

Estimating Zero-Hour Contracts from the Labour Force Survey

What are zero-hours contracts?

Estimates of people working on zero-hours contracts are available from the Labour Force Survey (LFS). A zero-hours contract is where a person is not contracted to work a set number of hours, and is only paid for the number of hours that they actually work.

People on zero-hours contracts are classified as being in employment regardless of the number of hours they actually worked during the survey reference week. This includes anyone who was not required to work any hours during the reference week whilst remaining on their current contract of employment. The continued existence of the contract of employment is the key determinant of their employment status in these situations.

When answering questions in the LFS, the respondents have the opportunity to identify themselves as either doing paid work in the reference week or being temporarily away from a job to which they expect to return. People on zero-hour contracts may fall into either of these categories and would be classified as in employment. This is in line with the internationally agreed definition of employment.

How are they calculated?

The responses from FLEX10 (previously FLEX9D) – type of work arrangement agreed – can be used to calculate the number of people on zero-hours contracts.

For this variable, the LFS questionnaire asks the question

'Some people have special working hours arrangements that vary daily or weekly. In your (main) job is your agreed working arrangement any of the following...'

- 1 Flexible working hours (Flexitime)
- 2 Annualised hours contract
- 3 Term-time working
- 4 Job sharing
- 5 Nine day fortnight
- 6 Four-and-a-half day week
- 7 Zero-hours contract
- 8 On-call Working
- 9 None of these

The respondent can provide up to 3 different responses, of which the first option is the main arrangement. This is called FLEX10(1-3) (previously FLEX9D(1-3)) on the dataset. This variable is used to derive two more variables on the datasets that relate to zero-hour contracts, FLED10 and FLEXW7.

FLED10, records the 'main' type of agreed work arrangement from the responses collected in FLEX10(1-3). Therefore, FLED10 = 7 is that the main type of agreed work arrangement is a zero-hours contract.

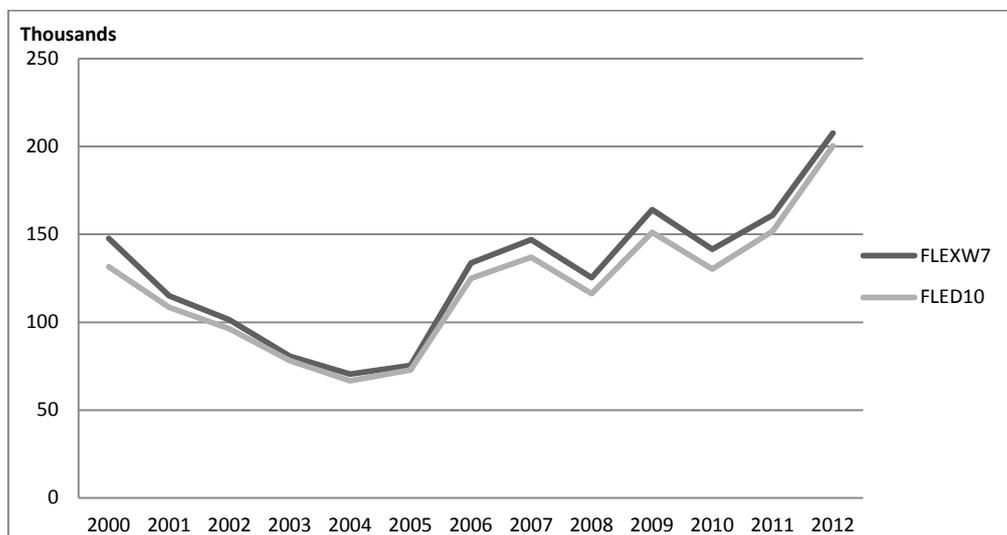
The FLEXW(1-10) range of variables records all instances of that response being given across any of the three responses to working arrangements (from each multi-coded variable FLEX10(1-3) .

FLEXW7=1 is whether the respondent works a zero-hours contract, recorded as a yes or no answer. This would be the case when any of FLEX10(1-3) = 7, i.e. a zero-hours contract being a working arrangement is a response for any of FLEX10(1-3).

Selecting FLED10 = 7 will give a smaller number than FLEXW7 = 1. This is because FLED10 = 7 is when a zero-hours contract is the 'main' working arrangement and FLEXW7 = 1 is any working arrangement which includes a zero-hours contract.

Figure 1 shows the difference between estimates of people on zero-hours contracts when calculated using the different LFS variables, FLED10 and FLEXW7, without any adjustments. It shows that whilst the trends are similar the estimates using FLEXW7 are higher. This is to be expected as FLEXW7 shows any zero-hours contract work arrangement whereas FLED10 shows when a zero-hours contract is the main work arrangement.

Figure 1: Number of people on zero-hour contracts, October to December, United Kingdom



Source: ONS Labour Force Survey

Seasonal to calendar quarters

The LFS asks the question FLEX10 during the April to June and October to December calendar quarters. This question is not available on the APS because it is only asked in two quarters.

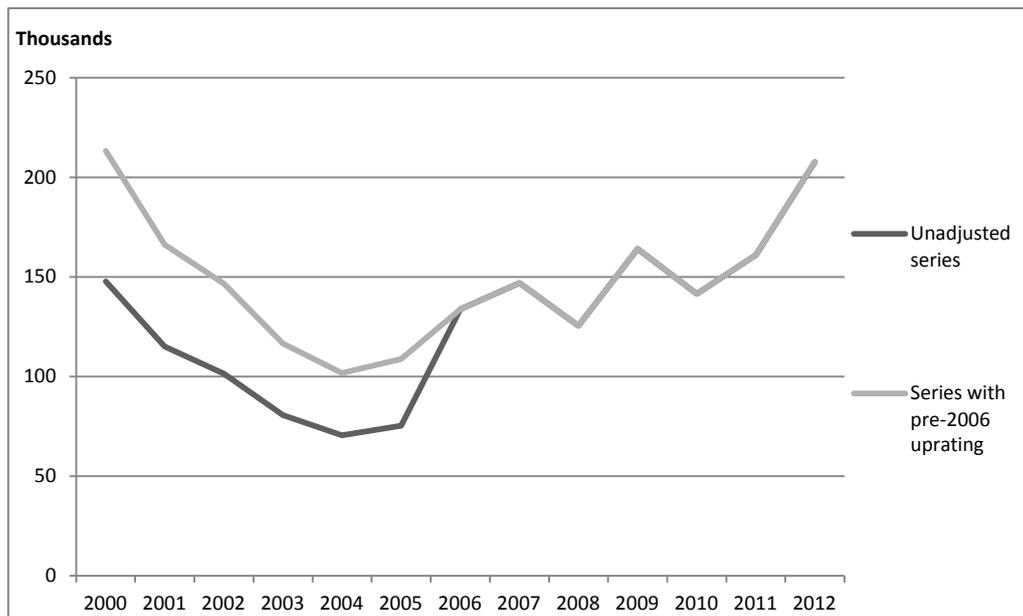
Prior to 2006, the LFS questionnaire collected data on a seasonal quarter basis. The question, at the time FLED9D, was asked of respondents on the quarters 'spring' and 'autumn', which relates to the months March to May and September to November, respectively. In 2006 the LFS moved from seasonal to calendar quarters and the historic data was regrouped to create calendar quarters. Therefore estimates produced from the calendar quarter datasets prior to 2006 (April to June and October to December) will only contain the results for the two months where data was originally collected. This is shown in Figure 2, taking the October to December calendar quarter as example. The lighter grey shading shows the months prior to 2006 where the FLEX10 data was collected. When creating the calendar quarters, this data only overlaps for two months, as shown by the darker shading.

Figure 2: FLEX10 data moving from seasonal to calendar quarters prior to 2006

Seasonal quarters	September	October	November	December
Calendar quarters	September	October	November	December

To adjust for this the estimates extracted for prior to 2006 should be up-rated by 4/9. This is because of 13 week reference period per quarter in which weeks are assigned to months in a 4, 5, 4 cycle. After the seasonal to calendar shift, 9 of the 13 weeks for calendar quarters have data.

Figure 3: Number of people on zero-hours contracts - comparison with pre- 2006 up-rating, October to December, United Kingdom



Source: ONS Labour Force Survey

Figure 3 shows the estimates for the number of people on zero-hour contracts with and without adjusting the series with the up-rating of 4/9 prior to 2006.

Although possible, it is not recommended to create a time series using seasonal quarters prior to 2006 and calendar quarters from 2006 onwards. The seasonal datasets are not revisited and re-weighted to the most recent population estimates. Analysis suggests that the series is not adversely affected by seasonality that would be missed by the simple up-rating method to the calendar quarters. It is recommended that the calendar quarters with the up-rating method described are used to create the time series.

Current issues with the data

There is a check in the LFS questionnaire, introduced in spring 2004, that does not allow respondents to say that they worked shift work, when asked at the question SHFTWK99, and then go on to say that they worked on a zero-hours contract at the question FLEX10. At the time, it was deemed that the two methods of working were incompatible. SHFTWK99 is asked to all respondents in April to June and to respondents in wave 1 for all quarters. Therefore, this check and block affects all responses to the FLEX10 variable in the April to June quarter and wave 1 respondents in the October to December quarter. This check and block will affect the calendar quarters from April to June 2004 to April to June 2013, it is to be removed from October to December 2013 onwards.

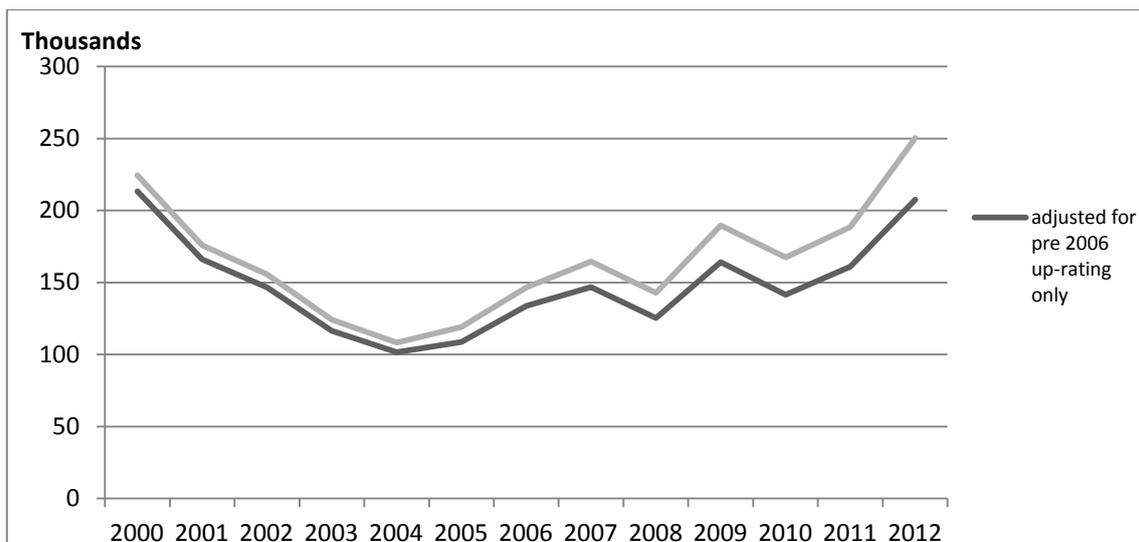
It is unclear how much this impacts the estimates for those on zero-hours contracts because one cannot ascertain how many people who do shift work would then go on to say they work zero-hour contracts. Whilst it is important to be aware of this limitation, there is currently no adjustment that could be made for it.

Estimates of the total number of people in employment on such contracts should be calculated from the October to December quarter each year. The information is not collected in either the January to March or the July to September periods. It is collected in the April to June period but not from all eligible respondents, because of the SHFTWK99 check. Consequently figures for April to June would be underestimates that would not be consistent with those for the October to December period each year. There are also a smaller number of responses missing from the October to December dataset because of those affected in wave 1 but this gives a better estimate.

When some responses are missing within the LFS, responses are imputed from the previous quarter in order to create a more complete data set. If a household is unavailable for interview, but was interviewed in the previous wave, responses from the previous wave are rolled forward. This is referred to as 'imputation'. Imputation is carried out to minimise non-response bias in estimates, while simultaneously improving precision by boosting the sample size. The rationale is that most LFS variables do not change from one quarter to another for most people. Responses are rolled forward for one wave only. Data are not rolled forward after a second consecutive non-response. In January to March 2013, the last quarter for which this data is available at time of writing, 11 per cent of households and 13 per cent of individual cases were imputed.

With the FLEX10 variable imputation is not possible. This is because it is quarterly specific and therefore not asked in the previous quarter. This would therefore create an undercount of those on zero-hour contracts. Figure 4 shows the impact of this on the time series of those on zero-hour contracts. The series adjustment takes the proportion of people who are employed and whose responses were brought forward from the previous quarter of all those who are employed, at each year. The series is then adjusted by this proportion at each year to estimate for the undercount. These people can be identified using the IOUTCOME variable. Figure 4 shows a comparison of the time series with and without this adjustment. This method is similar to that shown in the LFS User Guide, Volume 1 Background and Methodology, which can be found at <http://www.ons.gov.uk/ons/guide-method/method-quality/specific/labour-market/labour-market-statistics/index.html>. It is explained in Section 12 of the volume "Imputation in the LFS".

Figure 4: Comparison of time series when adjusted for cases that are brought forward from the previous quarter, October to December, United Kingdom



Source: ONS Labour Force Survey

Another undercount may come simply because people who are on zero-hour contracts may not recognise that they are working under this type of contractual arrangement.

A recent ad-hoc ONS publication on zero-hours contracts

In a recent ad-hoc table published about zero-hours contracts, "People and hours worked on zero hours contracts" FLED10 was used to calculate the estimates. This table can be found here:

<http://www.ons.gov.uk/ons/about-ONS/what-we-do/publication-scheme/published-ad-hoc-data/labour-market/april-2013/zero-hours-contracts.xls>.

In Labour Market Statistics at the Office for National Statistics focus is primarily on the 'main reason' for an activity - for example: main health issue, main reason for being economically inactive. For this reason FLED10, the 'main' type of agreed work arrangement being zero-hours contracts, was used to create this time series. However, this is not a method that will be used in future analysis.

Recommended estimation of zero-hour contracts

It is preferable to use the variable FLEXW7 to obtain all instances where zero-hours contracts are a working arrangement to ascertain the prevalence of them across the labour market. We recommend that users produce time series data from October to December quarters only and that for the pre-2006 periods the method of up rating by 4/9ths, as described, should be applied. For ONS estimates the series will also be adjusted proportionally for the data that cannot be imputed because it is a quarterly specific variable. It is also preferable to restrict analysis to 2000 onwards, due to missing variables on datasets between 1997 and 1999. This will be the method the ONS uses in any future analysis. A table of the series can be found in Appendix 1.

Future changes questionnaire changes

From October to December 2013 onwards, the check that prevents people who do shift work being asked about zero-hours contracts will be removed. Zero-hours contracts and shift work are no longer deemed incompatible. Analysts should be aware of this when doing any analysis surrounding zero-hours contracts.

There is potential for a step change in the data when this is introduced. The first set of estimates affected will be the OD13 estimates published in February 2014, with AJ14 in August 2014. We will revisit this analysis when this new data is available for comparison.

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Household Labour Market & Developments

Appendix 1

Level and rate of people on zero-hours contracts
October to December, each year

UK, not seasonally adjusted

	In employment on a zero hour contract (thousands)	Percent of people in employment on a zero hour contract
2000	225	0.81
2001	176	0.63
2002	156	0.55
2003	124	0.44
2004	108	0.38
2005	119	0.41
2006	147	0.50
2007	165	0.56
2008	143	0.49
2009	190	0.65
2010	168	0.57
2011	189	0.65
2012	250	0.84

Source: ONS Labour Force Survey