



A guide to comparing 1991 and 2001 Census ethnic group data

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Executive summary

1 Introduction

An ethnic group question has been asked in two successive population Censuses. It was first asked in the 1991 Censuses in England, Scotland and Wales and was then repeated in the 2001 Census in all four countries of the United Kingdom, including Northern Ireland. Differences in the ethnic group questions, coding and in the methods for treatment of under-enumeration complicate the making of direct comparisons between 1991 and 2001. This guide describes and analyses the differences and provides recommendations for users who wish to compare ethnic group data collected at the two Census points.

2 Ethnic group questions in 1991 and 2001

England, Wales and Scotland all asked the same ethnic group question in 1991. Northern Ireland did not include an ethnic group question in 1991. All four countries included an ethnic group question in their 2001 Census but the questions in Scotland and Northern Ireland each differed from the England and Wales question.

England, Wales and Scotland increased the number of ethnic group categories, adding new White categories and Mixed categories in 2001: Scotland included four White categories and one Mixed category; England and Wales included three White categories and four Mixed categories. Northern Ireland presented one White category and one Mixed category but included a new ethnic group category for 'Irish Traveller'.

3 Treatment of non-response in 1991 and 2001

It is widely accepted that no census will succeed in completely enumerating the population, and this is true of the 1991 and the 2001 censuses, where population data were adjusted to take account of the under-enumeration. However, the treatment of under-enumeration differed between the 1991 and 2001 censuses. In 1991, adjustment factors were calculated which could be applied to previously published census counts. In 2001, the One Number Census (ONC) project was designed from the beginning to enable the integration of census counts with the estimated level of under-enumeration. Households and persons estimated to have been missed by the census were imputed to produce a fully adjusted census database at the time of publication. Since rates of under-enumeration vary by ethnic group, users are advised to take account of the effect of under-enumeration when comparing 1991 and 2001 census ethnic group data.

4 Changes to ethnic identification

Analysis of ONS Longitudinal Study (LS) data on reporting of ethnicity by the same individuals in 1991 and 2001 in England and Wales showed that the following main ethnic groups can be reliably compared between 1991 and 2001: White, Indian,

Pakistani, Bangladeshi and Chinese. The Black African and Black Caribbean groups exhibit less stability between Censuses than the other main groups, but will be sufficiently stable for many comparative analyses. The 'Other' ethnic groups of 1991 and 2001 all exhibit very low stability and are not suitable for comparison.

Analysis was also conducted using data from the Labour Force Survey (LFS) in 2000/01, when respondents were asked to provide their ethnic group using the 1991 categories in the Winter 2000 wave and using the 2001 categories in the Spring 2001 wave. This indicated greater stability for all groups from one LFS wave to the next than from the 1991 to 2001 Censuses. By far the largest differences occurred for the Black African and Black Caribbean groups whose stability of self-identification was much greater between LFS waves than between the 1991 and 2001 Censuses.

5 Recommendations for comparing 1991 and 2001 Census ethnic groups

Users are presented with four approaches for combining ethnic group categories in order to increase the reliability of 1991 and 2001 comparisons: a ten-category classification; an eight-category classification; a five-category classification; and a two-category classification. Classifications in which more groups are combined offer greater stability, but at the cost of losing the detail of specific ethnic groups. Users are advised that consideration about which classification to adopt should take account of the balance between reliability and ethnic group detail. The decision about which classification to use will depend on the specific analysis.

6 Changes in ethnic group numbers between 1991 and 2001

Adjusting the 1991 Census counts of the population of England and Wales for under-enumeration, and for the effects of having a smaller number of categories offered in 1991 than in 2001, alters the picture of population change by ethnic group over the decade. Adjusting for under-enumeration in 1991 reduces the percentage growth of all ethnic groups, but does so more for the ethnic groups with the highest rates of under-enumeration.

Some depletion from the main ethnic group categories occurs between 1991 and 2001 due to the wider range of categories presented in the 2001 Census question. This is especially through the inclusion in 2001 of the four Mixed ethnic group categories. The quantitative effects of reclassification of people to these additional ethnic groups are proportionately largest for the Black Caribbean and Black African populations.

1 Introduction

1.1 In 2004 the Office for National Statistics published *Census 2001: Definitions*. This advised users that ONS would “publish further guidance on comparing results on ethnic group on the 1991 and 2001 classifications”.¹ This guide meets that commitment to provide users with advice on using the 1991 and 2001 Census ethnic group questions in order to examine changes between the two censuses. The comparison of Census data with survey or administrative data on ethnicity is outside the scope of this guide.²

1.2 An ethnic group question was asked for the first time on the 1991 Census in England, Wales and Scotland. An ethnic group question was not asked in Northern Ireland. Census data provide the best opportunity for measuring the size and characteristics of small groups such as ethnic minority populations.

1.3 An ethnic group question was asked again in 2001. Northern Ireland also included an ethnic group question in their 2001 Census. The inclusion of an ethnic group question in successive Censuses presents the opportunity to look at trends in ethnic populations. Comparison across Censuses is useful in identifying how groups are changing, experiencing gains or becoming more disadvantaged.

1.4 Following a programme of consultation and question testing, changes were made to the ethnic group questions for 2001.³ The 2001 questions in England and Wales and in Scotland were more detailed than the question of 1991. The changes to the question categories enabled the collection of more precise information about ethnic groups. However, the question changes had the disadvantage of making it more difficult to conduct comparisons between the two Censuses.

1.5 Imputation to take account of under-enumeration was also undertaken differently in 1991 and 2001. In 1991, data were imputed only where they were missing from returned Census forms or where households or individuals were known or estimated by enumerators in the field to have been missed. It was widely accepted that the follow-up survey, the Census Validation Survey (CVS) in 1991, failed to detect the full extent of the undercount of the population.⁴

1.6 In 2001, imputation was more extensive. In addition to the imputation undertaken in 1991, the One Number Census (ONC) was established to ensure that under-enumerated households and individuals were included in the Census population estimates. The process used the results of a Census Coverage Survey (CCS) to estimate the size and characteristics of non-responding households and individuals. The differences in the treatment of non-responding units further complicate comparisons between 1991 and 2001.

1.7 This guide uses data on individual change in ethnic self-identification between the 1991 and 2001 Census classifications from two sources: the ONS Longitudinal Study (LS) of England and Wales and the Labour Force Survey (LFS). The ethnic group categories of Longitudinal Study members in 1991 and 2001 are as recorded in these respective Censuses. Respondents to the Labour Force survey were asked the

1991 and 2001 questions in the winter 2000 and spring 2001 waves, with an interval of no more than six months.

1.8 LS data are used to examine five approaches for combining ethnic group categories in order to increase the reliability of analysis of ethnic group changes between the two Censuses. Classifications in which more groups are combined have the advantage of greater stability. Disadvantages are that combining groups produces heterogeneous rather than distinct ethnic populations. Recommendations include advising users to utilise the most detailed classifications where possible.

1.9 The guide concludes with a comparison of population sizes for the main ethnic populations in 1991 and 2001 in England and Wales, using the full sets of ethnic group categories available in each Census. For the seven main ethnic groups, alternative estimates of population change are presented. The estimates explore the effects of alternative under-enumeration adjustments in 1991 and of adjustments for question change between 1991 and 2001. The main conclusion is that estimates of change in the Black Caribbean and Black African populations are the most sensitive to ethnic group reclassification between 1991 and 2001 and to alternative undercount adjustments.

Structure of the guide

1.10 The guide contains six chapters. Chapter 2 describes the differences between the 1991 and 2001 Census ethnic group questions and the differences between the questions asked in the four countries of the United Kingdom in 2001. Chapter 3 describes the different approaches adopted in 1991 and 2001 to counteract the effects of Census non-response. Chapter 4 uses data from the ONS Longitudinal Study (LS) and the Labour Force Survey (LFS) to examine changes in respondent's ethnic identification and considers some of the explanations for changing ethnic identification. Chapter 5 presents recommendations for combining the 1991 and 2001 ethnic categories in order to measure change within ethnic groups over the period. Chapter 6 examines the changing ethnic profile of the population of England and Wales when various adjustment factors are applied to 1991 ethnic group data and account is taken of the 1991 to 2001 changes in the classifications.

2 Ethnic group questions in the 1991 and 2001 Censuses

The 1991 ethnic group question in Great Britain

2.1 A question on ethnic group was included in the population Censuses of England, Wales and Scotland for the first time in 1991 (see Figure 1). All three countries asked the same ethnic group question. Northern Ireland did not include an ethnic group question in 1991. The 'Other Asian' category was not included on the 1991 Census form but was subsequently created, post-census, from answers provided in the 'Black-Other' and 'Any other ethnic group' write-in boxes (see 2.13).

Figure 1 The 1991 Census ethnic group question asked in England, Wales and Scotland

Ethnic group																																														
Please tick the appropriate box	<table border="0"> <tr><td>White</td><td><input type="checkbox"/></td><td>0</td></tr> <tr><td>Black-Caribbean</td><td><input type="checkbox"/></td><td>1</td></tr> <tr><td>Black-African</td><td><input type="checkbox"/></td><td>2</td></tr> <tr><td>Black-Other</td><td><input type="checkbox"/></td><td></td></tr> <tr><td colspan="3"><i>please describe</i></td></tr> <tr><td colspan="3"><input type="text"/></td></tr> <tr><td colspan="3"><input type="text"/></td></tr> <tr><td>Indian</td><td><input type="checkbox"/></td><td>3</td></tr> <tr><td>Pakistani</td><td><input type="checkbox"/></td><td>4</td></tr> <tr><td>Bangladeshi</td><td><input type="checkbox"/></td><td>5</td></tr> <tr><td>Chinese</td><td><input type="checkbox"/></td><td>6</td></tr> <tr><td>Any other ethnic group</td><td><input type="checkbox"/></td><td></td></tr> <tr><td colspan="3"><i>please describe</i></td></tr> <tr><td colspan="3"><input type="text"/></td></tr> <tr><td colspan="3"><input type="text"/></td></tr> </table>	White	<input type="checkbox"/>	0	Black-Caribbean	<input type="checkbox"/>	1	Black-African	<input type="checkbox"/>	2	Black-Other	<input type="checkbox"/>		<i>please describe</i>			<input type="text"/>			<input type="text"/>			Indian	<input type="checkbox"/>	3	Pakistani	<input type="checkbox"/>	4	Bangladeshi	<input type="checkbox"/>	5	Chinese	<input type="checkbox"/>	6	Any other ethnic group	<input type="checkbox"/>		<i>please describe</i>			<input type="text"/>			<input type="text"/>		
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If the person is descended from more than one ethnic or racial group, please tick the group to which the person considers he/she belongs, or tick the 'Any other ethnic group' box and describe the person's ancestry in the space provided.																																														

2.2 In 2001, all four countries of the United Kingdom, including Northern Ireland, included an ethnic group question in their Censuses. England, Wales and Scotland revised their ethnic group questions. The four countries did not ask the same question in 2001: England and Wales both asked the same revised ethnic group question in 2001 (Figure 2); Scotland asked a different revised question (Figure 3); the question in Northern Ireland was similar to the Census 1991 question asked in Great Britain but included separate categories for 'Irish Traveller' and 'Mixed ethnic group' (Figure 4).

The 2001 Census ethnic group question in England and Wales

2.3 The 2001 Census ethnic group question in England and Wales included the new categories White British, White Irish, Other White and Other Asian plus four new Mixed ethnic group categories. Discussion of the changes from the 1991 Census follows further below.

Figure 2 The 2001 Census ethnic group question asked in England and Wales

8 What is your ethnic group?

Choose **ONE** section from **A** to **E**, then tick the appropriate box to indicate your cultural background.

A White

- British Irish
- Any other White background,
please write in

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--	--	--	--	--	--	--	--

B Mixed

- White and Black Caribbean
- White and Black African
- White and Asian
- Any other Mixed background
please write in

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--	--	--	--	--	--	--	--

C Asian or Asian British

- Indian Pakistani
- Bangladeshi
- Any other Asian background
please write in

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--	--	--	--	--	--	--	--

D Black or Black British

- Caribbean African
- Any other Black background
please write in

--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--

E Chinese or other ethnic group

- Chinese
- Any other, *please write in*

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The 2001 Census ethnic group question asked in Scotland

2.4 Scotland included the new categories White Scottish, White Irish, White Other British, Other White, Other Asian plus one Mixed ethnic group category. Scotland also changed the presentation of the Chinese ethnic category and included Chinese within the Asian group, rather than grouping Chinese with 'Other Ethnic Group' as had been done in previously in the 1991 Census and repeated in England and Wales for the 2001 Census.

Figure 3 The 2001 Census ethnic group question asked in Scotland

8 What is your ethnic group?

Choose **ONE** section from A to E, then tick the appropriate box to indicate your cultural background.

A White

- Scottish
- Other British
- Irish
- Any other White background

please write in

--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--

B Mixed

Any other Mixed background

please write in

--	--	--	--	--	--	--	--

--	--	--	--	--	--	--	--

C Asian, Asian Scottish or Asian British or Asian British

- Indian
- Pakistani
- Bangladeshi
- Chinese
- Any other Asian background

please write in

--	--	--	--	--	--	--	--

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D Black, Black Scottish or Black British

- Caribbean
- African
- Any other Black background

please write in

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E Other ethnic background

Any other background

please write in

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The 2001 Census ethnic group question in Northern Ireland

2.5 The 2001 Census question in Northern Ireland differed from the questions asked in England, Wales and Scotland in a number of respects. There was only one category for 'White', which corresponded with the 1991 Census question asked in Great Britain, but Northern Ireland included a new category of 'Irish Traveller' which was not asked elsewhere in the United Kingdom. Other differences between Northern Ireland and the other three countries of the United Kingdom were that the 'Chinese' category was presented after 'White' and there was no write-in box for the 'Black Other' group. Northern Ireland included one Mixed category, as had been done in Scotland in 2001.

Figure 4 The 2001 Census ethnic group question asked in Northern Ireland

To which of these ethnic groups do you consider you belong?

Tick one box only

- White
- Chinese
- Irish Traveller
- Indian
- Pakistani
- Bangladeshi
- Black Caribbean
- Black African
- Black Other
- Mixed ethnic group,
write in
- Any other ethnic group,
write in

Changes to the 1991 and 2001 ethnic group questions in England and Wales

2.6 The ethnic group questions asked in 1991 and 2001, and subsequent coding of responses, are now considered in greater detail for England and Wales only. These are the questions and ethnic group categories which form the main basis for analysis in subsequent chapters. The 2001 Census ethnic group question in England and Wales used different terminology, had different answer categories, and gave different instructions to respondents than in 1991.

2.7 The 1991 Census ethnic group question was headed “*Ethnic group*” and asked respondents to “*Please tick the appropriate box*”. Instructions for people from a Mixed group used the terms “*descended*” and “*ancestry*”. In 2001, respondents were asked, “*What is your ethnic group?*” and were instructed to, “*Choose one section from A to E, then tick the appropriate box to indicate your cultural background*”. The term ‘cultural background’ conceptualised ethnicity differently from the terms ‘descent’ or ‘ancestry’.

Answer categories for White and Mixed groups

2.8 The 1991 Census had one category for all White respondents. In 2001, the number of White categories was increased. Respondents could choose between White British, White Irish and Any Other White background.

2.9 The 1991 Census did not include a specific ‘mixed’ ethnic group category. Previous research had indicated that people of mixed descent often preferred not to be distinguished as a separate group, choosing instead to identify with the ethnic group of one of their parents. The 1991 ethnic group question included a guidance note which stated, “*If the person is descended from more than one ethnic or racial group, please tick the group to which the person considers he/she belongs, or tick the ‘Any other ethnic group’ box and describe the person’s ancestry in the space provided*”. Fieldwork to determine a revised ethnic group question for the 2001 Census indicated that a mixed category would be acceptable provided that an opportunity were given to specify the ethnic groups from which people were descended.⁵ The 2001 Census included four new ethnic group categories, reflecting the main Mixed groups: White and Black Caribbean; White and Black African; White and Asian; and Any Other Mixed background.

Write-in answers

2.10 In the 1991 Census, respondents were given the option to write-in their ethnic group at two categories, Black-Other and Any Other Ethnic Group. In the 2001 Census, the number of write-in spaces was increased to five. Write-in boxes were provided for the Other White, Other Mixed, Other Black, Other Asian, and Any Other categories.

Ethnic group sub-headings

2.11 In the 1991 Census, there was no opportunity for respondents to register their national identity. Some black respondents used the Other Black category to write in their ethnic group as “*Black British*”. In 2001, the Black and Asian categories included the sub-headings “*Black or Black British*” and “*Asian or Asian British*”, recognising the strong British identity of many Black and Asian people. The sub-headings did not represent categories that respondents could tick, however, and ‘Black British’ was written in by almost two thirds (63 per cent) of respondents who ticked Other Black in 2001.⁶ 

Other Asian: post-Census coding in 1991 and a tick-box category in 2001

2.12 In the 1991 Census, respondents were not presented with a category for Other Asian. The 1991 Other Asian category was created post-Census from the written answers provided in the write-in boxes attached to the Other Black and Other ethnic group categories.⁷ People were allocated to the Other Asian category if their written description indicated that they originated from Southern Asia or South-East Asia. The 1991 Other Asian group included people classified as ‘East African Asians’ or ‘Indo-Caribbean Asians’ who had entered their written description within the ‘Black-Other’ write-in box on the census form. It also included people from the Far East, including those from Japan, the Philippines, Vietnam and Malaysia, who had entered a written description within the ‘Any other ethnic group’ write-in box.

2.13 In 2001, ‘Other Asian’ was included as an ethnic group category on the Census form. It was included under the sub-heading ‘Asian or Asian British’ and was listed on the form after the Indian, Pakistani and Bangladeshi categories. Respondents were provided with a write-in box to describe their ethnic group. Where respondents’ write-in entries described a country in the Far East, for example, “Malaysian”, they were re-classified to the ‘Other Ethnic Group’ category following the Census. Most people from Far Eastern countries provided a description and were subsequently re-classified to ‘Other Ethnic Group’. A minority of those born in Far Eastern countries did not write in any description and they remained within the Other Asian group.

2.14 A comparison of the countries of birth of the Other Asian group in 1991 and 2001 demonstrates the large differences in the composition of the groups. In 1991, 40 per cent of the Other Asian group had been born in the Far East, 22 per cent in the UK, 15 per cent in Sri Lanka, and just 1 per cent in the Middle East.⁸ By comparison, in 2001, just 2 per cent of the Other Asian group had been born in the Far East and much larger proportions had been born in the UK (31 per cent), Sri Lanka (24 per cent) and the Middle East (16 per cent).⁹ It would be inappropriate to compare these two populations. Users wishing to look particularly at groups such as those from Sri Lanka, Far Eastern or Middle Eastern countries, would be advised to use the country of birth variable for further analysis.

2.15 The changes to the ethnic group question described in this chapter have important implications for analysis of trends in ethnic populations. Other important

differences between the 1991 Census and 2001 Census concern the treatment of missing data and the extent of imputation – both imputation of ethnic group in returned Census forms and, more importantly, imputation of ethnic minority persons. These important issues are discussed in chapter three.

3 Treatment of non-response in the 1991 and 2001 Censuses

3.1 All Censuses experience some non-response, either for persons or households ('under-enumeration') or for particular questions on returned Census forms ('item non-response'). Non-response carries a risk of introducing bias to estimates in the case that the characteristics of non-responders are very different to the characteristics of responders. Imputation is undertaken both to correct population totals for under-enumeration and to correct for non-response bias. Imputation was undertaken differently in 1991 and 2001.

3.2 In 1991, data were imputed only where missing on returned Census forms or where households or individuals were *known or estimated by enumerators in the field* to have been missed. This occurred where Census enumerators in the field were aware of the existence of particular people or households but were unable to obtain completed Census forms from them.

3.3 In 2001, imputation was more extensive.¹⁰ In addition to the two types of imputation undertaken in 1991, information about the known characteristics of respondents was used to produce estimates of all households and individuals believed to have been missed from Census enumeration. Records of missing individuals, with imputed characteristics, were then created. These records were added to the Census database to produce fully enumerated population estimates. The differences in the treatment of non-responding units have important implications for users wishing to compare 1991 and 2001 Census data. This is discussed in the following sections.

Under-enumeration and imputation in the 1991 Census

3.4 Ethnic group was imputed on 1.2 per cent of returned Census forms in 1991 where ethnic group data were missing or invalid.¹¹ The method of imputation consisted of inferring the value from a series of tables reflecting the relationship between the item to be imputed and other Census variables.¹² 

3.5 Households and individuals were imputed where a Census enumerator indicated that a non-responding household existed. Records for the household and individuals were imputed by copying data from donor records. The donor records were selected with regard to the type of area, the number of people in the household recorded or estimated by the enumerator, the number of rooms recorded or estimated by the enumerator, and whether accommodation was self-contained. In total, 1.6 per cent of all households and 869,098 persons were imputed. Of all imputed persons, 13.2 per cent were allocated to an ethnic minority group. This was a much larger proportion than was reflected in the relative overall size of the ethnic minority population. Imputed persons represented 3.8 per cent of all ethnic minority records compared with 1.6 per cent of total records.¹³ No further imputation was undertaken to correct for household non-response.

3.6 Following publication of 1991 Census results, concerns were expressed about the extent of undercoverage and methodological work was undertaken to estimate its magnitude and distribution.

3.7 The results indicated that undercoverage varied by age, sex and area type. Undercoverage was greater among those aged 0-4, 20-34 and 85 and over. Men were more likely to be under-represented in the 20-34 age band and women were more likely to be under-represented in the 85 and over group. Undercoverage was greater in urban areas and greatest in London.¹⁴

Adjustment factors for application to 1991 Census counts

3.8 In 1994, OPCS/GRO(S) published User Guide 58, which presented adjustment factors for estimated undercoverage in the 1991 Census and explained how the adjustment factors should be used.¹⁵ Adjustment factors were produced for various area types and age/sex bands. From these, adjustment factors for ethnic groups were derived. Users were advised to apply the adjustment factors to published figures, “where the user requires simple counts of the population ... in a local authority or health authority area (or an aggregate of such areas), rather than any relationship with other census topics”.¹⁶

3.9 The adjustment factors for England, Wales, Scotland and Great Britain are presented in Appendix Table 1 and Appendix Table 2. They are disaggregated by sex, age and area type, and indicate the variation in estimated non-response among different groups. Adjustment factors are larger for young people, particularly young men, and larger for people living in urban areas. Adjustment factors derived for ethnic minority populations are larger than those for the White population because ethnic minority populations have a younger age profile and are concentrated in urban areas. For example, the overall adjustment factor for all persons in Great Britain is 1.02 but this rises to 1.10 for Black Caribbeans aged 25 to 29 years and rises further to 1.16 for Black Caribbean men aged 25 to 29 years (Appendix Table 2).

3.10 In 1996, the ‘Estimating with Confidence’ project went further still, providing mid-year estimates for 1991 at electoral ward level for England and Wales and postal sector level for Scotland. These estimates for smaller areas, which were needed to calculate employment, health and other indices, were consistent with estimates for larger areas.¹⁷

3.11 Table 5 shows the results when the Estimating with Confidence Project adjustment factors are applied to ethnic populations in England and Wales. The adjusted population figures are produced by, ‘*multiplying the published Census count for every ethnic group in an age-sex category for a local area, by the relevant adjustment factor, and summing the results for every local area in England and Wales to give an adjusted count for the total population of that ethnic group*’.¹⁸

Table 5 Implications of the 1991 Census undercount

England and Wales				Numbers
Ethnic group	Published census count of residents	Total population including estimated undercount	Overall adjustment factor	
White	46,938,466	47,935,395		1.021
Black Caribbean	499,325	518,465		1.038
Black African	209,665	220,603		1.052
Black Other	175,493	184,062		1.049
Indian	829,966	856,474		1.032
Pakistani	455,443	474,364		1.042
Bangladeshi	161,626	167,618		1.037
Chinese	146,156	152,365		1.042
Other Asian	192,857	200,043		1.037
Other ethnic group	281,496	293,077		1.041
All groups	49,890,483	51,002,465		1.022

Source: Simpson S (1996) Non-response to the 1991 Census: the effect on ethnic group enumeration, p66, in Coleman D and Salt J Ethnicity in the 1991 Census, Volume One; Demographic Characteristics of the Ethnic Minority Populations, HMSO, London

3.12 A further series of adjustment factors were later proposed which provided revised ward-level estimates of the 1991 population by ethnic group, employment status and tenure (SOCPOP).^{19 20} These estimates produced a total population for England and Wales only slightly larger than the population produced with the Estimating with Confidence adjustment factors, but the adjustments to ethnic minority groups were much greater. The SOCPOP adjustment factors Black Africans, for example, were 18 per cent.

3.13 Population estimates for 1991 underwent further revision in 2003. The mid-year population estimates were revised in light of the results of the 2001 Census which indicated that earlier estimates, based on the 1991 Census, may have overestimated the population in some areas. The revisions estimated the population of Great Britain at 55.8 million in mid-1991²¹, which was lower than the Census day 1991 population for Great Britain derived by applying adjustment factors from the Estimating with Confidence Project to published census counts (56.0 million)²², but still higher than the unadjusted Census day 1991 population (54.9 million)²³. The revised estimates were produced for the total population, and disaggregated by age and sex, but no revised estimates were produced for ethnic groups.

Under-enumeration and imputation on the 2001 Census

3.14 Despite every effort it was always accepted that the 2001 Census would not fully enumerate the population and that some imputation would be required if Census results were to cover the entire population. The One Number Census (ONC) project

was designed from the beginning to enable the integration of Census counts with the estimated level of under enumeration.²⁴

3.15 The ONC process involved a Census Coverage Survey (CCS) in selected areas during May to June 2001. Records from the CCS were compared with returned Census records. From this, estimates were made of persons missed by both the Census and the CCS. Households and persons estimated to have been missed by the Census were then imputed to produce a fully adjusted Census database.²⁵ The ONC process resulted in 3.2 million people being imputed in England and Wales.²⁶

3.16 For information about ethnic group in particular, there were two types of missing information requiring imputation, item imputation and person imputation.

Item Imputation in 2001

3.17 An answer to the ethnic group was imputed on 2.9 per cent of returned Census forms. This is known as *item imputation*. It was undertaken where an answer to the ethnic group question was missing or invalid. Eighty-nine per cent of imputed ethnic group items were assigned to a White group but this proportion was less than their share of the general population (92 per cent). Item imputation was higher for ethnic minority groups, relative to their size in the general population. An Asian ethnic group was assigned for 6 per cent of imputed records while Asian people comprised 4 per cent of the population. Three per cent of imputed ethnic group records were assigned to a Black group, while Black groups comprised less than 2 per cent of the population.²⁷

3.18 Item imputation was carried out using the Donor Imputation System. This procedure involves searching for a single donor household to supply all the missing variables in a recipient household. The search looks at all records in an Estimation Area containing about 500,000 people. The method searches for a donor using up to five matching variables. Potential donor households were scored according to how closely they matched the recipient household. Where potential donors scored equally the donor who lived geographically closest to the recipient was chosen. Record values were then carried over from the donor to the recipient record.

Person imputation in 2001

3.19 In addition to the imputation of individual items on returned census forms, complete record for households and individuals were also imputed, using a similar process to the donor imputation system.²⁸ The CCS indicated that people from non-White ethnic groups were more likely than their White counterparts to be missed by the Census. Consequently, people from ethnic minority groups formed a larger proportion of imputed cases, relative to their sizes in the general population.

3.20 Table 6 shows the distribution of imputed records across ethnic groups and the imputations rate for each ethnic group in England and Wales. As many as 29 per cent of imputed records were classified to an ethnic group other than White British. This was more than double the proportion of the total population from an ethnic group other than White British (12 per cent).²⁹

3.21 Imputation of ethnic group varied by region. London had relatively high rates of imputation, having a number of characteristics associated with high rates of under enumeration. These include a high ethnic minority population, a relatively young population and a greater number of hard-to-reach addresses. The Census response rate in Inner London was 78 per cent, compared with 94 per cent for England and Wales. The response rate in Tower Hamlets, for example, which has a large Bangladeshi population, was just 76 per cent.³⁰ Almost half (43 per cent) of all records which were imputed for London were imputed to a non-White ethnic group, including 21 per cent imputed to a Black ethnic group and 16 per cent imputed to an Asian group.³¹

3.22 Imputation rates nationally also varied by ethnic group. Although only 6.2 per cent of the total Census population were imputed, the percentage of an individual ethnic group who were imputed was often much greater. In some ethnic minority groups more than one in five people were imputed. The Black African population in particular, who are largely based in London, had high rates of under-enumeration and consequently 29 per cent of the Black African population were imputed.³²



Table 6 2001 Census imputation distribution and imputation rate by ethnic group

England and Wales			Percentages
Ethnic group	Percentage of all imputed records	Percentage of the general population	Person imputation rate (per cent)
British	71.1	87.5	5.0
Irish	1.6	1.2	8.0
Other White	4.1	2.6	10.0
White and Black Caribbean	0.6	0.5	8.8
White and Black African	0.2	0.2	10.1
White and Asian	0.4	0.4	7.4
Other Mixed	0.4	0.3	8.9
Indian	4.5	2.0	14.1
Pakistani	3.6	1.4	16.2
Bangladeshi	2.1	0.5	24.2
Other Asian	0.7	0.5	9.2
Black Caribbean	3.8	1.1	22.0
Black African	4.3	0.9	29.1
Other Black	0.4	0.2	14.5
Chinese	1.2	0.4	17.6
Other ethnic group	0.9	0.4	13.4

Sources: Census 2001 : Key findings and actions from the One Number Census Quality Assurance Process, Annex B, Table B1, p.39;

http://www.statistics.gov.uk/census2001/imputation_rates_by_variable.asp

Implications for 1991 to 2001 ethnic group trends analyses

3.23 Before any attempt is made to compare the size of ethnic populations or their characteristics in terms of age, sex and area of residence, adjustment factors should be applied to the 1991 data. This is because of the different approaches to non-response that were adopted in 1991 and 2001, as described above. Specifically, in 1991, non-response, and the absence of any large-scale imputation comparable to the 2001 One Number Census project, resulted in a significant undercount of the population which the adjustment factors were designed to correct for.

3.24 It is recommended that, at the very least, users apply the OPCS adjustment factors before comparing population totals in ethnic groups between 1991 and 2001 (see appendices 1 and 2). Some users may alternatively prefer to use adjustment factors from the Estimating with Confidence project (EWCPOP) or the SOCPOP estimates.³³ Table 18 provides an illustration of the impact of such adjustments on the comparisons made and conclusions that might be drawn.

3.25 Where it is not possible to apply adjustment factors to the data, consideration should be given to what is known about undercoverage in 1991. This should take into account any possible effects that undercoverage may have had on the characteristics being explored. For example, if the characteristic or measure of interest is closely related to age, sex or area of residence, non-response in 1991 may have introduced bias within the 1991 data. Consideration should be given to this when the 1991 Census data are compared with data from 2001 Census.

4 Changing ethnic group identification among Longitudinal Study members and Labour Force Survey respondents

4.1 Chapter two detailed changes to the ethnic group questions in 1991 and 2001. The changes provided Census respondents with the opportunity to identify as belonging to different ethnic groups in 1991 and 2001. For example, people who selected the categories Other Black or Other Ethnic Group and wrote in a mixed ethnic description in 1991 were able to choose from four new Mixed categories in 2001. Similarly, people who identified as White in 1991 had to choose between White British, White Irish or Other White in 2001. This chapter examines the evidence for changes in ethnic identification as reported on two separate occasions by, or for, the same individual.

4.2 Data for England and Wales from the ONS Longitudinal Study are used to compare LS members' answers to the ethnic group questions on the 1991 Census and 2001 Census. The ONS Longitudinal Study (LS) contains linked census and vital event data for one per cent of the population of England and Wales. Information from the 1971, 1981, 1991 and 2001 Censuses has been linked across censuses as well as information on events such as births, deaths and cancer registrations.³⁴ This enables comparison of the ethnic group category selected by LS members in the 1991 Census with the ethnic group category selected by them in 2001.³⁵

4.3 LS data do not include wholly imputed census records, but some LS members will have had their ethnic group imputed, either in 1991 or 2001, where they failed to enter a value on their returned census form. It is possible to identify cases where ethnic group has been imputed on LS members' 2001 Census records but it is not possible to identify imputed ethnic group on 1991 Census records. Further in the chapter, we compare the findings from the LS with the evidence for changing ethnic identification among respondents to the Labour Force Survey, where no imputation has been undertaken.

4.4 Table 7 shows the census ethnic group categories selected by LS members when the ethnic group question was first asked in 1991 and then again in 2001. There were wide variations in the consistency of answers. Some ethnic groups, particularly the White group, were very stable, with almost all LS members selecting a White category at both censuses. Other ethnic groups were far less stable.

4.5 In most cases where a change in ethnic identification occurred, the change was to a new category that was not available in 1991. Many LS members changed their ethnic identification to one of the new mixed ethnic categories. Some changes are more anomalous, for example a change from a Black group to a White group. These changes may reflect a change in subjective identity, for example, someone from a Mixed ethnic group may variously define their ethnic group as White or Black, at different times. However, anomalous changes may also indicate that the data at one of the census points are unreliable, possibly due to erroneous imputation of ethnic group at either census point. This is discussed in more detail later in this chapter. The next section details the observed changes within each of the main ethnic group categories.

A guide to comparing 1991 and 2001 Census ethnic group data

Table 7 Ethnic group identification among LS members in the 1991 and 2001 Censuses

England and Wales																	Percentages
	2001																
	White			Mixed				Asian or Asian British				Black or Black British			Chinese or other ethnic group		All
	White British	White Irish	Other White	White and Black Caribbean	White and Black African	White and Asian	Other Mixed	Indian	Pakistani	Bangladeshi	Other Asian	Black Caribbean	Black African	Other Black	Chinese	Other ethnic group	All ethnic groups
1991																	
White	96.8	1.2	1.4	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
Indian	1.8	0.1	0.4	0.0	0.1	0.6	0.2	91.0	0.6	0.1	4.4	0.2	0.3	0.0	0.0	0.2	100
Pakistani	2.2	0.0	0.2	0.0	0.0	0.8	0.1	1.1	91.9	0.3	3.1	0.0	0.2	0.0	0.0	0.1	100
Bangladeshi	2.4	0.0	0.0	0.0	0.0	0.5	0.2	1.0	0.8	93.4	1.5	0.0	0.0	0.0	0.0	0.0	100
Other Asian	3.3	0.0	0.6	0.2	0.0	2.3	4.3	14.7	4.9	0.9	33.6	0.7	1.3	1.2	2.8	29.1	100
Black Caribbean	6.0	0.3	0.6	5.7	0.2	0.0	0.8	0.2	0.1	0.0	0.4	77.2	0.6	7.8	0.0	0.0	100
Black African	6.8	0.3	0.9	0.7	3.3	0.0	1.1	1.9	0.3	0.4	0.6	2.4	77.4	3.4	0.0	0.4	100
Other Black	12.0	0.3	3.1	32.1	6.4	1.6	5.3	1.9	1.6	0.7	1.7	20.6	3.1	8.3	0.0	1.1	100
Chinese	2.1	0.0	0.0	0.0	0.0	0.5	1.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	91.0	4.3	100
Other	15.2	0.2	9.8	14.6	3.8	17.2	9.9	3.9	3.3	0.6	6.9	3.3	1.0	1.7	1.3	7.0	100
All ethnic groups	91.3	1.1	1.4	0.3	0.1	0.2	0.2	2.0	1.0	0.4	0.3	0.8	0.3	0.1	0.3	0.2	100

Notes:

(1) Percentages based on LS members in the 1991 and 2001 Censuses

(2) Includes LS members with imputed ethnicity

(3) Rows may not add to 100 per cent due to rounding

Source: ONS Longitudinal Study

White

4.6 White LS members were the most consistent in their answers to the ethnic group question. Of those identifying as White in 1991, 97 per cent selected White British in 2001, one per cent selected White Irish and one per cent selected Other White. Less than one cent (0.5 per cent) of those classified as White in 1991 were classified to a non-White category in 2001, and most of these were classified to one of the new Mixed ethnic group categories (0.3 per cent).

Indian, Pakistani, Bangladeshi and Other Asian

4.7 The ethnic group categories of Indian, Pakistani and Bangladeshi were unchanged between 1991 and 2001, making it easier for respondents to select the same categories at each census point. These groups showed a high a degree of consistency in their answers, although significantly less consistency than the White group. Of those classified as Indian, Pakistani or Bangladeshi in 1991, between 2 and 4 per cent were classified to a White group in 2001. These apparently anomalous changes in ethnic identification may be due to a number of factors, including imputation error, and are discussed in more detail later in the chapter.

4.8 Ninety one per cent of LS members classified as Indian in the 1991 Census were also classified as Indian in 2001. The most common alternative category in 2001 by those identifying as Indian in 1991 was Other Asian (4 per cent), this being the first time that this category was available to respondents. Mixed White and Asian and Other Mixed together accounted for less than one per cent of those classified as Indian in 1991.

4.9 Among LS members who ticked Pakistani in 1991, 92 per cent were classified to the same ethnic group in 2001. Again, Other Asian (3 per cent) was the most common alternative category in 2001. As with the Indian LS members, two per of those who were classified as Pakistani in 1991 were classified to a White ethnic group in 2001 and fewer than 1 per cent were classified to a Mixed group.

4.10 Among LS members identifying as Bangladeshi in 1991, 93 per cent were classified as Bangladeshi in 2001. Among those whose ethnic classification had changed, the pattern was the same as for the Indian and Pakistani respondents: three per cent selected the new Other Asian category; two per cent were classified to a White ethnic group and one per cent were classified to a mixed group.

4.11 The Other Asian group differs from the groups previously described. Other Asian was not a specific tick box on the 1991 Census form, but was instead created post-census. In 2001, by comparison, the Other Asian category was included on the census ethnic group question under the heading Asian or Asian British, along with the South Asian ethnic groups Indian, Pakistani and Bangladeshi. There are other important differences between the Other Asian group in 1991 and 2001. The 1991 Other Asian group included people who had ticked the Other Ethnic group category

and written in any non-Mixed Asian ethnic origin, including Vietnamese, Malayan, Thai, Afghani and Burmese. In 2001, these groups were not included within the Other Asian category. Only people who wrote in a South Asian ethnicity were coded under Other Asian, all other Asian ethnicities were recoded to Other Ethnic group. Given these changes, it is not surprising that only a third (34 per cent) of people classified as Other Asian in 1991 retained the same ethnic group in 2001. Three in ten people (29 per cent) classified as Other Asian in 1991 were classified as Other Ethnic in 2001. A substantial proportion of 1991 Other Asians were classified as Indian in 2001 (15 per cent), and a smaller proportion were classified as Pakistani (5 per cent). The other 2001 destinations for people classified as Other Asian in 1991 were to the Mixed (7 per cent), White (4 per cent) and Chinese ethnic groups (3 per cent).

Black Caribbean, Black African and Other Black

4.12 The ethnic group categories Black Caribbean, Black African and Other Black were present in both the 1991 and 2001 Censuses in England and Wales but there was far less consistency than for the White respondents or the main South Asian groups. Much of the change may be due to the changes to the ethnic group question in 2001, particularly the introduction of the new Mixed ethnic categories, but some of the change may also arise from erroneous imputation of ethnic group at the 1991 or 2001 Censuses.

4.13 Three quarters (77 per cent) of LS members classified as Black Caribbean in 1991 were classified as Black Caribbean in 2001. Eight per cent of those classified as Black Caribbean in 1991 were classified as Other Black in 2001 and a further six per cent were classified to the new Mixed White and Black Caribbean ethnic group. Seven per cent of those classified as Black Caribbean in 1991 were classified to one of the White groups in 2001.

4.14 The change from Black Caribbean to Other Black may reflect a change in ethnic identity and may also be related to changes to the ethnic group question. Analysis of the Other Black write-in answers to the 1991 ethnic group question had revealed that many people defined themselves as Black British, particularly young British-born people of Black Caribbean parentage. As a result, the 2001 Census ethnic group question included the heading 'Black or Black British', but there was no tick-box provided. Some respondents who had previously ticked Black Caribbean in 1991 may have been encouraged by the new 'Black or Black British' heading in 2001 to confirm their British identity - many who ticked Other Black in the 2001 Census wrote in their ethnic group as 'Black British'.

4.15 Three quarters (77 per cent) of people classified as Black African in 1991 were classified in the same way in 2001. A further eight per cent were classified to a White group in 2001 and five per cent to one of the mixed categories, predominantly to the Mixed White and Black African ethnic group (3 per cent). Only three per cent of Black Africans were classified to the Other Black group in 2001, a figure lower than the proportion among Black Caribbean people (8 per cent).

4.16 The introduction of additional response categories in 2001 resulted in many people who had been classified as Other Black in 1991 subsequently changing their 2001 ethnic group. Only eight per cent of people classified as Other Black in 1991 retained the Other Black classification in 2001. Almost half (45 per cent) chose one of the new Mixed ethnic group categories, of which the majority (32 per cent) chose Mixed White and Black Caribbean. Around a fifth (21 per cent) changed from Other Black to Black Caribbean. The movements between Black Caribbean and Other Black generally suggest that young, British born people of Black Caribbean origins fluctuate in their ethnic identification, sometimes having greater regard to their parental origins and sometimes having greater regard to their British identity. Given the introduction of the new headings Black or Black British in 2001, it is also plausible that some of those who had chosen Other Black in 1991, and then written in their ethnic identity as 'Black British', were willing to tick Black Caribbean in 2001, once their British identity had been acknowledged by the 'Black or Black British' subheading on the 2001 Census form. Movements from a Black group to a White group are less easily interpreted. The proportion of those classified as Other Black in 1991 that were subsequently classified to a White group in 2001, at 15 per cent, was twice the rate of Black Caribbean and Black African counterparts, and five times the rate of Asian counterparts.

Chinese and other ethnic group

4.17 Ninety one per cent of LS members who selected Chinese in 1991 also ticked Chinese in 2001. Four per cent of people who ticked Chinese in 1991 were classified to the 'Other' ethnic group category in 2001 and two per cent selected one of the new mixed ethnic groups. As with the South Asian groups, two per cent of people classified as Chinese in 1991 were classified to a White ethnic group in 2001.

4.18 The new 2001 categories were also taken advantage of by large numbers of those classified to the 'Any other ethnic group' category in 1991. Almost half (46 per cent) of those classified to 'Any other ethnic group' in 1991 were classified to one of the new Mixed categories in 2001 – 17 per cent within Mixed White and Asian, 15 per cent within Mixed White and Black Caribbean, 10 per cent within Other Mixed and four per cent within Mixed White and Black African. A quarter of those classified to 'Any other ethnic group' in 1991 were classified to a White category in 2001 - 15 per cent within White British and 10 per cent within the Other White group. Fifteen per cent were classified to an Asian group in 2001 and 6 per cent to a Black group. Only seven per cent of LS members classified to 'Any other ethnic group' in 1991 were classified to 'Any other' in 2001, making it the least stable of all the 1991 ethnic group categories.

Anomalous changes in ethnic group

4.19 Some of the changes in ethnic group reflect changes to the ethnic group question, particularly movements to the new Mixed ethnic group categories. However, some changes appear more anomalous. For example, among LS members classified as

Black Caribbean in 1991, 7 per cent were classified to a White group in 2001. Among those classified as Black African in 1991, 8 per cent were classified to a White ethnic group in 2001. The proportion moving to a White ethnic group was even higher among people classified as Other Black in 1991 (15 per cent). Among Asian groups, the proportion moving to a White group was smaller, but it was nevertheless consistent in all three South Asian groups - among those who were classified as being Indian, Pakistani or Bangladeshi in 1991, two per cent in each group were classified as belonging to a White ethnic group in 2001.

4.20 A number of explanations may account for these changes. Some will reflect a genuine change of ethnic identification, ethnicity being subjective and liable to change over a person's life time.³⁶ Other changes may result from respondent error in completing the form. Changes may also result from proxy responses to the ethnic group question, where the ethnic group of one individual is entered on the census form by another member of the household. Some changes will be due to erroneous imputation of ethnic group at one or other census point. The next section discusses these in more detail.



4.21 One explanation for people from non-White groups in 1991 selecting a White category in 2001 relates to the presentation of the ethnic group categories in the 2001 question. Figure 2 showed that 'White' appeared as a heading, followed by the tick box 'British'. In data outputs this group is classified as 'White British', but in the 2001 ethnic group question the category 'British' appears without the prefix 'White'. The majority of 1991 non-White respondents categorised to a White group in 2001 were within the 'British' category. It is plausible that the layout confused some respondents who assumed that 'White' was the first ethnic category, followed by 'British'. Respondents commonly select the first category that applies to them when presented with a list. Non-White respondents may have by-passed 'White' and then ticked 'British', as this was something which applied to them, particularly as the respondent instructions directed them to indicate their 'cultural background'. Many people from non-White groups were born in Britain and would regard their 'cultural background' as British, while others have British nationality so would feel that the category 'British' applied equally to them. Pilot testing undertaken in preparation for the 2001 Census indicated that Black people in particular expressed the view that they were 'culturally' British.³⁷ In the 2001 Census, 63 per cent of the Other Black group entered 'British' as their ethnic identity.³⁸ Among respondents to the Labour Force Survey (LFS), which presents ethnic group categories differently to the 2001 Census, effectively minimising the opportunity for non-White respondents to select 'White British', the proportion of formerly Black respondents newly classified as White British with the 2001 ethnic group question is much smaller (see section 4.36).

4.22 Some erroneous ethnic group changes will be due to the census form being completed by one household member on behalf of another, known as proxy responses. Proxy responses are particularly relevant for children. A child's ethnic group is in most cases recorded on the census form by a parent but, ten years later, the young adult may chose a different ethnic group, with the result that the two entries disagree. Error arising from proxy responses is not only associated with censuses, but also with household surveys such as the LFS, where information about all household members is collected from one respondent.

4.23 The proportion moving to a White group may also indicate erroneous imputation of ethnic group. As discussed earlier, ethnic group was imputed in 1991 and 2001 where the data were missing from returned census forms. The imputation process in 2001 involved carrying values over from a donor household. Where a number of donor households were equally suitable for matching, the donor who lived geographically closest to the recipient was chosen. People from Black ethnic groups tend to live in multi-ethnic areas so that their neighbours are as likely to be from a White ethnic group as to be from a Black ethnic group. White and Asian groups are more likely to live in homogeneous neighbourhoods, so that there is a greater likelihood that the donor geographically closest to them would share their ethnicity.

4.24 It is difficult to isolate the effects of erroneous imputation from the effects of question change or subjective change of ethnic identity. However, LS data do allow for the identification of members for whom ethnic group was imputed in 2001 and from this some assessment can be made as to the reliability of imputation in 2001. This can be done by comparing the imputed 2001 ethnic group with the 1991 ethnic group. In more than half of cases where ethnic group was imputed for non-White 1991 LS members, the 2001 imputed ethnic group was different to the 1991 ethnic group. If we assume that the 1991 ethnic group assignment was correct, it follows that in more than half of cases the 'wrong' ethnic group was imputed for non-White respondents in 2001. Among LS members classified to a Black or Chinese group in 1991, an even higher proportion of imputed ethnic assignments were 'wrong' - 70 per cent to 99 per cent were assigned to a different ethnic group in the 2001 Census.³⁹

4.25 However, 2001 ethnic group was only imputed for 2.1 per cent of LS members so can only partially explain anomalous changes to ethnic identification. The extent to which erroneous imputation accounts for anomalous changes in ethnic identification can be further examined by excluding those cases with imputed ethnic group and repeating the analysis. When LS members with imputed 2001 ethnic group are excluded, and a comparison of 1991 with 2001 ethnic group is repeated, changes to a different ethnic group are reduced by only 9.6 per cent.⁴⁰ LS data do not allow for the identification of members whose ethnic group was imputed in 1991 but it is reasonable to assume that imputation in 1991 was also prone to error. Erroneous imputation is therefore unlikely to account for more than a fifth of the changes in ethnic group identification between 1991 and 2001 among LS members. Furthermore, LS data cannot be used to assess the level of erroneous *person imputation*, rather than item imputation, as LS data corresponds to real, not imputed, persons.

Changing ethnic identification among Labour Force Survey respondents

4.26 One approach to quantifying the extent to which item imputation accounts for changing identification is to use a data source in which no imputation has been undertaken. The Labour Force Survey (LFS) presents an opportunity to do this.⁴¹ In addition, the LFS presents the opportunity to evaluate the extent to which the presentation of the ethnic group categories on the 2001 Census form may have inadvertently resulted in erroneous changes of ethnic group (discussed in section 4.21).

4.27 The LFS survey conducts a series of repeat interviews with respondents over the period of a year. Respondents are interviewed in five waves. The first wave interview is conducted by a face-to-face interviewer for the majority of respondents⁴² but subsequent interviews are usually conducted by telephone. Up until 2000, LFS respondents had been asked the 1991 Census ethnic group question. In 2001, the new 2001 Census question was introduced on the LFS. Because a series of interviews are conducted over a twelve month period, in order to ensure complete data when new questions are introduced, respondents may be asked both the old and the new questions at different waves. Some respondents in the 2000/2001 LFS were therefore asked both the 1991 and 2001 Census versions of the ethnic group questions. LFS respondents who had been interviewed in Winter 2000 and had answered the 1991 Census question, were asked to provide their ethnic group again in Spring 2001, this time using the 2001 Census ethnic group question.

4.28 There is no imputation of ethnic group on the LFS. Surveys are not the same as censuses and there is no compulsion to answer questions. Respondents may refuse to answer any question and the data will be coded as missing. In the event, very few respondents refuse to state their ethnic group to an interviewer. In the absence of imputation, it follows that any change in ethnic group identification among LFS respondents must result from a self-reported change in ethnic identity. In general, such a change could be in response to having new categories to select or it may reflect a change in political or other beliefs relating to a person's subjective identity. Because of the very short time between the asking of the 1991 and 2001 versions, however, the latter is unlikely to apply. Therefore, changes in the LFS can be more readily interpreted as following from changes to the census questions between 1991 and 2001. Response unreliability, however, whereby the same respondent will randomly give a different answer to the same question each time it is asked, cannot be ruled out.

4.29 The presentation of the 2001 ethnic group question on the LFS was different in a number of ways to the presentation in the 2001 Census. As discussed previously (see 4.2), the 2001 Census form listed 'British' after the heading 'White', with the intention that White respondents would choose between 'British', 'Irish' or 'Other' while non-White respondents would bypass these categories. However, it is plausible that some non-White respondents identified with the 'British' category and recorded their ethnic group as such, and that this accounts for some formerly-Black LS members being newly classified as White British in 2001.

4.30 The LFS, by comparison, adopted a multi-level question approach when asking the 2001 Census ethnic group question. This approach made it much less likely that non-White respondents would select the 'British' category. First, respondents were asked to choose from six options – 'White', 'Mixed', 'Asian or Asian British', 'Black or Black British', 'Chinese', or 'Other ethnic group'. Once they had selected a main group, they were then offered the specific ethnic categories within that group. Hence, only respondents identifying as 'White' were subsequently offered the 'British' or 'Another White background' categories. This multi-level approach was adopted because the LFS ethnic group question has to be suitable for both face-to-face and telephone interviews. A multi-level approach is necessary on surveys undertaking telephone interviews, in order to reduce the burden on respondents in formulating answers to long lists of options. However, this approach also had the effect of reducing the opportunity for non-White respondents to identify as White British.⁴³

4.31 Table 8 shows the proportion of LFS respondents in England and Wales within each ethnic group who retained their 1991 ethnic group when they completed the 2001 Census ethnic group question. In all ethnic groups, the proportion retaining their ethnic group is higher among LFS respondents than was seen among LS respondents (see again Table 7).

4.32 Among White respondents, 99.7 per cent of respondents identifying as White in 1991 also selected one of the 2001 White ethnic group categories. The proportion retaining their ethnic group was also high among Indians (95 per cent), Pakistanis (97 per cent) and Bangladeshis (96 per cent). In each of these Asian groups, the proportion moving to a White ethnic group was less than 0.5 per cent, compared with 2 per cent in each group among LS members.

4.33 The ethnic group stability was also high for Black Caribbean and Black African respondents. The proportion in these groups who retained their ethnic group with both the 1991 and the 2001 ethnic group questions was much higher among Labour Force Survey respondents than was the case among their Longitudinal Study counterparts. Among LFS respondents classified as Black Caribbean using the 1991 classification, 91 per cent retained the same ethnic group with the 2001 classification. Among LFS respondents classified as Black African using the 1991 classification, 96 per cent retained the same ethnic group with the 2001 classification. Among Longitudinal Study members by comparison, just 77 per cent of either group had retained their ethnic group.

4.34 The proportions of Black Caribbean and Black African respondents moving to the Other Black group or to a Mixed group were smaller among LFS respondents than was seen among LS respondents. Among LFS respondents classified as Black Caribbean with the 1991 ethnic group question, just 1.5 per cent changed to Other Black with the 2001 ethnic group question and just 3 per cent changed to Mixed White and Black Caribbean. The equivalent proportions among LS members, by comparison, were 8 per cent and 6 per cent. The pattern among Black Africans was similar.

4.35 There was greater movement among LFS respondents classified to the Other Black group with the 1991 Census version. The largest movements were from Other Black to Black Caribbean (37 per cent). This is notable as the Black Caribbean category had also been available with the 1991 version and yet had not been selected by these respondents at that time. This concurs with evidence from the 2001 Census question-testing exercise that people from Black Caribbean origins fluctuated in their ethnic identity, sometimes identifying more with their family origins and at other times identifying with their British identity.⁴⁴ A further quarter (24 per cent) of those who selected Other Black with the 1991 version changed to the new Mixed White and Black Caribbean group with the 2001 version. Only 14 per cent of LFS respondents who selected Other Black with the 1991 Census version retained the Other Black label with the 2001 Census version.

4.36 As with LS members, the greatest instability was for those identifying as 'Other' with the 1991 Census version. The majority of changes were to categories which had not been available with the 1991 Census question. A third (34 per cent)

changed their ethnic group to one of the new 2001 Mixed categories, 16 per cent selected the newly-presented Other Asian category, and 10 per cent selected the Other White category. However, some movements were to categories which had been available with the 1991 version, for example movements to Black Caribbean (5 per cent). Nevertheless, only 18 per cent of those identifying as 'Other' with the 1991 version retained the 'Other' category with the 2001 version, demonstrating that respondents are not reluctant to change classifications when suitable alternatives are provided.

4.37 The differences between LS members and LFS respondents may be due to the time lag between completing the 1991 and 2001 ethnic group questions. Among LS respondents, ten years had passed between the 1991 and 2001 Censuses. Among LFS respondents, by comparison, just three months had passed. It follows that there is a greater likelihood of a change in subjective ethnic identity taking place over the longer period.

4.38 The proportion of Black African and Black Caribbean people changing to a White ethnic group was also much smaller among LFS respondents. Among those who identified as Black Caribbean or Black African with the 1991 ethnic group question, the proportions who changed to a White group with the 2001 question were respectively 2.1 per cent and 0.5 per cent. Comparatively, among LS members identifying as Black Caribbean or Black African in 1991, 7 per cent and 8 per cent respectively were classified to a White group in 2001.

4.39 The much smaller proportion of Black LFS respondents moving to White group, compared with LS members, suggests that, in addition to erroneous imputation of ethnic group on the census, some of the anomalous changes among the LS members may be due to the presentation of 'British', without the pre-fix 'White', on the 2001 Census form. By comparison, the multi-level question approach adopted on the LFS reduced the opportunity for non-White LFS respondents to select the (White) British category.

4.40 Given that the LFS approach made it relatively difficult for non-White respondents to identify as White British, it is intriguing that around 2 per cent of Black Caribbean and Other Black respondents were nevertheless classified as White British with the 2001 classification. This may be due to a number of factors, including proxy response (see 4.22) and interviewer error, but it may also reflect a genuine change of ethnic identification among respondents.

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Table 8 Ethnic identification among Labour Force Survey respondents

England and Wales																Percentages
1991 Census ethnic group category	2001 Census ethnic group category															
	White	Mixed					Asian or Asian British			Black or Black British			Chinese	Other ethnic group	All	
	British	Another White background	White and Black Caribbean	White and Black African	White and Asian	Other Mixed	Indian	Pakistani	Bangladeshi	Other Asian	Caribbean	African	Other Black	Chinese	Other ethnic group	Total
White	97.2	2.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100
Indian	0.2	0.1	0.1	0.1	0.3	0.0	95.5	0.3	0.1	2.7	0.2	0.1	0.0	0.0	0.3	100
Pakistani	0.4	0.0	0.0	0.0	0.1	0.0	0.4	97.4	1.4	0.1	0.0	0.2	0.0	0.0	0.0	100
Bangladeshi	0.3	0.0	0.0	0.0	0.0	0.0	0.3	3.5	95.7	0.0	0.0	0.0	0.3	0.0	0.0	100
Black Caribbean	2.1	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	91.5	1.8	1.5	0.0	0.1	100
Black African	0.2	0.3	0.5	0.2	0.0	0.0	0.3	0.0	0.0	0.5	1.0	95.7	1.4	0.0	0.0	100
Other Black	1.9	0.5	23.6	2.3	1.9	2.3	1.4	0.0	0.0	6.5	36.6	8.8	13.9	0.0	0.5	100
Chinese	0.4	0.0	0.4	0.0	1.2	0.0	0.0	0.0	0.0	2.0	0.0	0.0	0.0	96.0	0.0	100
Other	7.8	10.2	14.9	3.6	13.0	2.4	2.7	1.1	0.1	15.6	4.7	2.7	2.4	1.1	17.8	100
All ethnic groups	91.1	2.5	0.4	0.1	0.3	0.1	1.5	1.0	0.4	0.3	1.0	0.7	0.1	0.3	0.3	100

Note: Data are unweighted

Source : Labour Force Survey, Winter 2000 and Spring 2001

5 Recommendations for comparing 1991 and 2001 Census ethnic groups

5.1 Chapter four demonstrated that over 90 per cent of Longitudinal Study members who choose a White, Indian, Pakistani, Bangladeshi or Chinese ethnic group in 1991, chose the same ethnic category in 2001. These ethnic group categories are the most stable, and can be compared with confidence for most analytical purposes. There was less stability for the Black Caribbean and Black African groups, although over three quarters of individuals were classified to the same category in 2001 as 1991. The Other Black, Other Asian and Other ethnic groups had the least stability, a third of the Other Asian, and less than ten per cent of the Other Black and Other ethnic group being classified in the same category in 1991 as in 2001.

5.2 The next part of the guide considers options for combining ethnic group categories in order to increase the reliability of 1991 and 2001 Census comparisons. Five re-classifications are presented - a ten-category classification, an eight-category classification, a six-category classification, a four-category classification and a two-category classification. The benefits and disadvantages of each re-classification are considered.

5.3 It is recommended that the decision about which classification to adopt takes account of the balance between reliability and detail. A classification in which more groups are combined offers greater stability but the number of recognisable ethnic groups which can be analysed is smaller. With each re-classification, individual ethnic groups become invisible as they are merged with other groups. The new composite ethnic categories cannot be viewed as cohesive ethnic groups. An important element of any ethnic group is that members share a number of characteristics. These might include language, country of origin, ancestry, nationality, skin colour, racial group, religion or culture. In addition, for a collection of people to be considered an ethnic group it is important that they recognise themselves to be a distinct group.⁴⁵ These criteria are not always met with the new composite ethnic groups.

Ten-category classification

5.4 This classification produces new White, Other Black and Other Ethnicity groups (Table 9). The 2001 groupings can then be compared to the 1991 groupings of the same name. Respondents identifying as White British, White Irish and Other White in 2001 are combined under the White label. This combined White group can then be compared with the 1991 White group. Respondents identifying as Other Black, Mixed White & Black Caribbean and Mixed White & Black African in 2001 are combined under the Other Black label. They can then be compared with the 1991 Other Black group. Finally, 2001 respondents identifying as Other Ethnicity, Mixed White and Asian and Mixed Other are combined under the label Other Ethnicity and compared with Other Ethnicity Group respondents in 1991.

Table 9 Ten-category ethnic classification

Ten-category classification	1991 Census categories	2001 Census categories
White	White	White British White Irish Other White
Indian Pakistani Bangladeshi Other Asian	Indian Pakistani Bangladeshi Other Asian	Indian Pakistani Bangladeshi Other Asian
Black Caribbean Black African Other Black	Black Caribbean Black African Other Black	Black Caribbean Black African Other Black Mixed White & Black Caribbean Mixed White & Black African
Chinese	Chinese	Chinese
Other	Other	Other Mixed White & Asian Other Mixed

5.5 Table 10 shows the empirical results of this classification. All three new classifications have resulted in increased stability. Virtually all (99.5 per cent) of those identifying as White in 1991 are included in the new 2001 White group. Before the new classification, Other Black was one of the groups with very little stability, just eight per cent of those identifying as Other Black in 1991 retaining the label in 2001 (see Table 7). After the new Other Black group is created, this figure increases to 47 per cent. The Other Ethnic Group category also had very little stability when the original 2001 classification and 1991 classification were compared. Just seven per cent of those classified to Other Ethnic Group in 1991 retained the label in 2001 (see Table 7). With the new classification this increases to 34 per cent.

Table 10 Ten-category ethnic classification matrix

England and Wales											Percentages
2001											
1991	White	Indian	Pakistani	Bangladeshi	Other Asian	Black Caribbean	Black African	Other Black	Chinese	Other	All ethnic groups
White	99.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	100.0
Indian	2.3	91.0	0.6	0.1	4.4	0.2	0.3	0.1	0.0	1.0	100.0
Pakistani	2.5	1.1	91.9	0.3	3.1	0.0	0.2	0.0	0.0	1.0	100.0
Bangladeshi	2.4	1.0	0.8	93.4	1.5	0.0	0.0	0.0	0.0	0.8	100.0
Other Asian	3.9	14.7	4.9	0.9	33.6	0.7	1.3	1.4	2.8	35.7	100.0
Black Caribbean	7.0	0.2	0.1	0.0	0.4	77.2	0.6	13.7	0.0	0.8	100.0
Black African	8.0	1.9	0.3	0.4	0.6	2.4	77.4	7.4	0.0	1.5	100.0
Other Black	15.4	1.9	1.6	0.7	1.7	20.6	3.1	46.8	0.0	8.1	100.0
Chinese	2.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	91.0	6.6	100.0
Other	25.3	3.9	3.3	0.6	6.9	3.3	1.0	20.2	1.3	34.2	100.0
All ethnic groups	93.9	2.0	1.0	0.4	0.3	0.8	0.3	0.5	0.3	0.6	100.0

Source: ONS Longitudinal Study

5.6 Although reliability has improved for the Other Black and Other Ethnic Group categories, it is still relatively low compared with other groups. Furthermore this classification has not changed the reliability for the Other Asian group, which is now the same as the Other Ethnic group - in both cases just one in three (34 per cent) of those with the classification in 1991 retaining it in 2001. The following eight-category classification improves upon this.

Eight-category classification

5.7 Many of the respondents identifying as Other Black, Other Asian or Other Ethnic Group in 1991 were in 2001 classified as belonging to either a different 'other' group or one of the new mixed ethnic groups. Combining these residual groups produces a new group with greater 1991 to 2001 reliability. The eight-category classification combines respondents identifying as Other Black, Other Asian or Other Ethnic Group in either census (Table 11). Respondents identifying with any of the Mixed ethnic groups in 2001 are also included in the new Other category. Respondents identifying as White British, White Irish and Other White in 2001 are again combined under the White label.

Table 11 Eight-category ethnic classification

Eight-category classification	1991 Census categories	2001 Census categories
White	White	White British White Irish Other White
Indian Pakistani Bangladeshi	Indian Pakistani Bangladeshi	Indian Pakistani Bangladeshi
Black Caribbean Black African	Black Caribbean Black African	Black Caribbean Black African
Chinese	Chinese	Chinese
Other	Other Black Other Asian Other	Other Black Other Asian Other Mixed White and Black Caribbean Mixed White and Black African Mixed White and Asian Other Mixed

5.8 Table 12 shows the results of the new classification. Among 1991 respondents now combined under the new ‘Other’ category, 63 per cent are included in the 2001 ‘Other’ category.

Table 12 Eight-category ethnic classification matrix

England and Wales		2001							Percentages	
1991	White	Indian	Pakistani	Bangladeshi	Black Caribbean	Black African	Chinese	Other	All ethnic groups	
White	99.5	0.0	0.0	0.0	0.0	0.0	0.0	0.4	100.0	
Indian	2.3	91.0	0.6	0.1	0.2	0.3	0.0	5.6	100.0	
Pakistani	2.5	1.1	91.9	0.3	0.0	0.2	0.0	4.1	100.0	
Bangladeshi	2.4	1.0	0.8	93.4	0.0	0.0	0.0	2.3	100.0	
Black Caribbean	7.0	0.2	0.1	0.0	77.2	0.6	0.0	14.8	100.0	
Black African	8.0	1.9	0.3	0.4	2.4	77.4	0.0	9.5	100.0	
Chinese	2.1	0.3	0.0	0.0	0.0	0.0	91.0	6.6	100.0	
Other	16.4	6.5	3.3	0.7	7.2	1.7	1.4	62.8	100.0	
All ethnic groups	93.9	2.0	1.0	0.4	0.8	0.3	0.3	1.4	100.0	

Source: ONS Longitudinal Study

5.9 Although the new Other category can be compared with somewhat greater confidence, the heterogeneity of the group has increased. The new Other category includes people with a wide variety of ethnic characteristics. They would not recognise themselves as sharing a common ethnic identity. They cannot be viewed as a cohesive ethnic group.

5.10 Broad re-classifications may nevertheless be required when individual groups are very small, for example in a particular geographical area. In these circumstances, it may be necessary to combine ethnic groups. Doing so will have the effect of increasing still further group stability while reducing group cohesiveness. The following five-category classification is proposed for such circumstances.

Five-category classification

5.11 The five-category classification in Table 13 produces five main ethnic groups: White; Asian; Black; Chinese; and Other. As with the previous classifications, respondents identifying as White British, White Irish and Other White in 2001 are combined under the White label. The Asian category includes the three main South Asian ethnic groups – Indian, Pakistani and Bangladeshi – and, for 2001 data, Mixed White and Asian ethnic group. The Black category combines the three main Black groups (including Other Black) together with two of the four new 2001 Mixed ethnic groups, Mixed White and Black Caribbean and Mixed White and Black African. The new ‘Other’ group includes Other Asian and Other Ethnicity, combined with the 2001 Other Mixed category. Other Asian is included under Other instead of Asian due to the different definition of the Other Asian group in 1991 and 2001 (see paragraph 2.14).

Table 13 Five-category ethnic classification

Five-category classification	1991 Census categories	2001 Census categories
White	White	White British White Irish Other White
Asian	Indian Pakistani Bangladeshi	Indian Pakistani Bangladeshi Mixed White and Asian
Black	Black Caribbean Black African Other Black	Black Caribbean Black African Other Black Mixed White and Black Caribbean Mixed White and Black African
Chinese	Chinese	Chinese
Other	Other Other Asian	Other Other Asian Other Mixed

5.12 Table 14 shows the results of the five-category classification. The main improvement is for the Black grouping. Before recoding, only three-quarters of 1991 respondents identifying as Black Caribbean or Black African were classified in the same way in 2001 (see Table 7). The stability for the Other Black group was even lower, just eight per cent retaining the Other Black label in 2001 (see Table 7). With the three black groups combined, 86 per cent of those classified in the new Black group in 1991 are classified within the same group in 2001. This greatly improves the stability of the group.

Table 14 Five-category ethnic classification matrix

England and Wales						Percentages
1991	2001					All ethnic groups
	White	Asian	Black	Chinese	Other	
White	99.5	0.2	0.2	0.0	0.1	100.0
Asian	2.4	93.2	0.4	0.0	4.1	100.0
Black	9.0	2.0	86.2	0.0	2.8	100.0
Chinese	2.1	0.8	0.0	91.0	6.1	100.0
Other	16.8	24.2	16.2	1.9	40.9	100.0
All ethnic groups	93.9	3.7	1.5	0.3	0.7	100.0

Source: ONS Longitudinal Study

5.13 The disadvantage of combining groups is that detail is lost and any results for the combined group can only be viewed as an average, rather than describing Black Caribbean, Black African or Other Black people. Although the new category can be used to measure change between 1991 and 2001, any differences identified would not confirm that change had taken place within the individual and quite distinct black groups. Nor would it confirm the direction of change.

5.14 Combining the three main Asian groups also increases the stability for the Asian group, although to a lesser extent than for the Black group. Before recoding, 91 per cent of Indians, 92 per cent of Pakistanis and 93 per cent of Bangladeshis were classified in the same category in 1991 and 2001 (see Table 7). With the three Asian groups and the 2001 category Mixed White and Asian combined, 93 per cent of those classified in the new Asian group in 1991 are classified within the same group in 2001.

5.15 Although stability has improved for the Black and Asian categories, the stability of the Other group has actually decreased, from 63 per cent stability in the eight-category classification to 41 per cent stability in the five-category classification.

5.16 With the five-category re-classification caution is needed in interpreting any results based on the combined groups. It is not possible to identify which distinct ethnic groups within a combined group have improved their position on any measure or to identify groups whose position has worsened. If data were compared and indicated no change between 1991 and 2001 this would not mean that there had

actually been no change within the individual groups. For example, an increase among Black Caribbean people on a particular measure between 1991 and 2001, if accompanied by a decrease among Black Africans, could produce an average which indicated, misleadingly, that there had been no change for people from a Black group when in fact there had been change for both main Black groups.

Two-category classification

5.17 Given the distinct characteristics of the different ethnic groups, it is not advisable to combine across the main ethnic groups, for example combining black and Asian respondents. This is sometimes unavoidable if numbers in the individual ethnic minority groups are too small to analyse independently or if data need to be compared with data which has used a two-category classification.



5.18 The two-category classification produces a White category and a non-White category. Respondents identifying as White British, White Irish and Other White in 2001 are combined under the White label. The non-White category includes all other ethnic groups (Table 15). It is important to remember this category is not an ethnic group, the various members sharing no common ancestry, language, religion, culture, nor recognising themselves as a cohesive group.

Table 15 Two-category ethnic classification

Two-category classification	1991 Census categories	2001 Census categories
White	White	White British White Irish Other White
Non-White	Indian Pakistani Bangladeshi Black Caribbean Black African Other Black Chinese Other Other Asian	Indian Pakistani Bangladeshi Other Asian Mixed White and Black Caribbean Mixed White and Black African Mixed White and Asian Other Mixed Black Caribbean Black African Other Black Chinese Other

5.19 Table 16 shows the results of the new classification. Among respondents who identified with one of the non-White ethnic categories in 1991, 94 per cent again identified as belonging to a non-White ethnic group in 2001.

Table 16 Two-category ethnic classification matrix

England and Wales		Percentages	
1991	2001		All ethnic groups
	White	Non-White	
White	99.5	0.5	100.0
Non-White	5.9	94.1	100.0
All ethnic groups	93.9	6.1	100.0

Source: ONS Longitudinal Study

5.20 This classification produces the greatest stability between 1991 and 2001 but is of no use in describing the outcomes of people from the different ethnic groups. It cannot be used, for example, to inform on the characteristics or experiences of Black Caribbean people as compared with Indian people or Chinese people. Important changes within groups between 1991 and 2001 are obscured.

Recommendations for deciding which classification to use

5.21 Decisions about which classification to use will depend on the particular purpose of the analysis. In some cases it may be better to accept that some groups cannot be compared and to focus instead on the main ethnic groups which have the greatest stability. Even for these groups, however, some discontinuity will have occurred through individuals' reclassifications into the expanded set of 2001 categories.

5.22 In other cases it may be necessary or desirable to combine groups. This may be necessary if the intention is to compare census data with data from a low geographical level, for example ward level, which, because of small numbers, present a four-group or two-group classification. It may also be desirable if the achieved degree of stability between groups, using detailed categories, is too low for a particular analytical purpose.

5.23 Where ethnic groups are combined, the presentation of results should be clear about the heterogeneity of the new groups and, related to that, the limitations of the analysis. Such analyses may have limited value in contributing to an understanding about the nature of specific ethnic populations.

6 Estimating change in ethnic group numbers between 1991 and 2001

6.1 In the previous two chapters, results were always presented as percentages of people in the 1991 ethnic group categories that were in a given same or different ethnic group category in 2001. For example, it was seen in Table 7 of chapter 4 that 32 per cent of people classified as Other Black in 1991 were classified in the new White and Black Caribbean category in 2001. To understand the numerical importance of such changes in ethnic group classifications between the two censuses, the population sizes of each ethnic group must also be considered. This final chapter does this with an analysis of how population numbers by ethnic group in England and Wales changed between 1991 and 2001. The main methodological focus of this analysis is on taking account of ethnic group classification changes between 1991 and 2001. Also considered is the sensitivity of changes in ethnic group population sizes to the use of the 1991 Census adjustment factors that were introduced in chapter 3, and to an alternative set of adjustment factors that assume greater differences in undercount between ethnic groups.

6.2 In Table 17, the population sizes for the full set of ethnic groups for each of 1991 and 2001 are presented for England and Wales, in both numbers and percentage distributions. The 1991 data include the 1994 OPCS adjustments for under-enumeration introduced in chapter 3. Subtotals are presented according to the ethnic group categories of the 2001 Census. These show a decrease in the proportion of the population in the White group, from 94.1 per cent in 1991 to 91.3 per cent in 2001, and increases in the proportions in the Asian and Asian British and Black and Black British groups, to 4.4 per cent and 2.2 per cent respectively of the 2001 population of England and Wales. It is also seen that the new Mixed group in 2001 constitutes a substantial presence among the ethnic groups of England and Wales, its 1.3 per cent of the population being greater than the 0.9 per cent in the 'Chinese and other ethnic groups' category.

Table 17 Population by ethnic group, 1991¹ and 2001

England and Wales		Thousands and percentages			
Ethnic group	1991		2001		
	Number	%	Number	%	
White	47,876.6	94.1	47,520.9	91.3	
British ²			45,533.7	87.5	
Irish ²			641.8	1.2	
Other White ²			1,345.3	2.6	
Mixed	:	:	661.0	1.3	
White and Black Caribbean ³			237.4	0.5	
White and Black African ³			78.9	0.2	
White and Asian ³			189.0	0.4	
Other Mixed ³			155.7	0.3	
Asian or Asian British	1,689.4	3.3	2,273.7	4.4	
Indian	855.1	1.7	1,036.8	2.0	
Pakistani	469.0	0.9	714.8	1.4	
Bangladeshi	166.6	0.3	280.8	0.5	
Other Asian ³	198.7	0.4	241.3	0.5	
Black or Black British	916.9	1.8	1,139.6	2.2	
Black Caribbean	514.0	1.0	563.8	1.1	
Black African	220.1	0.4	479.7	0.9	
Other Black	182.8	0.4	96.1	0.2	
Chinese or other ethnic groups	442.1	0.9	446.7	0.9	
Chinese	152.3	0.3	226.9	0.4	
Any other ethnic group	289.8	0.6	219.8	0.4	
All ethnic groups	50,888.1	100.0	52,041.9	100.0	

¹ 1991 data have been adjusted for census under-enumeration using OPCS/GRO(S) 1994 adjustment factors

² The sub-categories under the White heading; White British, White Irish and Other White were offered to respondents in England & Wales for the first time in 2001.

³ The Mixed and Other Asian ethnic category were offered to respondents in England & Wales for the first time in 2001. In 1991, Other Asian was created from write-in responses to Any Other Ethnic Group.

: Not applicable

Sources: 1991 Census Local Base Statistics, ONS, Crown Copyright, Reserved [from Nomis on 19 April 2005] adjusted with OPCS/GRO(S) adjustment factors as cited in OPCS/GRO(S) (1994) Undercoverage in Great Britain: 1991 Census User Guide 58 (Table 7); Census, April 2001, Office for National Statistics

6.3 The change between 1991 and 2001 in the numbers in the White ethnic group is discussed later in this section (see sections 6.20 and 6.22). When the non-White ethnic group categories present in both 1991 and 2001 are considered, growth is seen in the numbers and proportions for all categories except for Other Black and Any Other Ethnic Group. Large differences in growth are seen, however, between non-White ethnic groups. According to these figures, for example, Pakistanis increased by more than 200 thousand people to 714.8 thousand people in 2001, overtaking Black Caribbeans (563.8 thousand people in 2001) as the second largest non-White ethnic group, after Indians. Further, the Black African population is seen to have more than doubled to 479.7 thousand people in 2001. In 1991, the Black African population was

less than half as large as the Black Caribbean population (220.1 thousand versus 514 thousand). These large differences in growth between ethnic groups may be referred to as differences in “observed changes”. They are distinguished from “real changes” that are calculated in a way that takes into account the effects of individuals’ changes in their ethnic group categories between 1991 and 2001, due mainly to the different and expanded set of categories presented to them in 2001.

The Role of Ethnic Group Classification Changes between 1991 and 2001

6.4 The potential role of ethnic group classification change is most visible in the Other and Mixed categories. One of the notable changes between 1991 and 2001 was the halving of the size of the Other Black ethnic group category between 1991 and 2001. This occurred while the total “Black or Black British” population increased by more than 200 thousand people, and while over 300 thousand people in 2001 identified as being either White and Black Caribbean or White and Black African. The suggestion here is that the fall in the number of Other Blacks may have occurred partly or wholly through individuals reclassifying to the Black Caribbean or Black African categories or to one of the Mixed White and Black categories. For example, did the presence of a Mixed White and Black Caribbean category reduce the number of people who would have identified as Black Caribbean in 2001 had they not been offered the Mixed category? Was this offset by Other Blacks in 1991 identifying themselves as Black Caribbean in 2001, possibly in response to the presence of “Black British” in the 2001 “Black or Black British” category group heading? Without answers to these questions, it is difficult to interpret the relatively small observed growth in the Black Caribbean population between 1991 and 2001.

6.5 The presence of the White ethnic group label in three of the four 2001 Mixed ethnic group categories suggests a possible role for classification changes also in the White ethnic group’s fall in its proportion of the total population from 94.1 per cent in 1991 to 91.3 per cent in 2001. On the other hand, the presence of the new White Irish and Other White categories in 2001 may have played an offsetting role in increasing the number identifying as White in 2001. For example, it was seen in Table 7 of chapter three that one in ten of the 1991 ‘Any other ethnic group’ became ‘Other White’ in 2001.

6.6 The 661 thousand people in 2001 who self-identified as (or were imputed to) one of the Mixed ethnic groups illustrate clearly one of the ways that category changes can influence observed change across ethnic groups. Since the Mixed categories did not exist in the 1991 Census, people in the Mixed categories can be said to have been drawn from the existing 1991 categories. By implication, observed growth in the individual ethnic groups identified in the 1991 categories will generally be reduced by “leakage” to the 2001 Mixed categories.

6.7 A reclassification methodology for adjusting for such “leakage”, and for any offsetting factors such as those suggested above for the Black Caribbean and White ethnic groups, is potentially useful here. The goal of this methodology is to allow estimates of “real change” to be drawn from the combination of observed change and what is known about the way people’s ethnic group identifications in the census

changed between 1991 and 2001. The principle of the reclassification methodology is to assign the 2001 ethnic group classifications to the 1991 population by ethnic group, and to evaluate change in ethnic group population size based on these 2001 Census classifications being applied to people in both the 1991 and 2001 Censuses. Only the 1991 ethnic group populations need to be adjusted using this methodology, of course, as the 2001 ethnic groups are already classified using the 2001 Census classification system.

6.8 To illustrate the method of reclassification to 2001 ethnic group categories, take as an example the ‘Any other ethnic group’ category. Its observed decline was from 290 thousand in 1991 to 220 thousand in 2001. The analyses of the LS data in chapter 4 showed that approximately one third of ‘Any other ethnic group’ people in the 1991 Census identified as one of the four Mixed ethnic group categories in 2001. This one third can be interpreted as a propensity to “exit from” the 1991 ‘Any other ethnic group’ category of 1991 given the opportunity to choose from the broader set of 2001 categories. Following this logic, just under 100 thousand people would be subtracted from the 290 thousand people in ‘Any other ethnic group’ in 1991, being one third of the 1991 population in that category.

6.9 Other reclassifications both into and out of the ‘Any other ethnic group’ between 1991 and 2001 (e.g., to and from Other White) also need to be applied to arrive at a total number of people in the ‘Any other ethnic group’ in 1991 that is based on their 2001 ethnic group classifications. A full description of this reclassification procedure is given in Appendix 4. Note that this reclassification methodology is approximate to the degree that it is based on the LS sample of people who were present and linked between the 1991 and 2001 Censuses of England and Wales.⁴⁶

6.10 The analyses of the previous chapter indicated that the largest number of distinct ethnic groups that can be compared between the 1991 and 2001 Censuses is seven, consisting of White, Indian, Pakistani, Bangladeshi, Black African, Black Caribbean and Chinese. Their population sizes in 2001 are shown in column (1) of Table 18, these numbers coming directly from Table 17. Also coming directly from Table 17 are the 1991 Census results including the OPCS 1994 adjustment for undercount, seen in column (4) of Table 17.

6.11 To evaluate the effects of ethnic group reclassification between 1991 to 2001, and to estimate “real change” in the sizes of the seven ethnic groups listed in Table 17, an additional column (6) is provided with population numbers in each ethnic group after applying the reclassification methodology described above to the OPCS adjusted 1991 data of column (4), labelled “1991 Census with OPCS 1994 adjustments and 2001 Census ethnicity assignments”.

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Table 18 1991 to 2001 Population Change Estimates under alternative adjustments for 1991 Census under-enumeration and after accounting for changes to the ethnic group classification between 1991 and 2001

England & Wales										Thousands and percentages
	Published 2001 Census data ¹	Published 1991 Census data, unadjusted ²	Percentage change from 1991 to 2001	1991 Census data with OPCS 1994 adjustments for under- enumeration ³	Percentage change from 1991 to 2001	1991 Census with OPCS 1994 adjustment and 2001 ethnicity assignments ⁴	Percentage change from 1991 to 2001	1991 Census with alternative 'SOCPOP' adjustment and 2001 ethnicity assignments ⁵	Percentage change from 1991 to 2001	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
White	47,520.9	46,937.9	1	47,876.6	-1	47,819.2	-1	47,710.1	0	
Indian	1,036.8	830.2	25	855.1	21	850.9	22	875.8	18	
Pakistani	714.8	455.4	57	469.0	52	473.0	51	493.4	45	
Bangladeshi	280.8	161.7	74	166.6	69	166.6	69	173.1	62	
Black Caribbean	563.8	499.0	13	514.0	10	472.3	19	526.1	7	
Black African	479.7	209.6	129	220.1	118	196.2	144	219.7	118	
Chinese	226.9	146.5	55	152.3	49	156.0	45	164.7	38	

Sources:

¹ Census, April 2001, Office for National Statistics;

² 1991 Census Local Base Statistics, ONS, Crown Copyright Reserved [from Nomis on 19 April 2005];

³ 1991 Census Local Base Statistics, ONS, Crown Copyright Reserved [from NOMIS on 19 April 2005], adjusted with OPCS/GRO(S) adjustment factors as cited in OPCS/GRO(S) (1994) Undercoverage in Great Britain: 1991 Census User Guide 58 (Table 7)

⁴ 1991 Census data adjusted for under-enumeration (column 4 of this table) with further adjustments based on ONS Longitudinal Study linked ethnic group data (see Table 3 Appendix)

⁵ For more information on alternative post-census SOCPOP adjustments see

http://census.ac.uk/cdu/Datasets/1991_Census_datasets/Area_Stats/Adjusted_data/Undercount_adjusted_census_data/SOCPOP.htm#1

6.12 The interpretation of these numbers is that they are the 1991 population classified according to the 2001 ethnic group categories. For example, the reduced size of the Black Caribbean population (472 thousand instead of 514 thousand) is after reclassifying some of the 1991 Black Caribbean population to the Mixed White and Black Caribbean ethnic group. The 1991 population figures in column (6) are then directly comparable to the 2001 population figures in column (1). Percentage changes in the sizes of each ethnic group between 1991 and 2001 based on this adjusted and reclassified 1991 population are presented in column (7). The effect of reclassification on ethnic group change may be seen through a comparison of these percentage changes with the percentage changes in column (5), before accounting for reclassification.

6.13 The quantitative effects of ethnic group reclassification on percentage change between 1991 and 2001 are greatest for the Black Caribbean and Black African groups. The growth in the Black Caribbean ethnic group between 1991 and 2001 is estimated to be 19 per cent when the 2001 classifications are used to describe both the 1991 and 2001 populations (column 7), almost double the 10 per cent growth estimated without taking into account reclassification (column 5). The Black African population increased by 144 per cent when the 2001 Census classifications are used in both 1991 and 2001, compared to 118 per cent without taking into account reclassification.

6.14 These relatively large effects of reclassification of people between 1991 and 2001 on these two Black groups are unsurprising given their large presence in the 2001 Mixed categories (the White and Black Caribbean and White and Black African respectively). The analyses of chapter 4 showed much greater changes into these Mixed White and Black categories, especially the White and Black Caribbean category, than were seen among the Asian groups. For example, while 5.7 per cent of 1991 Black Caribbeans became Mixed White and Black Caribbean in 2001, less than 1 per cent of Indians, Pakistanis and Bangladeshis in 1991 became White and Asian in 2001.

6.15 Offering a larger number of categories in 2001 (than in 1991) affects the proportions and numbers, particularly for the Black Caribbean and Black African groups. The Black Caribbean population in 1991 is around 40 thousand lower after reclassifying to the 2001 categories (472 thousand instead of 514 thousand), and the Black African population in 1991 is more than 20 thousand lower after 2001 reclassification (196 thousand instead of 220 thousand).

6.16 The reclassified 1991 White population is around 60 thousand lower (47,819 thousand instead of 47,877 thousand). The reclassification of 1991 Whites to one of the 2001 Mixed categories are therefore only partially offset by reclassifications into White due to the expansion of the White category in 2001 to include Irish and Other White categories that were not available in 1991.

6.17 The Indian, Pakistani, Bangladeshi and Chinese groups are affected very little by ethnic group reclassification between 1991 and 2001. The estimates of 22 per cent, 51 per cent, 69 per cent and 45 per cent growth of these ethnic groups between 1991 and 2001 (column 7), therefore, are almost the same as before reclassification (column 5). This result is also unsurprising given the analyses of the previous two

chapters showing their 1991 to 2001 classifications to be the most stable of the non-White ethnic groups.

Adjustment Factors and Person Imputation

6.18 The adjustment factors presented earlier for the 1991 Census counts for under-enumeration in 1991 were created using a very different method and set of supplementary data than was the person imputation in 2001. In particular, ethnic group was one of the explicit factors used in person imputation in the 2001 Census, while age, sex and geographical location were the only explicit factors used in computing the 1991 Census adjustment factors (the “1994 OPCS/GROS adjustment factors”). This may potentially have an important effect on comparing 1991 and 2001 Census ethnic group sizes.

6.19 To evaluate how large the effect of the above undercount methodology differences might be, an alternative set of 1991 adjustment factors created by researchers at the Centre for Census and Survey Research at the University of Manchester, and available to academic users in the UK, is used.⁴⁷ These factors were developed as showing “plausible” differences in under-enumeration in the 1991 Census of Great Britain based on indirect evidence in Britain in 1981 and 1991 and from a review of differentials in comparable countries, specifically the USA, Canada and Australia.⁴⁸ The researchers refer to them as ‘SOCPOP’ adjustments due to their taking account of social differentials in enumeration, including ethnic group, in addition to the demographic factors of age, sex, and geographic location. Their use in this paper provides an illustration of the effect of alternative under-enumeration adjustments.

6.20 Adjusting the 1991 Census counts for under-enumeration in 1991 reduces the percentage growth of all ethnic groups, but does so more for the ethnic groups with the highest rates of under-enumeration. This can be seen by comparing columns (3) and (5) to show the effect of the OPCS 1994 adjustment, and by comparing columns (7) and (9) to show the effect of the difference between using the OPCS 1994 adjustment factors and the alternative ‘SOCPOP’ factors. The Black Caribbean growth, for example, falls from 13 per cent to 10 per cent with the OPCS 1994 adjustment. Without these adjustments, that is by using the 1991 and 2001 Census published outputs, the growth of each of the Asian and Black ethnic groups would be overstated. The change in the White population is less affected by adjustment, with the percentage change between 1991 and 2001 close to zero in every case.

6.21 These alternative numbers and associated percentage changes of columns (8) and (9) are intended to illustrate the range of likely ethnic group size changes between 1991 and 2001, under plausible alternative assumptions about the distribution of 1991 undercount between ethnic groups, and to illustrate the degrees of uncertainty in the measurement of these changes for different ethnic groups. Again, the changes in the sizes of the Black Caribbean and Black African groups are seen to be the most sensitive to these methodological aspects of their population adjustment. The increases in estimated growth of the Black Caribbean and Black African populations generated by reclassifying them to 2001 ethnic group categories disappear completely

when the alternative, 'SOCPOP' adjustments for undercount are applied to the 1991 data. Much less reduction in the estimated growth of the other ethnic groups occurs when applying these undercount adjustments.

6.22 The estimates by ethnic group in columns 1, 2, 4, 6 and 8 of Table 18 are subject to uncertainty due to sampling and estimation error. Thus, the comparisons of the numbers by ethnic group between the 1991 and 2001 Censuses under the different under-enumeration adjustment methodologies and reclassification are themselves estimates. In reality, they are likely to lie within a range. In particular, although some comparisons suggest that the number of people in the White population fell, other comparisons suggest no change or a small growth. The exact change in the number of White people between 1991 and 2001 cannot be inferred with certainty.

Appendices

A guide to comparing 1991 and 2001 Census ethnic group data

Appendix Table 1 Census 1991 adjustment factors for estimated undercoverage: by sex, area of residence and ethnic group (page 1 of 3)

Type of area	Ethnic group										
	All ethnic groups	White	Black Caribbean	Black African	Black Other	Indian	Pakistani	Bangladeshi	Chinese	Other Asian	Other ethnic group
All Persons											
Great Britain	1.02	1.02	1.03	1.05	1.04	1.03	1.03	1.03	1.03	1.03	1.03
England and Wales	1.02	1.02	1.03	1.05	1.04	1.03	1.03	1.03	1.04	1.03	1.03
England	1.02	1.02	1.03	1.05	1.04	1.03	1.03	1.03	1.04	1.03	1.03
Inner London	1.04	1.04	1.04	1.06	1.05	1.04	1.04	1.04	1.05	1.04	1.05
Outer London	1.02	1.02	1.02	1.03	1.03	1.02	1.03	1.03	1.03	1.03	1.03
Main met areas	1.04	1.04	1.05	1.05	1.05	1.05	1.04	1.04	1.06	1.06	1.05
Other met areas	1.02	1.02	1.02	1.03	1.03	1.02	1.02	1.02	1.02	1.02	1.03
Non met cities	1.03	1.03	1.04	1.05	1.05	1.04	1.04	1.04	1.05	1.05	1.05
Other Non met	1.02	1.02	1.02	1.02	1.03	1.02	1.02	1.02	1.02	1.02	1.02
Wales	1.02	1.02	1.03	1.04	1.03	1.03	1.04	1.03	1.03	1.03	1.03
Cardiff, Newport, Swansea	1.03	1.03	1.04	1.04	1.04	1.04	1.04	1.04	1.05	1.05	1.04
Rest of Wales	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.03	1.02	1.02	1.02
Scotland	1.02	1.02	1.03	1.04	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Area Type 1	1.01	1.01	1.01	1.02	1.02	1.01	1.01	1.02	1.01	1.01	1.01
Area Type 2	1.01	1.01	1.02	1.01	1.02	1.01	1.02	1.01	1.01	1.01	1.02
Area Type 3	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
Area Type 4	1.02	1.02	1.04	1.04	1.03	1.03	1.03	1.03	1.04	1.03	1.03
Glasgow City	1.03	1.03	1.05	1.04	1.04	1.04	1.04	1.04	1.05	1.05	1.05

Source: OPCS/GRO(S) (1994) Undercoverage in Great Britain: 1991 Census user guide 58 (Table 7)

A guide to comparing 1991 and 2001 Census ethnic group data

Appendix Table 1 Census 1991 adjustment factors for estimated undercoverage: by sex, area of residence and ethnic group (page 2 of 3)

Type of area	Ethnic group										
	All ethnic groups	White	Black Caribbean	Black African	Black Other	Indian	Pakistani	Bangladeshi	Chinese	Other Asian	Other ethnic group
Males											
Great Britain	1.03	1.03	1.05	1.07	1.06	1.04	1.04	1.04	1.05	1.05	1.05
England and Wales	1.03	1.03	1.05	1.07	1.06	1.04	1.04	1.04	1.05	1.05	1.05
England	1.03	1.03	1.05	1.07	1.06	1.04	1.04	1.04	1.05	1.05	1.05
Inner London	1.06	1.06	1.06	1.08	1.07	1.06	1.06	1.05	1.08	1.07	1.07
Outer London	1.03	1.03	1.04	1.04	1.04	1.03	1.04	1.03	1.04	1.04	1.04
Main met areas	1.06	1.06	1.07	1.07	1.08	1.07	1.06	1.05	1.09	1.08	1.07
Other met areas	1.03	1.03	1.03	1.03	1.04	1.03	1.03	1.03	1.04	1.03	1.04
Non met cities	1.05	1.05	1.06	1.07	1.06	1.06	1.05	1.05	1.08	1.07	1.06
Other Non met	1.02	1.02	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Wales	1.03	1.03	1.04	1.05	1.05	1.04	1.05	1.05	1.05	1.05	1.04
Cardiff, Newport, Swansea	1.05	1.05	1.05	1.06	1.06	1.06	1.06	1.05	1.08	1.07	1.06
Rest of Wales	1.02	1.02	1.02	1.03	1.03	1.02	1.03	1.03	1.03	1.03	1.03
Scotland	1.03	1.03	1.05	1.05	1.04	1.04	1.04	1.03	1.05	1.04	1.04
Area Type 1	1.02	1.01	1.02	1.03	1.03	1.02	1.02	1.02	1.02	1.02	1.02
Area Type 2	1.02	1.02	1.03	1.01	1.03	1.02	1.02	1.01	1.02	1.02	1.02
Area Type 3	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Area Type 4	1.04	1.04	1.05	1.06	1.04	1.05	1.04	1.04	1.06	1.05	1.05
Glasgow City	1.04	1.04	1.07	1.06	1.06	1.05	1.05	1.05	1.07	1.07	1.06

Source: OPCS/GRO(S) (1994) Undercoverage in Great Britain: 1991 Census user guide 58 (Table 7)

A guide to comparing 1991 and 2001 Census ethnic group data

Appendix Table 1 Census 1991 adjustment factors for estimated undercoverage: by sex, area of residence and ethnic group (page 3 of 3)

Type of area	Ethnic group										
	All ethnic groups	White	Black Caribbean	Black African	Black Other	Indian	Pakistani	Bangladeshi	Chinese	Other Asian	Other ethnic group
Females											
Great Britain	1.01	1.01	1.02	1.02	1.03	1.02	1.02	1.02	1.02	1.02	1.02
England and Wales	1.01	1.01	1.02	1.02	1.03	1.02	1.02	1.02	1.02	1.02	1.02
England	1.01	1.01	1.02	1.02	1.03	1.02	1.02	1.02	1.02	1.02	1.02
Inner London	1.02	1.02	1.02	1.03	1.03	1.02	1.02	1.02	1.02	1.02	1.03
Outer London	1.01	1.01	1.01	1.02	1.02	1.01	1.02	1.02	1.01	1.01	1.02
Main met areas	1.02	1.02	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
Other met areas	1.01	1.01	1.01	1.02	1.02	1.01	1.02	1.02	1.01	1.01	1.02
Non met cities	1.02	1.02	1.02	1.03	1.03	1.02	1.02	1.02	1.02	1.02	1.03
Other Non met	1.01	1.01	1.01	1.01	1.02	1.01	1.02	1.02	1.01	1.01	1.01
Wales	1.01	1.01	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
Cardiff, Newport, Swansea	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.03	1.02	1.02
Rest of Wales	1.01	1.01	1.01	1.01	1.02	1.01	1.02	1.02	1.01	1.01	1.02
Scotland	1.01	1.01	1.01	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
Area Type 1	1.00	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.00	1.01
Area Type 2	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
Area Type 3	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.01	1.01	1.01	1.01
Area Type 4	1.01	1.01	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
Glasgow City	1.01	1.01	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.03	1.03

Source: OPCS/GRO(S) (1994) Undercoverage in Great Britain: 1991 Census user guide 58 (Table 7)

A guide to comparing 1991 and 2001 Census ethnic group data

Appendix Table 2 Census 1991 adjustment factors for estimated undercoverage: by age, sex and ethnic group (page 1 of 3)

Great Britain

Age	Ethnic group										
	All ethnic groups	White	Black Caribbean	Black African	Black Other	Indian	Pakistani	Bangladeshi	Chinese	Other Asian	Other ethnic group
<u>All persons, all ages</u>	1.02	1.02	1.03	1.05	1.04	1.03	1.03	1.03	1.03	1.03	1.03
0-4	1.03	1.03	1.04	1.04	1.04	1.03	1.03	1.04	1.03	1.04	1.04
5-9	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
10-14	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
15-19	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
20-24	1.06	1.06	1.09	1.09	1.08	1.07	1.08	1.09	1.09	1.08	1.08
25-29	1.07	1.07	1.10	1.11	1.09	1.08	1.09	1.10	1.09	1.08	1.09
30-34	1.03	1.03	1.04	1.05	1.04	1.04	1.04	1.05	1.04	1.04	1.04
35-39	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
40-44	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
45-79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
80-84	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
85 and over	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04

Source: OPCS/GRO(S) (1994) *Undercoverage in Great Britain: 1991 Census user guide 58 (Table 6)*

Appendix Table 2 Census 1991 adjustment factors for estimated undercoverage: by age, sex and ethnic group (page 2 of 3)

Great Britain

Age	Ethnic group										
	All ethnic groups	White	Black Caribbean	Black African	Black Other	Indian	Pakistani	Bangladeshi	Chinese	Other Asian	Other ethnic group
<u>All males, all ages</u>	1.03	1.03	1.05	1.07	1.06	1.04	1.04	1.04	1.05	1.05	1.05
0-4	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
5-9	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
10-14	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
15-19	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03	1.03
20-24	1.10	1.10	1.14	1.15	1.14	1.12	1.14	1.14	1.14	1.13	1.13
25-29	1.10	1.10	1.16	1.17	1.15	1.13	1.15	1.16	1.14	1.14	1.14
30-34	1.05	1.05	1.07	1.08	1.07	1.06	1.07	1.08	1.06	1.06	1.07
35-39	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
40-44	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
45-79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
80-84	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
85 and over	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01

Source: OPCS/GRO(S) (1994) *Undercoverage in Great Britain: 1991 Census user guide 58 (Table 6)*

Appendix Table 2 Census 1991 adjustment factors for estimated undercoverage: by age, sex and ethnic group (page 3 of 3)

Great Britain

Age	Ethnic group										
	All ethnic groups	White	Black Caribbean	Black African	Black Other	Indian	Pakistani	Bangladeshi	Chinese	Other Asian	Other ethnic group
<u>All females, all ages</u>	1.01	1.01	1.02	1.02	1.03	1.02	1.02	1.02	1.02	1.02	1.02
0-4	1.03	1.03	1.03	1.04	1.03	1.03	1.03	1.03	1.03	1.03	1.03
5-9	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
10-14	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
15-19	1.01	1.01	1.01	1.01	1.01	1.01	1.02	1.01	1.01	1.01	1.01
20-24	1.03	1.03	1.04	1.04	1.04	1.03	1.04	1.04	1.04	1.04	1.04
25-29	1.03	1.03	1.05	1.05	1.05	1.04	1.05	1.05	1.04	1.04	1.04
30-34	1.01	1.01	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
35-39	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
40-44	1.01	1.01	1.01	1.00	1.01	1.01	1.01	1.01	1.01	1.01	1.01
45-79	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
80-84	1.02	1.02	1.03	1.03	1.02	1.03	1.03	1.03	1.02	1.03	1.03
85 and over	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.06	1.05	1.06	1.06

Source: OPCS/GRO(S) (1994) *Undercoverage in Great Britain: 1991 Census user guide 58 (Table 6)*

A guide to comparing 1991 and 2001 Census ethnic group data

Appendix Table 3 Ethnic group identification among LS members in the 1991 and 2001 Censuses

England and Wales																	Numbers
1991 Census	2001 Census																All ethnic groups
	White			Mixed				Asian or Asian British			Black or Black British			Chinese or other ethnic		Other ethnic group	
	White British	White Irish	Other White	White and Black Caribbean	White and Black African	White and Asian	Other Mixed	Indian	Pakistani	Bangladeshi	Other Asian	Black Caribbean	Black African	Other Black	Chinese		
White	380,096	4,704	5,660	367	98	487	325	126	99	29	113	165	68	51	67	127	392,582
Indian	156	10	34	0	5	51	18	7,825	48	5	381	16	22	4	0	21	8,596
Pakistani	96	0	10	0	0	35	5	49	3,960	11	134	0	7	0	0	3	4,310
Bangladeshi	40	0	0	0	0	9	4	17	14	1,543	25	0	0	0	0	0	1,652
Other Asian	44	0	8	3	0	31	58	197	66	12	451	9	18	16	38	390	1,341
Black Caribbean	205	10	22	194	7	0	26	8	5	0	12	2,617	22	264	0	0	3,392
Black African	84	4	11	9	41	0	13	24	4	5	7	30	956	42	0	5	1,235
Other Black	148	4	38	396	79	20	66	24	20	9	21	255	38	103	0	14	1,235
Chinese	24	0	0	0	0	6	20	3	0	0	0	0	0	0	1,017	48	1,118
Other	313	5	201	300	79	354	204	81	68	13	141	68	21	35	26	144	2,053
All ethnic groups	381,206	4,737	5,984	1,269	309	993	739	8,354	4,284	1,627	1,285	3,160	1,152	515	1,148	752	417,514

Notes:

- (1) LS members who were linked in 1991 and 2001.
- (2) Includes LS members with imputed ethnicity

Source: ONS Longitudinal Study reproduced from Table 2, Platt et al (2005), Population Trends 121, p.39

Appendix 4 Calculation of 1991 Census ethnic group population sizes according to 2001 ethnicity assignments

In columns 5 and 7 of Table 18 the “1991 Census data with 2001 ethnicity assignments” are shown. These portray the 1991 ethnic population if 1991 individuals would have responded in 1991 as they did in 2001.

These estimates have been arrived at by taking each ethnic group (e.g. White) from the 1991 Census and first subtracting respondents who changed to a different ethnic group in 2001 (‘exits’) and, second, adding respondents who chose a given different ethnic group in 1991 and changed to the specified ethnic group (e.g. White) in 2001 (‘entries’).

To calculate the number of people who ‘exited’ and ‘entered’ a specific ethnic group between the 1991 and 2001 Census, proportions changing ethnic group categories were first calculated based on LS data that linked between a respondents’ ethnic group in 1991 and 2001, based on the LS table shown in Appendix Table 3. These proportions were then applied to the 1991 Census data adjusted for under-enumeration to obtain the new estimated 1991 figure with 2001 ethnicity assignments.

Formally, if

L_{ij} is the number of linked LS records whose ethnic group was i in 1991 and j in 2001

and

L_i is the number of records of ethnic group i in 1991

then the proportion of people who exited a specific ethnic group between 1991 and 2001 is

$$\sum_j L_{ij}/L_i$$

Assuming that the changes between ethnic groups as shown in the LS apply to census data, the calculated proportion of people that exited a group can therefore be multiplied by the 1991 Census ethnic group total and be subtracted. Equivalently, one minus the exit proportion can be multiplied by the 1991 Census ethnic group total.

If N_i is the total number of people in the 1991 Census of ethnicity i , then

$$(1 - \sum_j L_{ij}/L_i) * N_i$$

will give the 1991 ethnic group total which excludes people who would have chosen a different category if that category would have been available in 1991, and all other reclassifications from i in 1991 to j in 2001 (all the other ethnic groups except for i).

Denote by L_{ji} the number of LS members of ethnic group j in 1991 whose ethnic group was i in 2001. The proportion of people who entered a specific ethnic group

between 1991 and 2001 is then calculated separately for each of the ethnic groups j (except for ethnic group i) and then summed:

$$\sum_j L_{ji}/L_j * N_j.$$

Combining these two steps for calculating exits from and entries to ethnic group i gives us the new number of people in the 1991 Census with 2001 ethnicity assignments:

$$P_i = (1 - \sum_j L_{ij}/L_i) * N_i + \sum_j L_{ji}/L_j * N_j.$$

These sets of totals P_i are those found in column 3 of Table 18.

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