

# State and Metro Area Employment, Hours, & Earnings

 

- SAE Home
- SAE Publications ▾
- SAE Data ▾
- SAE Methods ▾
- About SAE ▾
- Contact SAE

## Concurrent Seasonal Adjustment for CES State and Area Program

With the release of January 2018 data on March 12, 2018, the Current Employment Statistics (CES) State and Area program converted to concurrent seasonal adjustment, which uses all available estimates, including those for the current month, in developing seasonal factors. Previously, the CES State and Area program projected seasonal factors once a year during the annual benchmark process.

CES State and Area annual seasonal adjustment process required 10 years of historical sample data as the input to the X-13 ARIMA model to create forecasted factors that are used to seasonally adjust sample estimates for the remainder of the year. The concurrent seasonal adjustment process will use the same historical sample data. Therefore, the ARIMA model, outliers, and calendar effects determined during the annual review process are used in concurrent seasonal adjustment. The only difference in inputs between the two methods of seasonal adjustment is the incorporation of real-time estimates with concurrent seasonal adjustment.

This transition aligns CES State and Area methodology with a broad range of statistical programs that have recognized the superiority of concurrent seasonal adjustment. Empirical research starting in the 1980s has generally concluded that concurrent seasonal adjustment is the recommended methodology.<sup>1</sup> The CES National program incorporated concurrent seasonal adjustment in 2003.<sup>2</sup> In addition, numerous BLS data series including The Business Employment Dynamics, Job Openings and Labor Turnover Survey, and Local Area Unemployment Statistics are utilizing concurrent seasonal adjustment.

CES State and Area research confirms the viability of concurrent seasonal adjustment for over three years. The results show that concurrent seasonal adjustment will reduce the revisions of the seasonally adjusted estimates compared to seasonally adjusted benchmark data as well as reduce the month-to-month variability of the seasonally adjusted time series.<sup>3</sup> These results are consistent with prior research.

Concurrent seasonal factors are created every month for the current month's preliminary estimates as well as the previous month's final estimates. This is a change from the annual forecast method in which seasonal factors are produced for the remaining months of the year during the annual seasonal adjustment process. To assist in the understanding of this new production process, refer to Figure 1 below.

**FIGURE 1.**

<b>BMRK 2017</b>	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
2017 BMRK	<b>Benchmarked Historical Values</b>									<b>Re-Estimate Values</b>		
2018 EST	P	F	P	F	P	F	P	F	P	F	P	F

Universe factors derived from benchmarked history and applied to benchmarked historical values.
Concurrent sample factors generated with Jan. preliminary estimates and applied to Oct., Nov., Dec. re-estimates and Jan. preliminary estimates.
Concurrent factors derived each preliminary cycle from all relevant sample history, up to and including the current month preliminary estimates, and applied to the previous month final estimates and the current month preliminary estimates.

The annual production of calculating and applying seasonal factors for the benchmark period will remain unchanged. Concurrent seasonal adjustment factors will first be applied to the re-estimation period in the fourth quarter of the calendar year. Once the January preliminary estimation cycle is complete, concurrent factors will be developed for January preliminary estimates as well as for the October, November, and December re-estimation data. The next instance of concurrent seasonal adjustment will then occur during the February preliminary cycle. During this time, seasonal factors will simultaneously be developed for February preliminary estimates and January final estimates. This pattern will repeat every month until the end of the estimation year.

For additional information regarding concurrent seasonal adjustment, please see the references below.

### REFERENCES

- Kenny, P.B. and J. Durbin (1982), "Local Trend Estimation and Seasonal Adjustment of Economic and Social Time Series," *Journal of the Royal Statistical Society, Series A*, 145, 1-41. Available at: <https://doi.org/10.2307/2981420>
- Kropf, J., Manning, C., Mueller, K., & Scott, S. (2002, August). Concurrent Seasonal Adjustment for Industry Employment Statistics. In *Joint Statistical Meetings of the American Statistical Association, the International Biometrie Society, the Institute of Mathematical Statistics, and the Statistical Society of Canada, New York*. Available at: <https://www.bls.gov/osmr/research-papers/2002/pdf/st020110.pdf>

McKenzie, Sandra K. (1984), " Concurrent Seasonal Adjustment with Census X-11," *Journal of Business and Economic Statistics* 2, 235-249. Available at: <https://www.census.gov/ts/papers/jbes84skm.pdf>

Mance, S. Concurrent Seasonal Adjustment of State and Metro Payroll Employment Series October 2015. Available at: <https://www.bls.gov/osmr/research-papers/2015/pdf/st150110.pdf>

Pierce, David A., and Sandra K. McKenzie (1987), " On Concurrent Seasonal Adjustment," *Journal of the American Statistical Association* 82, 720-732. Available at: <http://www.jstor.org/stable/2288776>

**Last Modified Date:** July 8, 2019

U.S. BUREAU OF LABOR STATISTICS Division of Current Employment Statistics PSB Suite 4860 2 Massachusetts Avenue NE Washington, DC 20212-0001

Telephone:1-202-691-6559\_ [www.bls.gov/SAE](http://www.bls.gov/SAE) [Contact SAE](#)