

Changes to Methodology: State Coincident Indexes (Last updated: April 10, 2017)

The following changes have been made to the state coincident index methodology.

April 10, 2017

Methodological Changes

Since the introduction of the state coincident indexes in 2005, the Federal Reserve Bank of Philadelphia’s Research Department has utilized the same software and procedures¹, essentially unchanged, as the core estimating process for the indexes. As part of a longer-term project to update the methodology of the coincident indexes to take into account advances in statistical theory and data, and improve the accuracy of these indicators, we have implemented three changes effective with the January 2017 release of the state coincident indexes:

- Annual estimation — We will estimate coefficients of each state model only once a year, for the reference month of January, rather than every month as in the past. This will improve the efficiency of our monthly process and the transparency of our output.
- New smoothing weights — We are using a new algorithm for smoothing the series, as suggested in Koopman and Harvey (2003)².
- New estimation — We impose a variance restriction to the underlying (latent) factor equation during the estimation process in order to lessen the degree of customization required in the model to avoid large variance estimates. This may affect some state indexes more significantly than others.

¹ Clayton-Matthews, Alan. *DSFM Manual* (version 4/17/2001) mimeo, University of Massachusetts Boston, (2001).

² Koopman, Siem Jan, and Andrew Harvey. “Computing Observation Weights for Signal Extraction and Filtering,” *Journal of Economic Dynamics & Control*, 27 (2003), pp. 1317-1333.

April 6, 2016

New Method for Computing Seasonally Adjusted Employment

The Federal Reserve Bank of Philadelphia's Research Department has produced the state coincident indexes since January 2005 using seasonally adjusted indicator series for each state's payroll employment, unemployment rate, average hours worked in manufacturing, and wage and salary disbursements. In particular, over this period, we computed our own estimates of the seasonal factors for each state's employment data.

Beginning with our release of the January 2016 state coincident indexes, we have decided to rely upon the seasonal factors produced by the U.S. Bureau of Labor Statistics rather than our own internal procedures. Going forward, we think this change will improve the accuracy of the coincident indexes.

This methodological change had little effect on our coincident indexes for most states. However, the effect was somewhat greater for Hawaii, Oregon, and Tennessee.