

**Keeping Labour Force Survey estimates in line with the latest population estimates**  
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**Summary**

- ONS fully recognises the needs of Labour Force Survey (LFS) users for consistent time series of key variables for use in fiscal, monetary and labour market assessment. ONS is also committed to meet, to the extent possible, the important objective that such LFS series should be swiftly brought into line with the latest population estimates.
- The publication in November 2002 of interim revised LFS time series for the period 1984 to date, within weeks of the publication of a series of interim population estimates consistent with the 2001 Census results, was a first step in meeting this objective. This paper sets out how ONS will continue this work in the short, medium and longer term.
- For the longer term, ONS is giving priority to the re-engineering of its LFS systems and the first element of this programme will focus on LFS processing procedures. The aim will be, by 2005, to have in place systems which will enable new annual population estimates to be incorporated into revised, consistent LFS series in the month following release of each year's new population numbers, without the need for subsequent LFS revision.
- The longer term aim will also be to devise an LFS weighting procedure that is capable of taking full advantage of the new quarterly population estimates (QPEs) which are being developed by ONS. A key consideration in this context will be to ensure that consistent historical time series and microdata can be produced.
- During the medium term period before re-engineered systems are available, ONS is also able to achieve the aim of bringing LFS series into line with new population estimates in the month following the release of each year's mid year population estimate (MYE). Until re-engineered systems are available, however, it will be necessary to use the same approach used in 2002 to produce interim LFS estimates consistent with the Census.
- The medium term annual schedule, therefore, will be to publish interim revised LFS time series in the September following each August's release of a new MYE. Then to publish the final revised LFS series in the November of each year. Collaboration between ONS and the Government Actuary's Department (GAD) will ensure that no additional LFS revisions are needed when GAD publish their population projections.
- The June to August LFS microdata will be released in November, in a form consistent with the latest population MYE, rather than, as previously, in October, in a form inconsistent with the latest MYE. Between September and November, the LFS microdata will be inconsistent with the published main LFS aggregates.
- During the short term - 2003 - this approach will be applied also. But, in addition, revisions to LFS time series were published in April 2003 in order to incorporate the final series of 2001-Census consistent population estimates at UK and regional level. In April 2003, also, interim LFS time series consistent with the 2001 Census for Scotland, Wales, Northern Ireland and the English regions were published for the first time.

| <b>Outputs schedule for LFS time series and microdata</b>                           |   |
|---|---|
| <b>(a) LFS time series</b>  |   |
| <b>16 April 2003</b>  | interim LFS series in national and regional First Releases revised in line with final population estimates for 1992 to 2000 (as published on 27 February 2003).   |
| <b>end April 2003</b>   | Interim national LFS series on ONS website revised in line with final population estimates for 1984 to 1991 (as published on 27 March 2003).  |
| <b>17 September 2003</b>  | interim LFS series in national and regional First Releases revised back to mid 2001 in line with new mid-year estimate for 2002 and new "best estimate" populations for mid 2003 and mid 2004.                        |
| <b>12 November 2003</b>   | LFS series in national and regional First Releases revised in line with reweighted microdata.   |
| <b>September 2004<sup>a</sup></b>   | interim LFS series in national and regional First Releases revised back to mid 2002 in line with new mid-year estimate for 2003 and new "best estimate" populations for mid 2004 and mid 2005.                        |
| <b>November 2004<sup>a</sup></b>  | LFS series in national and regional First Releases revised in line with reweighted microdata.   |
| <b>September each year</b><br>(following introduction of re-engineered LFS systems) | LFS series in national and regional First Releases revised in line with re-weighted microdata.  |
| <b>(b) LFS microdata</b>  |   |
| <b>April 2003</b>   | release of December 2002 - February 2003 microdata using pre-census population totals.  |
| <b>July 2003</b>  | release of March - May 2003 microdata using pre-census population totals.   |
| <b>November 2003</b>  | release of revised 1984 to March - May 2003 and new June - August 2003 microdata using 2001 Census-consistent population estimates, 2002 mid-year estimate and "best estimate" populations for mid 2003 and mid 2004. |
| <b>January 2004<sup>b</sup></b>   | release of September - November 2003 microdata.   |
| <b>April 2004<sup>b</sup></b>   | release of December 2003 - February 2004 microdata.   |
| <b>July 2004<sup>b</sup></b>  | release of March - May 2004 microdata.  |
| <b>November 2004<sup>b</sup></b>  | release of revised September - November 2002 to June - August 2003 microdata using 2003 mid-year estimate and "best estimate" populations for mid 2004 and mid 2005   |
| <b>September each year</b><br>(following introduction of re-engineered LFS systems) | release of revised microdata affected by latest MYE published in August.  |

<sup>a</sup> repeats for **September and November each year** - Until new LFS weighting methodology is introduced.

<sup>b</sup> repeats for **January to November each year** - until new LFS weighting methodology is introduced.

## **Longer-term plan**

The LFS Quality Review identified the need for a comprehensive assessment of the future methodology to be used for LFS weighting. A key consideration in this is the need to re-engineer the systems available for LFS processing so that they have a much increased capability for keeping LFS estimates in line with the latest population data.

Another issue that the recent LFS Quality Review recommended should be investigated is the extension of LFS coverage to the institutional population. ONS is scheduled to publish a feasibility study for this by June 2003. Currently, however, the survey covers only the household population plus residents in NHS hostels and students in college accommodation. As a result, the published population estimates are adjusted for use as LFS population controls by the deduction of the estimated institutional population.

It is likely that the new survey weighting approach will be developed so that it is suitable for application across all ONS's household surveys, including the new Integrated Social Survey (ISS) if this is taken forward as part of ONS's modernisation programme. The implication for the LFS is likely to be that a weighting system will be chosen which delivers a single weight for all household members thus integrating together the, currently separate, LFS individual and household weighting systems.

Some of the other aspects of weighting to be looked at are: weighting the LFS samples for each separate week; weighting separately the information collected at each LFS "wave" ; and weighting LFS data from the institutional population (if this is introduced as recommended in the LFS Review). The new LFS weighting methodology will also be designed in order to incorporate the new quarterly population estimates (QPEs) being produced by ONS from late 2003 onwards.

The new LFS weighting methodology will be introduced in a re-engineered LFS system in 2005. Almost certainly, its introduction will need to be accompanied by the reweighting of LFS historical data, from 1984 onwards, in order to maintain continuity. ONS will investigate whether this reweighting exercise can be extended back to cover the LFS files for 1979, 1981 and 1983 as well. No guarantee of being able to do this can however be given at this stage since the condition of the data files held by the Data Archive is uncertain and the applicability of the new methodology to such old non-standard files is unclear.

## **Medium-term plan**

### **Annual LFS revisions process**

Prior to the introduction of a fundamentally new approach for LFS weighting ONS proposes that, in the medium term, the best way of bringing LFS estimates into line with population estimates as swiftly as possible is to introduce an annual process of LFS revision. This would follow the annual August publication of the latest mid-year population estimates (MYE) and, in order to avoid multiple revisions, would be combined with the present annual LFS seasonal adjustment review.

ONS is planning to start the publication of new quarterly population estimates (QPEs) later in 2003. However, as work on the development of these has progressed, it has become clear that using them for LFS weighting will not be straightforward. Currently, straight line interpolations between successive MYEs are used as monthly LFS population controls. QPEs, however, will be seasonal and their direct use in the LFS could lead to a substantial discontinuity with past data. While this could probably be corrected in the seasonally adjusted LFS time series, it is not yet clear how the discontinuity should be resolved for the not seasonally adjusted LFS microdata.

For the medium term, therefore, the alignment of LFS estimates with population estimates can best be achieved by ONS producing monthly LFS household population controls using the latest MYE combined with new "best estimate" mid year populations for later years produced specifically for LFS weighting purposes. In 2003, for example, the 2003 MYE, to be published in August 2004, would be used together with "best estimate" populations for mid 2004 and mid 2005, also produced by ONS in August 2004. The use of QPEs for LFS

weighting will be studied as part of the general methodological project on LFS weighting described in the previous section.

ONS's proposal is that interim revised LFS time series should be published each September following the August MYE publication, using the same methodology as has been used to produce the 2001 Census-consistent interim series. Then, in the November of the same year, reweighted LFS microdata files would be released together with the final, revised LFS time series produced from these. The span of the revised series each year would be around 2 years. For example, in 2004, revised series would be produced back to mid 2002.

ONS will be liaising closely with the Government Actuary's Department (GAD) in order to ensure that the "best estimate" populations they produce each year, for two years ahead of the latest MYE, are fully in line with the GAD's latest assessments. This means that when GAD's population projections are published every two years, usually in November, the earlier years of these, taking into account the difference between the total and household population bases, will be virtually the same as ONS's "best estimate" mid year estimates used for LFS weighting. The publication of GAD's projections would not, therefore, trigger the need for any LFS revisions.

The key advantage of this approach is that revised LFS estimates for the key time series - ie those included in the UK level monthly LMS first Release - will be published in September each year just one month after each year's new population estimates are published. This will meet the key user departments' high prioritisation of work by ONS to bring LFS estimates into line with population estimates as swiftly as possible.

The main disadvantage of the approach is that the publication of interim revised LFS estimates necessarily means that a second set of LFS revisions will be needed in the November of each year when the new population data have been incorporated into the weighting system for the LFS microdata. A consequent, smaller disadvantage is that for the September to November period of each year, the LFS microdata for the latest two years will be out-of-line with the LFS time series in the LMS First Release.

## **Short-term plan**

### **(a) April 2003 revisions**

The methodology used to produce the interim LFS series in November 2002 has been found to be stable and fit-for-purpose over a period of months. This same approach will be used, therefore, to revise the interim series in line with the final population estimates for the years 1984 - 2000 which are due to be published in February and March 2003. The availability of new revised population series for Scotland, Wales, Northern Ireland and the English regions means that interim LFS series consistent with the 2001 Census can be produced for the first time at country and regional level back to 1996. Until regional MYEs and population projections are available beyond 2001, ONS is producing regional population estimates specially for use in producing the interim regional LFS estimates to be published from April. Population estimates for the countries of the UK are based on interim GAD projections published in November 2002.

A publication date of 16 April 2003 was announced on 12 February for revisions to the interim UK level LFS from 1992 and for the introduction of interim LFS series for regional and country data from 1996. Revisions to interim UK LFS series for 1984-1991 will be published as soon as possible thereafter.

The interim methodology relies on using LFS estimates broken down by broad age band and gender. Since this age detail has not previously been published for years earlier than 1996, and is not readily available, the interim regional estimates are only being published back to 1996. Although regional figures by age for earlier years could in principle be produced for the first time now if users request, this would be difficult to schedule very quickly since a significant amount of base LFS analyses would have to be produced before Census adjustments could be started. There is also a risk to the full LFS reweighting timetable for 2003, if additional and time-consuming tasks are added to the projects at this stage.

## **(b) Revisions later in 2003**

ONS proposes that the same medium-term approach advocated for 2004 and later years should be introduced also for LFS revisions following publication of the 2002 mid-year population estimates in August 2003. Given that the interim 2001 Census consistent LFS time series are available, ONS consider that the advantages of this approach outweigh the disadvantages of waiting until November 2003 before producing the revised 2001 Census - consistent microdata.

What is proposed, therefore, is that the LFS interim time series should be revised in September 2003 taking on board the 2002 MYE to be published in August 2003, together with ONS's "best estimate" populations for mid 2003 and mid 2004. LFS microdata will then be reweighted using these new population data so that they are ready for publication in November 2003, together with a consistent back series for the years 1984 to 2000. Using these microdata, final LFS time series will be released, also in November 2003.

The advantages of this approach are: first, that it delivers revised LFS time series in line with the latest MYE just one month after the population figures are produced; and, second, that it avoids the need to issue two sets of revised LFS microdata in 2003, one before the 2002 MYE is available and one afterwards. Apart from the inconvenience this would create for users, the sheer scale of the work needed to complete this is assessed as being beyond ONS's capacity. This is particularly the case since priority is being given to the longer-term re-engineering of ONS LFS processing systems and other modernisation work.

The disadvantage of the approach is that users waiting for revised 2001 Census consistent microdata, such as those in ONS who want to use the LFS for estimating various demographic sub-groups of the population, would have to wait until November 2003 for 2001 Census-consistent data, rather than until "summer" or August / September 2003 as previously envisaged.

However, for those who use the LFS as a source of LFS time series for the integrated assessment of labour market conditions for labour market and macroeconomic policy assessment purposes, which was set out by the recent LFS Quality Review as the primary purpose of the survey, the availability of up-to-date LFS time series consistent with the latest MYE would mitigate this disadvantage to a great extent.

The timetable for 2003 is dependent on ONS being able to produce the required population "best estimates" in August covering the UK; this depends on the component parts for England and Wales, Scotland and Northern Ireland all being ready in time. Although ONS, GRO(Scotland) and Northern Ireland (NISRA) have all agreed to this target timetable, it should be recognised the timetable for both the production of these population estimates and the associated interim LFS estimates is very tight. There are significant risks that will have to be effectively managed if the data are to appear in the 17 September Labour Market releases. As a contingency plan, if there is any slippage in the availability of the population data, the publication of the interim revised LFS estimates would have to be delayed.