

Technical Report

Labour market data for local areas by ethnicity

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Key points

- Supplementary tables to the annual local area LFS 2002/03 have been published on the National Statistics website giving detailed regional and local area labour market characteristics by ethnic group: for example employment, unemployment, inactivity and industry.
- For the first time, data are given for all local areas within Great Britain, whereas previously results have been published only for a limited number of local areas which have large ethnic minority populations.
- Where available, the tables include confidence intervals for each estimate. The reliability of the estimates needs to be considered by the user when interpreting the labour market characteristics of ethnic minority groups within local areas.
- These one-off tables have been produced by ONS as part of ongoing work to investigate how a greater range of estimates can be published together with a reliability measure, particularly where sample sizes are small.

Introduction

ONS has produced an extensive set of supplementary regional and local area tables for the 2002/03 annual local area Labour Force Survey (LFS). These give labour market characteristics by ethnicity and include a reliability measure of the estimates in terms of confidence intervals. This new approach has allowed estimates to be published for all local areas in Great Britain for a wider range of labour market characteristics than in the past.

This is part of ongoing work to develop a new approach for reporting the reliability of annual local area LFS estimates. This article gives a few illustrative findings from the data and describes the classifications and reliability measure included in these tables. It also discusses some of the wider issues relating to the derivation, presentation and use of these data. The supplementary tables are available in Excel format and are being published on a one-off basis on the National Statistics website at www.statistics.co.uk/statbase/Product.asp?vlnk=13210

Background

The annual local area LFS datasets are the preferred source for deriving labour market information relating to ethnic minority groups. The datasets incorporate two boosts to the LFS sample in urban areas of England and Wales, which include some locations where there are higher levels of ethnic minority populations (referred to in this article as non-White). For details of the methodology used in the 2002/03 annual local area LFS see pp249-54, *Labour Market Trends*, June 2004.

ONS is undertaking a methodological study into a number of possible alternative approaches for assessing the reliability of survey estimates. As a result of this work the new supplementary tables include the confidence interval which has been derived from the standard error of each estimate. This new approach has allowed a wider range of results to be published for different labour market characteristics and ethnic groupings as summarised in **Table 1**. Descriptions of the ethnic groups, ►

Table 1

Annual Labour Force Survey supplementary tables of labour market characteristics for regions and local areas by ethnicity; United Kingdom; 2002/03

Table number	Title	Ethnic groups ^a	Regional/local area	Population
1.1	Percentage of population by ethnic group	6	Regional and local area	All
1.2	Percentage of population by ethnic group and country of birth	Country of birth ^b	Regional and local area	All
1.3	Percentage of population by ethnic group and nationality	Nationality ^c	Regional and local area	All
2.1	Percentage of working-age population by ethnic group	6	Regional and local area	Working-age
2.2	Percentage of working-age population by ethnic group and country of birth	Country of birth ^b	Regional and local area	Working-age
2.3	Percentage of working-age population by ethnic group and nationality	Nationality ^c	Regional and local area	Working-age
3.1	Working-age employment rate by ethnic group	6	Regional and local area	Working-age
3.2	Male working-age employment rate by ethnic group	6	Regional	Working-age
3.3	Female working-age employment rate by ethnic group	6	Regional	Working-age
3.4	Working-age employment rate by ethnic group and country of birth	Country of birth ^b	Regional and local area	Working-age
3.5	Working-age employment rate by ethnic group and nationality	Nationality ^c	Regional and local area	Working-age
4.1	Unemployment rate by ethnic group	2	Regional and local area	16+
4.2	Male unemployment rate by ethnic group	2	Regional	16+
4.3	Female unemployment rate by ethnic group	2	Regional	16+
4.4	Unemployment rate by ethnic group and country of birth	Country of birth ^b	Regional and local area	16+
4.5	Unemployment rate by ethnic group and nationality	Nationality ^c	Regional and local area	16+
5.1	Working-age inactivity rate by ethnic group	6	Regional and local area	Working-age
5.2	Male working-age inactivity rate by ethnic group	6	Regional	Working-age
5.3	Female working-age inactivity rate by ethnic group	6	Regional	Working-age
5.4	Working-age inactivity rate by ethnic group and country of birth	Country of birth ^b	Regional and local area	Working-age
5.5	Working-age inactivity rate by ethnic group and nationality	Nationality ^c	Regional and local area	Working-age
6.1	Percentage of working-age people employed in production industries by ethnic group	2	Regional and local area	Working-age
6.2	Percentage of working-age people employed in service industries by ethnic group	2	Regional and local area	Working-age
7.1	Percentage of working-age people in NS-SEC ^d class 1: managerial and professional occupations by ethnic group	6	Regional	Working-age
7.2	Percentage of working-age people in NS-SEC ^d class 2: intermediate occupations by ethnic group	6	Regional	Working-age
7.3	Percentage of working-age people in NS-SEC ^d class 3: routine and manual occupations by ethnic group	6	Regional	Working-age
7.4	Percentage of working-age people in NS-SEC ^d class 4: never worked and long-term unemployed by ethnic group	6	Regional	Working-age

Source: Annual local area Labour Force Survey

^a Ethnic groups: 2: White, non-White; 6: White, Mixed, Indian, Pakistani/Bangladeshi, Black, Other; country of birth: White/non-White by UK born/not UK born; nationality: White/non-UK White by UK national/not UK national.

^b UK born/not UK born.

^c UK national/not UK national.

^d National Statistics socio-economic classification.

Box 1**Advice to users**

The data published in the supplementary tables on the National Statistics website include confidence intervals for each estimate. Results have been included for all local areas in Great Britain and all UK regions, for White and non-White ethnic groups, for a number of labour market characteristics. Where the non-White ethnic population is small, the sample size for many of the estimates is small and users are advised to note that these estimates are identified in the table and are considered to be unreliable.

The user should also consider the size of the confidence interval when interpreting the results and judge the reliability of the estimate. Where confidence intervals are large, estimates may vary considerably between survey years because of sampling variability. Further information on interpreting confidence intervals is given in **Reliability of the estimates**. The confidence interval provides an absolute measure of reliability and an alternate relative measure can be derived for the estimates using the coefficient of variation, as discussed in the **technical note**.

These supplementary tables are being published on a one-off basis. ONS will consider the longer-term possibility of publishing such detailed local area labour market characteristics on a more routine basis following an internal and external evaluation of the usefulness of these tables. This is part of ongoing developments within ONS to publish a greater range of estimates with a meaningful reliability measure.

- ▶ labour market characteristics, and regional and local areas used are given in later sections of this article.

In the past, local area estimates have been published only where they were considered to have a reasonable level of reliability, also, because of small sample sizes, ethnicity estimates were published for only a limited number of local areas. For example, employment rates for the non-White ethnic group were published for only 47 local areas in the summary report of the 2002/03 annual local area LFS.

This new approach of publishing a reliability measure allows results to be given for all of the 407 local areas¹ of Great Britain included in the annual local area LFS. For each estimate the tables give the confidence interval or an identifier to show that the non-White ethnic group sampled is either zero or very small with unreliable estimates. For example, for the non-White ethnic group, employment rates and

confidence intervals are now given for 134 local areas. The other local areas have no or very small sample sizes for the non-White ethnic group, and are generally rural areas with low non-White ethnic populations. Regional results are also included in the tables for all UK regions including Northern Ireland, which has a relatively small non-White ethnic population.

Illustrative results Distribution of ethnic minority population by region and local area

The annual local area LFS shows that the non-White ethnic population accounted for 8 per cent of the UK population in 2002/03. It is known from both this and the 2001 Census that there is a higher concentration of the non-White UK population in urban areas such as London, West Yorkshire, Greater Manchester and the West Midlands. The 2001 Census,

which had full UK coverage and avoids some of the limitations of a sample survey, can be used as a reliable benchmark for comparing annual local area LFS ethnicity estimates. A census has, however, only limited information for labour market characteristics and, over the 10-year period between censuses, may not provide a reliable estimate of the non-White ethnic population in particular local or regional areas.

Table 2 shows the percentage of the population that is non-White in the UK and for each region based on the 2001 Census and the 2002/03 annual local area LFS. Differences between the two surveys may be due to actual changes over the year or may be due to the sampling variability of the latter. In 2002/03 it reported that inner London had the highest non-White ethnic population in the UK at 37 per cent and that it was over 20 per cent for outer London and the West Midlands metropolitan county.

For Great Britain, the annual local area LFS showed that in 2002/03 173 out of 407 local areas¹ had a non-White population of 2 per cent or greater. **Table 2** also shows the number of local areas in each region or subregion together with the percentage of these local areas where the non-White population is 2 per cent or greater. Six of the subregions have 75 per cent or more of local areas with a non-White population of 2 per cent or greater. As expected, rural areas such as the Rest of North East, South West and Rest of Scotland have lower levels of non-White population.

Employment rate by ethnic group, country of birth and nationality

Supplementary table 3.1 gives regional and local area working-age employment rates for White and non-White ethnic groups and five

Table 2

Non-White population by region and local area^a; United Kingdom; 2002/03

	2001 Census (per cent)	2002/03 Annual LFS (per cent)	Number of areas in region ^b	Proportion (per cent) with non-White population of 2 per cent or greater
United Kingdom	7.9	8.0		
Great Britain			407	43
England	9.1	9.3	353	48
North East	2.4	2.1	23	17
Tyne and Wear	3.2	2.7	5	40
Rest of North East	1.8	1.7	18	11
North West	5.6	5.5	43	42
Greater Manchester	8.9	9.2	10	90
Merseyside	2.9	2.4	5	20
Rest of North West	3.9	3.7	28	29
Yorkshire and the Humber	6.5	6.8	21	48
South Yorkshire	4.8	4.3	4	75
West Yorkshire	11.4	12.4	5	100
Rest of Yorkshire and the Humber	1.6	1.6	12	17
East Midlands	6.5	6.1	40	30
West Midlands	11.3	11.3	34	44
West Midlands ^c	20.1	20.6	7	100
Rest of West Midlands	3.0	2.5	27	30
East	4.9	4.6	48	52
London	28.9	30.7	33	97
Inner London	34.3	36.9	14	93
Outer London	25.4	26.7	19	100
South East	4.9	4.6	67	64
South West	2.3	2.3	44	20
Wales	2.1	2.4	22	18
Scotland	2.0	1.9	32	16
Strathclyde	2.4	2.7	12	17
Rest of Scotland	1.7	1.3	20	15
Northern Ireland	0.7	0.6	n/a	n/a

Source: Annual local area Labour Force Survey

^a LFS data from supplementary table 1.1 (see Table 1).

^b Unitary authority and local authority areas in Great Britain, excluding the Isles of Scilly.

^c West Midlands metropolitan county.

Table 3

Working-age employment rates by ethnicity and region and local area;^{a,b} United Kingdom; 2002/03

	Per cent		
	All	White	Non-White
United Kingdom	74.0 ± 0.2	75.5 ± 0.2	57.3 ± 0.9
England	74.5 ± 0.2	76.3 ± 0.2	57.4 ± 0.9
London	69.6 ± 0.7	75.1 ± 0.8	57.1 ± 1.3
Inner London			
Camden	64.4 ± 1.1	72.3 ± 1.3	49.3 ± 1.9
City of London	89 ± !	87 ± !	..
Hackney	60.0 ± 4.7	69.9 ± 5.5	44.0 ± 7.0
Hammersmith and Fulham	69.4 ± 4.3	74.4 ± 4.4	54.3 ± 10.5
Haringey	63.4 ± 5.0	72.8 ± 5.6	46.9 ± 8.7
Islington	62.7 ± 4.7	68.0 ± 5.0	44.0 ± 10.2
Kensington and Chelsea	64.0 ± 3.9	70.5 ± 3.7	47.3 ± 8.1
Lambeth	68.3 ± 4.1	73.1 ± 4.8	58.9 ± 7.5
Lewisham	69.4 ± 3.9	74.3 ± 4.5	59.4 ± 7.0
Newham	52.7 ± 3.9	63.4 ± 6.4	47.0 ± 4.7
Southwark	64.1 ± 4.3	68.2 ± 5.1	54.3 ± 7.5
Tower Hamlets	52.5 ± 4.1	72.1 ± 5.0	33.4 ± 4.7
Wandsworth	74.6 ± 3.1	79.4 ± 3.3	58.3 ± 6.7
Westminster	64.1 ± 3.4	71.5 ± 3.8	49.9 ± 6.3

Source: Annual Labour Force Survey

a Rates and 95 per cent confidence intervals are given subject to:

.. estimate and confidence interval not available since the group sample size is zero or disclosive (0,1,2);

! estimate and confidence interval unreliable since the group sample size is small (3-9), estimate is rounded.

b LFS data from supplementary table 3.1 (see Table 1).

► separate non-White ethnic groups. Tables 3.4 and 3.5 give comparable employment rates for the White and non-White ethnic groups further subdivided by country of birth or nationality. This section will briefly illustrate some of the findings from these tables.

Table 3 shows a comparison of the employment rates of White and non-White ethnic groups for the UK, England and the London region. Results are also shown for each local area in inner London. The UK employment rate for the non-White ethnic group is 18 percentage points lower than for the White

group but is 23 percentage points lower for the inner London region. The non-White employment rate for local areas within inner London varies between 14 percentage points lower in Southwark and Lambeth and 39 percentage points lower in Tower Hamlets. The confidence intervals for the non-White estimates are generally higher than for the White ethnic group for most local areas, and the reliability of the estimates is generally lower for the non-White ethnic groups. The results indicate that the non-White ethnic groups in all these areas have lower employment rates than the

White group. The results presented in supplementary table 3.1 indicate that this is consistent throughout all the regions and local areas of the UK.

Table 4 shows that individual non-White ethnic groups in Inner London may have higher or lower employment rates than the overall non-White ethnic group. For the entire Inner London region, the Pakistani/Bangladeshi group has a much lower employment rate of 35 per cent compared with the non-White rate of 49 per cent which is given in Table 3. The employment rate in Table 4 for the other individual ethnic groups is the same as or higher than the non-White rate and is highest for the Indian group at 57 per cent. The table also shows that, with the exception of the Black and Other ethnic groups, the sample size is too small in many local areas (cells with the confidence interval denoted !) to obtain a reliable estimate. The population is generally small for the individual ethnic groups in these areas and this could be checked using the results given in supplementary table 1.1. The confidence intervals for the individual ethnic groups in Table 4 are generally much higher than for the non-White group shown in Table 3, indicating that the estimates are less reliable.

Table 5 presents a comparison of the employment rates of the non-White ethnic group in the North West region and for local areas in Greater Manchester, further subdivided by country of birth or nationality. This shows that on a regional and UK basis, those who are born outside the UK or who do not have UK nationality have a slightly lower employment rate compared with the overall non-White ethnic group. This pattern is also evident in ►

Table 4

Working-age employment rates for individual non-White ethnic groups by region and local area^{a,b}; United Kingdom; 2002/03

	Per cent				
	Mixed	Indian	Pakistani/ Bangladeshi	Black	Other
United Kingdom	59.8 ± 3.3	68.4 ± 1.7	42.9 ± 1.8	60.2 ± 1.8	55.2 ± 2.0
England	60.7 ± 3.5	68.5 ± 1.7	42.4 ± 1.8	60.3 ± 1.8	55.1 ± 2.0
London	56.7 ± 6.3	68.4 ± 2.7	41.6 ± 3.4	58.5 ± 2.3	53.2 ± 2.8
Inner London	54.9 ± 8.2	56.5 ± 6.2	34.5 ± 3.6	53.1 ± 3.1	49.7 ± 3.9
Camden	55 ± !	54.4 ± 17.6	26 ± !	50.2 ± 12.6	53.2 ± 11.7
City of London
Hackney	44 ± !	48.6 ± 21.6	28 ± !	45.8 ± 9.3	42.7 ± 15.9
Hammersmith and Fulham	100 ± !	80 ± !	80 ± !	42.3 ± 14.6	57.0 ± 16.5
Haringey	49 ± !	60.0 ± 21.5	58 ± !	48.4 ± 11.9	32.4 ± 14.4
Islington	31 ± !	59 ± !	81 ± !	36.4 ± 12.6	53.4 ± 19.2
Kensington and Chelsea	42 ± !	71.1 ± 25.4	43 ± !	51.2 ± 19.2	42.5 ± 10.6
Lambeth	55 ± !	39 ± !	40 ± !	62.9 ± 9.0	54.9 ± 20.1
Lewisham	62.1 ± 20.7	72 ± !	26 ± !	62.2 ± 8.6	55.5 ± 16.1
Newham	59 ± !	52.3 ± 10.4	31.8 ± 6.6	50.2 ± 9.1	56.1 ± 11.0
Southwark	54 ± !	..	41 ± !	58.6 ± 9.1	42 ± !
Tower Hamlets	71 ± !	77 ± !	30.5 ± 4.9	36.0 ± 15.6	35.5 ± 15.5
Wandsworth	56 ± !	59 ± !	46.5 ± 17.4	58.1 ± 9.6	65.9 ± 13.5
Westminster	66.2 ± 22.9	65.4 ± 17.1	38.2 ± 14.4	50.7 ± 14.1	47.9 ± 8.8

Source: Annual local area Labour Force Survey

a Rates and 95 per cent confidence intervals are given subject to:

.. estimate and confidence interval not available since the group sample size is zero or disclosive (0,1,2);

! estimate and confidence interval unreliable since the group sample size is small (3-9), estimate is rounded.

b LFS data from supplementary table 3.1 (see Table 1).

▶ a number of the local areas, although not consistently. The published confidence intervals help in judging the reliability of such conclusions for individual local areas. The user needs to take this into account, together with the regional estimates, which are generally more reliable, when interpreting the published results.

Classifications used in the supplementary tables

The supplementary tables listed in Table 1 are grouped by the following population and labour market characteristics:

- percentage of UK population;

- percentage of working-age population;
- working-age employment rate;
- unemployment rate;
- working-age inactivity rate;
- percentage of working-age people in employment by industry; and
- percentage of working-age people by NS-SEC.

Regional and local areas

The annual local area LFS uses 12 standard government office regions (the LFS variable GOVTOF). This comprises nine English regions with the addition of Wales, Scotland and

Northern Ireland. Some of the English regions and Scotland can be further subdivided into subregions, given in the LFS variable GOVTOR. These generally correspond to urban or rural areas. Both of these regional groupings have been used in the ethnicity tables. Local areas for Great Britain are defined by 407 unitary authority/local authority areas¹ given in variable UALADGB. This excludes the Isles of Scilly, which is not included in the survey sample. No local area estimates are included for Northern Ireland, since local areas for Northern Ireland are not included in the

Table 5

Working-age employment rates for non-White ethnic groups by country of birth, nationality and region and local area;^{a,b} United Kingdom; 2002/03

	Per cent				
	Non-White	Non-White UK born	Non-White not UK born	Non-White UK national	Non-White not UK national
United Kingdom	57.3 ± 0.9	59.1 ± 1.5	56.4 ± 1.1	59.7 ± 1.1	52.4 ± 1.6
England	57.4 ± 0.9	59.3 ± 1.5	56.4 ± 1.1	59.9 ± 1.1	52.2 ± 1.7
North West	51.7 ± 2.8	54.7 ± 4.6	49.6 ± 3.7	52.0 ± 3.2	50.8 ± 5.9
Greater Manchester	49.2 ± 3.6	54.4 ± 5.7	45.4 ± 4.5	51.6 ± 4.1	41.7 ± 7.4
Bolton	59.9 ± 10.9	58.9 ± 15.2	60.6 ± 13.6	62.9 ± 11.9	46 ± !
Bury	41.2 ± 16.5	45.4 ± 23.7	37 ± !	41.4 ± 16.7	40 ± !
Manchester	43.6 ± 6.7	52.5 ± 10.7	36.4 ± 8.2	46.8 ± 7.8	35.2 ± 12.1
Oldham	43.4 ± 8.5	52.7 ± 14.6	38.1 ± 10.2	45.3 ± 9.2	36.6 ± 20.5
Rochdale	47.9 ± 8.5	48.5 ± 15.1	47.6 ± 9.9	48.3 ± 10.2	46.8 ± 18.4
Salford	61.1 ± 16.2	52 ± !	65.0 ± 21.3	64.0 ± 17.5	56.9 ± 30.8
Stockport	80.3 ± 13.8	79.9 ± 19.7	80.7 ± 18.2	83.0 ± 16.0	72 ± !
Tameside	51.0 ± 13.0	47 ± !	53.4 ± 16.4	51.2 ± 14.5	51 ± !
Trafford	52.5 ± 10.6	56.9 ± 15.9	47.9 ± 14.5	53.9 ± 12.4	47 ± !
Wigan	53 ± !	73 ± !	..	69 ± !	..

Source: Annual local area Labour Force Survey

a Rates and 95 per cent confidence intervals are given subject to:

.. estimate and confidence interval not available since the group sample size is zero or disclosive (0,1,2);

! estimate and confidence interval unreliable since the group sample size is small (3-9), estimate is rounded.

b LFS data for supplementary tables 3.1, 3.4 and 3.5.

► annual local area LFS datasets. The non-White ethnic population in Northern Ireland is, however, less than 1 per cent of the total population. UK regional and local area authority maps are available on the National Statistics website at <http://www.statistics.gov.uk/geography/default.asp>.

Ethnic groupings

Estimates are given for the following six ethnic groups:

- White;
- Mixed;
- Indian;
- Pakistani and Bangladeshi;
- Black or Black British; and
- Other (Chinese, other Asian, other ethnic groups).

Results are also included for 'all non-White', made up of the latter five categories.

This six category ethnic grouping is derived by combining appropriate categories from the more detailed 15 category ETHCEN15 variable, which has been included in the LFS since spring 2001. Sample sizes for a particular local area are generally higher when using six rather than 15 ethnic categories and this allows a greater number of local area estimates to be produced with a higher level of reliability. This is consistent with the advice on combining categories given in the ONS *Guide for the collection and classification of ethnicity data*: http://www.statistics.gov.uk/about/ethnic_group_statistics (see pages

23-5, option one, six categories of classification).

Selecting the number of categories for the supplementary tables has also been made in relation to the number of subcategories used to divide the population by particular labour market characteristics. In practice these may need to be limited to two or three categories in order for sample sizes to be sufficiently high for a range of local areas to give reasonable levels of reliability for the estimates. For this reason, selected tables are given only at the regional level as shown in **Table 1**.

Country of birth and nationality have also been used in some tables and these have been combined with White and non-White ethnic groups to give estimates for the

- ▶ following categories:
- White, UK born;
 - White, not UK born;
 - Non-White, UK born;
 - Non-White, not UK born;

or

- White, UK national;
- White, not UK national;
- Non-White, UK national;
- Non-White, not UK national.

Labour market characteristics

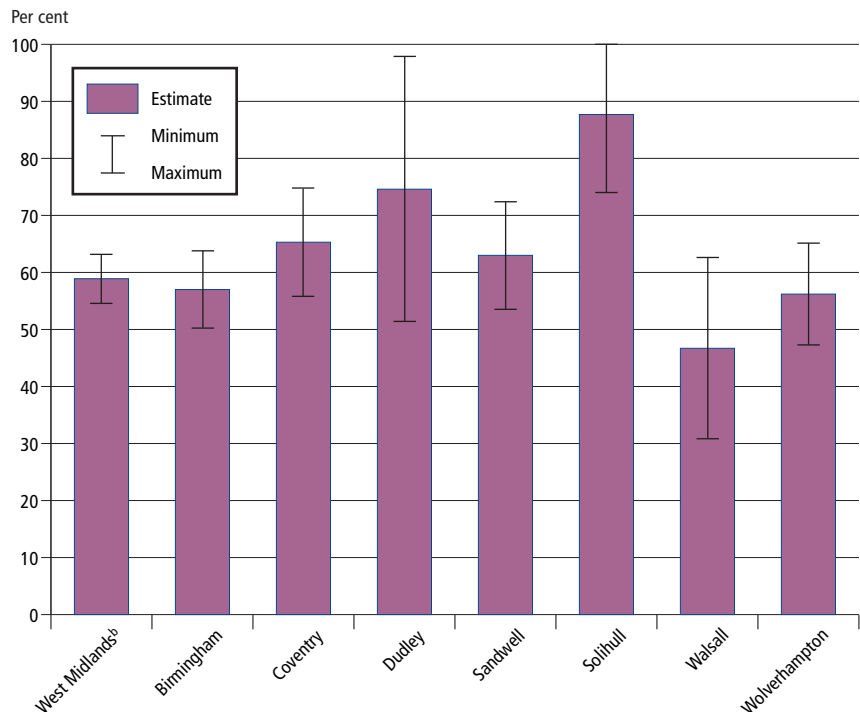
Employment and inactivity rates have been given for the working-age population and unemployment for all aged 16 and over, consistent with standard International Labour Organisation definitions. The employed include employees, self-employed, unpaid family workers and those on government employment and training programmes. Regional tables are included by sex for employment, unemployment and inactivity since it is known that this can be an important characteristic.

The industry tables are given for working-age adults who are employed in the production or service industries. Production industries include: agriculture, hunting and forestry; fishing; mining and quarrying; manufacturing; electricity, gas and water supply; and construction. Service industries include: wholesale, retail and motor trade; hotels and restaurants; transport, storage and communication; financial intermediation; real estate, renting and business activities; public administration and defence; education; health and social work; other community, social and personal; private households with employed persons; and extra-territorial organisations and bodies.

From 2001 the National Statistics socio-economic classification (NS-

Figure 1

Employment rates and confidence intervals for non-White, UK born group by local area;^a West Midlands;^b 2002/03



Source: Annual local area Labour Force Survey

^a LFS data from supplementary table 3.4 (see Table 1).
^b West Midlands metropolitan county.

SEC) has replaced social class based on occupation of people within socio-economic groups. NS-SEC is an occupationally based classification but has rules to provide coverage of the whole adult population (see http://www.statistics.gov.uk/methods_quality/ns_sec/default.asp).

Results are presented using the three-class model:

- managerial and professional occupations;
 - intermediate occupations;
 - routine and manual occupations;
- and additionally
- never worked and long-term unemployed.

Due to differences in definition, the number of adults who are categorised as never worked and long-term unemployed are not consistent with the number of

economically inactive adults. For example, an inactive female adult with dependent children who expects to be employed in the future, or an inactive retired working-age adult, are classed under NS-SEC according to their last main job rather than never worked and long-term unemployed.

Reliability of the estimates

Estimates from a sample survey are subject to sampling variability since, if many samples were drawn, each would give a different estimate. The reliability of an estimate is given by its standard error (SE) which needs to be calculated using a method which takes into account the complex sample design of the LFS. ONS uses a linear jackknife method to determine standard errors for these estimates as

Table 6

**Example of reliability measures used in supplementary tables:
population by ethnic group;^{a, b} Rest of North East region; 2002/03**

	Per cent	
	White	All non-White
Rest of North East	98.3 ± 0.4	1.7 ± 0.4
Darlington^c	98.8 ± 0.9	1.2 ± 0.9
Hartlepool^c	99.4 ± 0.6	0.6 ± 0.6
Middlesbrough^c	92.3 ± 2.0	7.7 ± 2.0
Redcar and Cleveland^c	99.5 ± 0.3	0.5 ± 0.3
Stockton-on-Tees^c	96.1 ± 1.8	3.9 ± 1.8
Durham		
Chester-le-Street	99.7 ± 0.7	..
Derwentside	100.0 ± n.a.	..
Durham	98.4 ± 2.1	2 ± !
Easington	100.0 ± n.a.	..
Sedgefield	98.6 ± 2.7	1 ± !
Teesdale	100.0 ± n.a.	..
Wear Valley	99.2 ± 1.5	..
Northumberland		
Alnwick	99.5 ± 1.0	..
Berwick-upon-Tweed	100.0 ± n.a.	..
Blyth Valley	99.2 ± 1.3	1 ± !
Castle Morpeth	99.3 ± 1.0	1 ± !
Tynedale	99.3 ± 0.9	1 ± !
Wansbeck	99.7 ± 0.5	..

Source: Annual local area Labour Force Survey

a Rates and 95 per cent confidence intervals are given subject to:

- . estimate and confidence interval not available since the group sample size is zero or disclosive (0,1,2);
- ! estimate and confidence interval unreliable since the group sample size is small (3-9), estimate is rounded.
- n.a. confidence interval is not available where estimate is 100 per cent and reliability of the estimate is not known.

b Extract from supplementary table 1.1 (see Table 1).

c Unitary authorities.

discussed by Holmes and Skinner (2000). This method has been used to determine the standard error for each estimate from which the 95 per cent confidence interval has been calculated and published in the tables.

The confidence interval (CI) gives an absolute reliability measure of an estimated rate (r) and it is expected that in 95 per cent of samples the range of the confidence interval would contain the true value, where the confidence interval is given by:

$$CI = 1.96 \times SE$$

With the availability of confidence intervals, it is possible to show the likely upper and lower value of an estimate together with its mean value. Where estimates are compared, this allows a different perception of the data to be obtained, since the size of the confidence interval may be larger for some estimates than for others and may affect a user's judgement when interpreting the reliability and comparability of the data. This is illustrated in Figure 1 for the local area employment rates of the non-

White, UK born group in the West Midlands metropolitan county subregion. For example, the confidence interval for Birmingham is 6.8 so that the estimate varies between 50.2 and 63.8, but for Dudley it is 23.2 giving a range between 51.4 and 97.8. Figure 1 shows the higher uncertainty of some estimates with a much larger confidence interval, which needs to be considered in addition to the differences in the actual estimates.

In a number of local areas the LFS sample can be small, and in some cases zero, for a particular non-White ethnic group and labour market characteristic. For these cases the standard error and estimate cannot be determined reliably and results are presented in the supplementary tables using the following symbols:

- .. estimate and confidence interval not available since the group sample is zero or disclosive² (sample size 0, 1, 2);
- ! estimate and confidence interval unreliable since the group sample size is small (sample size 3-9). The estimate is however published and rounded to the nearest integer. These estimates should not be used.

In a limited number of cases the calculated confidence interval can give an upper bound for the estimated rate which is greater than 100 per cent or a lower bound which is less than zero. For these cases the upper or lower bound should be taken as 100 or 0 per cent respectively.

Where the LFS sample in a particular local area does not include any non-White ethnic groups, the White population rate is 100 per cent. The standard error and

- confidence interval cannot be determined for these cases and are presented in the population tables 1.1-1.3 and 2.1-2.3 using the following symbol:

n.a. confidence interval is not available where estimate is 100 per cent and reliability of the estimate is not known. These estimates should not be used.

Examples of these three cases are shown in **Table 6**, which is an extract of supplementary table 1.1 and gives the White and non-White population in the local areas of the Rest of the North East region. For the urban unitary authorities in this region, the non-White population varies between less than 1 per cent for Redcar and Cleveland to nearly 8 per cent in Middlesbrough. However, for the remaining local authority areas in the counties of Durham and Northumberland, the estimates are

either not available, due to the non-White sample being zero or disclosive, or unreliable due to a small sample size. Four of these local areas also have no non-White samples giving a White population rate of 100 per cent. Users may consider using the subregional 'Rest of North East' estimate as being more appropriate for these areas.

The confidence intervals provide an absolute measure of reliability. A relative measure of reliability is given by the coefficient of variation (*CV*). This can be derived from the known estimate and confidence interval as discussed in **technical note**.

Longer-term developments

These detailed regional and local area supplementary ethnicity tables have been produced and published by ONS for this detailed format on a one-off basis. This has allowed estimates and reliability measures to be given for all local areas within Great Britain, whereas they have

previously only been published for a small number of local areas. These new tables have been produced as part of ongoing developments within ONS to investigate ways of publishing a greater range of annual local area LFS estimates together with a reliability measure, particularly where sample sizes are small. ONS will take into account users' experience with the data in these supplementary tables when considering future developments and the possibility of providing similar estimates in the longer term on a routine basis.

Further information

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Notes

- 1 There are a total of 408 local areas in Great Britain. The Isles of Scilly are not included in the LFS sample.
- 2 Disclosure rules are used to ensure that individual LFS respondents cannot be identified from the characteristics published in the tables and/or the LFS datasets. The rules also ensure that individuals cannot be identified by deriving information, for example by subtraction, from a number of cells in a table. The disclosure risk is less where rates, rather than levels, are published.

References

- Hastings D. and Traynor J., 'Methodology for 2002/03 annual local area Labour Force Survey data', *Labour Market Trends*, June 2004.
- Holmes D. J. and Skinner C. J., 'Variance estimation for Labour Force Survey Estimates of Levels of Change', GSS Methodology Series no 21, Office for National Statistics.

Further information

Related ONS ethnicity publications

The ONS website also includes a comprehensive UK analysis of White and ethnic minority groups, including non-labour market characteristics. A summary report can be found at <http://www.statistics.gov.uk/focuson/ethnicity/default.asp> and a more detailed report, *Social Focus in Brief: Ethnicity 2002*, is available at <http://www.statistics.gov.uk/statbase/Product.asp?vlnk=9763>. These reports include data from a number of sources and are updated on a routine basis.

Technical note

Relative reliability measure – coefficient of variation

An alternative reliability measure to using the confidence interval is given by the CV which is obtained by expressing the standard error (SE) as a percentage of the estimate r :

$$CV = 100 \times \frac{SE}{r}$$

If the confidence interval is known, the CV can be determined directly from:

$$CV = \frac{100}{r} \times \frac{CI}{1.96} = 51.02 \times \frac{CI}{r}$$

The CV has the advantage of being a relative rather than an absolute measure and can be used to summarise the number of estimates which have a high or low reliability. This is illustrated in **Table 7** for the employment, unemployment and inactivity supplementary tables. The CV of each estimate has been determined from the confidence intervals (CI) given in the supplementary tables 3.1, 4.1 and 5.1. The local area estimates for each ethnic group have been allocated to four CV groups:

CV is less than or equal to 10 per cent;

CV is more than 10 per cent and less than or equal to 20 per cent;

CV is more than 20 per cent and less than or equal to 40 per cent;

CV is more than 40 per cent.

The above CV bands can be considered to group the estimates according to high, moderate and low reliability, although there is no consensus at present on the boundaries and number of groups which should be used for such a rating.

The percentage of local areas in Great Britain which have CVs in the defined groups is shown in **Table 7**, together with the number of local areas for which there is either no data/a disclosive sample size or a small sample size. This shows that there are a greater number of local areas with less reliable estimates for the non-White than White ethnic groups, and similarly for the non-White ethnic group further subdivided into the five individual ethnic groups. It can also be seen that there are a higher number of local areas with more reliable estimates for employment than inactivity and that unemployment has the lowest number of reliable local areas. This pattern reflects the sample sizes and rates for these labour market characteristics. Results for unemployment are only given in supplementary table 4.1 for the White/non-White groups and are not given for the five individual non-White groups because of the relatively low unemployment rate and the resulting small sample sizes for such estimates.

Table 7

Proportions of local areas with estimates in each coefficient of variation/reliability group;^a United Kingdom; 2002/03

	No data/ disclosive	Small sample (unreliable estimate)	Coefficient of variation				Total
			Less than or equal to 10 per cent	More than 10 per cent and less than or equal to 20 per cent	More than 20 per cent and less than or equal to 20 per cent	More than 40 per cent	
Working-age employment^b							
All	0.0	0.2	99.5	0.2	0.0	0.0	100
White	0.0	0.2	99.5	0.2	0.0	0.0	100
All non-white	35.1	31.9	16.7	14.5	1.7	0.0	100
Mixed	78.4	19.2	0.0	1.7	0.7	0.0	100
Indian	67.1	18.7	6.4	6.6	1.2	0.0	100
Pakistani/Bangladeshi	75.2	14.7	2.0	6.6	1.5	0.0	100
Black	75.2	12.0	4.2	8.1	0.5	0.0	100
Other	59.0	25.6	2.0	9.3	4.2	0.0	100
Unemployment^c							
All	9.3	39.3	0.5	26.3	24.6	0.0	100
White	9.3	39.3	0.5	26.3	24.6	0.0	100
All non-white	80.3	9.3	0.0	2.5	7.9	0.0	100
Working-age inactivity^d							
All	0.2	1.2	30.2	60.0	8.4	0.0	100
White	0.2	1.2	30.2	60.0	8.4	0.0	100
All non-white	55.8	20.9	6.1	12.8	4.4	0.0	100
Mixed	89.2	10.3	0.0	0.2	0.2	0.0	100
Indian	82.3	11.1	0.5	3.4	2.7	0.0	100
Pakistani/Bangladeshi	77.9	12.0	2.2	6.6	1.2	0.0	100
Black	83.8	7.6	0.0	6.1	2.5	0.0	100
Other	72.2	16.0	0.2	5.7	5.9	0.0	100

Source: Annual local area Labour Force Survey

a LFS data from supplementary tables 3.1, 4.1 and 5.1 (see Table 1).

b Coefficients of variations derived from confidence intervals in supplementary table 3.1.

c Coefficients of variations derived from confidence intervals in supplementary table 4.1.

d Coefficients of variations derived from confidence intervals in supplementary table 5.1.