TECHINICAL NOTE

Revision to Methodology for Seasonally Adjusting Unemployment Time Series

The unemployment time series are influenced by seasonality — periodic fluctuations due to recurring calendar-related events such as holidays and starting and ending of school terms. Seasonal adjustment removes the influence of these fluctuations and makes it easier for users to make a more meaningful analysis of the trends in a data series, especially for those with strong seasonal patterns.

Forward and Concurrent Seasonal Adjustment

National statistical agencies use forward and/or concurrent seasonal adjustment approach when seasonally adjusting their original (i.e. non-seasonally adjusted) data series. For forward seasonal adjustment approach, seasonal factors are projected for each period at the start of each year using finalised data for the latest full year. The projected seasonal factors are then used to derive the seasonally adjusted data for each period within the year. For concurrent adjustment, data will be seasonally adjusted by taking into account data as it becomes available.

Adoption of Concurrent Seasonal Adjustment in 2017

MRSD had moved to concurrent seasonal adjustment instead of forward seasonal adjustment approach from first quarter of 2017.

The adoption of concurrent seasonal adjustment approach was because we had noticed unstable seasonal patterns of the non-seasonally adjusted citizen unemployment data in the quarterly data of 2016 vis-à-vis previous years. The forward seasonal adjustment approach had led to a more erratic seasonally adjusted data in 2016.

Forward seasonal adjustment requires the seasonal effects to be reasonably stable in direction and magnitude for good forecasts of seasonal factors for each quarter at the start of each year. As such, it may not be as effective as concurrent seasonal adjustment in capturing accurate seasonally adjusted estimates as the various time series components can be better estimated as new data becomes available.

Using forward seasonal adjustment, revisions were larger in magnitude (0.2%-pt) compared with the usually accepted (±0.1%-pt) if the seasonally adjusted data were revised when the final set of 2016 data were available (see Table 1).

Table 1: Revision of Seasonally Adjusted Unemployment Rates

Period	Before Revision	When revised with 2016 finalised data	Difference
Overall Unemployment Rate			
March 2016	1.9%	1.9%	-
June 2016	2.1%	2.1%	-
September 2016	2.1%	2.1%	-
December 2016	2.2%	2.2%	-
Resident Unemployment Rate			
March 2016	2.7%	2.7%	-
June 2016	3.0%	3.0%	-
September 2016	2.9%	2.9%	-
December 2016	3.2%	3.1%	-0.1%-pt
Citizen Unemployment Rate			
March 2016	2.6%	2.7%	0.1%-pt
June 2016	3.1%	3.1%	-
September 2016	3.0%	3.1%	0.1%-pt
December 2016	3.5%	3.3%	-0.2%-pt

Source: Labour Force Survey, Manpower Research & Statistics Department, MOM

- : nil or negligible

Revision Policy

Concurrent seasonal adjustment method was adopted from first quarter of 2017 to be in line with most national statistical agencies for key time series so as to reflect the seasonally adjusted unemployment rate more accurately (as compared to forward seasonal adjustment method) as the concurrent method takes in the latest information available and it minimizes the revisions at the end of the year.

MRSD revision policy is not to revise the previous quarters' official seasonally adjusted estimates as new data become available during the year, similar to the policy practiced by United States Bureau of Labor Statistics (BLS).[1] This is so as not to confuse data users with the numerous revisions required for the actual concurrent seasonal adjustment approach while at the same time, able to take in the latest quarter's information to produce the seasonal adjusted data. The revision of the unemployment series is done once a year based on final data up to December of each year.[2]

[1] For more information on BLS revision policy, you can refer to the article "Methodology for Seasonally Adjusting National Household Survey Labour Force Series with Revisions for 2018" in https://www.bls.gov/web/empsit/cps-seas-adjustment-methodology.pdf

[2] Updated in the Labour Market Report in March of the following year.

The 2017 seasonally adjusted unemployment rates before revision and after revision are shown in Table 2.

Table 2: Revision of Seasonally Adjusted Unemployment Rates

Period	Before Revision	Revised with 2017 finalised data	Difference
Overall Unemployment Rate			
March 2017	2.2%	2.2%	-
June 2017	2.2%	2.2%	-
September 2017	2.2%	2.1%	-0.1%-pt
December 2017	2.1%	2.1%	-
Resident Unemployment Rate			
March 2017	3.2%	3.2%	-
June 2017	3.1%	3.1%	-
September 2017	3.1%	3.1%	-
December 2017	2.9%	3.0%	0.1%-pt
Citizen Unemployment Rate			
March 2017	3.5%	3.5%	-
June 2017	3.3%	3.3%	-
September 2017	3.2%	3.2%	-
December 2017	3.0%	3.0%	-

Source: Labour Force Survey, Manpower Research & Statistics Department, MOM

- : nil or negligible

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