

Response Paper – GB, WB & DF for SMB

Title: Estimating potential non-response bias and its effects on the LFS

Summary

The paper seeks to estimate the possible presence and degree of bias arising from suspected high non-response exhibited by ten groups specified according to tenure, ethnicity, country of birth and several other aspects. The potential for non-response bias is explored in a series of steps: key employment and education indicators for each group are compared to the overall totals; the degree of under-representation for each of the groups is reviewed by comparing 2001 Census proportions with those of the LFS in 2001, with the possible change between 2001 and 2008 also considered; and the sensitivity of the key indicators to changes in the group proportions towards their population values is measured. Because only a selection of low-response groups was chosen, simplifying assumptions were made and the true population proportions were not known, only tentative conclusions can be made. Nevertheless, it does appear that there may be non-response bias for some of the indicators as a result of under-representation of some of the groups. If this is confirmed by more thorough research, measures might be taken to adjust the weighting and to improve the response through a targeted approach.

Introduction

The results of the Labour Force Survey are intended to accurately reflect the labour market conditions for the whole population. This is put into effect by the design of the sampling procedures and subsequent weighting. However, non-response can lead to bias in the results if the labour market characteristics of non-responders differ from those of responders, that is, if there is a correlation between the tendency to respond and those characteristics.

Although non-response for the LFS is relatively low when compared to other voluntary social surveys, response rates have tended to follow the widely experienced downward trend and this has led to fears that bias may not only exist, but may also be increasing (Barnes *et al.*, 2008).

This paper, therefore, seeks to explore the possible presence and degree of bias arising from high non-response (including attrition) exhibited by particular groups and, if it appears to be significant, to identify means of dealing with it. After outlining the issue of non-response bias and briefly reviewing recent work, estimates of potential bias are derived for 10 low response groups in a series of steps. It must be emphasised, however, that these estimates are intended to be indicative rather than definitive.

Non-response bias – the problem

Although much concern has been expressed about falling response rates, and falling sample size will give rise to a higher sampling error, it will not necessarily lead to bias in any or all of the survey statistics. Non-response bias will only arise if the non-respondents and respondents are significantly different in terms of any of the statistics measured and the former are sufficiently numerous to have a significant impact on the particular statistic. Furthermore, such bias, if it exists, may apply to one statistic, but not another – it is a statistic-specific, rather than a survey-specific problem (Beerten, 2008).

Non-response bias is defined as:

The bias resulting from limiting the survey analysis to the available data

OECD, 2002

or:

The error in the estimate of a population statistic arising from the omission from the sample of non-respondents.

And can be measured as:

$$y_r - y_n = \frac{m}{n}(y_r - y_m)$$

where y is the statistic, n denotes the complete sample, r the responding units and m the non-responding units.

Thus the degree of bias is dependent upon the proportion of non-respondents and the difference between the particular statistic for respondents and non-respondents and this holds for non-respondents as a whole and for more specific groups of non-respondents.

Non-response bias in the LFS

Although work making use of the Census to gauge non-response bias in the LFS concluded, at the level studied, that bias was not a major problem, adjustments in the form of correction factors were, nevertheless, presented (Freeth and Beerten, 2004). Furthermore, Hopper's recent work (2008) using Output Area Classification has also identified under-representation at several geographic levels and has again concluded that correction factors might be warranted.

The objective of this study was less ambitious and more exploratory in nature: here the aim was to take a number of groups identified as exhibiting low response and to estimate their potential for causing bias in some key estimates.

The groups selected were those which had been identified as having relatively high non-response or attrition rates in the Census-linked study and subsequent work by Hopper as well as drawing on 2008 data on attrition. However, those groups which were already adjusted for in the weighting process did not differ markedly from the overall sample in terms of labour market characteristics and/or for which data would be difficult to obtain were omitted. The groups selected for further analysis were intended to be illustrative rather than exhaustive; they were respondents: in one adult households; resident in the current accommodation for less than one year; resident in the UK for less than one year; born in Bangladesh; Pakistan; and China; of black or black British ethnicity; in private rented accommodation; and respondents in local authority accommodation. The category of respondents born outside the UK was also chosen for analysis.

For this exercise, the process for calculating the potential for non-response bias was set out as a series of steps: key employment and educational indicators were estimated for each of the groups; an indication of the degree of non-response was gleaned by comparing the proportions of the population for each of the groups represented by the LFS figures with those from the 2001 Census; and the sensitivity of the key indicators to changes in the group proportions in the LFS sample was calculated.

Before these steps are explained in more detail, it is important to note that the calculations are based on a number of assumptions, most important of which is that the characteristics of the

non-responding and attriter groups are the same as their responding counterparts: this facilitates the estimation of the key indicators for the groups using responder data.

Key labour market indicators

The key labour market characteristics to be measured were employment, unemployment and economic activity, and qualification level (NQF 3 and above, apprenticeships, NQF2 and ‘other qualifications’, the latter covering foreign as well as certain other qualifications). Table 1 shows the rates for these indicators for the sample as a whole and for each of the groups, based on the weighted sample for the first quarter of 2008.

Table 1 Key employment and educational indicators of some low response groups¹.

	employment	unemployment	economically inactive	NQF 3+	apprenticeships	NQF 2	other qualifications
Overall	74.6%	5.3%	21.2%	44.9%	4.7%	15.9%	8.9%
1 person household	72.2%	7.3%	22.1%	50.0%	4.8%	12.4%	7.6%
resident at address<1 yr	69.8%	7.8%	24.3%	48.4%	3.1%	12.8%	15.0%
resident UK<1 yr	57.3%	12.7%	34.4%	24.7%	1.6%	1.7%	59.8%
non-UK born	69.3%	7.2%	25.4%	38.4%	2.0%	6.7%	32.5%
Bangladesh born	46.1%	14.7%	45.9%	27.3%	0.3%	12.0%	18.9%
Pakistan born	45.2%	12.9%	48.1%	19.3%	1.2%	6.2%	32.0%
China born	53.6%	7.9%	41.8%	56.7%	0.0%	1.7%	28.5%
black or black British ethnic	63.4%	13.1%	27.1%	44.6%	2.0%	13.4%	15.4%
private rented tenure	67.6%	7.9%	26.6%	44.1%	2.9%	12.0%	18.8%
local authority tenure	44.9%	19.2%	44.4%	17.5%	3.7%	15.9%	10.9%

As Table 1 and Figure 1 indicate, for several of the groups the employment indicators do not differ markedly from the overall sample: single-person households, those resident at the address for less than one year, non-UK born and those in private rented accommodation. However, all differences, except in the case of single person households, are likely to be significant, given the sizes of the approximate standard errors shown in Table 6 in Annex1. Employment rates are extremely low for the three Asian-born groups, for those in local authority housing and, to some extent, recent migrants. All groups show higher unemployment rates to a greater or lesser extent, but particularly recent migrants, respondents born in Bangladesh and Pakistan, those from the black ethnic community and, again, local authority housing inhabitants. Economic inactivity follows a similar pattern to that of unemployment with the highest rates amongst respondents born in Asia and local authority housing tenants.

¹ Note: NQF denotes the National Qualifications Framework. Level 3+ covers National Diplomas, NVQ level 3, A Levels and above; Level 2 covers GCSE’s A*-C, BTEC Diplomas and NVQ level 2; Apprenticeships straddle levels 2 and 3, and ‘other’ qualifications include work-related, professional, vocational and foreign qualifications.

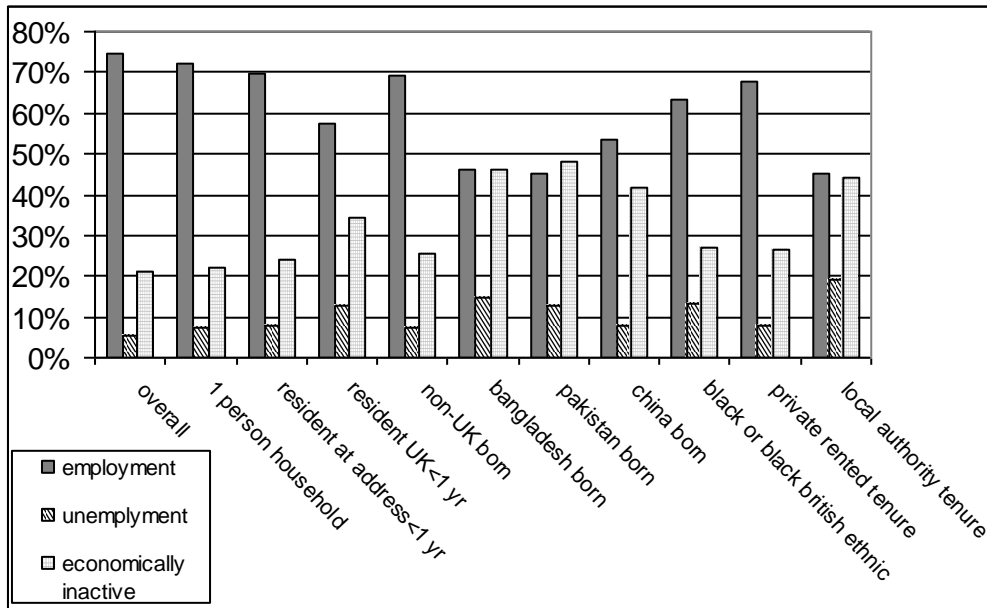


Fig.1 Employment indicators for selected groups

Since many of the respondents born outside the UK undertook their education abroad, their UK qualifications levels are commensurately low. Thus, recent migrants and respondents born outside the UK, especially Pakistan, have relatively low proportions of level 2, apprenticeship and level 4+ qualifications, while they do have high levels of 'other' qualifications. Those born in Bangladesh, on the other hand, do not have such a high percentage of foreign qualifications, but neither do they have a high rate of level 3 qualifications and above, although they do tend to have relatively more level 2 qualifications than other migrant groups. Despite following the pattern in terms of the other educational indicators, Chinese-born respondents differ in their superior proportion of higher level qualifications.

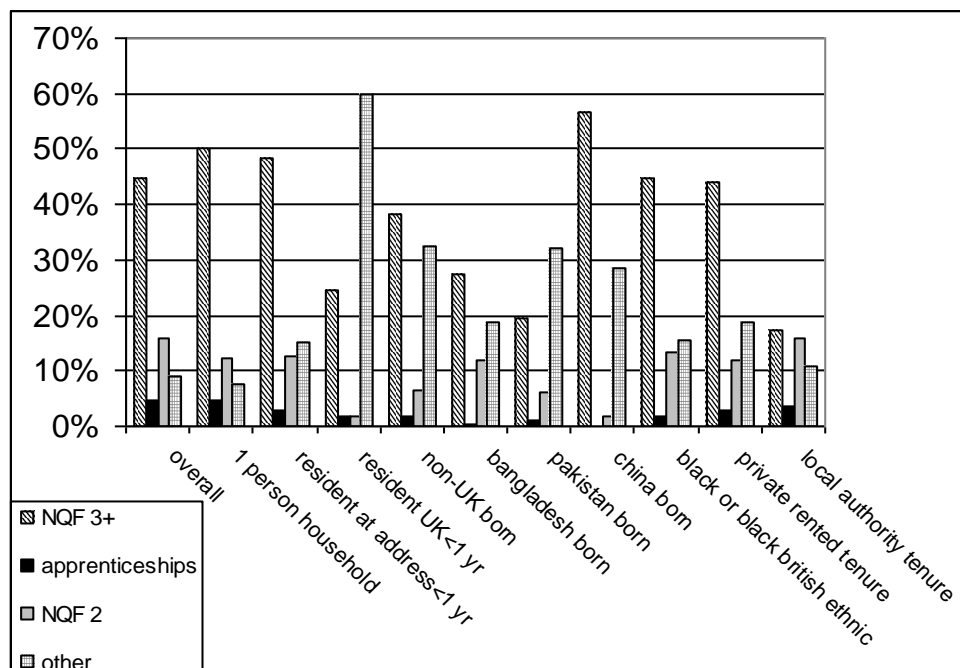


Fig. 2 Educational indicators for selected groups

People in rented accommodation tend to have less intermediate qualifications and more ‘other’ qualifications, but are similar to the full sample in terms of higher level qualifications. The picture for local authority tenants is particularly marked in the very low proportion of higher qualifications held.

LFS and 2001 Census group proportions

To form an estimate of the existence and degree of non-response bias it is necessary to measure, not only the levels of key economic indicators for the group and the whole sample, but also the divergence between the proportion of that group in the sample and the population. If the proportion in the sample is widely different from the proportion in the population, this will magnify the effect of any difference in the economic indicator.

The best available indicator of the population composition is the 2001 Census. However, since much is likely to have changed over the intervening 7 years, comparing the LFS figures for the first quarter of 2008 with those from the 2001 Census is unsatisfactory. Instead, a comparison between the 2001 Census proportions and those from the March-May 2001 LFS gives an impression of the degree of divergence at that time, while a comparison between the latter and the January-March 2008 LFS shows how the survey proportions have changed in the interim. The sample and population proportions are shown for the selected groups in Table 2 and Fig. 3.

Table 2 Current LFS and 2001 Census group proportions compared.

	Census 2001	LFS MM01	nominal difference	percentage difference	LFS JM08
1 person household	11.3% ²	10.3%	-1.0%	-9.1%	10.5%
resident at address<1 yr	12.0%	11.4%	-0.6%	-4.8%	12.9%
resident UK<1 yr	1.1%	0.7%	-0.4%	-37.9%	1.1%
non-UK born	10.0%	9.6%	-0.4%	-4.0%	13.7%
Bangladesh born	0.4%	0.4%	0.1%	14.4%	0.4%
Pakistan born	0.7%	0.6%	-0.1%	-16.4%	1.0%
China born	0.3%	0.2%	-0.1%	-27.0%	0.2%
black or black British ethnic	2.1%	1.7%	-0.3%	-15.7%	2.4%
private rented tenure ³	15.0%	7.7%	n.a.	n.a.	12.7%
local authority tenure	16.6%	12.4%	n.a.	n.a.	9.1%

The divergence between the sample and population proportions shown by the gap between the 2001 LFS and the Census figures in the first two columns, when compared to the standard errors in Annex 1, does suggest significant differences at that time. The greatest differences arose in the tenancy groups, both private and local authority, for which there appears to be an under-representation in the LFS, although the Census proportions are based on households rather than individuals, so the figures must be treated with caution. Apart from Bangladesh-born respondents, all other groups appear to be under-represented in the LFS, and although the differences are no greater than 1%, proportionately they are substantial for migrants and ethnic groups.

² The correct figure for this category was unclear since it could be derived in a number of ways.

³ For the last two rows the Census figures are not directly comparable with those from the LFS since the former represent household percentages, rather than individual proportions. Nevertheless, since adjustment using the average working age household sizes for different tenure groups suggests that the Census figures for individuals would show only slightly lower proportions, the figures do give some indication of differences.

With the exceptions of respondents born in Bangladesh and China and local authority tenants, the LFS proportions have risen between 2001 and 2008, generally in the direction of the Census proportions. However, if the same degree of under-representation has continued to occur, it may reasonably be assumed that the degree of divergence will not have narrowed.

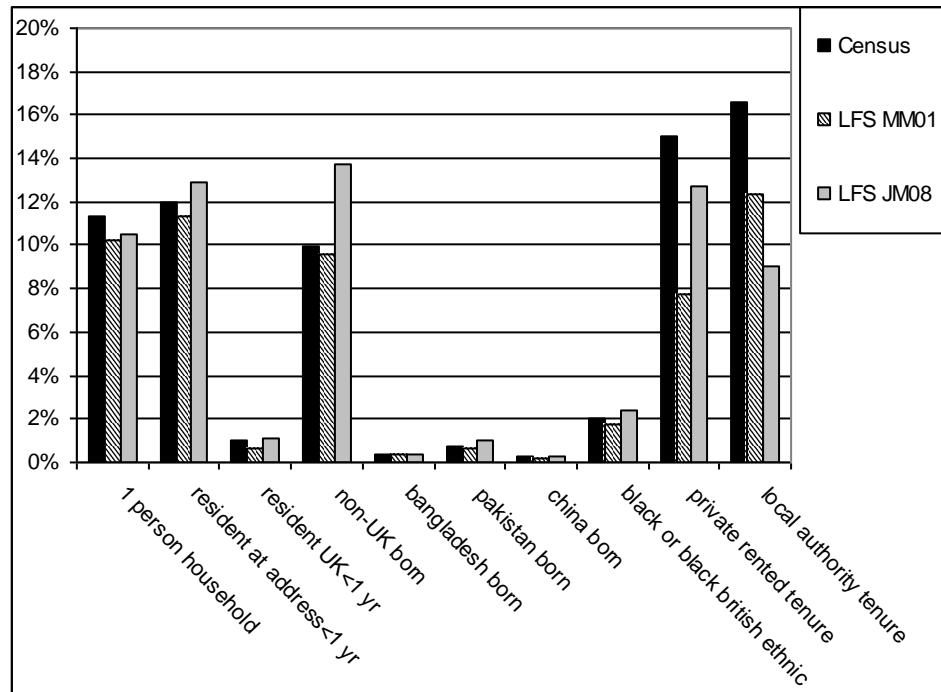


Fig. 3 LFS and 2001 Census group proportions⁴

Estimating the potential for non-response bias.

The final step in calculating non-response bias would ideally be to take the employment and education indicators for each group and then to recalculate the indicators for the whole population using the population proportions in place of the current LFS weights. The complete formula for this is⁵:

$$V_T^* = \left(\frac{(V_T - V_i L_i)(1 - P_i)}{(1 - L_i)} \right) + V_i P_i$$

where V_T^* is the estimated value of a particular key economic indicator after adjusting the size of group i to its predicted true proportion of the population;

V_T is the unadjusted value of the indicator (using current LFS weights);

V_i is the value of the indicator for group i ;

L_i is the proportion in the LFS for group i ; and

P_i is the population proportion for that group.

Since the 'true' population figures are not known, there being no Census figures for 2008, sensitivity analysis has to be carried out instead in order to estimate the effect on the key indicators of adjusting the group proportions closer to a more representative figure.

⁴ The recent migrant proportions may not be strictly comparable due to differences in measurement.

⁵ Note that these calculations are made for each group separately.

To gauge the sensitivity of the key indicators to adjustment of the groups toward their true population shares two measures are used here:

1. Non-response bias elasticity (ϵ), which measures the proportionate change in the key indicator as a result of a 1% proportionate change in the group share of the sample. This is derived using the formula:

$$\epsilon_i = \frac{L_i(V_i - V_T)}{(1 - L_i)V_T}$$

and

2. The percentage change in the group proportion required to give a noticeable change in the reported indicator (0.1%) using the formula⁶:

$$\Delta L_i = \frac{0.001(L_i - 1)}{(V_i - V_T)L_i}$$

Tables 3 and 4 present the results of the sensitivity analysis in terms of the non-response bias elasticity and noticeable change proportions respectively.

To illustrate the meaning of the elasticity figures in Table 3, if the proportion of working age people in one person households rose by 1% from its present level of 10.5% in the LFS to just over 10.6%, then the overall employment rate would fall by 0.37% from 74.6% to 71.8%. An indicator is said to be elastic with respect to a particular group proportion if it exceeds +/-1 and highly elastic if it is at least +/-10 and high elasticity would highlight where the potential for bias is greatest, although this can only be confirmed if the divergence between the LFS group proportion and its true counterpart in the whole population is known. Thus, unemployment and economic inactivity show the greatest degree of elasticity, particularly with respect to the sizes of the local authority (highly elastic) and private rented groups as well as non-UK born and those resident at the address for less than one year. For qualifications, the proportion of 'other' qualifications is highly elastic with respect to non-UK born, private rented and resident at address for less than one year groups and elastic for 5 other groups. The other three qualification indicators each exhibit elasticity for 4 or 5 groups.

Table 3 Estimates of non-response elasticity for key indicators by group

	employment	unemployment	economically inactive	NQF 3+	apprenticeships	NQF 2	other qualifications
sample value	74.60%	5.35%	21.18%	44.87%	4.66%	15.93%	8.87%
1 person household	-0.37%	4.34%	0.48%	1.33%	0.43%	-2.59%	-1.72%
resident at address<1 yr	-0.94%	6.67%	2.16%	1.17%	-5.08%	-2.93%	10.24%
resident UK<1 yr	-0.18%	1.04%	0.47%	-0.41%	-0.52%	-0.74%	4.93%
non-UK born	-1.14%	5.43%	3.16%	-2.29%	-9.22%	-9.25%	42.41%
Bangladesh born	-0.14%	0.65%	0.43%	-0.15%	-0.35%	-0.09%	0.42%

⁶ A 'noticeable change' of 0.1% is used because these indicators are generally presented to 1 decimal place.

Pakistan born	-0.39%	1.41%	1.26%	-0.57%	-0.74%	-0.60%	2.59%
china born	-0.07%	0.12%	0.24%	0.06%	-0.25%	-0.22%	0.54%
black or black British ethnic	-0.37%	3.60%	0.69%	-0.01%	-1.44%	-0.39%	1.84%
private rented tenure	-1.38%	6.97%	3.76%	-0.26%	-5.36%	-3.58%	16.36%
local authority tenure	-3.97%	25.91%	10.93%	-6.10%	-2.04%	-0.03%	2.30%

Table 4 and Figures 4 and 5 show sensitivity in terms of the change in the group size required to bring about a noticeable change in the indicator. Thus, for the employment rate to fall from 74.6 to 74.5% the proportion respondents in one person households would have to rise by 36% from 10.5% to 14.3%. Therefore, in the table and figures the smallest percentages show areas of greatest sensitivity, which would consequently be areas with the greatest potential for bias (again, bearing in mind the likely degree of divergence between the LFS and population proportions for the particular group).

Table 4 Estimates of group change needed to effect 0.1% change in indicators

	employment	unemployment	economically inactive	NQF 3+	apprenticeships	NQF 2	other qualifications
sample value	74.60%	5.35%	21.18%	44.87%	4.66%	15.93%	8.87%
1 person household	-36%	43%	99%	17%	496%	-24%	-65%
resident at address<1 yr	-14%	28%	22%	19%	-42%	-21%	11%
resident UK<1 yr	-76%	180%	100%	-54%	-416%	-84%	23%
non-UK born	-12%	34%	15%	-10%	-23%	-7%	3%
Bangladesh born	-94%	288%	109%	-153%	-616%	-680%	268%
Pakistan born	-34%	133%	37%	-39%	-292%	-104%	43%
china born	-194%	1587%	197%	345%	-875%	-286%	207%
black or black British ethnic	-36%	52%	68%	-1548%	-149%	-159%	61%
private rented tenure	-10%	27%	13%	-84%	-40%	-18%	7%
local authority tenure	-3%	7%	4%	-4%	-105%	-1867%	49%

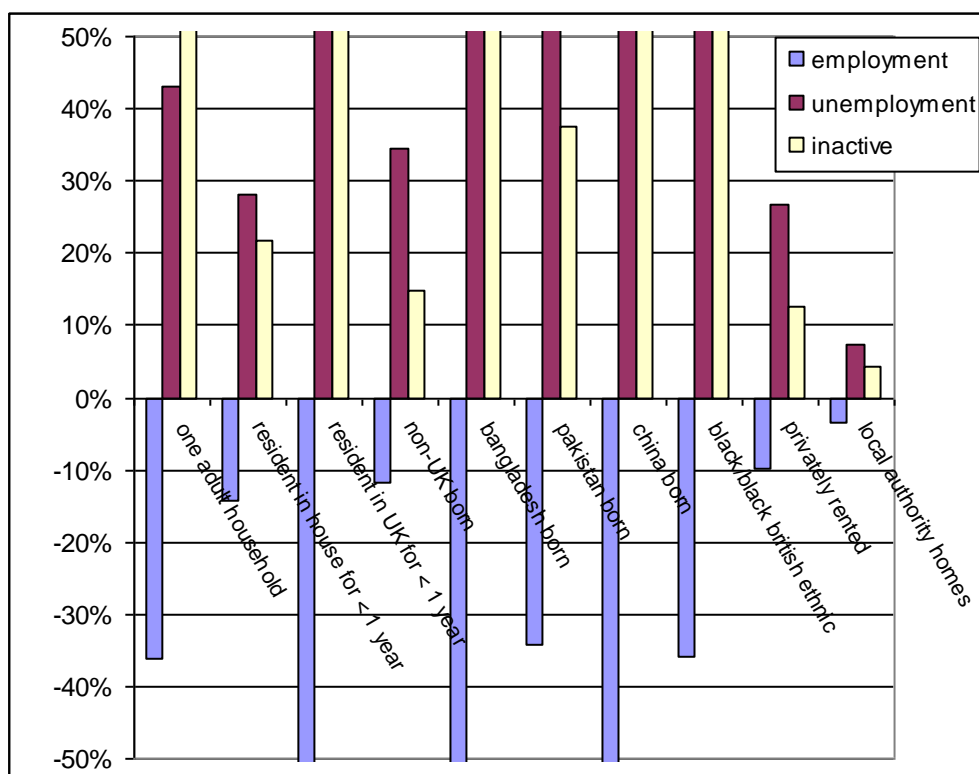


Fig. 4 Estimates of group change needed to effect a 0.1% change in employment indicators

Again, the groups with the greatest influence on the employment indicators, especially the employment rate, are the local authority and private rented, non-UK born and resident at the address for less than one year groups. For the qualifications indicators, the higher qualification rate is most sensitive to changes in the local authority and non-UK born groups while 'other' qualifications are particularly influenced by the non-UK born and private rented groups. Note that 'other' includes not only foreign qualifications, but also work-related, professional and vocational qualifications which constitute more than 80% of the total in this category.

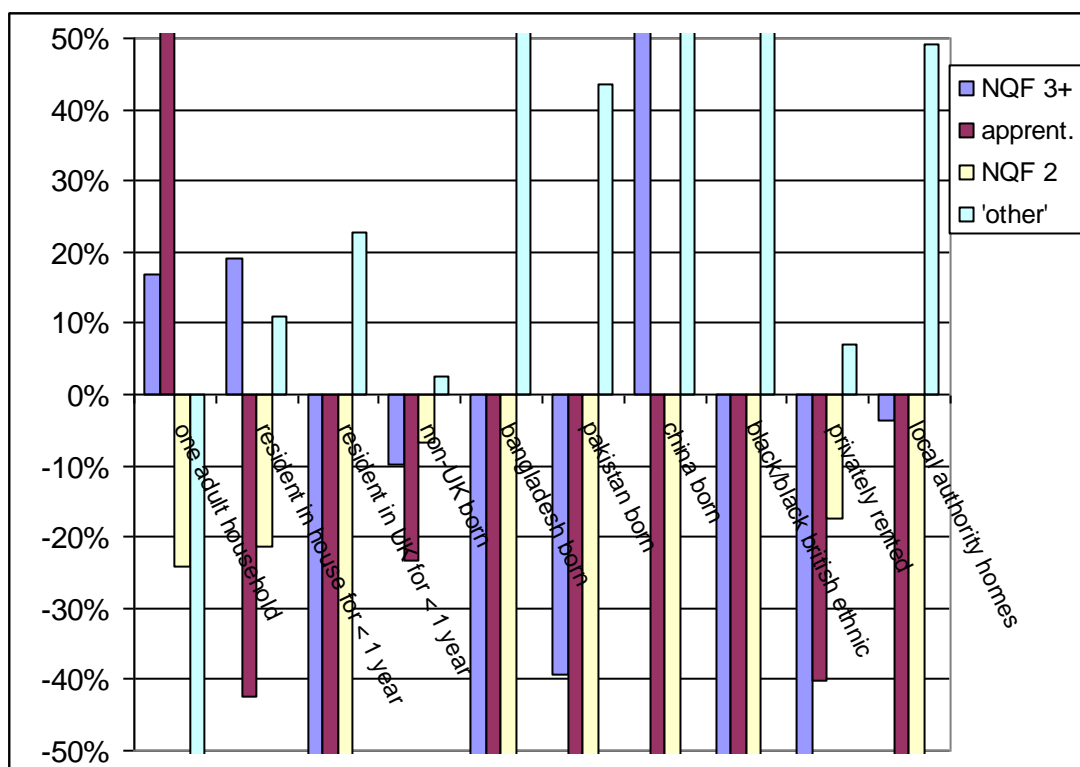


Fig.5 Estimates of group change needed to effect a 0.1% change in qualifications indicators

Local level group concentration

The analysis so far has concentrated on the potential non-response bias at a national, UK, level. However, if bias for particular groups is indicated nationally, it may be even more of a problem at the regional or local level if there is geographical group-wise concentration and differential response rates between certain groups and the rest of the population. Although a full analysis at disaggregated levels has been left for future research, Tables 5 and 6 present measures of group concentration by government office region and unitary authority/local areas respectively.

Table 5 Group concentration by government office region

Characteristic	Government Office regions (% of area working age population)					
1 adult household	Inner London	17.0	Rest of Scotland	12.8	Strathclyde	12.4
Resident in house < 1 year	Inner London	17.7	Tyne and Wear	16.3	West Yorkshire	15.4
Resident in UK < 1 year	Inner London	2.3	Outer London	1.7	Merseyside	1.2
Born outside UK	Inner London	44.4	Outer London	36.3	West Midlands	18.5
Born in Bangladesh	Inner London	3.5	West Midlands	1.0	Greater Manchester	0.5
Born in Pakistan	West Yorkshire	4.0	West Midlands	3.5	Greater Manchester	2.1
Born in China	Inner London	0.9	Merseyside	0.5	Outer London	0.5
Black ethnic	Inner London	14.2	Outer London	8.2	West Midlands	5.2
Private rented	Inner London	25.2	Outer London	18.7	South Yorkshire	14.0
Local authority	Inner London	19.6	Tyne and Wear	19.0	South Yorkshire	13.4

At the regional level the greatest group concentrations have to be gauged by reference to their overall proportions in the LFS, as presented in Table 2. On this basis, the foreign-born and ethnic groups show the highest degree of concentration (ranging from 4 to 8 times the national proportions), but even for the other groups, their share of the population in some regions is around double the national rate. Furthermore, Inner London has the highest

concentration of all but one of these groups with Outer London also featuring in the top three regions for half of the groups. Only in the case of respondents born in Pakistan does London not appear in the top three regions. For all groups, the focus tends to be on urban areas.

Table 6 Group concentration by unitary authority/local area

Government Office regions (% of area working age population)						
1 adult household	Lambeth	19.8	Camden	19.4	Lewisham	19.1
Resident in house	Oxford	34.6	Eastbourne	33.2	Brighton & Hove	30.8
< 1 year						
Resident in UK < 1	Wolverhampton	5.5	Hounslow	4.9	Redbridge	4.6
year						
Born outside UK	Brent	62.3	Westminster	60.2	Hounslow	55.9
Bangladeshi	Tower Hamlets	23.8	Westminster	6.2	Newham	5.1
Pakistani	Slough	13.0	Waltham Forest	12.3	Bradford	10.6
Chinese	Christchurch	4.1	Oxford	3.9	Durham	3.5
Black ethnic	Lambeth	26.9	Southwark	25.2	Lewisham	24.3
Private rented	Brent	38.9	Westminster	34.5	Southampton	32.8
Local authority	Sandwell	27.8	Greenwich	27.7	Islington	27.7

At the local level, the dispersion away from the overall proportion of the population tends to become very much wider, particularly again for the foreign-born and ethnic groups⁷, with group concentration ratios ranging from almost 5 to 60 in the case of respondents born in Bangladesh. Urban areas in general and London in particular tend to be where the greatest concentrations occur, with some notable exceptions.

Discussion and conclusions

In terms of employment and educational indicators, all groups differ from the average, to a greater or lesser degree. For all groups employment indicators are inferior to the overall rates with some diverging markedly from the latter, notably recent migrants, Asian-born respondents and local authority tenants. For the educational indicators the pattern is less consistent although all groups appear to have rates significantly different to the overall rate for some of the measures. Local authority tenants and migrants, both recent and more settled, tend to have lower rates of UK qualifications, with the exception of those born in China. Conversely, all groups, except single person households, higher rates of ‘other’ qualifications, particularly recent migrants.

When proportions for the groups in the 2001 LFS are compared with the 2001 Census figures all except Bangladesh-born respondents appear to have been underrepresented in the survey, as their relatively high non-response/attrition rates suggest. However, although all differences appear to be significant, only those for the two tenancy groups are striking. The LFS proportions, however, have changed markedly between 2001 and 2008, but if the non-response for the groups has not improved it is likely that the divergence will not have narrowed.

Since the current degree of under-representation of the different groups is not known, it is not possible to estimate the degree of non-response bias. Nevertheless, the two sensitivity measures do highlight the areas in which the potential for such bias appears to be greatest, particularly if one also takes the known under-representation in 2001 as a rough guide.

⁷ At this, local, level the APS would normally be advocated due to the size of the standard errors for the LFS estimates. These figures must, therefore, only be taken as giving a general indicator.

The elasticity measure suggests that non-response bias in the unemployment and economic inactivity indicators is most likely to result from local authority, private rented, non-UK born and resident at the address for less than one year groups, although the latter two did not show marked divergence in terms of their 2001 LFS proportions relative to the Census. On the other hand, if sensitivity is measured in terms of a change of 0.1% in the indicator, it is employment and economic activity which are most sensitive, albeit influenced by the same groups.

For the qualifications indicators, elasticity appears to be particularly high for 'other' qualifications with the non-UK born, private rented and resident at address less than one year again prominent. For the three other qualifications indicators elasticities are lower, although elasticities exceed 1 for at least 4 groups. 'Other' qualifications are also signalled as facing potential bias when sensitivity is gauged with the 0.1% change measure and the same groups are most influential. Qualifications at NQF level 2 and 3 and above are sensitive to change with respect to four groups, but apprenticeships seem less vulnerable.

Some of the groups are heavily concentrated in certain regions and local areas. Given the differences in levels of the economic indicators for these groups and their likely lower response and/or attrition rates compared to the rest of the local population, then the degree of bias is likely to be exacerbated in these areas.

Because only a selection of the possible low response/high attrition groups were chosen, a number of simplifying assumptions were made and the divergence between the LFS and population proportions is not known, only tentative conclusions can be drawn. Nevertheless, it does appear that for some groups and some indicators only small adjustments to the group proportions would have a discernable effect on the national and regional levels of some employment and educational indicators. However, in order to justify the implementation of policy measures to deal with such bias, more detailed and accurate research is needed to determine the validity of these conclusions.

If the existence of significant non-response bias, along the lines highlighted here, is confirmed, what policy measures might be applied? Two main, but not mutually exclusive, courses of action are available, namely reweighting and improving response, or what Beerten (2008) calls 'adjusters' and 'reducers':

- Reweighting – along with the current weighting based on age, gender and geography, extra weights could be added to deal with the under-representation which is identified to be the most significant source of bias. However, this could be complex, particularly if weighting were required for a number of characteristics. Furthermore, it must be borne in mind that if a more general group was weighted for (non-UK born, for instance), the heterogeneity of sub-groups (as seen amongst the Asian-born groups) within the group might be masked and any improvement might be sub-optimal as a result.
- Improving response – the differences between regions and local areas and between sub-groups serve to highlight the need for a focussed approach since a scattergun policy might only serve to heighten differences and may even increase bias. Response targeted within regions and even local areas at tenancy types and racial and ethnic groups is likely to be more successful. Moreover, the approach will need to be tailored to the characteristics and sensibilities of the groups concerned. This might involve more intense concentration of interviewers, group-specific interviewers, ethnic interviewers and incentives, although the particular recipe should be developed only after a systematic review of features of the low response group and the array of tools available to improve response. Furthermore, improving response will not only involve getting more people on board at wave 1, but also reducing drop-out rates at subsequent waves.

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Annex 1

Table 7 Estimated standard errors by group for key indicators

Standard errors	design factor	sample size	employment	unemployment	inactive	NQF level 3+	apprenticeship	NQF level 2	qualifications 'other'
All	1	73199	0.16%	0.09%	0.15%	0.18%	0.08%	0.14%	0.11%
One adult household	1	7662	0.51%	0.34%	0.47%	0.57%	0.25%	0.38%	0.30%
Resident in house for < 1 year	1	9411	0.47%	0.32%	0.44%	0.52%	0.18%	0.34%	0.37%
Resident in UK for < 1 year	1.4	605	2.80%	2.27%	2.68%	2.39%	0.75%	0.74%	2.78%
Non-UK born	1.2	10041	0.55%	0.36%	0.52%	0.58%	0.17%	0.30%	0.56%
UK born	1	63147	0.17%	0.10%	0.16%	0.20%	0.09%	0.15%	0.09%
Bangladesh born	1.7	271	5.16%	4.99%	5.16%	4.61%	0.56%	3.36%	4.05%
Pakistan born	1.7	720	3.16%	2.96%	3.17%	2.51%	0.69%	1.53%	2.96%
China born	1.5	179	5.61%	3.99%	5.54%	5.57%	0.00%	1.45%	5.08%
Black or Black British ethnic group	1.3	1776	1.49%	1.22%	1.37%	1.53%	0.43%	1.05%	1.12%
Privately rented	1	9327	0.48%	0.33%	0.46%	0.51%	0.18%	0.34%	0.40%
Local authority homes	1	6643	0.61%	0.65%	0.61%	0.47%	0.23%	0.45%	0.38%

Table 8 Estimated standard errors for proportions of the population

Group	sample size: 73199	s.e.
Non-UK born		0.15%
Bangladesh born		0.04%
Pakistan born		0.06%
China born		0.03%
Black or Black British ethnic group		0.07%
Resident in house for < 1 year		0.12%
Resident in UK for < 1 year		0.05%
One adult household		0.11%
Privately rented		0.12%
Local authority homes		0.11%

