

FEATURE

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Labour Force Survey: interim reweighting 2008

SUMMARY

On 15 October 2008, the Office for National Statistics published revised Labour Force Survey (LFS) aggregate estimates in the Labour Market Statistics First Release to take account of the latest available official population estimates. This article describes the new and revised population estimates and the time periods affected. This is supported by tables illustrating the changes at both the total level and by age group. An outline of the reasons for making the revisions and of the basic methodology is then followed by a summary of how the new population figures have impacted on the headline labour market indicators, that is, the measures of UK employment, unemployment and economic activity as derived from the LFS. This includes analysis of revisions arising from the updated seasonal adjustment of the time series. Analysis is also provided of the impact of the revisions to the population estimates by Government Office Region.

On 15 October 2008, revised Labour Force Survey (LFS) estimates, that is, the aggregates in the Labour Market Statistics (LMS) First Release, were published to take into account the latest LFS population data. The LFS data sets used for detailed analysis, known as LFS microdata, are not affected. They continue to be weighted to the population estimates published in the autumn of 2007, as described in Palmer and Hughes (2008). See the following section for the definition of LFS aggregates and microdata.

On 21 August 2008, the Office for National Statistics (ONS) published the 2007 mid-year population estimates for the UK. These were followed by the 2008 Q2 experimental quarterly population estimates (QPEs) for England and Wales on 29 September, which provided new estimates for mid-2008. These new and revised estimates have been incorporated into the calculation of the population figures that have been used to reweight the LFS aggregate estimates.

Defining the LFS aggregate estimates and microdata

The LFS aggregate estimates in the UK and regional Labour Market Statistics First Release are key labour market indicators, for example, the levels and rates of employment, unemployment and economic inactivity. They are derived initially from the LFS microdata and are calculated for any period of three consecutive months. These are referred to as three-month rolling

averages, for example, averages for January to March, February to April and so on. The aggregate estimates are seasonally adjusted.

LFS microdata are quarterly data sets containing all survey questions. They are made publicly available as databases to enable external users to access and produce their own analyses. They enable more detailed analysis but are published for calendar quarters only (Q1 refers to January to March, Q2 refers to April to June, and so on), and are not seasonally adjusted.

Background to the LFS

The LFS is a continuous UK household sample survey, which collects information from approximately 53,000 households each quarter (around 110,000 people). Since those responses reflect only a sample (approximately 1 in 500) of the total population, they are weighted on the basis of subnational population totals by age and sex to give estimates for the entire UK household population.

In order to remain consistent with the LFS sample, the population estimates as published are adjusted to exclude those outside the coverage of the LFS. Consequently, people in communal establishments, apart from those living in National Health Service accommodation and students living in halls of residence who have a UK-resident parent, are excluded from the LFS household population estimates. A fuller description of the history of the LFS and its methodology can be found in the Labour Force Survey User Guide Volume 1.

The LFS household population estimates are derived from the annual mid-year population estimates (MYEs) and latest projections based on those MYEs. These are updated annually and thus the LFS aggregate estimates can be revised on a similar basis – see the following section on interim reweighting. Reweighting of the survey microdata to the revised population estimates is a resource-intensive exercise and, historically, has been carried out less frequently than annually. The last full reweighting exercise was carried out in 2007–08 and the results were published on 14 May 2008.

Interim reweighting

Since 2003, the LFS aggregate estimates have been interim reweighted every year. Interim reweighting applies adjustments to the aggregate results to reflect how the latest available LFS household population estimates compare with those used for weighting the microdata. This amounts to an approximation of the effect that a full reweighting of the microdata would have.

The interim reweighting ensures that the time series of the LFS aggregates is kept closely in line with the latest population estimates, thus reflecting a more accurate picture of the UK labour market.

A consequence of this latest interim reweighting of the LFS aggregates in October 2008 is that they are no longer entirely consistent with the quarterly LFS microdata. This applies to all quarterly microdata back to and including July to September 2006. The microdata were last reweighted using the population estimates published in the autumn of 2007 (with results published in May 2008).

Under previous years' interim reweighting, the mid-year population estimate was applied to the June to August three-month period. For the most recent full reweighting of the microdata, the May to July period was used, and this has now been adopted for interim reweighting as well. The main reason for this change was that the May to July period appeared to be the more intuitive of the two possibilities, although both are equally valid statistically.

LFS household population estimates

The official population estimates published in August and September 2008 indicate that the previously published population projection for mid-2007 was very accurate as a predictor of the MYE. The estimate of LFS household population for people aged 16 and over for mid-2007, derived from the

2007 MYE, was just 4,000 lower than that derived from the previous year's projection. The difference between the latest and previous estimate for mid-2008 is slightly larger at –53,000, or –0.1 per cent, but this is still relatively small when compared with previous years' revisions.

Table 1 compares the new LFS household population estimates by age group with those previously used.

There were no revisions to the MYEs prior to 2007; therefore, the LFS aggregates are open to revision for the period June to August 2006 onwards.

The main driver of the revision to mid-2008 estimates is a downward revision of 47,000 to the estimate of the number of females aged 25 to 34. This is mainly due to revised projections for the migration component for females, as reflected in the QPEs for 2008.¹

Revisions to LFS aggregates

The remainder of this article will examine the impact of the interim reweighting on the headline aggregates by labour market status.

The interim reweighting of the seasonally adjusted aggregates includes revisions arising purely from the seasonal adjustment. This is partly because previously published LFS aggregate estimates are not routinely revised, in accordance with the published revisions policy for Labour Market Statistics.² This means that they each reflect the seasonal adjustment of the time series that existed at the time they were first published. The LFS aggregates are interim reweighted prior to being seasonally adjusted and then a fully revised time series is fed into the seasonal adjustment process. Consequently, the seasonally adjusted estimates for all periods open to revision reflect the most up-to-date estimation of the seasonal factors, trends and irregular components as required.

In previous years, the interim reweighting of the LFS aggregates has coincided with the implementation of the annual review of the seasonal adjustment of the LFS. The most recent detailed review was carried out in spring 2008 and the outcome was summarised in the reweighting article published in June 2008. This review is sufficiently up to date and consequently there have been no further changes to the way the LFS aggregate estimates are seasonally adjusted.

The largest revisions caused by the interim reweighting of the LFS aggregate estimates were mainly to the most recently published period, May to July 2008. This is primarily because the revisions to the LFS household population estimates get progressively larger from mid-2006 onwards. The revisions to the headline figures for this period are summarised in **Table 2**.

Generally, since the population revisions are included in both the numerator and denominator for the rate calculations, the revisions to the rates are very small, that is, less than 0.1 percentage points and, in many cases, zero. Consequently, the comparisons in this article focus on the levels rather than rates.

Table 3 shows the revisions resulting from interim reweighting for the main LFS aggregates, by age group. The relative sizes of the revisions tend to reflect the population revisions by age group, as shown in **Table 1**.

For the economically active, in employment and economically inactive series, the revisions result almost entirely from the latest LFS household population estimates only. In other words, the effects from the updated seasonal adjustment are minimal for those series. For the unemployment series, however, the opposite is true, and more detail is given in the section on unemployment estimates.

Table 1
New and previous LFS household population estimates: by age band

| United Kingdom | | Thousands, except where indicated | | | | | | | |
|----------------|------------------|-----------------------------------|----------|---------------------|------------------|----------|----------|---------------------|--|
| Age band | May to July 2007 | | | | May to July 2008 | | | | |
| | New | Previous | Revision | Percentage revision | New | Previous | Revision | Percentage revision | |
| 16+ | 48,654 | 48,659 | –4 | – | 49,039 | 49,092 | –53 | –0.1 | |
| 16–59/64 | 37,560 | 37,574 | –15 | – | 37,731 | 37,774 | –44 | –0.1 | |
| 16–17 | 1,588 | 1,589 | –1 | –0.1 | 1,591 | 1,583 | 7 | 0.5 | |
| 18–24 | 5,640 | 5,640 | – | – | 5,744 | 5,732 | 13 | 0.2 | |
| 25–34 | 7,780 | 7,792 | –11 | –0.1 | 7,805 | 7,854 | –48 | –0.6 | |
| 35–49 | 13,424 | 13,417 | 7 | 0.1 | 13,438 | 13,435 | 3 | – | |
| 50–59/64 | 9,128 | 9,137 | –9 | –0.1 | 9,152 | 9,171 | –19 | –0.2 | |
| 60/65+ | 11,094 | 11,084 | 10 | 0.1 | 11,308 | 11,317 | –9 | –0.1 | |

Source: Office for National Statistics

Table 2
Revisions to headline LFS aggregates, May to July 2008

| United Kingdom | Thousands, except where indicated | | | |
|---------------------------------------|-----------------------------------|----------|----------|---------------------|
| | New | Previous | Revision | Percentage revision |
| People aged 16+ | | | | |
| Economically active | 31,219 | 31,262 | -44 | -0.1 |
| In employment | 29,491 | 29,538 | -47 | -0.2 |
| Unemployed | 1,727 | 1,724 | 3 | 0.2 |
| Economically inactive | 17,820 | 17,829 | -9 | -0.1 |
| Working-age people¹ | | | | |
| Economically active | 29,870 | 29,911 | -41 | -0.1 |
| In employment | 28,165 | 28,209 | -44 | -0.2 |
| Unemployed | 1,705 | 1,702 | 3 | 0.2 |
| Economically inactive | 7,860 | 7,863 | -3 | - |

Note:

1 Men aged 16 to 64 and women aged 16 to 59.

Source: Office for National Statistics

Table 3
Revisions: by economic activity status and age group, May to July 2008

| United Kingdom | Thousands | | | |
|----------------|---------------------|---------------|------------|-----------------------|
| | Economically active | In employment | Unemployed | Economically inactive |
| Age group | | | | |
| 16-17 | 2 | 2 | - | 6 |
| 18-24 | 10 | 7 | 4 | 3 |
| 25-34 | -39 | -41 | 1 | -9 |
| 35-49 | 1 | - | - | 3 |
| 50-59/64 | -14 | -12 | -2 | -5 |
| 60/65+ | -3 | -3 | - | -6 |

Source: Office for National Statistics

Unemployment estimates

The interim-reweighted aggregate estimates of the level of unemployment for people aged 16 and over mainly reflect the updated seasonal adjustment. The revisions resulting purely from the revised LFS household population estimates, that is, before seasonal adjustment, were negligible. The revisions relate primarily to updated seasonal factors over the last two years, which are estimated as part of the normal seasonal adjustment process. The revisions to the seasonally adjusted figures are upwards from October to December 2007 to April to June 2008 and downwards from May to July 2007 to September to November 2007, as illustrated in **Figure 1**. The revisions range from +13,000 (+0.8 per cent) in February to April 2008 to -14,000 (-0.8 per cent) in July to September 2007.

Revisions by Government Office Region

Figure 2 shows the revisions to the May to July 2008 LFS household population estimates for people aged 16 and over, broken down by Government Office Region.

The largest revisions were downward ones of 17,000 for the North West and for London. The largest upward revision was for the South West, at 11,000. In percentage

terms, the revisions to the LFS household population for people aged 16 and over for all regions were between -0.3 and +0.3 per cent.

Table 4 shows the revisions arising from interim reweighting for the main LFS aggregates, by region. As for the age group breakdown, the revisions to the results generally reflect quite closely the revisions to the estimates of the LFS household population.

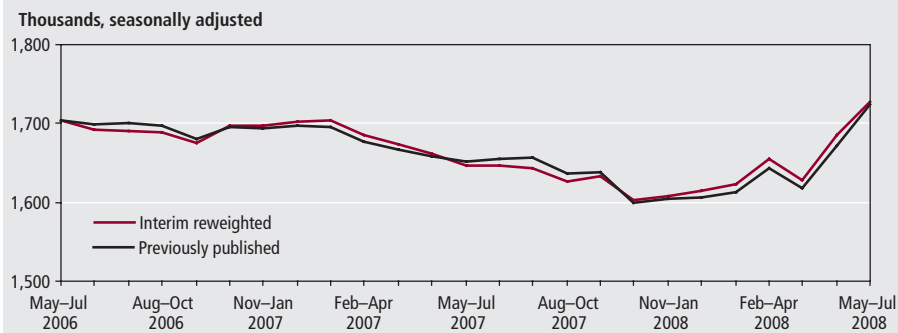
Conclusion

The LFS aggregate estimates for key labour market indicators have been interim reweighted to bring them into line with the latest official population estimates. There are no significant revisions to the headline figures and no changes to the statistical story presented by those figures.

The full set of interim-reweighted aggregates is included in the Labour Market Statistics First Release and supplementary tables, as published on 15 October 2008.

ONS aims to ensure that its published LFS estimates continue to be kept closely in line with the latest population estimates. Future revised population estimates will be incorporated into the revised LFS series using the interim LFS adjustment

Figure 1
Unemployment for people aged 16 and over, before and after interim reweighting¹

**Note:**

1 Rolling three-month periods, May to July 2006 to May to July 2008.

Figure 2
Revisions to LFS household population aged 16 and over: by Government Office Region, May to July 2008

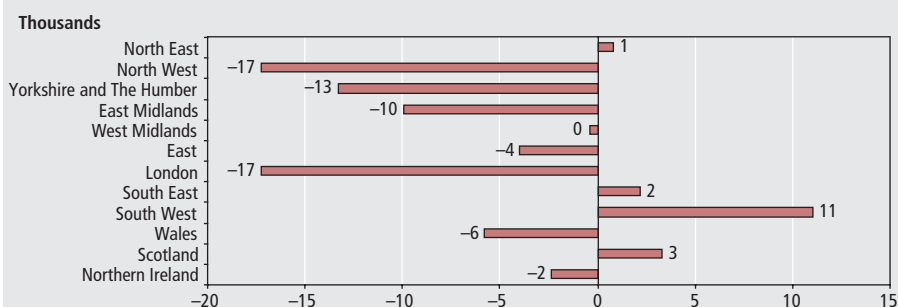


Table 4

Changes as a result of latest revisions: by economic activity status and Government Office Region, May to July 2008

| Government Office Region | Thousands | | | |
|--------------------------|---------------------|---------------|------------|-----------------------|
| | Economically active | In employment | Unemployed | Economically inactive |
| North East | 1 | -1 | 2 | - |
| North West | -15 | -14 | -1 | -2 |
| Yorkshire and The Humber | -8 | -7 | -1 | -5 |
| East Midlands | -8 | -7 | -1 | -2 |
| West Midlands | 1 | 1 | - | -1 |
| East | -5 | -6 | 2 | 1 |
| London | -19 | -19 | 1 | 1 |
| South East | 1 | 2 | -2 | 1 |
| South West | 6 | 6 | 1 | 5 |
| Wales | - | -2 | 2 | -6 |
| Scotland | 5 | 5 | 1 | -2 |
| Northern Ireland | -1 | -1 | - | -1 |

Source: Office for National Statistics

procedure, as appropriate. Full reweighting of the LFS microdata in future years will depend on the extent of revisions to official population estimates and the availability of resources.

Notes

- 1 See www.statistics.gov.uk/statbase/product.asp?vlnk=13523
- 2 See www.statistics.gov.uk/about/methodology_by_theme/downloads/lm_revisionspolicy.pdf

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REFERENCES

Palmer N and Hughes M (2008) 'Labour Force Survey: reweighting and seasonal adjustment review 2008', *Economic & Labour Market Review* 2(6), pp 33–42 and at www.statistics.gov.uk/cci/article.asp?id=2011