

4-2014

# Nebraska Monthly Economic Indicators: April 18, 2014

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Thompson, Eric; Walstad, William; McClure, Shannon; and Vahedi, Mihdi, "Nebraska Monthly Economic Indicators: April 18, 2014" (2014). *Leading Economic Indicator Reports*. 31.  
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## Nebraska Monthly Economic Indicators: April 18, 2014

Prepared by the UNL College of Business Administration, Department of Economics

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**Summary:** *The Leading Economic Indicator – Nebraska (LEI-N) declined by 0.07% during March 2014. The slight decline in the LEI-N, which predicts economic growth in the state six months in the future, followed a solid increase in February. Together, results for the two months are consistent with moderate growth in the Nebraska economy during the summer of 2014. Among the components of the leading economic indicator, there was an increase in initial unemployment claims, suggesting a weakening of labor market conditions. At the same time, there was solid improvement in business expectations. Specifically, respondents to the Survey of Nebraska Business predicted an increase in sales and employment at their business over the next six month. Finally, there was little contribution from the remaining four indicator components. These were manufacturing hours, airlines passenger counts, single-family home building permits and the U.S. dollar exchange rate. The net effect was a small decline in the Leading Economic Indicator – Nebraska during March.*

### Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in March 2014, compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N decreased by 0.07% in March.

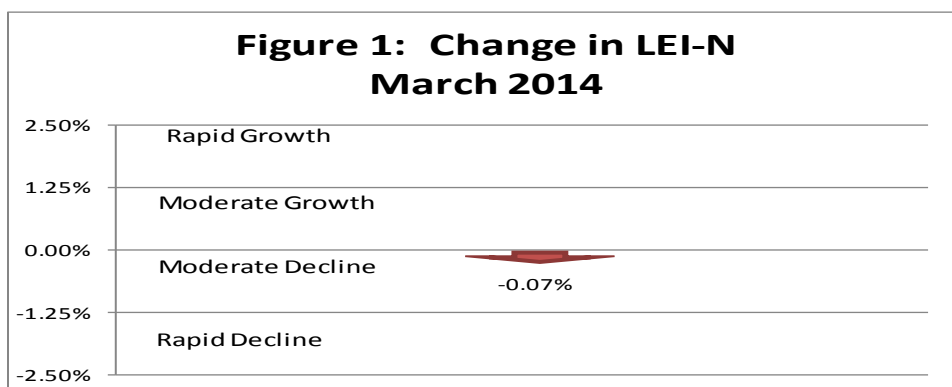


Figure 2 shows the change in the LEI-N over the last 6 months. While there has been volatility in the leading indicator in recent months, the outlook is positive on balance. In particular, increases in the LEI-N in December 2013 and February 2014 were larger than the declines in November and January. The overall picture is for growth in the Nebraska economy over the next 6 months.

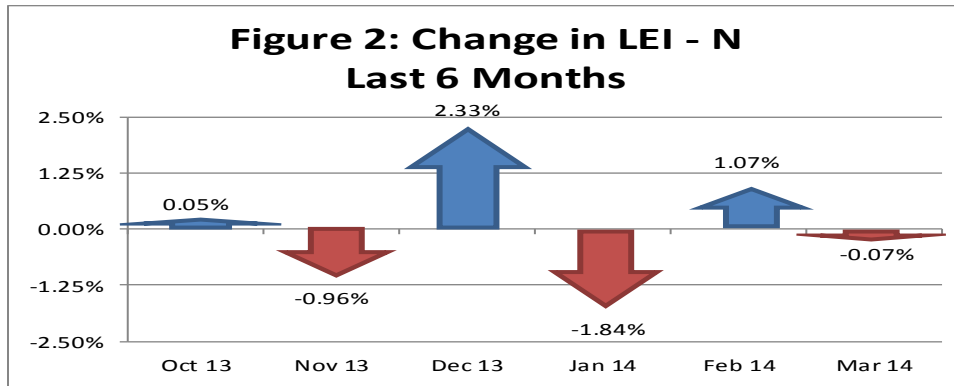
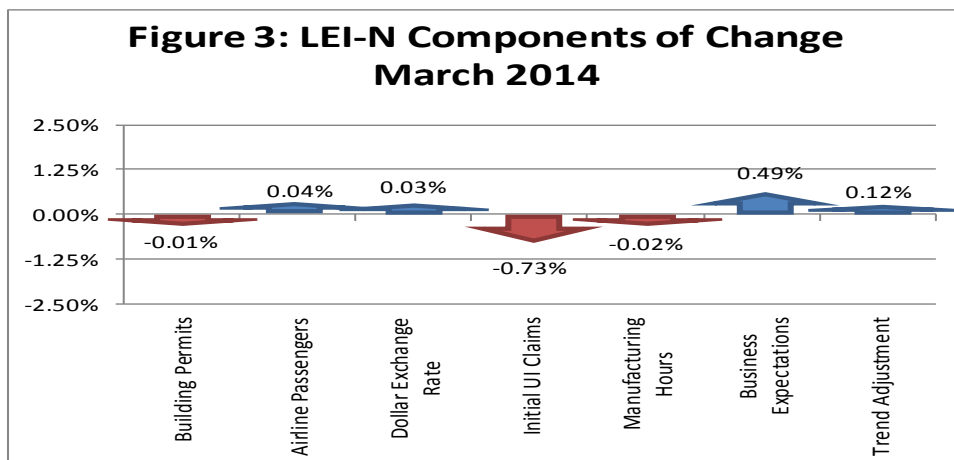
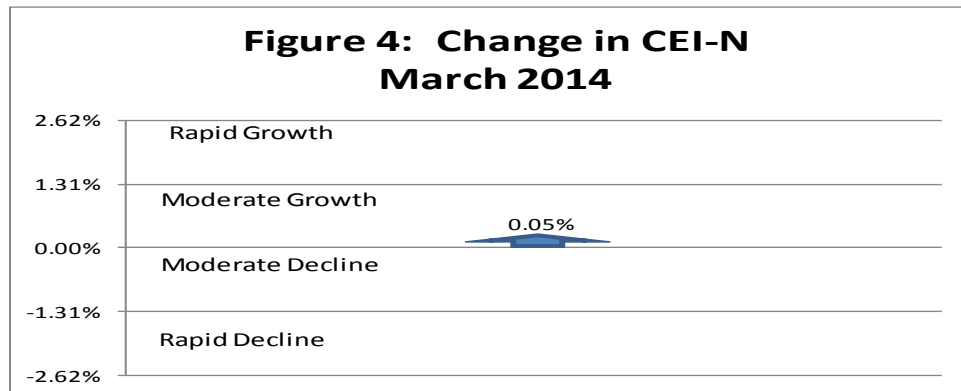


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during March 2014. The change in the overall LEI-N is the weighted average of changes in each component (see page 5). During March, four components had little influence on the direction of the indicator. These components were manufacturing hours, airline passenger counts, single-family homes building permits and the value of the U.S. dollar. Two other components had a significant influence. Specifically, an increase in initial unemployment claims signaled weakness in the labor market and lead to a decline in LEI-N. At the same time, business expectations improved in March as respondents to the *Survey of Nebraska Business* predicted an increase in both sales and employment over the next six months. The net impact was a slight, 0.07% decline in the LEI-N . Note that the trend adjustment component pictured in Figure 3 is discussed on page 5.

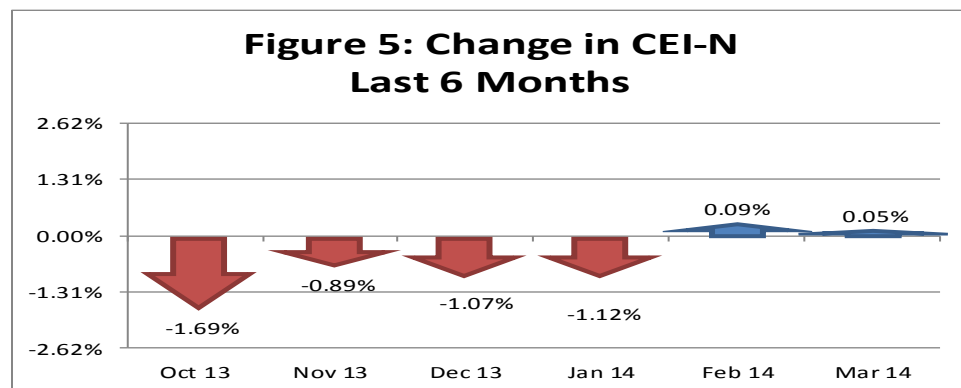


## Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. The CEI-N rose by 0.05% between February and March of 2004, as seen in Figure 4.



The slight increase in the CEI-N during March is a further sign of stabilization in the Nebraska economy. As seen in Figure 5, the CEI-N dropped consistently from October 2013 through January 2014, as the Nebraska economy continued to adjust to the sharp drop in the crop prices during the summer and fall of 2013. This was a period of sustained weakness in the Nebraska economy. The improvement in the CEI-N in February and March suggests the economy has stabilized. We note that the CEI-N is also expected to expand over most of the next 6 months (see Figure 7).



As seen in Figure 6, growth in the CEI-N during March was due to growth in real wages, electricity sales and commodity prices. Real weekly private wages grew during the month, suggesting growth in employment opportunities, hours-worked per week and real wages. Electricity sales rose modestly in March on a seasonally adjusted basis. Agricultural commodity prices also rose, primarily due to a sharp increase in beef prices. Only one component of the CEI-N declined during March. Specifically, respondents to the *Survey of Nebraska Business* reported a decline in sales and employment in recent months. A detailed discussion of the components of the CEI-N, as well as the LEI-N, can be found at [www.cba.unl.edu](http://www.cba.unl.edu) in *Technical Report: Coincident and Leading Economic Indicators- Nebraska*.

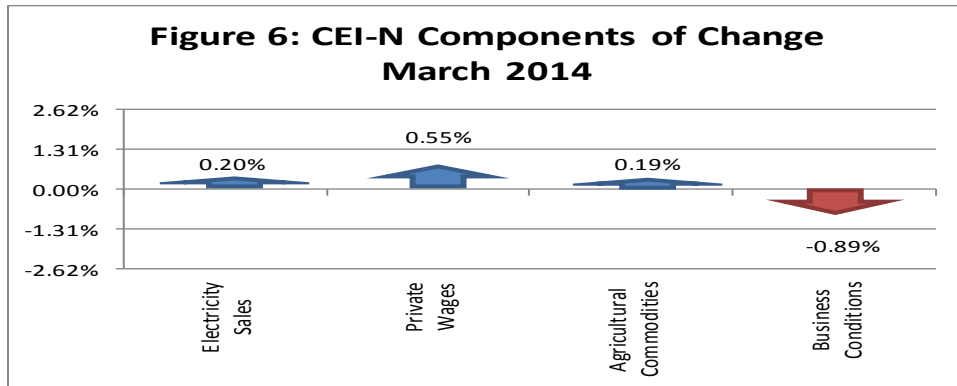
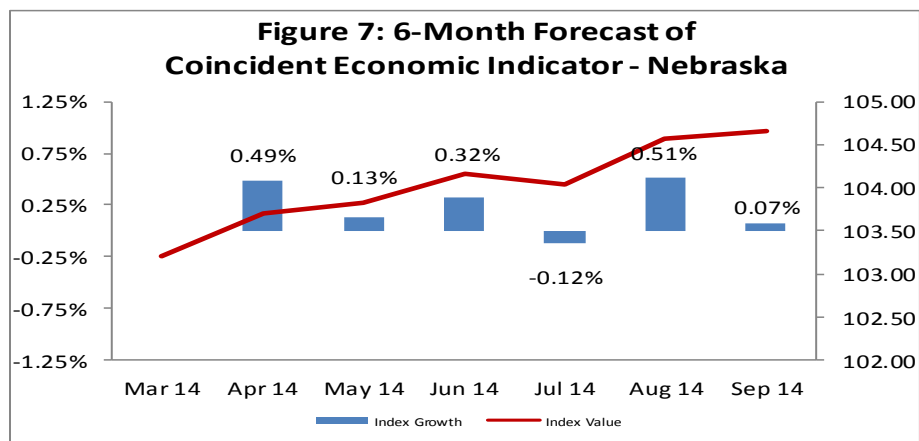


Figure 7 shows the forecast for the CEI-N over the next six months. The forecast suggests moderate growth in the CEI-N through September 2014. This expectation is consistent with recent values for the LEI-N (see Figure 2) and improvement in the Nebraska economy during February and March. It will be critical to see whether the CEI-N continues to expand in the coming months.



## Weights and Component Shares

Table 1 shows the weights that were used to aggregate the individual components into the LEI-N and CEI-N. The weights are the inverse of the “standardized” standard deviation of each component variable. The term standardized simply means that the inverse standard deviations are adjusted proportionately to sum to 1. This weighting scheme makes sense since individual components that are more stable have smaller standard deviations, and therefore, a larger inverse standard deviation. A large movement in a typically stable economic series would provide a more powerful signal of economic change than a large movement in a series that regularly has large movements.

| <b>Table 1: Component Weights for LEI-N and CEI-N</b> |                           |                    |   |   |                           |                    |   |
|---|---------------------------|--------------------|---|---|---------------------------|--------------------|---|
| <b>Leading Economic Indicator - Nebraska</b>          |                           |                    |   | <b>Coincident Economic Indicator - Nebraska</b> |                           |                    |   |
| <b>Variable</b>                                       | <b>Standard Deviation</b> | <b>Inverse STD</b> | <b>Weight (Inverse STD Standardize)</b> | <b>Variable</b>                                 | <b>Standard Deviation</b> | <b>Inverse STD</b> | <b>Weight (Inverse STD Standardize)</b> |
| SF Housing Permits                                    | 13.9493                   | 0.0717             | 0.0326                                  | Electricity Sales                               | 4.9303                    | 0.2028             | 0.1378                                  |
| Airline Passengers                                    | 3.5691                    | 0.2802             | 0.1275                                  | Private Wages                                   | 1.7235                    | 0.5802             | 0.3942                                  |
| Exchange Rate   | 1.2043                    | 0.8304             | 0.3777                                  | Agricultural Commodities                        | 3.1417                    | 0.3183             | 0.2163                                  |
| Initial UI Claims                                     | 10.1702                   | 0.0983             | 0.0447                                  | Survey Business Conditions                      | 2.6989                    | 0.3705             | 0.2517                                  |
| Manufacturing Hours                                   | 1.4869                    | 0.6726             | 0.3059                                  |   |                           |                    |   |
| Survey Business Expectations                          | 4.0791                    | 0.2452             | 0.1115                                  |   |                           |                    |   |

Tables 2 and 3 show the calculation for the change in CEI-N and LEI-N between February and March of 2014. Weights (from Table 1) are multiplied by the change to calculate the contribution of each component. Contributions are converted to percentage terms and summed. Note that in Table 2 a trend adjustment factor is utilized in calculating LEI-N. This is done because LEI-N historically under-predicts CEI-N by 0.12% per month. The U.S. Leading Economic Indicator also has a trend adjustment.

| <b>Table 2: Component Contributions to the Change in Leading Economic Indicator</b> |                |                 |                   |               |                     |   |
|---|----------------|-----------------|-------------------|---------------|---------------------|---|
| <b>Leading Economic Indicator - Nebraska</b>  |                |                 |                   |               |                     |   |
| Component Index Value (May 2007=100)  |                |                 |                   |               |                     |   |
| <b>Component</b>  | <b>Current</b> | <b>Previous</b> | <b>Difference</b> | <b>Weight</b> | <b>Contribution</b> | <b>Percentage Contribution (Relative to Previous LEI-N)</b> |
| SF Building Permits   | 59.74          | 60.09           | -0.35             | 0.03          | -0.01               | -0.01%  |
| Airline Passengers  | 93.65          | 93.28           | 0.37              | 0.13          | 0.05                | 0.04%   |
| U.S. Dollar Exchange Rate (Inverse)   | 101.36         | 101.28          | 0.08              | 0.38          | 0.03                | 0.03%   |
| Initial Unemployment Insurance Claims (Inverse)                                     | 72.47          | 90.01           | -17.54            | 0.04          | -0.78               | -0.73%  |
| Manufacturing Hours   | 93.97          | 94.03           | -0.05             | 0.31          | -0.02               | -0.02%  |
| Survey Business Expectations <sup>1</sup>   | 54.77          |                 | 4.77              | 0.11          | 0.53                | 0.49%   |
| Trend Adjustment  |                |                 |                   |               | 0.13                | 0.12%   |
| Total (weighted average)  | 107.84         | 107.92          |                   |               | -0.07               | -0.07%  |

<sup>1</sup> Survey results are a diffusion Index, which is always compared to 50

| <b>Table 3: Component Contributions to the Change in Coincident Economic Indicator</b> |                |                 |                   |               |                     |   |
|--|----------------|-----------------|-------------------|---------------|---------------------|---|
| <b>Coincident Economic Indicator - Nebraska</b>  |                |                 |                   |               |                     |   |
| Component Index Value (May 2007=100)   |                |                 |                   |               |                     |   |
| <b>Component</b>   | <b>Current</b> | <b>Previous</b> | <b>Difference</b> | <b>Weight</b> | <b>Contribution</b> | <b>Percentage Contribution (Relative to Previous CEI-N)</b> |
| Electricity Sales  | 118.01         | 116.54          | 1.47              | 0.14          | 0.20                | 0.20%   |
| Private Wage   | 97.32          | 95.88           | 1.44              | 0.39          | 0.57                | 0.55%   |
| Agricultural Commodities   | 143.56         | 142.67          | 0.89              | 0.22          | 0.19                | 0.19%   |
| Survey Business Conditions <sup>1</sup>  | 46.36          |                 | -3.64             | 0.25          | -0.92               | -0.89%  |
| Total (weighted average)   | 103.20         | 103.15          |                   |               | 0.05                | 0.05%   |

<sup>1</sup> Survey results are a diffusion Index, which is always compared to 50

## Performance of the LEI-N and CEI-N

Further information is available on both economic indicators to demonstrate how well the CEI-N tracks the Nebraska economy and how well the LEI-N leads the CEI-N. Figure 8 shows the value of CEI-N and the real gross state product (real GDP) in Nebraska for 2001 through 2012. The comparison ends in 2012 since this is the last year for which data on real gross state product is available. Annual real gross state product data is provided by the Bureau of Economic Analysis, U.S. Department of Commerce, and quarterly values were estimated using quarterly earnings data. CEI-N closely tracks Nebraska real GDP for the period. The correlation coefficient between the two pictured series is 0.96.

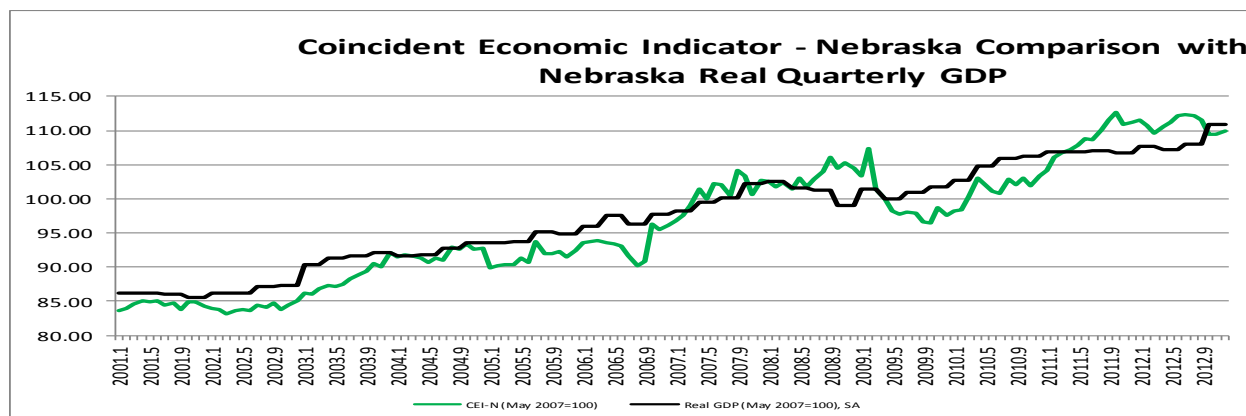


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months earlier) with the actual movement in CEI-N. In Figure 9, predicted values using the LEI-N closely track trends and movement in the CEI-N. The correlation coefficient between CEI-N and six-month forward values of LEI-N is 0.91.

