



Household Labour Force Survey population rebase from 2013 Census

Includes regional benchmarks



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1 Purpose and summary

Purpose

This paper informs Household Labour Force Survey (HLFS) users about the effect of the population rebase that followed the 2013 Census. This includes the introduction of regional population benchmarks to our sample weights.

Summary

We have revised the historical HLFS data back to the beginning of the survey (March 1986) and investigated the effect of the population rebase and introduction of regional benchmarks on our series. While there were changes to the levels of our key labour force statistics, the quarterly movements were largely unchanged at the national level.

We found the following main effects:

- An overall downward revision in the working-age population.
- A decrease in the number of people employed, and a relatively smaller decrease in the number of people not in the labour force.
- No change in the number of people unemployed, and the unemployment rate remained at 5.7 percent for the December 2014 quarter.
- While the working-age population decreased for both men and women, the decrease was considerably larger for men.
- The working-age population was revised downwards for people aged 20 to 34 years, and revised upwards for those aged 35 to 49 years. There was minimal change for the 50+ age group.
- Before we introduced regional benchmarks, the unadjusted working-age population for the upper North Island (Northland, Auckland, Waikato, and Bay of Plenty) was underestimated, while lower North Island and South Island levels were generally overestimated.
- The Auckland region's working-age population and number of people employed were revised up for most of the time-series. On the other hand, the working-age population and number of people employed in Canterbury were revised down.



2 Background about the rebase

We weight HLFS sample data up to the total population, using national population estimates from the Census of Population and Dwellings. The total population is derived each quarter by updating estimates from the latest census with estimates of births, deaths, and net migration for the quarter.

As we move further from the base census estimates, the level of uncertainty in our estimates is likely to increase. After each census, we update sample weights to account for the most-recent population count. Due to the earthquakes in Canterbury in 2010/11, there was a seven-year period after the 2006 Census, which further increased the level of uncertainty in our population estimates. Reweighting (or rebasing) allows us to use the most-accurate population estimates for the HLFS.

In this rebase, we are introducing regional population benchmarks in the updated weights. The regional benchmarks enable us to produce more-accurate labour force statistics at the regional level. These benchmarks are in addition to our current sets of benchmarks: sex by five-year age bands, and Māori by sex for the 15–29 and 30+ age groups.

As part of a rebase, we revise historical data using the updated weights. Usually the revisions only go back to the previous population census. However, as regional benchmarks have also been added, we have revised the HLFS series back to the beginning of the survey (March 1986). This ensures consistency between past and current trends and movements.

The differences in the key series from the March 1986 quarter to the June 2006 quarter are due to introducing the regional population benchmarks. Differences starting from the September 2006 quarter are due to both the introduction of regional benchmarks and revisions to population estimates based on the 2013 Census.

HLFS results for the March 2015 quarter (release date 6 May 2015) onwards will use the new regional benchmarks and population estimates based on the 2013 Census.

See [Future of the Household Labour Force Survey](#) for more background information about the rebase and the introduction of regional benchmarks.

3 Changes to December 2014 quarter estimates

Correction

We found an error in our HLFS results for the December 2014 quarter that affected the estimates for people aged 75 years and over.

At the national level, our headline rates were not affected, and there was a minor effect on our key level estimates. However, the error had an effect at the regional level. We have introduced the corrections to these estimates as part of the rebase, so you should consider this when interpreting the changes to the December 2014 quarter.

Effect of the rebase on December 2014 quarter estimates

Due to the population rebase, the working-age population has decreased by 39,000 (1.1 percent) in the December 2014 quarter (in seasonally adjusted terms). Also in the same quarter, 36,000 fewer people are employed and 4,000 fewer people are not in the labour force.

This has resulted in a revised employment rate of 65.4 percent (down from 65.7 percent) and a labour force participation rate of 69.4 percent (down from 69.7 percent).

Although there were changes at the regional level, there was no change to the total number of people unemployed at the national level, and the unemployment rate remained at 5.7 percent for the December 2014 quarter.

The table below summarises the changes to the key HLFS estimates for the December 2014 quarter. Despite changes to the estimate levels, the movements from quarter to quarter are largely unchanged.

Table 1
Originally published and revised key estimates

Seasonally adjusted
December 2014 quarter

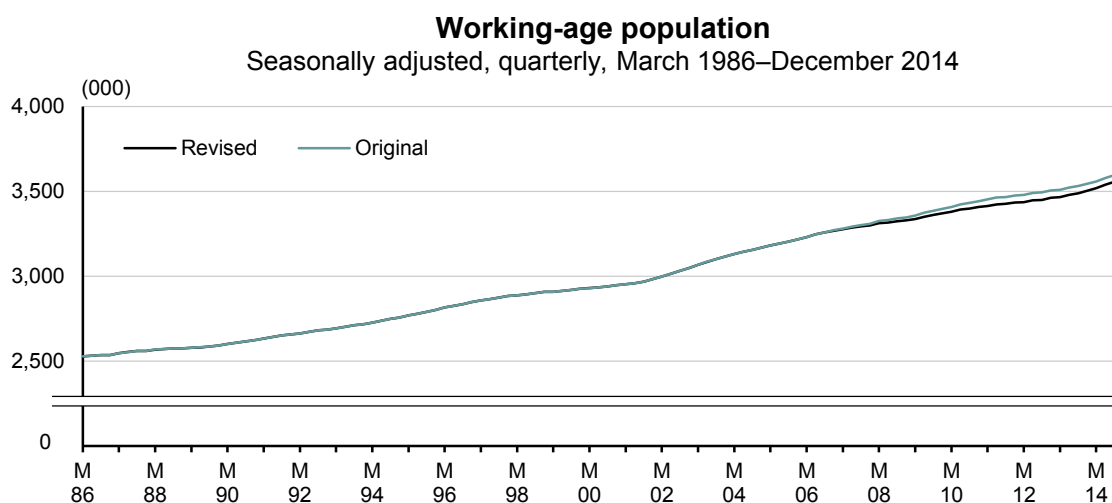
	Originally published	Revised	Change
	Number (000)		Percent
Employed	2,375	2,339	-1.5
Unemployed	143	143	0.0
Total labour force	2,518	2,482	-1.4
Not in the labour force	1,096	1,093	-0.3
Working-age population	3,614	3,575	-1.1
	Rate (%)		Percentage points
Employment rate	65.7	65.4	-0.3
Unemployment rate	5.7	5.7	0.0
Labour force participation rate	69.7	69.4	-0.3

4 How key HLFS series are affected by the rebase

This section outlines the effects of the rebase on our national-level labour force estimates, including by age group and sex.

The working-age population has been revised downwards from the September 2006 quarter onwards, with the gap between the original and revised series widening over time. As regional benchmarks do not affect the overall working-age population there is no significant difference between the old and revised working-age population before the September 2006 quarter.

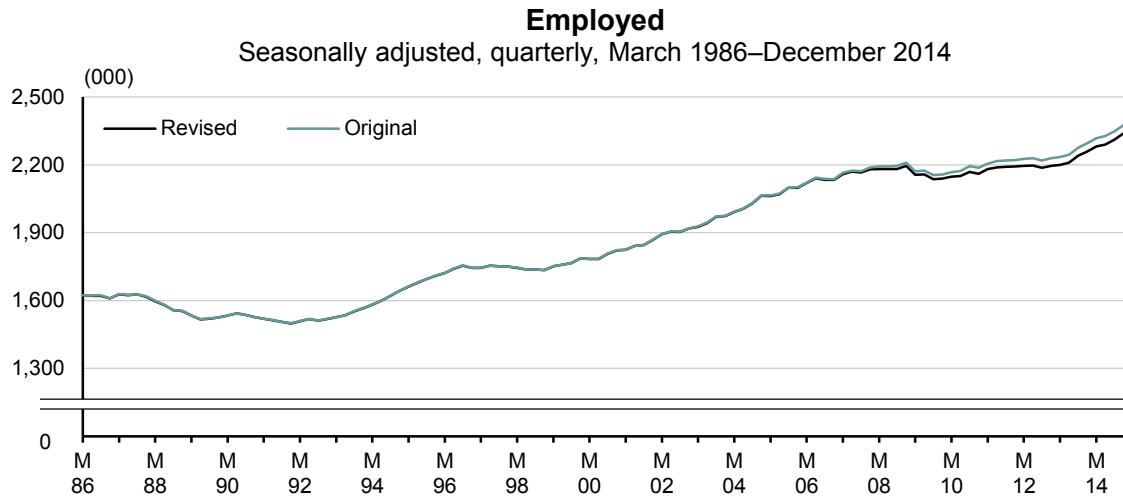
Figure 1



Source: Statistics New Zealand

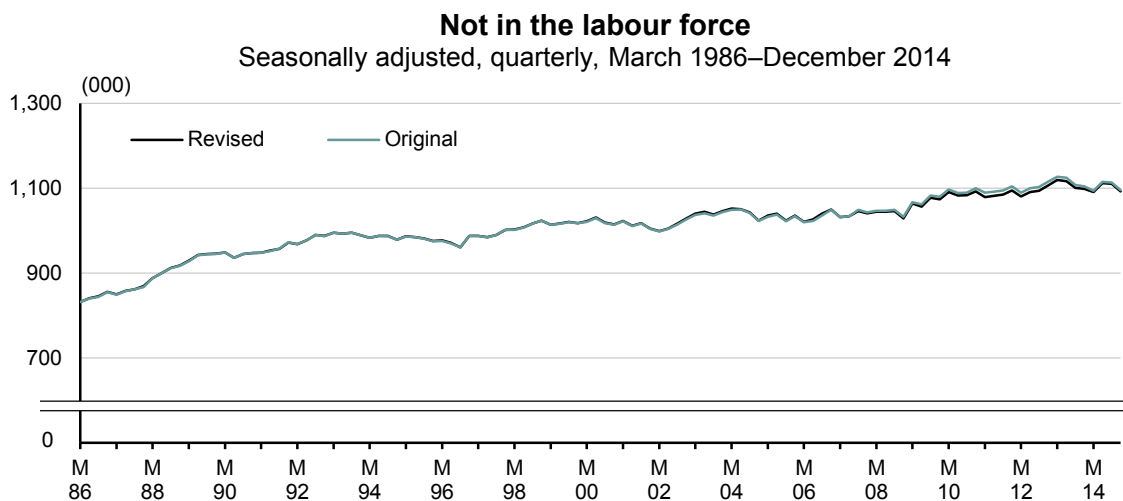
The smaller working-age population has affected the estimates for other key series, particularly in the numbers of people employed, in the labour force, and not in the labour force. The rebase had very little effect on the unemployed series.

Similar to the shift in the working-age population, the number of people employed was revised downwards. This is mostly due to the rebase rather than the introduction of regional benchmarks, so there is minimal change before September 2006.

Figure 2

Source: Statistics New Zealand

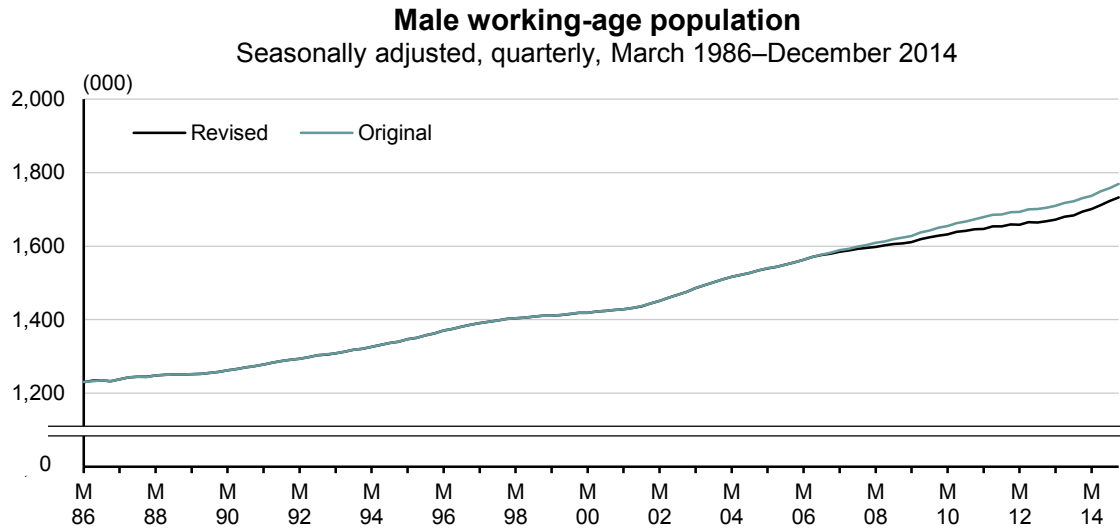
The population rebase also resulted in a decrease in the number of people not in the labour force. However, this shift is small due to a slight upward effect from introducing the regional benchmarks.

Figure 3

Source: Statistics New Zealand

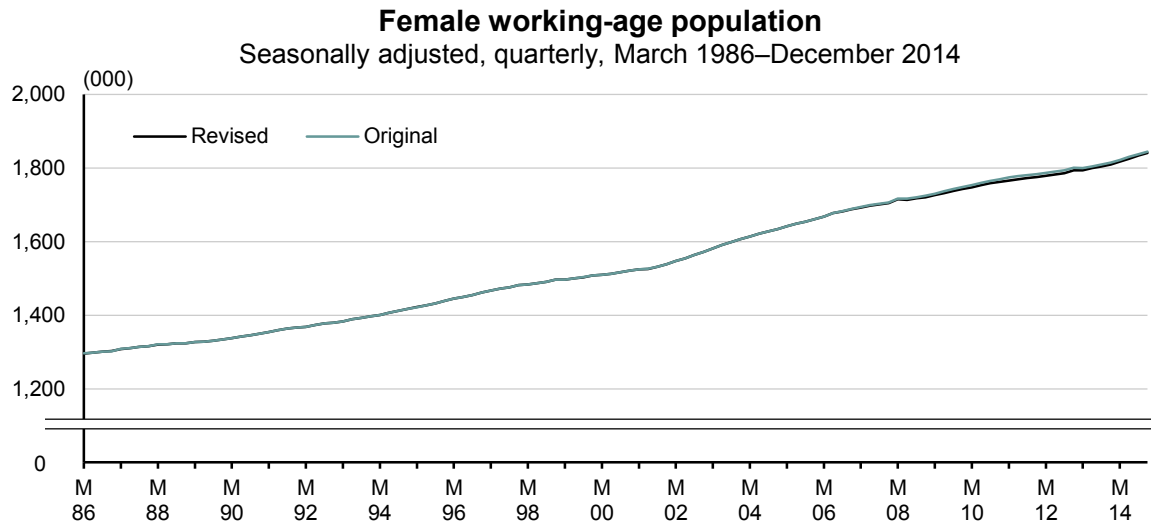
While the working-age population decreased for both men and women, the revision was considerably larger for men. Similarly, decreases in the number of people employed, and not in the labour force, consisted of larger decreases in the number of men than women. There was relatively little change in the number of men and women unemployed. The overall movements from quarter to quarter for both men and women were largely unchanged.

Figure 4



Source: Statistics New Zealand

Figure 5



Source: Statistics New Zealand

The revisions also affected some age groups more than others.

- The working-age population for 15 to 19-year-olds was revised downwards from 2006 to 2011, then revised upwards from 2012 onwards.
- Both the working-age population and the number of people employed were revised downwards for people aged 20 to 34 years, and revised upwards for those aged 35 to 49 years.
- There was minimal change to estimations for the 50+ age group.

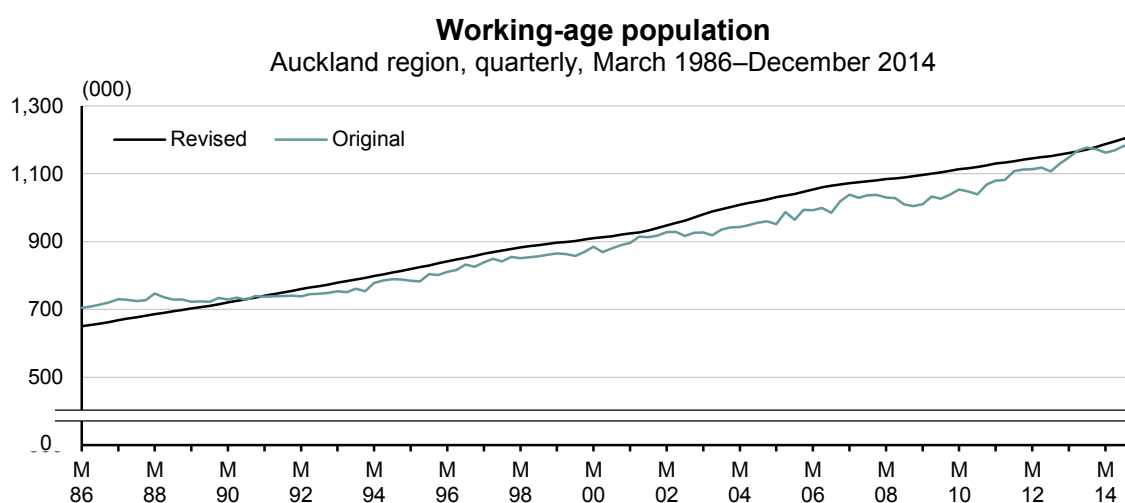
5 How regional estimates are affected by the rebase

This section outlines the effects of the rebase, including regional benchmarks, on our regional labour force estimates.

While the unadjusted working-age population for New Zealand was revised downwards, Auckland region was revised upwards for most of the time series. The working-age population for Auckland has decreased before mid-1990, and increased from 1991 to 2014.

The number of people employed in Auckland followed the same movement as the working-age population, with an upward revision for the year ended December 2014.

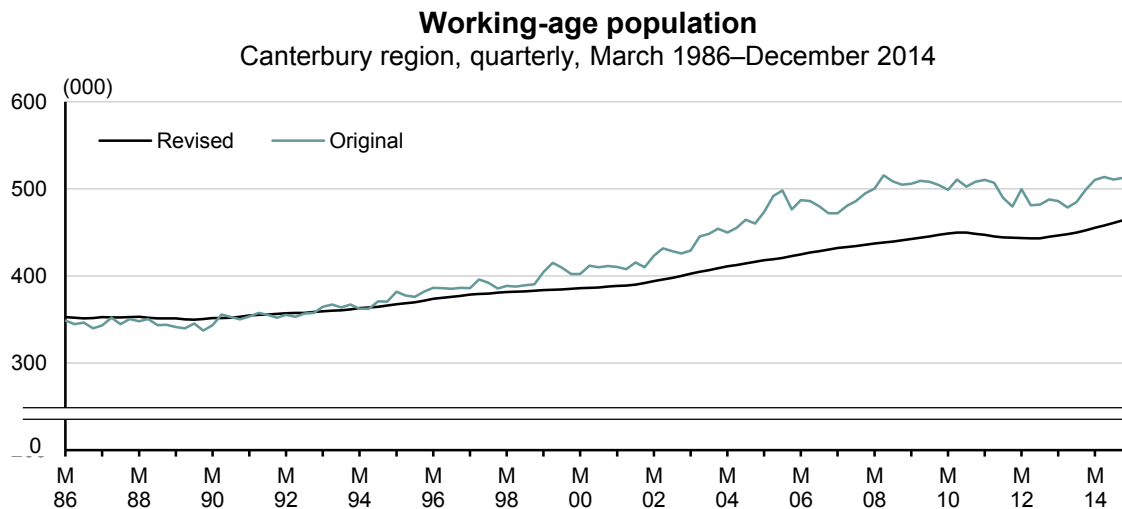
Figure 6



Source: Statistics New Zealand

Bay of Plenty's working-age population had the largest percentage upward revision of all the regions. For the year ended December 2014 we revised it to be 10.9 percent higher than before the rebase.

In contrast, we have been overestimating the working-age population growth in Canterbury for most of the time series. For the year ended December 2014 it had the largest percentage downward revision of all the regions. Before the rebase, our estimations of the working-age population in Canterbury had fluctuated over time. Introducing the regional benchmarks has smoothed out the series, which now shows a steady increase since the post-earthquake dip in June 2012. The number of people employed in Canterbury was also revised downwards for most of the time series.

Figure 7

As shown in table 2, the levels for the upper North Island (Northland, Auckland, Waikato, and Bay of Plenty) were underestimated over the December 2014 year, while lower North Island and South Island levels were generally overestimated.

Table 2
Percentage change between originally published and revised key estimates

By region
Year ended December 2014⁽¹⁾

	Employed	Unemployed	Not in the labour force	Working-age population
	Percent			
Northland	+3.8	+5.6	+5.7	+4.6
Auckland	+1.6	+2.8	+3.2	+2.1
Waikato	+5.0	+4.8	+6.4	+5.4
Bay of Plenty	+10.6	+9.6	+11.6	+10.9
Gisborne/Hawke's Bay	-5.1	-3.5	-5.1	-5.1
Taranaki	-5.7	-5.4	-5.2	-5.5
Manawatu-Wanganui	-4.8	-3.5	-5.0	-4.8
Wellington	-3.3	-3.4	-2.5	-3.1
Nelson/Tasman/Marlborough /West Coast	-4.1	-2.7	-3.8	-4.0
Canterbury	-10.1	-8.7	-10.6	-10.2
Otago	-8.2	-8.6	-8.1	-8.2
Southland	-0.7	+0.8	-0.2	-0.6
All regions	-1.6	+0.2	-0.3	-1.1

1. Calculated as the average of the four quarters in 2014.

It is important to note that estimates based on small sample sizes have a greater potential to be affected by the revisions.



6 Further information

New Zealand Income Survey

The population rebase and the introduction of regional benchmarks will also have an effect on estimates from the New Zealand Income Survey (NZIS).

The NZIS is an annual supplement to the HLFS in the June quarter that we have run since 1997. The NZIS collects income information on wages and salaries, self-employment, government transfers, investment income, and other transfer income.

See [New Zealand Income Survey](#) for the latest NZIS releases.

The revised NZIS results will be released separately, on a date to be announced later.

More technical information about the HLFS

For further technical information about the HLFS please refer to:

- [Future of the Household Labour Force Survey](#)
- [HLFS December 2008 quarter rebase](#)
- [HLFS sources and methods 2015](#)
- [Labour market statistics definitions](#)

Tables

The following tables are available in Excel format from the Statistics New Zealand [website](#).

1. Working-age population estimates, by age group and sex
2. People employed, unemployed, and not in labour force, actual series
3. People employed, unemployed, and not in labour force, seasonally adjusted series
4. People employed, unemployed, and not in labour force, by regional council area
5. Total actual hours worked

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