



Household Labour Force Survey: Revisions to labour market estimates

A large, light teal decorative graphic on the left side of the page, consisting of a spiral that transitions into several concentric, overlapping circular shapes.



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Household Labour Force Survey: Revisions to labour market estimates

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Purpose

This technical paper informs users about the effects on historical labour market estimates following the redevelopment of the Household Labour Force Survey (HLFS). It describes the key improvements, the benefits of implementing these improvements, and the magnitude of the impact on key estimates. This information enables users to understand any changes in the published estimates, and adjust any labour market forecasting ahead of the June 2016 quarter release on 3 August 2016 (NB: HLFS data release delayed until 17 August 2016).

Summary

Here is a summary of key HLFS changes, improvements, and changes in key labour market estimates:

Key HLFS change	Improvement	Change backdated until:	Change in key labour market estimates
Looking at job advertisements on the internet is correctly classified as not actively seeking work. This change brings the classification in line with international standards and will make international comparability possible.	Fewer people will be classified as actively seeking work, therefore the counts of people unemployed will be more accurate.	March 2007 quarter	<ul style="list-style-type: none"> • Decreases in the number of people unemployed and the unemployment rate • Changes to the seasonally adjusted unemployment rate range from 0.1 to 0.6 percentage points. In the most recent published quarter (March 2016), the unemployment rate is revised down from 5.7 percent to 5.2 percent • Increases in the number of people not in the labour force • Decreases in the size of the labour force and the labour force participation rate

<p>Missing historical information on the usual hours worked has been imputed, and the new survey better captures this information.</p>	<p>Total usual hours worked estimates are more accurate, as are the counts of full-time and part-time workers.</p>	<p>June 2005 quarter</p>	<ul style="list-style-type: none"> • Seasonally adjusted total usual hours increases ranging from 0.2 to 4.4 percent. • In the most recent published quarter (March 2016), the number of seasonally adjusted total usual hours is revised up from 86,886,000 to 89,345,000. • Increases in the seasonally adjusted number of people in full-time employment range from 1,000 to 14,000 people. • In the most recent published quarter (March 2016), the number of people in full-time employment is revised up from 1,866,000 to 1,875,000 people. • Consequently, the number of people in part-time employment decreases. • Decrease in number of people underemployed.
<p>Actual hours worked will be adjusted using a linear model (when accounting for the difference between the collection period and the reference period) at the aggregate level.</p>	<p>Estimates for actual hours worked will be final, instead of provisional, when first published.</p>	<p>Beginning of the series, March 1986 quarter</p>	<p>Total number of actual hours will be revised but is still within error bounds of previously published estimates.</p>
<p>Improved estimates as a result of questionnaire changes:</p> <ul style="list-style-type: none"> • NEET (youth not in employment, education or training) • self-employed. 	<p>Changes to the questionnaire will allow more accurate identification of education and caregiving status, and self-employment.</p>	<p>Not applicable</p>	<ul style="list-style-type: none"> • Number of people classified as NEET may change. • Number of self-employed people may increase.

Introduction to revisions in labour market estimates

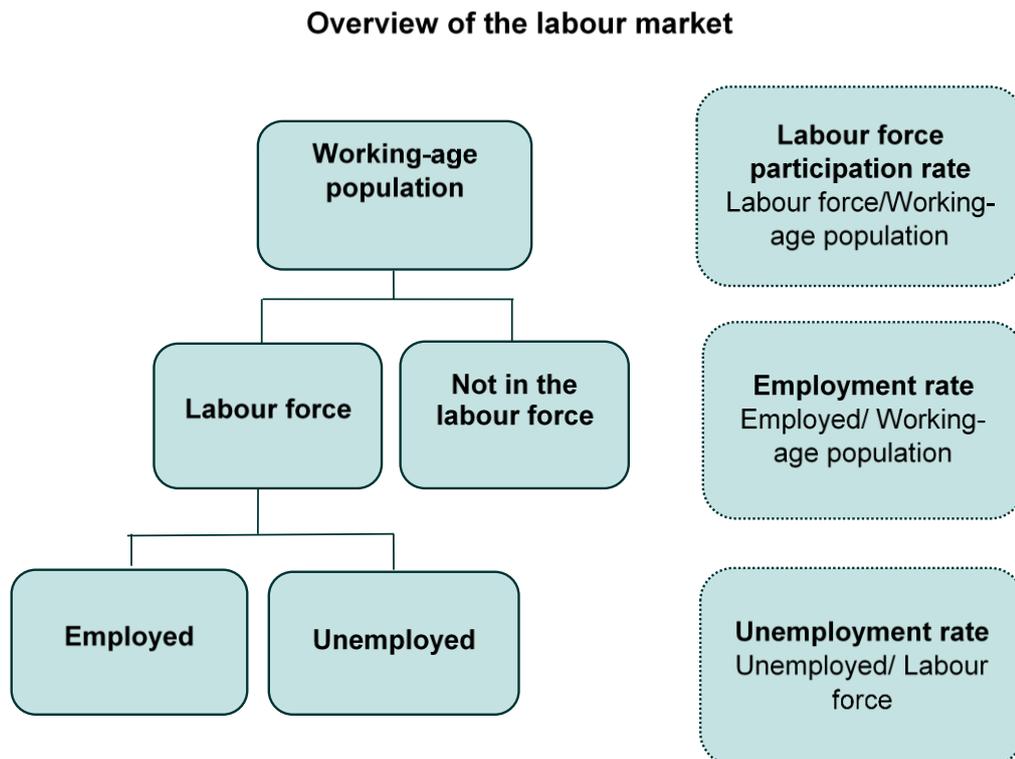
The 2016 redevelopment of the HLFS is the first substantial change to the survey since it was first introduced in December 1985. The redeveloped HLFS went in to the field on 3 April 2016, to collect data for the June 2016 quarter. The June quarter results will be published on 3 August 2016.

The changes to the HLFS will improve the quality and accuracy of some of the key labour market indicators – for example, the questionnaire design has been greatly improved, which should reduce non-sampling errors. However, some of the improvements mean we need to make changes to previously published estimates in order to retain a consistent time series. In some cases this backdating might not be possible and there will be a conceptual break in the time series.

This paper will explain the changes to our key measurements in the questionnaire, why these are important improvements, and the magnitude of the change in estimates.

You can find more detailed information on key changes to the HLFS on the [Improving labour market statistics](#) webpage.

Figure 1



Revisions to labour force status estimates

One of the more significant changes arising from the redevelopment of the HLFS comes as a result of improved accuracy in identifying active job seekers. This has implications for New Zealand's unemployment and labour force participation statistics.

We have revised historical data back to the March 2007 quarter in order to retain a valuable time series. Revisions made following the redevelopment of the HLFS have resulted in a downward level shift in the seasonally adjusted unemployment rate. The size of these revisions range from 0.1 percentage points in the December 2008 quarter to

as high as 0.6 percentage points in the September 2012 quarter. Respectively, these changes are equivalent to 1,000 and 15,000 fewer unemployed people when compared to previously published estimates.

Consequently, downward revisions will also be made to the labour force participation rate, varying from -0.1 percentage points in the December 2008 quarter to as high as -0.5 percentage points in the December 2012 quarter. As fewer respondents are identified as unemployed, the number of people in the labour force decreases, causing a drop in labour force participation rate.

The table below includes an indication of the expected revisions to the most recently published estimates (March 2016 quarter).

Table 1

Revised March 2016 labour market HLFS estimates, seasonally adjusted			
Seasonally adjusted estimates⁽¹⁾	March 2016	Revised March 2016	Change
	(000)	(000)	(000)
Unemployed	144	132	-12
Not in the labour force	1,141	1,152	+11
Labour force	2,543	2,531	-12
	%	%	Percentage point
Unemployment rate	5.7	5.2	-0.5
Labour force participation rate	69.0	68.7	-0.3

1. Due to seasonal adjustment being run each quarter, numbers are subject to change when adding the June 2016 quarter data to the time series.

Please see the 'revisions to key labour market estimates' tables for revised estimates back to March 2007.

Updating 'method of seeking employment' categories

Labour force status classifies the working-age population into three mutually exclusive groups, based on their economic activity in the week prior to the interview. The three groups are: employed, unemployed, and not in the labour force.

A person must be actively seeking work and available to work in the reference week to be classified as unemployed. 'Actively seeking work' means an individual must use job search methods other than looking at job advertisements – for example, contacting a potential employer or employment agency.

Job search methods that people use have changed over the years. The redevelopment of the HLFS is anticipating future changes in the labour market. Over the last ten years, the internet has become a popular tool for people to look for work. A change in answer categories for 'method of seeking work' was necessary to ensure this behaviour is captured.

Previously, we captured responses that specified using the internet to seek work in an 'other' category and consequently classified as 'actively seeking'. The redeveloped HLFS deals with using the internet differently. The job search method category 'Looked at job advertisements in newspapers' has now changed to 'Looked at job advertisements'. Consequently, looking at job advertisements is now being correctly classified as 'not active', regardless of the medium used.

Improving estimates

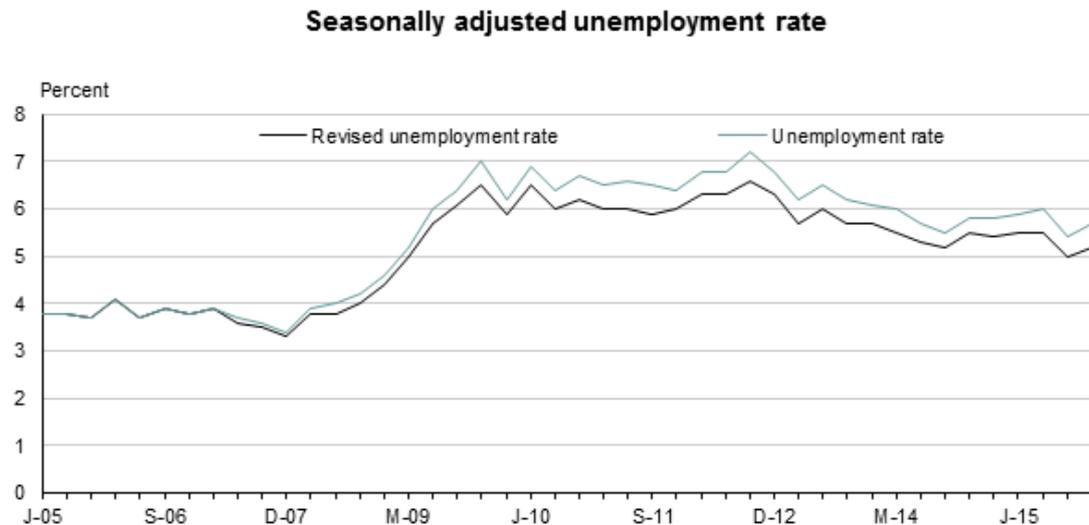
The change to answer categories improves the accuracy of estimates that we use to measure the level of labour supply. Respondents who would previously be misclassified as 'actively seeking', and therefore 'unemployed' (if they are also available to work), are now correctly classified as not actively seeking, which makes them 'not in the labour force'. This improvement follows International Labour Organisation (ILO) recommendations, which makes New Zealand's Household Labour Force Survey estimates more internationally comparable.

Revisions made to historical data

In order to retain a consistent time series, historical data has been revised back to the March 2007 quarter to account for this change in answer categories. Our analysis shows that misclassification of 'method for seeking work' was minimal before this date. Given the large amount of work involved in backdating these changes, we assessed that the break in time series at the beginning of 2007 is not significant enough to warrant going back further.

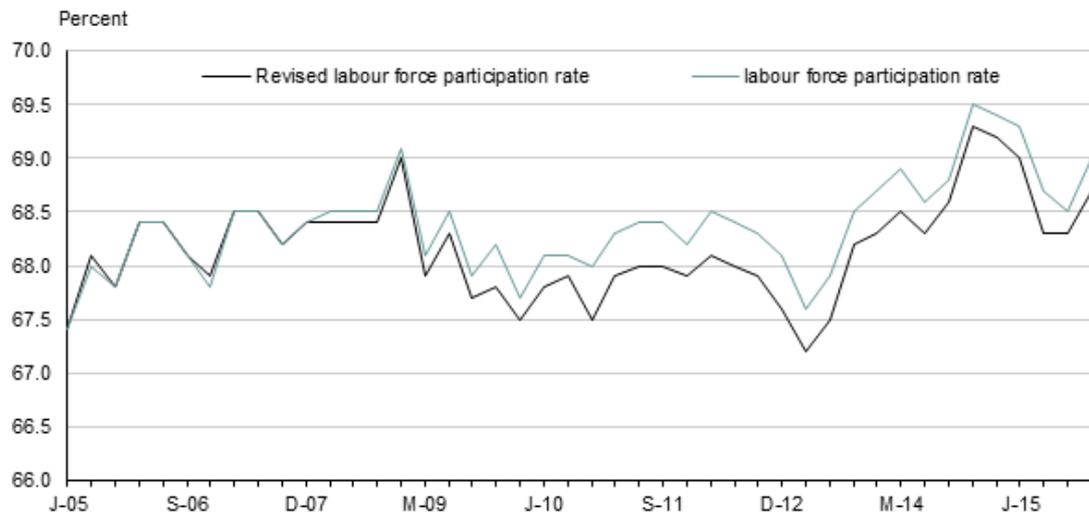
We were able to use the 'other' text option in order to identify those people who have used the internet for their job search. Those respondents who only used this way of seeking work were reclassified as 'not actively seeking'. Consequently, their labour force status was changed at the unit record level, from 'unemployed' to 'not in the labour force'.

Figure 2



Source: Statistics New Zealand

Overall the effect of the change is a level shift in the unemployment rate, with the underlying movements fairly consistent over time. However, a key observation is that the increase in unemployment throughout the recession was less sharp than previously indicated – for example, by the December 2009 quarter, unemployment reached 6.5 percent, instead of 7.0 percent.

Figure 3**Seasonally adjusted labour force participation rate**

Source: Statistics New Zealand

We need to note a few important things when looking at revisions to seasonally adjusted series:

- Although the changes to the underlying data have been made as far back as March 2007, changes can be seen prior to that due to seasonal adjustment.
- The seasonally adjusted numbers published in this report are subject to change once we add the June 2016 quarter data.
- There is a change in seasonally adjusted working-age population. This is because it is the sum of the seasonally adjusted unemployed, employed and not in the labour force estimates (indirectly seasonally adjusted).

Revisions to total usual hours

We have applied a new imputation method for missing information on total usual hours worked, from the June 2005 quarter onwards.

Table 2 includes an indication of the expected revisions to the most recently published estimates (March 2016 quarter) following the imputation.

Table 2

Revised March 2016 labour market HLFS estimates, seasonally adjusted			
Seasonally adjusted estimates⁽¹⁾	March 2016	Revised March 2016	Change
	(000)	(000)	(000)
Total usual hours	86,886	89,345	+2,459
Full-time	1,866	1,875	+9
Part-time	530	522	-9
Unadjusted			
Underemployed	101.0	97.4	-3.6

1. Seasonally adjusted figures may not sum up due to rounding.

Applying imputation to usual hours

Historically, not all respondents have been able to report their usual hours worked. This can be the result of changing work patterns or variability in how many hours people work from week to week.

Computer Assisted Interviewing (CAI) was introduced in June 2005. When this change was made, it became more common to see missing usual hours information, with non-response on hours questions ranging from 0.1 to 4.6 percent. As part of the redevelopment, imputation of this missing data was carried out back to the June 2005 quarter. Prior to the introduction of CAI, the proportion of non-response on hours questions was less than 1 percent. Carrying out imputation prior to June 2005 will not produce significant differences in total usual hours worked estimates.

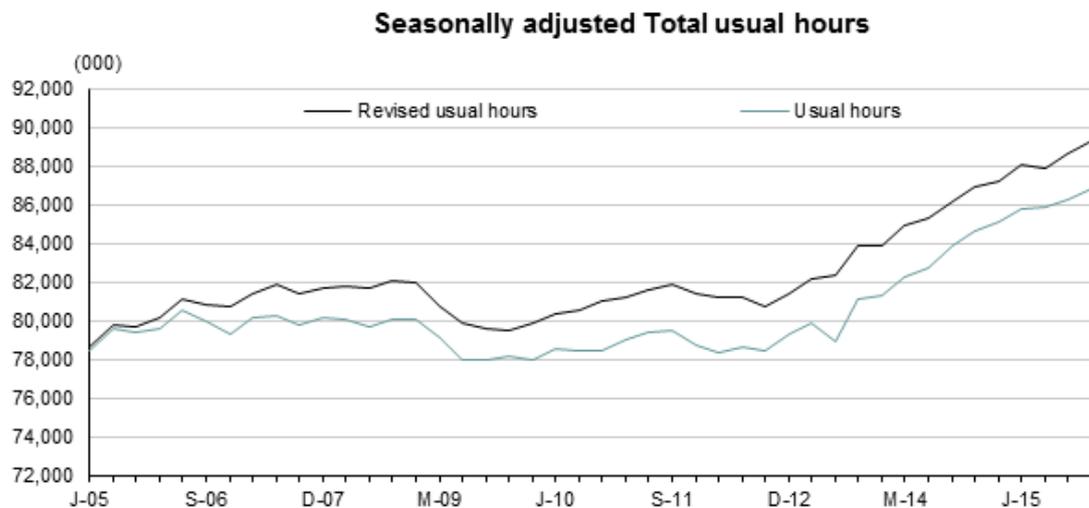
Usual hours are imputed where respondents have provided their actual number of hours worked, and not their number of usual hours.

For those respondents who have not provided either total usual or total actual hours, donor imputation had been applied (imputation of usual hours based on the usual hours from respondents with similar characteristics).

Revisions made to historical data

This new method of imputation improved estimates of usual hours worked. Seasonally adjusted total usual hours worked shows increases from June 2005 onwards ranging from 0.2 percent in June 2005 to 4.4 percent in June 2013.

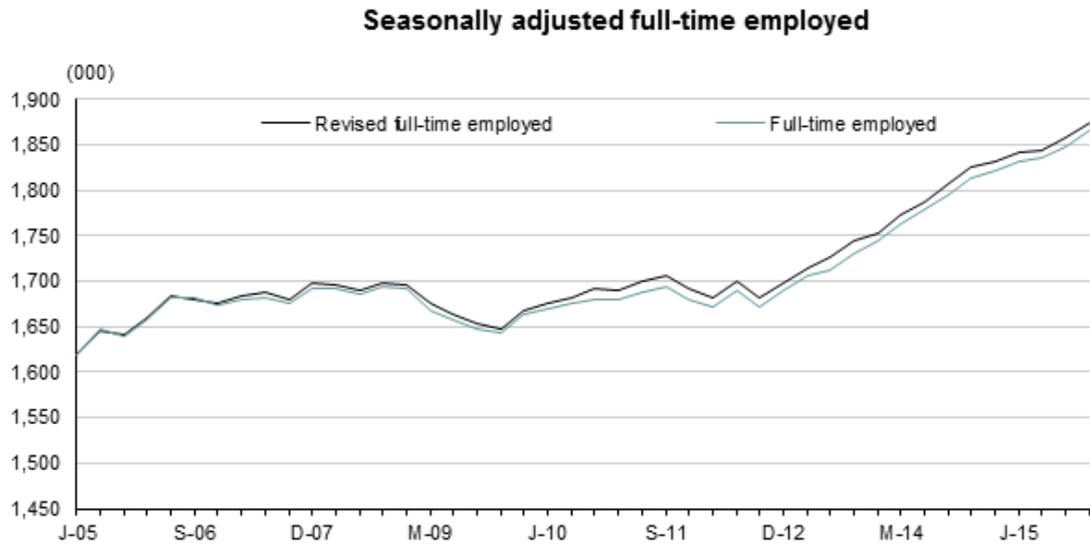
Figure 4



Source: Statistics New Zealand

Following these revisions, variables derived from usual hours are affected as well. Full-time and part-time status of people in employment is derived from the number of usual hours worked. Respondents are employed full-time when they work 30 hours or more. Seasonally adjusted numbers of people in full-time employment have been revised with changes ranging from -2,000 in September 2005 to +14,000 people in September 2013.

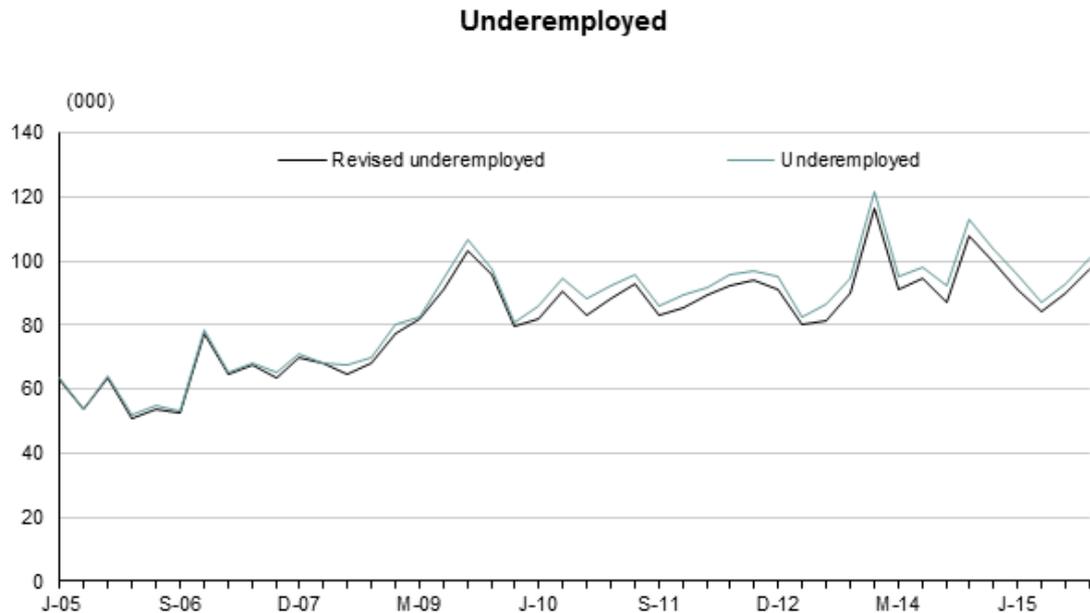
Figure 5



Source: Statistics New Zealand

The number of people who are underemployed (measured as part-timers who want and are available to work more hours) has seen a decrease due to the decrease in number of people employed part-time. Decreases in numbers of people underemployed are ranging from 0.2 percent in September 2005 to 6.6 percent in June 2013.

Figure 6



Source: Statistics New Zealand

Using a linear model for total actual hours

Total actual hours estimates are affected by the collection period not lining up exactly with the actual reference period. In the past, this discrepancy was managed by creating a separate dataset for actual hours. This dataset included all respondents interviewed in

the ideal (calendar adjusted) reference period. The downside of this approach was that it produced a provisional estimate which was finalised in the following quarter.

We have designed a linear model to predict the difference between actual estimates and ideal estimates of total actual hours worked. This enables us to apply the model to actual estimates, and calculate a final total actual hours estimate every quarter.

We have applied the linear model back to the beginning of the series in March 1986, resulting in revised estimates from this time period onwards. Differences between published and revised estimates are not statistically significant, indicating that the new estimates reflect the actual hours worked by the labour force with a similar degree of accuracy.

The linear model is only applied to total actual hours. Total actual hours estimates broken down by other variables are calculated from the unit record dataset.

Figure 7



Source: Statistics New Zealand

As with usual hours, we have applied imputation to total actual hours. When a respondent is missing actual hours, these are imputed based on usual hours given. If actual and usual hours are not available, donor imputation is applied.

Other upcoming changes to key estimates

We have made changes to the questionnaire in order to improve the relevance and quality of our labour market estimates. Some key labour market estimates will see a break in June 2016 due to changes in questions asked (which cannot be backdated).

Not in employment, education or training (NEET)

There might be breaks in the youth NEET time series in the June 2016 quarter due to improvements in questions used to identify education and caregiving status. The actual impact of these improvements on estimates will not be known until the June 2016 quarter becomes available, and we expect at least four quarters worth of data would be required to be certain of an actual structural shift.

We expect to have a more accurate estimate of people in education or training due to the improvement of questions used to define education status. Therefore, the number of people identified as NEET is expected to change.

Youth counted as NEET also includes people who are not working or studying because they are looking after children. Because there have also been improvements to questions used to define caregiving status, we may also see some changes in these estimates.

Self-employment

The redeveloped questionnaire has improved the way self-employment is identified.

Previously, some self-employed people were identified incorrectly as a wage or salary earner, because they paid themselves wages or salary. They would correctly answer yes when asked whether or not they were 'working for wages or salary'. This response meant that they did not progress to the question asking whether or not they were 'self-employed and not employing others' or 'an employer of others in their own business'.

The new questionnaire determines employment status differently by asking three questions in the following order:

Last week, did you do any of the following?

- Some work in your own business?
- Some work in a paid job?
- Some unpaid work in a family business?

We expect that this improved way of asking about employment status gives more accurate estimates, and that the June 2016 results will show an increase in the number of people self-employed, and therefore a drop in the number of employees (wage or salary earners).