

Andrew Machin
Office for National Statistics

Comparison of statistics on jobs: September 2007

SUMMARY

This article presents the latest comparisons of jobs statistics from the Labour Force Survey (LFS) and the Workforce Jobs (WFJ) statistics, and reconciliation of the estimates from the two sources. It introduces new evidence on the level of overcounting of self-employment in the LFS, and consequent double-counting in the WFJ figures. This improvement is based on the available responses to a new question on payment of tax and National Insurance, which was introduced to the LFS in 2007. Developments to improve the estimate of undercoverage of foreign workers in the LFS series are also discussed.

This is one of a series of articles (see Heap and Walling 2006, Walling 2006) designed to enhance users' understanding of employment and jobs statistics. It gives the latest comparisons, for September 2007, between estimates of the total number of jobs in the UK from the Labour Force Survey (LFS) and Workforce Jobs (WFJ) statistics. It also discusses developments in estimating two important components of the reconciliation between the jobs figures from these two sources: over-reporting of self-employment and the estimated undercoverage of temporary foreign workers in the LFS.

Comparison of LFS and WFJ statistics on total UK jobs

Section A of **Table 1** illustrates how the LFS estimate of total UK jobs is calculated by adding together the headline LFS figures for total employment and those for workers with second jobs. Section B of **Table 1** compares the LFS total UK jobs figure for August to October 2007 and its components with the equivalent WFJ figure for September 2007 as first published in the December 2007 Labour Market Statistics First Release (see Technical Note).

The LFS estimate of total UK jobs is 1.195 million (3.9 per cent) lower than the WFJ estimate. This mainly reflects the difference in estimates of employee jobs because now there is no difference between the estimated number of self-employment jobs from the two different sources. Self-employed second jobs used to be excluded from the WFJ series but this treatment

was changed following investigation in 2006, as recommended by the Review of Employment and Jobs Statistics (2006). The current, more appropriate, treatment reflects the finding that most of the second self-employment jobs identified in the LFS were in a different industry and/or occupation from the first job, which suggested that they should be regarded as two distinctly different self-employed jobs with both being included in the WFJ total.

Reconciliation of the LFS and WFJ jobs estimates

The Review of Employment and Jobs Statistics (2006) identified about 30 reasons for the differences between the LFS and WFJ estimates of total UK jobs. Some of these can be quantified using information from the LFS and other sources, while others are much more difficult to measure. Section C of **Table 1** shows the measurable factors causing differences between the LFS and WFJ figures for total UK jobs.

The final row of **Table 1** (D) shows estimates of the total UK jobs that have been adjusted to take account of these measurable factors. A description of each item and how it has been measured is given on the National Statistics website, although there are improvements to some components as reported below. Once these measurable factors have been taken into consideration, the adjusted LFS estimate of total UK jobs is lower than the adjusted WFJ estimate for September 2007 by 65,000 (0.2 per cent).

The 65,000 difference between the

Table 1

Labour Force Survey and Workforce Jobs statistics of jobs contributing to UK output, September 2007

	Thousands and percentages, seasonally adjusted			
	Labour Force Survey ¹ ('000s)	Workforce Jobs ² ('000s)	Difference: LFS-WFJ ('000s)	% difference: LFS-WFJ as % of LFS
A. LFS employment and jobs estimates				
LFS total employment (main jobs) ³	29,291	..	..	..
LFS workers with second jobs	1,113	..	..	..
Total LFS jobs	30,404	..	..	..
B. Components of LFS and WFJ total jobs				
Employee jobs ⁴	25,961	27,118	-1,156	-4.5
Employee main jobs	25,224	..	..	..
Employee second jobs	737	..	..	..
Self-employment jobs	4,232	4,232	0	0.0
Self-employment main jobs	3,856	3,856	0	0.0
Self-employment second jobs	376	376	0	0.0
Government-supported trainees	111	54	56	50.9
Unpaid family workers ⁵	100	..	100	..
HM Forces ⁴	..	195	-195	..
Total UK jobs	30,404	31,599	-1,195	-3.9
C. Adjustments for survey coverage and response issues⁶				
Jobs not covered by the LFS				
Temporary foreign workers ⁷	110	..	..	..
Armed forces not living in private accommodation ⁸	110	..	..	..
Workers living in communal establishments ⁹	80	..	..	..
Third and subsequent employee jobs ¹⁰	80	..	..	..
Jobs not covered by the WFJ series				
Employee jobs in private households ¹¹	..	60	..	..
Unpaid family workers ¹²	..	100	..	..
Employment in Managed Service Companies excluded from business survey sample frame ¹³	..	120	..	..
Survey response issues				
Overcounting due to over-reporting of self-employment ¹⁴	..	-460	..	..
LFS non-response bias ¹⁵	230	..	..	..
LFS proxy response error (main jobs) ¹⁶	150	..	..	..
LFS proxy response error (second jobs) ¹⁶	90	..	..	..
ABI/STES response errors ¹⁷	..	-100	..	..
D. Adjusted estimates of total UK jobs	31,254	31,319	-65	-0.2

Notes:

The sampling variability of the difference between the LFS and WFJ estimates of jobs (95 per cent confidence interval) is estimated to be roughly $\pm 300,000$ to $\pm 400,000$.

1 Labour Force Survey estimates for Aug–Oct 2007.

2 Workforce Jobs series estimates for September 2007.

3 The headline LFS employment figure comprises: employee and self-employment main jobs; government-supported trainees and unpaid family workers.

4 The LFS employee jobs figures include armed forces employees living in private households.

5 Unpaid family workers are not included in the WFJ estimate of total UK jobs.

6 For details of each issue, see www.statistics.gov.uk/statbase/product.asp?vlnk=14358

7 Based on ONS experimental short-term migration estimates.

8 WFJ armed forces figure minus LFS microdata estimate of armed forces employees in private households (Jul–Sep 2007).

9 Estimate from pilot survey of communal establishments, Great Britain, autumn 2000.

10 Annual estimate from Family Resources Survey: 2005–06.

11 Estimate based on LFS microdata (Jul–Sep 2007).

12 LFS figure for unpaid family workers Aug–Oct 2007.

13 Based on IDBR estimated employment in Managed Service Companies which are removed from the sample frame to prevent distortion of detailed results as recommended by the Review of Workforce Jobs Benchmarking.

14 Estimate based on LFS microdata (Jul–Sep 2007).

15 Estimate based on ONS study of non-response bias (Freeth, Greenwood and Lound 2005).

16 Estimate based on proxy response study (Dawe and Knight 1997) and LFS microdata (Jul–Sep 2007).

17 Estimate taken from ABI follow-up survey, 2004.

.. Not applicable

adjusted LFS and WFJ total jobs estimates is well within the bounds of the sampling variability (95 per cent confidence interval), which is roughly $\pm 300,000$ to $\pm 400,000$. However, it should be noted that the adjustments are themselves subject to a margin of uncertainty, and there are other factors causing differences between the two sources which have not been adjusted for. These include, for example, timing effects. The LFS estimates are averages for three-month periods, whereas business surveys measure the number of jobs on a particular day.

Estimates for some components of the reconciliation have been improved in the light of new information about self-employment and short-term migrants, as described below. The reconciliation now also includes a new item to allow for the exclusion of Managed Service Companies from the sample frame for the business surveys, to prevent distortion of detailed results by industry and by region, as recommended by the Review of Workforce Jobs Benchmarking (2007). Any employees in these companies would therefore not be covered by the WFJ series.

Over-reporting of self-employment in the LFS

The breakdown of employment estimates from the LFS by employee/self-employed is based on respondents' self-classification in response to the question: 'Were you working as an employee or were you self-employed?' This is in line with practice throughout the EU to meet Eurostat requirements. There is evidence from further questions that self-employment is likely to be over-reported in the LFS, and employee jobs underestimated by a corresponding amount. Some individuals in the LFS who classify their main job as 'self-employed' subsequently say that they are either the sole director of a limited company, or paid by an agency, or both. These people are likely to be counted as employees in business surveys, resulting in double-counting in the WFJ series when the self-employment estimates from the LFS are added. The LFS results for second jobs may also suffer from this type of reporting error, but it is difficult to substantiate because the survey does not ask equivalent questions to clarify employment status for second jobs.

In August to October 2007, some 400,000 people, who classified themselves as self-employed, were sole directors and/or paid by an agency, in response to the 'SELF' question in the LFS, indicating that the WFJ figure for September 2007 could double-

count main jobs by around this amount. The double-counting could be greater than this because there may be other reasons for people who are employees to regard themselves as self-employed. On the other hand, the extent of the double-counting could be lower than 400,000, depending on whether the sole directors take a salary or wage from their business, and depending on whether those that are paid by an agency have a contract with the agency. (These criteria determine whether they should be counted as employees in business surveys, but the numbers in these categories are not known as the LFS does not ask for these further details.) It is also likely that some people wrongly classify themselves as employees when they are really self-employed. In July to September 2007, according to the LFS microdata, 122,000 people who described themselves as 'employees' subsequently said that they were not paid a salary or wage by an employer. While many of these could well be employees, perhaps working for an agency, a proportion could be self-employed.

In order to help clarify respondents' employment status, and to try to provide better information about self-employment as a follow up to the Review of Employment and Jobs Statistics Final Report (2006), a new question (NITAX) was added to the LFS in 2007, to those who say they are self-employed and also to those who say they are employees but then go on to say that they are not paid a salary or a wage:

'Do you pay your own National Insurance or Tax or are these usually deducted by the organisation(s) you work for, for example, your client, employer, agency, etc?'

Responses are coded: 1. Pay own NI and Tax; 2. Pay own NI or Tax but not both; or 3. NI and Tax is deducted by organisation.

The range of responses allows for the possibility of special arrangements that can apply, for example, in the case of actors or construction workers who are self-employed but who may only pay tax or NI directly themselves, not both. Preliminary results from this new question are now available for the first three quarters of 2007. As with any new question, the results still need to be treated with some caution at this early stage.

Figure 1 illustrates how an estimate of overcounting of self-employment in the LFS may be obtained using the combination of the responses to new (NITAX) and existing (SELF) LFS questions.

Previously, the estimate of overcounting

was based on those in the bold boxed area of the table on the right hand side of Figure 1, that is, those who say they are self-employed and then say that they are paid a salary or wage by an agency, or that they are the sole director of a limited company, or both. For the period July to September 2007, these amounted to 388,000 according to the LFS microdata.

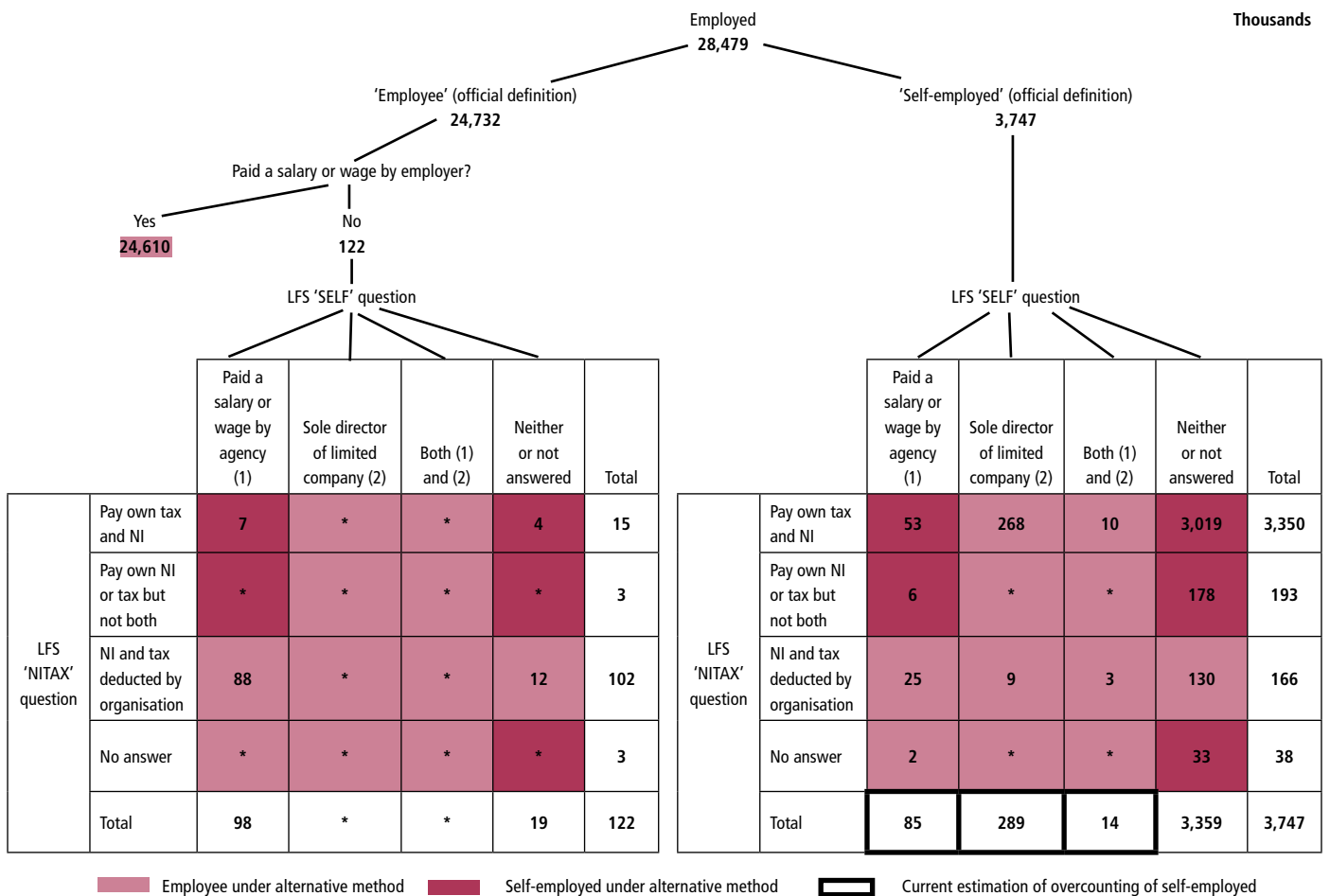
Using the new NITAX question, along with the SELF question, the method of identifying employees and the self-employed can be improved as follows, and applied not just to those responding as 'self-employed', but also to those who respond as 'employees' and then say they are not paid a salary or wage by an employer:

- sole directors of limited companies (including those who also say they are paid by an agency) – it is reasonable still to treat all these as employees. In these cases, the response to the NITAX question does not really help further, as sole directors will generally tend to regard themselves as paying their own tax and NI, as they would be responsible for this anyway as director of the company. In practice, they may not make the distinction between this corporate responsibility and their responsibility as a private individual
- those paid a salary or wage by an agency – it seems appropriate to treat these as self-employed if they confirm that they pay their own tax or NI, or both. Otherwise, in all cases, they should be treated as an 'employee'
- neither of the above in response to the SELF question – it is reasonable to treat these as employees only if they confirm that both NI and tax are deducted by the organisation for which they work; otherwise they should be treated as self-employed

The light shaded areas in Figure 1 represent those in the LFS who are identified as employees in the LFS using the NITAX and SELF questions. The dark shaded areas represent those identified as self-employed. For the period July to September 2007, this new method of estimation gives net overcounting of 443,000 according to the microdata. This is based on approximately 459,000 'self-employed' identified as employees (the sum of the right hand grid light shaded area), which is partly offset by 16,000 'employees' identified as self-employed (the sum of the left hand grid dark shaded areas).

Table 2 shows the previous existing

Figure 1
Flow diagram for alternative method for measuring employees and self-employed,
July to September 2007



Note:

* Sample size too small to give an estimate.

Source: LFS Microdata

estimates of overcounting of self-employment for the first three quarters of 2007, the corresponding new estimates of overcounting, and the difference in each case. Note that the figures in this table are based on analysis of the LFS microdata, but they have been adjusted by a factor to be approximately consistent with the headline LFS figures included in Table 1, which are weighted to 2006-based mid-year population estimates. The figures are thus on a higher basis than the corresponding microdata figures, as used in Figure 1, which are currently weighted to the 2003-based mid-year population estimates.

In due course, a process along the above

lines, illustrated by Figure 1, may provide an improved basis for estimates of self-employment, at least for some purposes, in particular for producing estimates of self-employed jobs which are added to estimates of employees in compiling the WFJ series. Note that, for the foreseeable future, self-employment figures on the usual self-classification will need to continue to be provided according to the agreed international concepts.

Coverage of temporary foreign workers

The LFS is not designed to cover everyone who is living and working in the UK.

Foreign workers are likely to be under-represented in the LFS, particularly those who visit the UK for periods of less than a year, and those living in communal establishments. This is because:

- The LFS sampling frame covers private households and NHS accommodation only. Students in halls of residence are also covered, but only those with a parent living in a UK household. The sample does not cover students in halls of residence without a UK-resident parent, nor does it cover people living in other types of communal establishment such as hotels, hostels, boarding houses and caravan sites. Many temporary foreign workers may live in these other types of accommodation
- Individuals living at sampled addresses are generally included in the survey only if they regard the address as their main residence. Until 2008, LFS interviewers were instructed to include anyone who had been living continuously at the address

Table 2
Previous and new estimates of overcounting of self-employed

	Previous estimate of overcounting	New estimate of net overcounting	Change in estimate of overcounting
Jan-Mar 2007	360	440	80
Apr-Jun 2007	380	440	60
Jul-Sep 2007	400	460	60

Source: Labour Force Survey

for six months or more, even if they considered their main address to be elsewhere (either in the UK or abroad). However, the exclusion of persons here for less than six months was not instructed.

The interviewers' instructions are inevitably complex. Feedback from LFS interviewers has indicated that six-month residency rules have not been applied consistently and many temporary foreign workers living in the UK for less than six months were probably included in the LFS results. The six-month residency rules have now been dropped following the recommendations of the Inter-departmental Migration Statistics Task Force (2006).

There is evidence of including temporary resident foreign workers from the LFS microdata. Analysis for April to June 2007 shows that there were on average, for that period, 79,000 foreign-born migrants aged 16 or over who had arrived in the UK during 2007, of which 43,000 were employed. In all these cases, they would have been in the UK for less than six months. It is highly likely that there were many more additional migrants, perhaps as many as half again, who had also stayed less than six months, in particular those who came in November 2006 and were included in the LFS in April 2007 and those who came in December 2006 and were included in the LFS in April or May 2007. Unfortunately, it is not possible to estimate the numbers involved precisely, because the LFS collects information about year of arrival only, not month of arrival

- the LFS survey results are weighted to estimates of the 'usually resident' population (those persons intending to be resident in the UK for longer than 12 months) living in private households, NHS accommodation, and student halls of residence. These resident population estimates do not exclude people moving out of the UK for less than 12 months. This means that the LFS is weighted to a definition of people who intend to stay for 12 months, while it is collected on a different basis as described above

Temporary foreign workers are more likely to be included in the WFJ employee jobs figures, since these are mainly based on business surveys which ask employers how many employees were on their payroll on the survey reference date, regardless of the

employees' actual or intended length of stay in the UK.

Self-employed temporary foreign workers are also likely to be under-represented in the LFS, but this should not materially affect coherence between the LFS and WFJ estimates of total UK jobs, since the self-employment jobs figures used in the WFJ total jobs series are taken from the LFS.

It is worth noting that the issues listed above have different impacts on the quality of LFS employment data. The second one will affect the make-up of the results, for example, the proportion of workers who are migrants, but will tend to have relatively little impact on the overall level of the employment estimates. The last issue affects the total numbers covered by the LFS but not necessarily their characteristics, while the first one, in particular the exclusion of people in communal establishments, will have an effect on both the overall numbers estimated and their make-up.

It is very difficult to estimate the number of temporary foreign workers excluded from the LFS results. The Review of Workforce Jobs Benchmarking (2007) (see Annex F) estimated the undercoverage to be in the range of 60,000 to 300,000, based on various sources, and a central estimate of 180,000 has since been used in the reconciliation of LFS and WFJ jobs estimates. The recent development of short-term migration statistics and the publication of these figures on an experimental basis provide an opportunity to improve this estimate (see Research Report on Short-term Migration (2007)).

Table 5 of the above report indicated the average monthly population present (in-stock) of short-term migrants (for a duration of one to 12 months) in England and Wales, for the period from the end of June 2004 to June 2005, was 67,000. This comprised some 24,000 for whom employment was their reason for visit, and a further 44,000 who came to study. In relation to the estimates developed for the Review of Workforce Jobs Benchmarking (2007), the employment figure, in particular, seems to be low. As part of the development from 'experimental statistics' to 'National Statistics' status, ONS is continuing to assess the short-term migration estimates.

For the time being and for the purposes of reconciling the LFS and WFJ series, it seems reasonable to take a combined estimate of workers and students (67,000) as an indication of short-term migrant workers missing from the LFS. Some migrants may just study and not work at all. However, there will be others who come

to the UK for reasons other than work or study, but take a job.

Further enhancement of the 67,000 figure is also required to allow for coverage of the UK as a whole, and also for the likely increase in migrant workers since 2004/05. An estimate of this has been obtained using the recent growth in National Insurance registrations. On this basis, a revised estimate of 110,000 can be obtained for the LFS undercoverage of temporary foreign workers and this is the figure included in Table 1.

Further improvements of the estimate are likely to be made in due course. ONS is investigating the feasibility of extending the LFS sample to improve its coverage of temporary foreign workers. The feasibility of extending the coverage of the 2011 Census is also being investigated, and this may allow mid-year population estimates to be supplemented, to which LFS results are weighted.

CONTACT

✉ elmr@ons.gsi.gov.uk

REFERENCES

- Heap D, Walling A (2006) 'Comparison of statistics on jobs: December 2005', *Labour Market Trends* 113(5), pp 147–56
- Office for National Statistics 2006 'Factors causing differences between the LFS and WFJ statistics on jobs' at www.statistics.gov.uk/statbase/product.asp?vlnk=14358
- Office for National Statistics (2006) 'Report of the Inter-departmental Task Force on Migration Statistics' at www.statistics.gov.uk/statbase/product.asp?vlnk=14731
- Office for National Statistics (2006) 'Review of Employment and Jobs Statistics Final Report' at www.statistics.gov.uk/about/data/methodology/quality/reviews/labour.asp#nsqremf
- Office for National Statistics (2007) 'Research Report on Short-term Migration' at www.statistics.gov.uk/about/data/methodology/specific/population/future/imps/updates/default.asp
- Office for National Statistics (2007) 'Review of Workforce Jobs Benchmarking' at www.statistics.gov.uk/statbase/product.asp?vlnk=9765
- Walling A (2007) 'Comparison of statistics on jobs: June 2006', *Labour Market Trends* 114(11), pp 373–88

TECHNICAL NOTE**Concepts and sources**

The statistical concept of employment differs from the concept of jobs, since a person can have more than one job and some jobs may be shared by more than one person. The Labour Force Survey (LFS) is the principal source of statistics on the number of people in employment. The LFS collects information from residents of private households and NHS accommodation. Students in halls of residence are also covered, by collecting information from their parents' households. The headline LFS series (total UK employment) comprises: people aged 16 or over who did paid work in the survey reference week, either as an employee or as a self-employed person; those who had a job they were temporarily away from; people on government-supported employment and training programmes; and unpaid family workers.

The LFS can also be used to produce estimates of the total number of jobs in the UK, by adding together the headline LFS employment figures (which count employed people and so are equivalent to main jobs) and those for workers with second jobs. However, the Workforce Jobs Series (WFJ), which is compiled mainly from surveys of businesses, is the principal source of statistics on jobs by industry because it provides a more reliable industry breakdown than the LFS.

The WFJ total UK jobs series is the sum of: employee jobs (measured mainly through business surveys); self-employment jobs (from the LFS); jobs in HM Forces, and government-supported trainees (both compiled from administrative sources). Vacant jobs are not included.