Employment Indicators

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Employment Indicators

Abstract

Employment indicator series is a new monthly series. These indicators use a combination of data from two different Inland Revenue sources: the Employer Monthly Schedule (EMS) and payday filing. This data will be used to produce the filled jobs and gross earning indicator series, published four to five weeks after the end of the reference month.

The series builds on and refines previous experimental monthly series and makes use of the timelier and more detailed payday filing available from Inland Revenue in April 2019. The series has provisional status because data from payday filing is relatively new and more data needs to be analysed by Stats NZ.

Coverage of filled jobs and gross earnings by the new indicator series differs from that of current Stats NZ labour market statistics – measures produced from the Quarterly Employment Survey (QES), Linked Employer Employee Data (LEED), and the Household Labour Force Survey (HLFS).

Purpose

The Employment Indicators provide an early indication of changes in the labour market. There is four to five weeks between the end of the reference month and the publication date for the employment indicators.

Employment Indicators

Methodology

1. Data source

Two data sources will be used in the production of the monthly filled jobs and gross earnings indicators series, which begin April 1999:

• **From April 1999 to April 2019, EMS data will be used.** All New Zealand employers are required to report PAYE (pay as you earn) data for their employees to Inland Revenue. Prior to April 2019, the PAYE data was reported on a monthly basis as the EMS.
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From May 2019 onwards, payday filing data will be used. Since 1 April 2019, all New Zealand employers paying more than $50,000 PAYE and Employer Superannuation Contribution tax (ESCT) per year are required to electronically file payroll information, known as payday filing. Larger employers need to file within two working days of each payday, however, smaller employers can choose to file by paper and have slightly longer timeframes. This data is provided daily to Stats NZ by Inland Revenue.

Payday filing is timelier and has more information about employees' pay period, making it a more flexible and useful data source than the EMS, and enables the indicators to be produced sooner than using EMS data.

2. Defining filled jobs and gross earnings

Filled jobs are paid jobs and are measured using an average weekly calculation for the calendar month.

Gross earnings correspond to the amount paid to all employees in the reference month. It excludes retirement payments, redundancy payments, and employee benefits. The length of an employee's pay period can cause variability in the number of pay days in the month – for example, a fortnightly pay normally occurs twice a month but, on some occasions, can occur three times in a month. This can cause volatility in the monthly series.

It will be possible to remove the effect of payday variability on monthly earnings by allocating the reported amount proportionately to the month in which it was earned. Since at this stage we only have a few months' of data using payday filing, we are still developing and testing our methodology in this area as well as monitoring the seasonality of the data.

3. Interpreting the time-series data

Industries

Filled jobs are output at the total New Zealand level and using the following broad industry categories based on the industry code assigned at the enterprise level:

• Primary industries – ANZSIC06 divisions A (Agriculture, Forestry and Fishing) and B (Mining)
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Goods-producing industries – ANZSIC06 divisions C (Manufacturing) to E (Construction)
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Services industries – ANZSIC06 divisions F (Wholesale Trade) to S (Other Services)

Gross earnings are output at the total New Zealand level.

Non-response imputation

A small number of firms have missing data because they may not have filed payday data in a reference month, or more commonly for the last pay period within a month, or Inland Revenue haven't finished processing their data. We estimate values for this missing data using historic imputation. This involves multiplying a unit's value in a previous pay period by a forward movement factor. The factor is the average movement between pay periods in the month for similar businesses.

Back-casting

The EMS and the payday filing information differ slightly in methodology and have a small difference in levels for both filled jobs and gross earnings. To combine the series, we took the levels from the latest payday filing data and back-cast the EMS data using a fixed proportion – this preserved the monthly movements in the EMS data back to the beginning of the series (April 1999).

Quality of back series

While the EMS is administrative data Stats NZ has been receiving for many years, it has not been used in the production of official monthly filled jobs and gross earnings statistics. Therefore, the monthly back series should be analysed with caution as the data has not been subject to Stats NZ usual quality checking procedures for published outputs.

Seasonal adjustment and trend series

For any series, the data received can be broken down into three components: trend, seasonal, and irregular. While seasonally adjusted series have the seasonal component removed, trend series have both the seasonal and irregular components removed. This reveals turning points and the underlying direction of quarterly movement.

We re-estimate seasonally adjusted and trend values monthly when each new month's data becomes available. Figures are therefore revised, with the largest changes normally occurring in the latest months. The seasonally adjusted and trend series are produced using the X-13ARIMA-SEATS package developed by the U.S. Census Bureau.

The filled jobs indicator has a very regular and stable seasonal series, while monthly earnings is not seasonally adjusted due to the timings of pay dates resulting in an erratic monthly series. The quarterly series (sum of the total earnings for each month) is seasonally adjusted as the pay period issues are less of a factor at the quarterly level.

Provisional data status

The employment indicators are provisional while we are still analysing the payday filing data. In addition, we will include updated payday filing information if received after publication. This may result in updates to the published series each month.

4. Filled job series compared with other Stats NZ labour market outputs

The employment indicators complement other Stats NZ labour market outputs. They provide timely indicators for labour demand and are conceptually closer to LEED and the QES than to HLFS.

Note: QES and quarterly LEED measure labour demand or employment from the business perspective (that is, labour demanded by businesses). Filled jobs is a labour demand measure. The HLFS is Stats NZ's main source of measuring labour supply because it measures employment from the household perspective (that is, households as the labour supplier).

The new indicators and LEED use the same data source. However, when filled jobs and gross earnings are compared with quarterly LEED, note the following:

• **Frequency and timeliness of release.** The monthly series is released 4 to 5 weeks after the end of the reference month. Quarterly filled job outputs from LEED have a publication lag of over a year.
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Enterprise is the statistical or analysis unit in the monthly series. It is the business location or geographical unit in LEED.
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The monthly series and LEED measure filled jobs but they are identified using different data. The monthly series uses pay period start and end dates to identify jobs within the month. In comparison, LEED uses a less precise method based on the month in which the earnings are paid in, and job start and end dates.

The monthly series uses non-response imputation but LEED doesn't. LEED does not require non-response imputation because data belonging to all employers is available after a year.

5. Revisions

Stats NZ has found an error in the concordance table which means a postcode has been incorrectly allocated to Westland, when it is actually part of Selwyn. This flows through to the respective regions, meaning that the West Coast and Canterbury regions are also impacted.

The error impacts territorial authority and regional splits for Westland/Selwyn and West Coast/Canterbury. It impacts the number of filled jobs (based on employee address) and the associated gross earnings. The table below shows the impact on monthly employment indicator filled jobs for March 2022.

Monthly employment indicators: March 2022 – filled jobs
West Coast
Canterbury
New Zealand

The error impacts the following releases:

• Monthly Employment Indicator Release – since the series began in May 2019 – **revised in this release**

• Employment stocks and flows series (experimental) – since the series began in May 2019 – **revised in this release**

• Business Employment Data Release – majority of impact increasing from 2015 onwards

• Linked-Employer-Employee-Data Annual Release - majority of impact increasing from 2015 onwards

We have now corrected the concordance used to create the monthly series and have published a revised version of the Monthly Employment Indicator released today - **28th April 2022.**

What is not affected in the Monthly Employment Indicator Release:

• High level numbers – i.e. total filled jobs and gross earnings

• Industry breakdowns

• Age and gender breakdowns

We have suppressed the impacted series in the quarterly business employment data release and expect to provide corrected data on or before the next release due out on 10 June 2022.

We are still assessing the best way to correct the LEED annual series which is due to be released in November 2022. In the meantime, we would recommend not using the employee counts or earnings series for Westland/West Coast and using the Selwyn/Canterbury employee counts or earning series with caution.

If you require any data from the impacted regions, contact us directly at info@stats.govt.nz.

Frequency

2 Monthly

Main users of the data

EXTERNAL: provides information to Reserve Bank, The Treasury, Businesses, The Media, Economic Agencies (NZIER, Berl, Trading Banks), other government departments and industry associations.

INTERNAL: National Accounts Division, Labour Market Division

Variables