Economic Modeling Systems, Inc.
Data Sources and Calculations

Industry Data

In order to capture a complete picture of industry employment, EMSI combines covered employment data from Quarterly Census of Employment and Wages (QCEW) produced by the Department of Labor with total employment data in Regional Economic Information System (REIS) published by the Bureau of Economic Analysis (BEA), augmented with County Business Patterns (CBP) and Nonemployer Statistics (NES) published by the U.S. Census Bureau. Projections are based on the latest available EMSI industry data, 15-year past local trends in each industry, growth rates in statewide and (where available) sub-state area industry projections published by individual state agencies, and (in part) growth rates in national projections from the Bureau of Labor Statistics.

While most state data sources only capture covered employment (employees), EMSI combines state and federal sources to provide a complete employment picture that includes proprietors, self employed workers, and others not captured by state data. In addition, EMSI mathematically removes suppressions (detailed numbers removed from public data sets due to government policies) in order to provide the most comprehensive data set possible.

Occupation Data

Organizing regional employment information by occupation provides a workforce-oriented view of the regional economy. EMSI's occupation data are based on EMSI's industry data and regional staffing patterns taken from the Occupational Employment Statistics program (U.S. Bureau of Labor Statistics). Wage information is partially derived from the American Community Survey. The occupation-to-program (SOC-to-CIP) crosswalk is based on one from the U.S. Department of Education, with customizations by EMSI.

State Data Sources

This report uses state data from the following agencies: Illinois Department of Employment Security, Employment Projections.

Economic Modeling Systems, Inc.
Projections

Industry Projections
It is important to realize that projections are not "predictions." No one can predict the future state of the economy. Instead, projections are informed guesses based on past and current trends.

Depending on the data available from Current Employment Statistics EMSI creates a *partial projection* for the current and/or most recent year. Future years and sometimes the current year are entirely projected.

Current and Recent Year Data Using Current Employment Statistics
When creating industry projections, EMSI uses available historical data to create future trend lines. If using QCEW alone, the most recent historical data would be 6 to 9 months old. Combined with EMSI's biannual data release cycle, this means that the current year's numbers were once always a pure projection. But by combining QCEW with CES, EMSI can create good estimates of more recent data—especially the current year. Pure projections are then reserved for future years only.

QCEW publishes data approximately 6 months after it is reported (for example, the 2007 annual average data are not published until mid-2008; second quarter 2008 data would be published in early 2009, etc.). Especially during years when the labor market is volatile, this 6-9 month lag can be frustrating, since EMSI projections can show a trend that clearly differs from what is currently happening "on the ground." Accordingly, EMSI uses Current Employment Statistics (CES) to bridge the gap from the last-published QCEW to the present. CES is published monthly with the previous month's data. While it is very current, it lacks both geographic and industry detail. While QCEW has county-level data, CES has only metro areas at best, and while QCEW can have up to 6-digit NAICS industry detail, CES typically has 2-3 digit detail (depending on the size of the metro area's economy).

EMSI's basic methodology is to create a projection for the most current year from past QCEW data alone, then adjust it using annual percent changes from the most recent CES data, is turned into a seasonally-adjusted annual average if not all months of the given year are available. Where CES lacks geographic and industry detail, EMSI employs its standard disaggregation techniques to distribute jobs at higher-level geographies and industries to lower-level ones.

Future Year Projections
EMSI creates long-term, 10-year industry projections starting from the current year. They are based on a combination of
- Recent trends in all industries for every local geography
- National industry projections produced by the BLS
- State and sub-state regional projections produced by individual states.

This methodology is designed to capture the expertise embodied in federal and state agencies, but since their official projections typically have a base year that lags 2-3 years behind the current year, EMSI projections are also informed by the most recent data and trends available.

While EMSI numbers are available for each year in the projection timeframe, EMSI projections are not intended to be short-term forecasts, especially in times of high economic volatility.

The first step in the process is to track recent local trends using a linear regression function. Taking into account the previous base data from 15, 10, and 5 years prior to the base year, a line is plotted as a function of year and employment. This line is dampened (flattened) to curb any wild growth or decline and smooth out the effects of any volatility. Once this is done, state and local government industries (as well as Postal Service) are projected based on the growth or decline of local economies rather than projected through linear regression. Federal government and military, however, are projected through linear regression at the national level and their growth rate is then applied to the states and counties. Once this is done for each county, all counties' projections are adjusted so that they sum to state- and national-level numbers.

Once these initial projections are completed, we begin a series of controls and adjustments to other data sources. The first of these is an adjustment to the BLS staffing patterns. Essentially our projected national growth rate is changed to match the growth rate of the BLS numbers. This adjusts the curve up or down while staying as close to our projected values as possible. Following this, we adjust our county and state-level projections to the state-produced state and substate regional projections. Our county values are controlled to the regional data and our state projections are controlled to the reported state data.
Once these adjustments and controls are completed, the final state-level numbers are aggregated to determine the final national projections. This causes EMSI data to match state projections very closely, but it also means that EMSI projections can stray from the national projections.