is confined to a few bullet points highlighting key features.

This quantitative analysis is complemented by two small scale case studies intended to illustrate some of the key issues facing local LSCs and others in dealing with issues relating to migration. These case studies examine, briefly, the potential impact of a large scale development (the Thames Gateway) and explore, briefly, the position of an exemplar rural area reliant on migrant workers in some sectors/occupations (Norfolk). The selection of the case studies was made by the researchers, in conjunction with the project Steering Group.

The main period for analysis is 1994-2004, reflecting the historical period covered by the data from *Working Futures* with some projections of the labour force (not distinguishing ethnicity) for 2004-2014. Historical data are also exploited from a variety of other sources in addition to the LFS and the CoP in order to add insights into changing patterns by ethnicity, age and migrant workers which are not covered in the main *Working Futures* database.

It should be recognised that data limitations preclude producing comprehensive analyses of ethnicity and age across all the dimensions currently covered in *Working Futures*. Rather, the aim is to provide a summary of national and regional ethnic profiles, exploiting the data as far as possible to provide detail across all the selected dimensions.

In combination, this set of reports provides new information on a consistent and comparable basis across regions which highlight some of the key features of the industrial, occupational and geographical profiles for ethnic groups and migrant workers.

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<sup>3</sup> ONS are currently developing benchmark demographic projections by ethnic group which will enable such an extension in future.

#### 4. The *Working Futures* Database

The *Working Futures* project was undertaken on behalf of the SSDA and its partners by the Warwick Institute for Employment Research (IER), in collaboration with Cambridge Econometrics (CE). It has resulted in the most detailed set of quantitative labour market projections ever published for the UK. This section provides a brief description of the sources and methods used to generate the set of occupational employment projections presented in *Working Futures 2004-2014*.<sup>4</sup>

Full details of the methodological approach employed to generate the detailed historical employment **Database**, as well as the models and procedures used to produce the projections are available in the *Working Futures Technical Report*.<sup>5</sup> This includes: information about the working assumptions adopted; the limitations of the estimates produced; and comparisons with other projections.

The full results of the projections may be found in the following documents:

- The **National Report** for the whole of the UK, which summarises the main findings. This describes the key employment trends and findings from the analysis. It includes tables of data for selected years, together with a written commentary explaining and interpreting the forecasts. This document also includes more detailed material, using the SSDA's Sector Matrix Industries for summary reporting;
- In addition to the main report, further detailed industrial analysis is provided using Sector Skills Council (SSC) footprints in the **Sectoral Report**. This provides information on key trends and prospects for each of the SSCs;
- The **Spatial Report**, which discusses the projections for the individual countries and regions within England that together make up the UK. This also includes some local LSC "league table" type information, including a number of key indicators for local LSCs;
- The **Qualifications Report** presents implications of trends in the qualification structure of employment and likely developments in the numbers of those qualified.

In order to generate the full set of results the *Working Futures* project has required forecasting over half a million individual time series.<sup>6</sup> However, it is important to recognise that the data are not without limitations. These give rise to a number of considerations as to how the data should be used and reported. The limitations arise from two elements of the procedures which have been used to produce the

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<sup>4</sup> Wilson *et al.* (2005a) *Working Futures 2004-2014, National Report*. SSDA: Wath on Dearne.

<sup>5</sup> Wilson *et al.* (2005b) *Working Futures 2004-2014, Technical Report*. SSDA: Wath on Dearne. The term **Database** is used to refer to the time series data on employment and output, cross classified by detailed sector (and in the case of employment by gender, status and occupation).

<sup>6</sup> At the most detailed level, these comprise: sector (67) × occupation (25) × LLSC (47 areas plus Scotland, Wales and Northern Ireland) × gender (2) × status (3) = 502,500 separate time series. The different Workbooks simply contain different levels of aggregation of these time series.

projections. First, the projections are based upon survey data that were not originally designed or developed to produce precise estimates at this level of disaggregation. Second, the survey data have been used to calibrate an econometric forecasting model and a set of disaggregation procedures. Forecasting is as much an art as a science and requires considerable judgement on the part of the forecaster, especially when the forecast horizon is as much as 10 years hence. Any errors in the forecasters' ability to predict the future will be amplified the further into the future that the projections are considered, due to the inter-linkages between the sectors and regions, and the feedback mechanisms which permeate the model structure. The extent that the forecast base is imprecise due to the first data limitation further exacerbates this problem.

Thus, while the projections of employment are based on best practice, both the historic patterns of employment and the forecast projections have inbuilt uncertainties of differing kinds. These uncertainties need to be considered when utilising the data. They apply with particular force to the more detailed estimates produced for individual local LSC areas. It is important to emphasise that forecasts of this kind should not be used for detailed manpower planning. Rather they should be considered as providing helpful benchmarks for consideration of likely future trends.

Where data from the LFS have been combined with *Working Futures* estimates, the estimates have been reported even if they are based on small "populations" but readers are advised to treat them with caution. The following general guidelines apply:

### **Summary of guidelines for interpreting results based on *Working Futures***

The estimates presented are calculated from a number of different data sources, using a variety of econometric and statistical techniques. As a result, precise margins of error cannot be assigned to the estimates. For further details, see the *Working Futures 2004-2014: Technical Report*.

However, as a general rule of thumb, it is not advisable to *publish* any statistics or analyses which are not derived from at least 10,000 individuals. This should provide a reasonable degree of statistical robustness to the estimates whether historic or forecast.

For *unpublished* analyses, a more lenient criterion can be used. However, the uncertainties associated with results involving fewer than 1,000 individuals are probably too great to make such estimates useful. However, there is inevitably some degree of judgement required on the part of the researcher.

For cases in between 1,000 and 10,000 individuals, it is difficult to prescribe general rules, and an element of judgement by the user is needed.

Thus, in summary, IER advise:

- **PUBLISHED DATA: Ideally, a minimum of 10,000 individuals per cell**
- **UNPUBLISHED DATA: A minimum of 1,000 individuals per cell**

## 5. Definitions and Classifications

'Migration' and 'migrant' are terms that are used loosely, so that meanings are not clear. Hence, it is appropriate to define the way that they are used. 'Migration' is a *sub-category* of a more general concept of '*movement*', which embraces a wide variety of forms and types of *geographical mobility*<sup>7</sup> (Green and Canny, 2003; Salt and Clarke, 2005). Various typologies of migration have been produced – based on duration, distance moved or motivation for moving (Dobson *et al.*, 2001). Both short-term and longer-term (usually defined as 12 months or more) moves are of interest from a labour market and skills perspective in terms of meeting labour demand, but from an LSC perspective of training and labour market integration longer-term moves are of particular importance. Likewise, from a labour market and skills perspective long-distance (as opposed to short-distance) moves involving a change of employment are of primary interest. It should be noted that the term 'migrant' is used in different ways in the academic and policy literature, but *for current purposes, in the migrant case studies, the term 'migrant' is used to refer to people from outside the UK who have moved to the UK primarily for employment purposes.*<sup>8</sup>

The discourse and public debate on migration in the UK fuses and confuses:

- a) the black and minority ethnic (BME) population - some of whom were born in the UK and some who were born outside the UK;
- b) the role of migrants in the labour market;
- c) refugees; and
- d) asylum seekers.

Box 1.1 provides detailed definitions.

The LSC has an interest in the BME population, migrants and refugees as sources of current labour supply. It should be noted that migrants may be from white as well as from non-white ethnic groups.

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<sup>7</sup> In terms of geographical mobility, a distinction may be made between *migration* (involving a permanent relocation of residence) and *circulation* (involving no permanent change of residence – e.g. daily commuting, short-term business assignments, etc).

<sup>8</sup> In the broadest definition, the term 'migrant' is used to describe someone who has changed their place of residence within a pre-defined period (e.g. 1 year in the case of the Census of Population). Note that this broad definition encompasses inter-regional and intra-regional migrants within the UK.)

**Box 1.1: Key definitions used**

<i>Term</i>	<i>Definition used</i>	<i>Comments</i>
Migrant	A person from outside the UK who has moved to the UK primarily for employment purposes.	In the literature on migration references are made to: [i] those born outside the UK [ii] foreign nationals within the resident population. (There is an overlap between [i] and [ii]: based on analysis of the 2001 Labour Force Survey, it is estimated that about half of those born outside the UK have UK nationality (see Haque [2002]). <sup>9</sup> The United Nations definition of an 'international migrant' (in the UK context) is a person who has resided abroad for a year or more who states on arrival the intention to stay in the UK for a year or more.
Refugee	Someone who receives a positive decision on their asylum claim and is granted leave to stay in the UK.	Refugees have full employment rights and may claim benefits
Asylum seeker	Someone who has fled their country of origin due to a well founded fear of persecution and who seeks safety in another country. They have applied for recognition of refugee status and are either awaiting an initial decision or appealing against a rejection of their claim.	Asylum seekers do not have a right to work in the UK.
Ethnic minority/ BME	Non-white ethnic groups	People from Mixed, Asian / Asian British, Black / Black British, and Chinese and other ethnic groups

<sup>9</sup> It is important to note that definitions of 'migrants' vary between data sources. Hence, the various definitions of migrants mean that data sources may have different numbers of migrants for the same time period.

*Ethnicity classifications*

The LFS uses an ethnic group question similar to that used by the Census, which changed as the Census question changed. A classification of ethnic group was devised which was consistent over time, which is detailed below.

1992 onwards	Combined	2002 onwards
White	White	White-British
		White-Irish
		White-Other
Black-Other: mixed	Mixed parentage	Mixed: White/Black-Caribbean
Other-Other: mixed		Mixed: White/Black-African
		Mixed: White/Asian
		Mixed: White/Other
Indian	Indian	Indian
Pakistani	Pakistani	Pakistani
Bangladeshi	Bangladeshi	Bangladeshi
Other-Asian	Asian-Other	Asian-Other
Black-Caribbean	Black-Caribbean	Black-Caribbean
Black-African	Black-African	Black-African
Black-Other: non-mixed	Black-Other	Black-Other
Chinese	Chinese	Chinese
Other: non-mixed	Other	Other

## 6. Labour Supply Projections

The projections of labour supply (population, labour force and economic activity rates) presented in the reports are an extension of those produced for Working Futures to include an age as well as a gender dimension. They have been produced by Cambridge Econometrics as part of the development of their macroeconomic model. They provide more detailed projections of economic activity rates, labour supply and unemployment, for each of the Countries and Regions of the UK.

A full technical description of the approach is available in the *Working Futures* Technical Report. What follows is a summary of the most pertinent points.

A new set of stochastic equations to forecast economic activity rates by region and age-band/gender has been estimated and incorporated into MDM. The specification of the equations draws upon earlier work that IER undertook on behalf of DfEE<sup>10</sup> which underlies the systems currently used by DfES to construct the official projections of economic activity rates published in *Labour Market Trends*.<sup>11</sup> The remainder of the model required to construct the projections of labour supply indicators consists of a number of accounting equations to derive labour supply and unemployment from the existing labour market and demographic projections in MDM.

The key stages to determine the labour supply indicators can be summarised as follows:

- workplace based employment jobs is determined using the existing MDM equations;
- the regional labour force is determined by activity rates multiplied by the population of working-age;
- regional activity rates (by age-band/gender) are modelled as a function of unemployment and other variables, e.g. house prices relative to wages
- regional unemployment (ILO) = is determined from regional unemployment (claimant count);
- the Labour Force Survey measure of employment (employed residents) is determined from regional labour force minus regional unemployment (ILO);
- the labour market residual (one component of which is net commuting) is determined from workplace employment minus the Labour Force Survey measure of employment (employed residents).

Box 6.1 presents definitions of the various terms used.

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<sup>10</sup> Briscoe, G and R Wilson (1992) 'Forecasting economic activity rates', *International Journal of Forecasting*, pp201-217.

<sup>11</sup> The most recent official projections were published in 1998 (*Labour Market Trends*, June, pp 281-297). ONS states that revised United Kingdom projections will be published in mid-2005; it is not known when updated regional projections will be published.

The difference between the Labour Force Survey (LFS) measure and the workforce measure of employment is accounted for by the labour market residual (RLRS). As the LFS is a survey of private households, employment estimates reflect the area of residence of people with jobs. The surveys used to compile the workforce estimates of employment are surveys of employers, and so the figures at a regional level reflect the location of workplace and jobs, not the place of residence of the worker. One element of the labour market residual is therefore net commuting which results from people travelling from their place of residence, across regional boundaries to their place of work. Both the LFS and the workplace measures of employment are determined in the model and the labour market residual is calculated as the difference. Differences between the labour supply and labour demand pictures are taken up in the labour market accounts residuals, including net commuting across geographical boundaries and “double jobbing”.

In MDM, total working-age population for each region is determined by the natural increase in working-age population plus net working-age migration. Regional in- and out-migration of working-age population are both assumed to be affected by the same economic factors. The migration is modelled as occurring from the region to the outside world and vice versa. The explanatory variables used include a measure of regional surplus labour relative to the UK, the mortgage rate, relative wages and a linear time trend.

ONS projections of population are used to calculate shares by gender and by age-band. These shares are applied to the MDM forecasts of total population to produce projections of population by gender and by age-band.

## Box 6.1: Definitions of Employment and Related Labour Market Indicators

### Alternative Definitions

There are various ways of looking at employment. For example, a distinction can be made between the number of people in employment (head count) and the number of jobs. These two concepts represent different things, as one person may hold more than one job. In addition, a further distinction can be made between area of residence and area of workplace.

Similarly there are various different definitions of unemployment, the labour force, workforce and population. In *Working Futures 2004-2014* the following definitions are used:

**Residence basis:** measured at place of residence (as in the Labour Force Survey (LFS)).

**Workplace basis:** measured at place of work (as in the Annual Business Inquiry (ABI)).

**Workplace employment (number of jobs):** these are typically estimated using surveys of employers, such as the ABI, focussing upon the numbers of jobs in their establishments. In this report references to employment relate to the number of jobs unless otherwise stated.

**Employed residents (head count):** the number of people in employment. These estimates are based primarily on data collected in household surveys, e.g. the LFS. People are classified according to their main job. Some have more than one job.

**ILO unemployment:** covers people who are out of work, want a job, have actively sought work in the previous four weeks and are available to start work within the next fortnight (or out of work and have accepted a job that they are waiting to start in the next fortnight).

**Claimant Unemployed:** measures people claiming Job Seeker's Allowance benefits.

**Workforce:** the total number of workforce jobs, and is obtained by summing workplace employment (employee jobs and self-employment jobs), HM Forces, government-supported trainees and claimant unemployment.

**Labour Force:** employed residents plus ILO unemployment.

**Labour market participation** or **Economic activity rate:** the number of people who are in employment or (ILO) unemployed as a percentage of the total population aged 16 and over.

**Labour Market Accounts Residual:** workplace employment minus Residence employment. The main cause of the residual at national level is "double jobbing". At a more disaggregated spatial level, net commuting across geographical boundaries is also very significant. The difference will also reflect data errors and other minor differences in data collection methods in the various sources.

**Total Population:** the total number of people resident in an area (residence basis).

**Population 16+:** the total number of people aged 16 and above (residence basis).

**Working-age population:** the total number of people aged 16-65 (males) or 16-60 (females), (residence basis).

## Glossary

A8	Accession 8 countries: 8 of the 10 countries entering the EU in 2004 – the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia; (Malta and Cyprus were the other 2 new entrants to the EU)
BME	Black and Minority Ethnic
EEA	European Economic Area
EEDA	East of England Development Agency
ESF	European Social Fund
ESOL	English for Speakers of Other Languages
FE	Further Education
GLLaB	Greenwich Local Labour and Business
IAG	Information Advice and Guidance
LORECA	London Refugee Economic Action
NARIC	National Academic Recognition Information Centre
NASS	National Asylum Support Services
NGO	Non-Governmental Organisations
NINo	National Insurance Number
PCT	Primary Care Trust
PSA	Public Service Agreement
RCO	Refugee and Community Organisations
RDA	Regional Development Agency
SAWS	Seasonal Agricultural Workers Scheme

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