



Important Changes to Illinois Statewide and Substate Labor Force Estimates

Implementing the Local Area Unemployment Statistics Program 2015 Redesign

by Rich Reinhold

The Illinois Department of Employment Security has worked in cooperation with the U.S. Bureau of Labor Statistics (BLS) for more than forty years to produce Illinois statewide and substate labor force estimates, including unemployment rates. This federal-state cooperative initiative is known as the Local Area Unemployment Statistics (LAUS) program.

Each decade, the BLS undertakes a redesign of the LAUS program to improve the accuracy of state and

local area labor force estimates and introduce updates to federal statistical areas announced by the U.S. Office of Management and Budget (OMB) following the decennial census. The key components of the LAUS program 2015 Redesign include:

- New, enhanced statistical models for producing state and metropolitan area labor force estimates;
- Improved methods for estimating substate employment and unemployment estimates, including

new inputs from the Census Bureau’s American Community Survey (ACS);

- Introducing 2010-based Metropolitan Statistical Area, Micropolitan Statistical Area and Combined Statistical Area delineations announced by the U.S. Office of Management and Budget (OMB) in February 2013.

New Fourth Generation of State and Metropolitan Area Labor Force Statistical Models

Statistical models have been used to produce Illinois state labor force estimates since 1996. The monthly, household-based Current Population Survey also known as the CPS (conducted by the U.S. Census Bureau for the BLS) is the official source for national labor force estimates.

However, the CPS household sample is not large enough to support direct estimation at the state level – hence the need for modeling statewide labor force estimates. The purpose of state models is to estimate the true monthly labor force values and remove the effects of error from the CPS.

The state models incorporate data from the monthly CPS as well as state supplied inputs including total nonfarm jobs and Unemployment Insurance (UI) benefits claims. The state estimation process also entails controlling state model estimates to model-based estimates for their respective **Census Divisions**, which are in turn controlled to national CPS estimates. This process is known as real-time benchmarking to the CPS and is undertaken to ensure that state estimates sum to national levels and capture shocks to the national economy which are felt across

most states. Additionally, monthly volatility in state model estimates due to CPS sampling error and the effects of real-time benchmarking is reduced through a process known as **smoothed seasonal adjustment**.

In 2015, the current labor force statistical models for all 50 states and select Metropolitan Areas, including the Chicago Metropolitan Division, will be replaced with a fourth generation of statistical models. Here is a summary of the key changes introduced with the fourth generation models:

- The fourth generation models will transition from the bivariate structure of the third generation models to a regressor format. Total nonfarm employment and UI benefits claims are used as regressor variables, rather than separate input variables. This change improves computational performance and adds greater flexibility for the treatment of data outliers and for long-term model development;
- In the previous or third generation of the models, real-time benchmarking to the CPS was an external process applied after the completion of model estimation. However, with the fourth generation models, real-time benchmarking is a model-based component of the estimation procedure, distributing any discrepancies among states and their respective Census Divisions to the states that contributed the largest portion of the change;
- The fourth generation models utilize an improved smoothed seasonal-adjustment filter. In addition to the trend filter, weights have been added to create a



seasonal filter. This removes the volatility introduced by real-time benchmarking, while simultaneously removing residual seasonality that results from benchmarking to a seasonal series;

- In third generation models, state data outliers were added to the models prior to real-time benchmarking and their effects were spread across all states within the same Census Division. With the fourth generation models, outliers will be added after real-time benchmarking to the CPS. This new approach ensures that the impact of the outliers is felt in the states where the outliers occurred and not in the other states within the same Census Division.

For more detailed information on the fourth generation state and metropolitan area models, please read the BLS's June 2014 [Report on Revision to State and Area Time-Series Models](#).

Overview of Substate Employment Estimation for Labor Market Areas

Employed and unemployed estimates are developed at the substate or Labor Market Area (LMA) level using a building-block approach that's known as the Handbook method. There are a total of 16 steps in the Handbook method with three separate line calculations for estimating employed and four separate line calculations for estimating unemployed. Once calculated, Handbook employed and unemployed estimates for LMAs are then controlled to statewide model-based employed, unemployed estimates to ensure that they sum to statewide

levels. The estimates controlled to statewide levels are known as LAUS estimates and published as official data.

The LAUS program develops estimates of employed based on where people lived as opposed to where people worked. Employed persons are counted just once, even if they hold multiple jobs. The vast majority of employed people fall under the category of nonfarm wage and salary workers. In order to calculate the number of people employed in nonfarm wage and salary industries in the Handbook method, total nonfarm jobs (place of work) are translated into the number people employed (place of residence). This translation or conversion to resident employed is done by applying residency adjustment factors developed by the BLS to monthly total nonfarm jobs for LMAs as well as nearby or adjacent LMAs with strong commuting ties. The residency adjustment factors, known as Dynamic Residency Ratios (DRRs) are based on the relationship between worker commuting patterns and total nonfarm jobs among LMAs.

Another, smaller group of employed calculated in the Handbook method includes self-employed, unpaid family workers and private household workers, collectively known as "all-other" employed. Prior to the 2015 Redesign, all-other employed estimates were calculated in the Handbook method by applying a monthly change factor developed by the BLS to the LMA's all-other employed estimate from the most recent decennial census. The monthly change factor was based on changes in the relationship between all-other employment and wage and salary employment at the national level.

Monthly statewide and substate labor force estimates produced using the changes introduced by the LAUS 2015 Redesign will be published in March and April 2015, beginning with the publication of January 2015 unemployment rates.

A third and final employment group calculated in the Handbook method is agricultural employed. Agricultural employed was calculated prior to the 2015 Redesign by applying a monthly change factor (reflecting seasonal patterns) produced by the BLS to the LMA's agricultural employed estimate from the most recent decennial census. Thus, total Handbook employed for LMAs equals the sum of wage and salary employed, all-other employed and agricultural employed.

Overview of Substate Unemployment Estimation for Labor Market Areas

As is the case with employed estimates, the LAUS program develops estimates of unemployed based on where they lived and not where they worked. The Handbook method produces unemployed estimates for three separate sub-groups including experienced unemployed, long-term unemployed and unemployed labor force entrants. The experienced unemployed component primarily includes recent job losers and is based on the number unemployed certifying for weekly UI benefits.

The long-term unemployed portion of Handbook unemployed represents the number of unemployed who have exhausted their regular UI program benefits and are still unemployed. Each month, recent weekly counts of UI claimants who have exhausted their benefits are added to an existing population or "pool" of long-term unemployed for each LMA. Next, an exhaustee survival rate factor developed by the BLS is applied to the pool of unemployed UI benefits exhaustees to develop an updated or



estimate of the total number of long-term unemployed (UI exhaustees).

Finally, unemployed labor force entrants for LMAs are calculated by allocating independently produced state labor force entrant unemployed estimates down to the LMA level using substate shares of youth population (ages 16-19) and adult population (age 20 and older). Unemployed labor force entrants are generally ineligible for UI benefits and have either entered the labor force for the first time or re-entered the labor force after a period of absence. Total Handbook unemployed equals the sum of experienced unemployed, long-term unemployed and unemployed labor force entrants.

Updates to Methods and Inputs for Substate Employment Estimates

The changes introduced to substate employment estimation as part of the LAUS 2015 Redesign can be summarized as follows:

- Updated residency adjustment and multiple job holding factors, also known as Dynamic Residency Ratios (DRRs), to calculate the number of people employed in nonfarm wage and salary industries. The new DRRs incorporate 2006-2010 five-year commuting or journey-to-work data from the Census Bureau's American Community Survey and total nonfarm employment for the same five year time period, as well as higher commuting threshold deriving employment from adjacent or nearby LMAs;
- More accurate estimates of all-other employed (self-employed, unpaid family workers and private household workers). Weighted averages of monthly statewide CPS all-other employment estimates are allocated to substate areas based on shares of five-year ACS all-other employment estimates;
- Improved estimation of agricultural employment. Weighted averages of monthly statewide CPS all-

other employment estimates are distributed to substate areas based on shares of 5-year ACS all-other employment estimates;

- Handbook employment estimation will be done at the county level as opposed to the LMA level, more closely reflecting local conditions;
- Replacement of data inputs from the 2000 Census with inputs from the ACS;
- Update of ratios used to allocate county employment estimates down to the city level. The updated city employment disaggregation ratios incorporate ACS 5-year employment, population estimates and annual population estimates from the Census Bureau;
- For more detailed information on changes to substate employment estimates as a result of the 2015 LAUS Redesign, please read the BLS' March 2014 [Report on Revision to Handbook Method Unemployment Estimation](#).

Updates to Methods and Inputs for Substate Unemployed Estimates

The changes introduced to substate unemployment estimation as part of the LAUS Redesign can be summarized as follows:

- Handbook unemployment estimation will be performed at the county level as opposed to the LMA level. This new approach addresses the problem of the misallocation of the experienced or job loser portion of unemployed, long-term unemployed (unemployed exhaustees) and unemployed labor force entrants from LMAs to counties and interstate areas to state parts of interstate areas;

- Update to the optional Handbook line for calculating agricultural unemployed who are not covered by UI laws or eligible for UI benefits.

For more detailed information on changes to substate employment estimates as a result of the LAUS Program 2015 Redesign, please read the BLS' March 2014 [Report on Revision to Handbook Method Unemployment Estimation](#).

2010-based Federal Statistical Areas

The LAUS program 2015 Redesign will also introduce updated and new federal statistical areas including 2010-based Metropolitan Statistical Areas, Micropolitan Statistical Areas and Combined Statistical Areas. More information about 2010-based Illinois federal statistical areas can be found at [Changes to MSA Delineations following the 2010 Census](#).

When will the LAUS 2015 Redesign changes be introduced?

Monthly statewide and substate labor force estimates produced using the changes introduced by the LAUS 2015 Redesign will be published in March and April 2015, beginning with the publication of January 2015 unemployment rates. The complete Illinois monthly and annual historical labor force series (1976-2014) were replaced using the fourth generation models and published on March 4, 2015. Historical monthly and annual substate labor force estimates will be revised for years 1990-2014. See [Illinois state and substate data release schedule](#) including links to online reports.

How will the LAUS 2015 Redesign impact state and substate unemployment rates?

There was a period of monthly dual-estimation in 2014 of the fourth generation and third generation state and area models. In Illinois, the differences between monthly state unemployment rates produced under the third and fourth generation models were generally small.

The impact of new data inputs and methodology will vary among substate areas. For example, the introduction of updated DRRs or residency adjustment factors may result in large revisions to employment for some substate areas. Substate LAUS estimates will be produced under the new Handbook methods and data inputs back to 2010 in order to provide a statistically comparable time-series. A geographically comparable time-series for 2010-based federal statistical areas, including metropolitan and micropolitan, areas will be produced back to 1990.

Additional resources from the U.S. Bureau of Labor Statistics describing the LAUS 2015 Redesign

The LAUS 2015 Redesign was announced in [Federal Register](#) in September 2014. Additional, detailed information can also be found at [BLS LAUS program 2015 Redesign](#) page and [2015 Redesign Question and Answer](#) page.

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