

MONASH BUSINESS SCHOOL

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Ch3. Time series decomposition

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Treasurer Joe Hockey calls for answers over Australian Bureau of Statistics jobs data

By Michael Vincent and Simon Frazer

Federal Treasurer Joe Hockey says he wants answers to the problems the Australian Bureau of Statistics (ABS) has had with unemployment figures.

Mr Hockey, who is in the US to discuss Australia's G20 agenda, said last month's unemployment figures were "extraordinary".

The rate was 6.1 per cent after jumping to a 12-year high of 6.4 per cent the previous month.

The ABS has now taken the rare step of abandoning seasonal adjustment for its latest employment data.



PHOTO: Joe Hockey says he is unhappy with the volatility of ABS unemployment figures. (AAP: Alan Porritt)

RELATED STORY: ABS abandons seasonal adjustment for



ABS jobs and unemployment figures - key questions answered by an expert

A professor of statistics at Monash University explains exactly what is seasonal adjustment, why it matters and what went wrong in the July and August figures



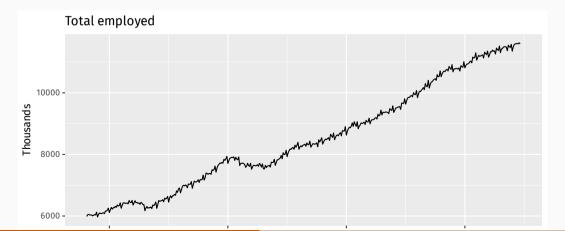
School leavers come on to the jobs market at the same time, causing a seasonal fluctuation. Photograph: Brian Snyder/Reuters

The Australian Bureau of Statistics has retracted its seasonally adjusted employment data for July and August, which recorded huge swings in the jobless rate. The ABS is also planning to review the methods it uses for seasonal adjustment to ensure its figures are as accurate as possible. Rob Hyndman, a professor of statistics at Monash University and member of the bureau's methodology advisory board, answers our questions:

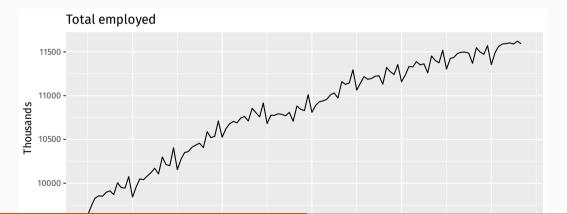
employed

```
# A tsibble: 440 x 4 [1M]
      Time Month Year Employed
     <mth> <ord> <dbl>
                        <dbl>
1 1978 Feb Feb 1978 5986.
2 1978 Mar Mar 1978 6041.
3 1978 Apr Apr 1978
                      6054.
4 1978 May May 1978
                        6038.
5 1978 Jun Jun 1978
                        6031.
6 1978 Jul Jul 1978
                        6036.
7 1978 Aug Aug
              1978
                        6005.
8 1978 Sep Sep 1978
                        6024.
9 1978 Oct Oct
              1978
                        6046.
10 1978 Nov Nov
                 1978
                        6034.
# i 430 more rows
```

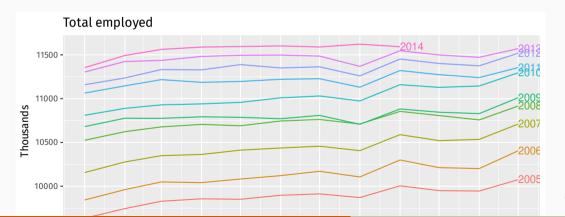
```
employed |>
  autoplot(Employed) +
  labs(title = "Total employed", y = "Thousands")
```



```
employed |>
  filter(Year >= 2005) |>
  autoplot(Employed) +
  labs(title = "Total employed", y = "Thousands")
```

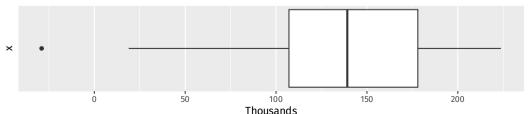


```
employed |>
  filter(Year >= 2005) |>
  gg_season(Employed, labels = "right") +
  labs(title = "Total employed", y = "Thousands")
```

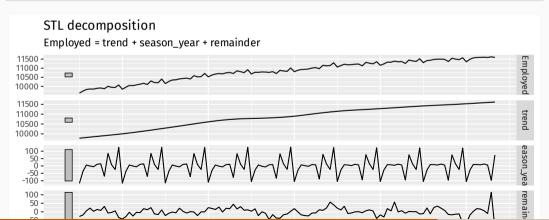


```
employed |>
  mutate(diff = difference(Employed)) |>
  filter(Month == "Sep") |>
  ggplot(aes(y = diff, x = 1)) +
  geom_boxplot() +
  coord_flip() +
  labs(title = "Sep - Aug: total employed", y = "Thousands") +
  scale_x_continuous(breaks = NULL, labels = NULL)
```



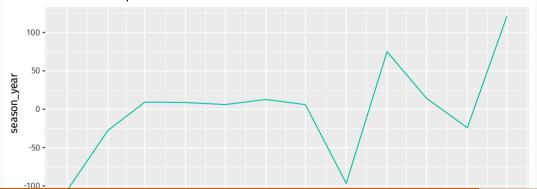


```
dcmp <- employed |>
  filter(Year >= 2005) |>
  model(stl = STL(Employed ~ season(window = 11), robust = TRUE))
components(dcmp) |> autoplot()
```

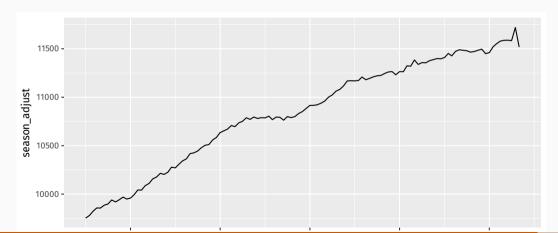


```
components(dcmp) |>
  filter(year(Time) == 2013) |>
  gg_season(season_year) +
  labs(title = "Seasonal component") + guides(colour = "none")
```

Seasonal component



```
components(dcmp) |>
  as_tsibble() |>
  autoplot(season_adjust)
```



- August 2014 employment numbers higher than expected.
- Supplementary survey usually conducted in August for employed people.
- Most likely, some employed people were claiming to be unemployed in August to avoid supplementary questions.
- Supplementary survey not run in 2014, so no motivation to lie about employment.
- In previous years, seasonal adjustment fixed the problem.
- The ABS has now adopted a new method to avoid the bias.