

2015

# Nebraska Monthly Economic Indicators: August 21, 2015

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## Nebraska Monthly Economic Indicators: August 21, 2015

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

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**Summary:** The Leading Economic Indicator – Nebraska (LEI-N) rose by 0.17% in July 2015, its fourth consecutive increase. The modest increase in the LEI-N, which predicts economic growth in the state six months in the future, portends consistent economic growth in Nebraska through the end of 2015 and early 2016. The leading economic indicator rose because of growth in passenger enplanements and single-family home building permits during July and strong business expectations. In particular, respondents to the monthly Survey of Nebraska Business were positive about sales and employment growth over the next six months. Among other components of the leading indicator, there was a modest decline in manufacturing hours. There also was a sharp increase in the value of the U.S. dollar. A rising dollar creates headwinds for the state economy by weakening the competitive position of Nebraska export businesses in manufacturing and agriculture.

### Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in July 2015, compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 0.17% during July.

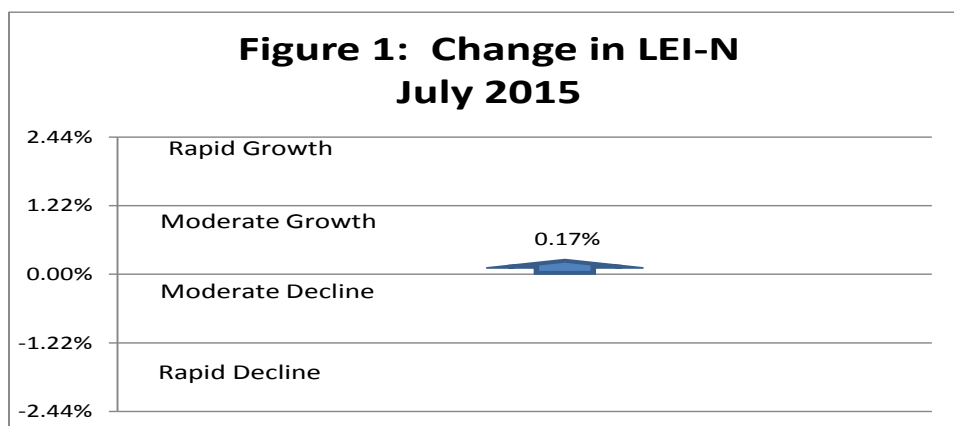


Figure 2 shows the change in the LEI-N over the last 6 months. The LEI-N has risen five of the last six months, with a sharp increase in April and steady improvement from May through July. The consistent increase in the LEI-N suggests that there will be consistent growth in the Nebraska economy through the end of the year and early 2016.

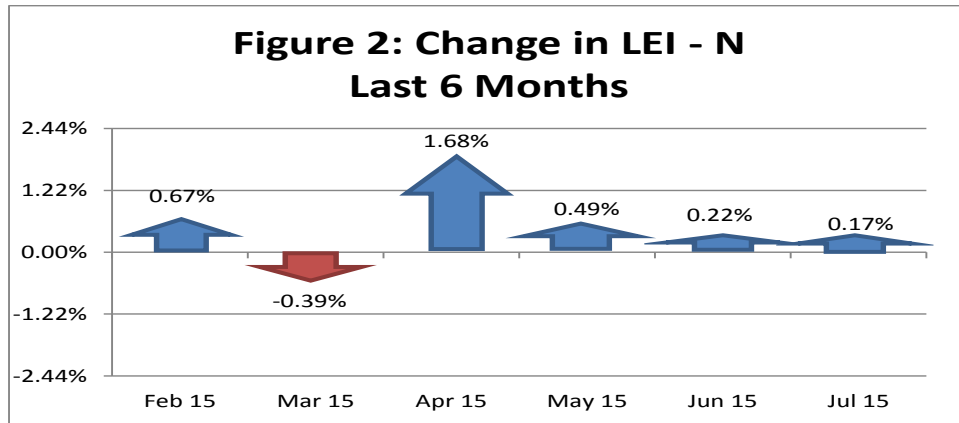
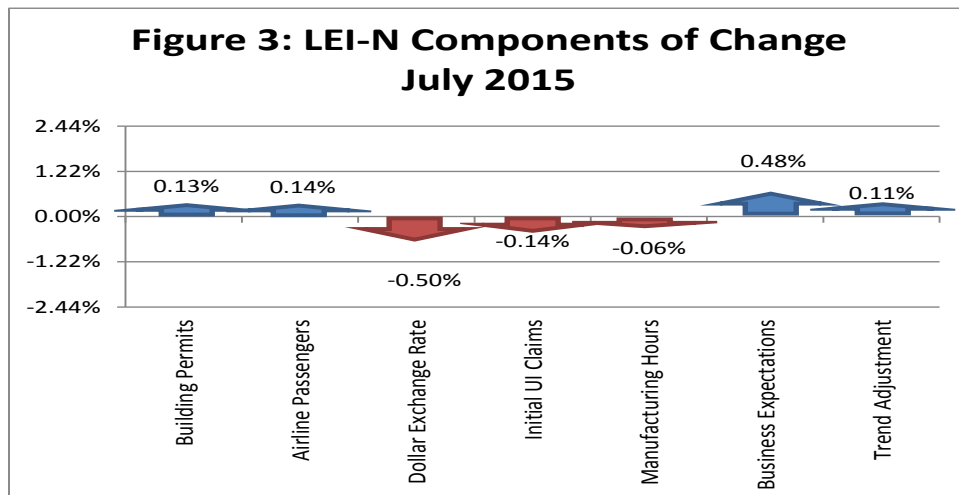
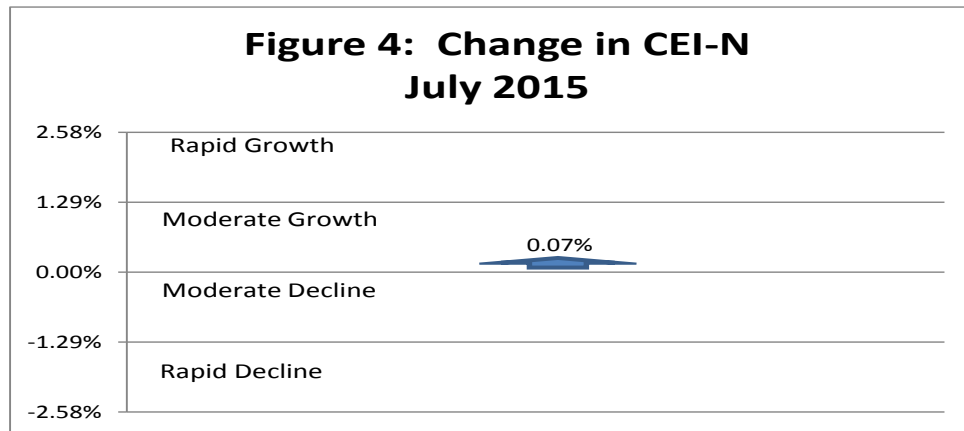


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during July 2015. The change in the overall LEI-N is the weighted average of changes in each component (see page 5). The leading indicator rose because businesses were positive about sales and employment growth for the next six months, according to responses to the *July Survey of Nebraska Business*. There also was growth in passenger enplanements and single-family home building permits during the month. Among declining components of the LEI-N, there was a modest drop in manufacturing hours during July and an increase in initial claims for unemployment insurance, on a seasonally-adjusted basis. The largest source of decline, however, was related to the value of the U.S. dollar. There was a sharp increase in the value of the U.S. dollar during July. This creates competitive pressure for Nebraska exporters in agricultural, manufacturing and other industries. Note that the trend adjustment component pictured in Figure 3 is discussed on page 5.

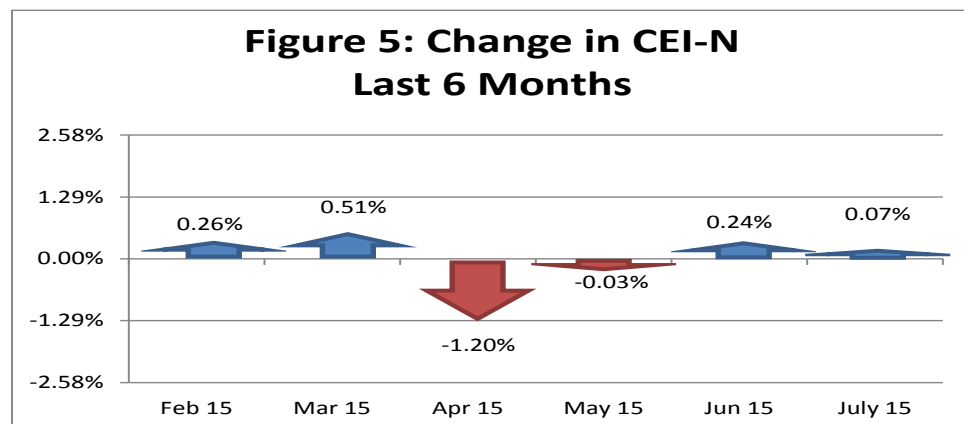


## Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. The CEI-N rose by 0.07% during July, as seen in Figure 4.



The increase in the CEI-N, while modest, shows that the Nebraska economy continues to rebound after a drop in the coincident indicator during April, as seen in Figure 5. The Nebraska economy struggled during the second quarter of 2015, but growth is beginning to improve in the state.



As seen in Figure 6, two of the four components of the CEI-N rose during July while two others declined. Among rising components, there was a solid increase in real private wages, which reflects growth in employment, weekly hours-worked and real hourly wages. There also was a modest increase in electricity sales in July, after adjusting for weather and other seasonal factors. Among declining component, there was a very slight decline in business conditions, according to respondents to the July *Survey of Nebraska Business*. There also was a decline in agricultural commodity prices in Nebraska, which has been an ongoing problem for the state economy. A detailed discussion of the components of the CEI-N and LEI-N can be found at [www.cba.unl.edu](http://www.cba.unl.edu) in *Technical Report: Coincident and Leading Economic Indicators-Nebraska*.

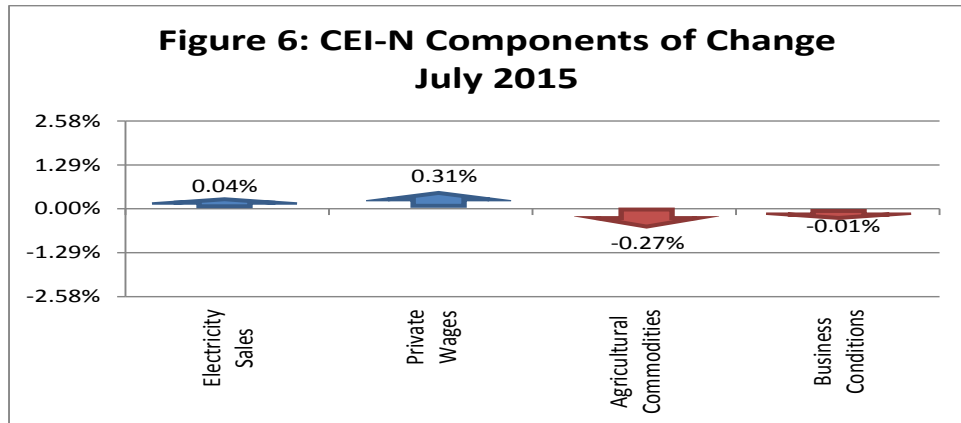
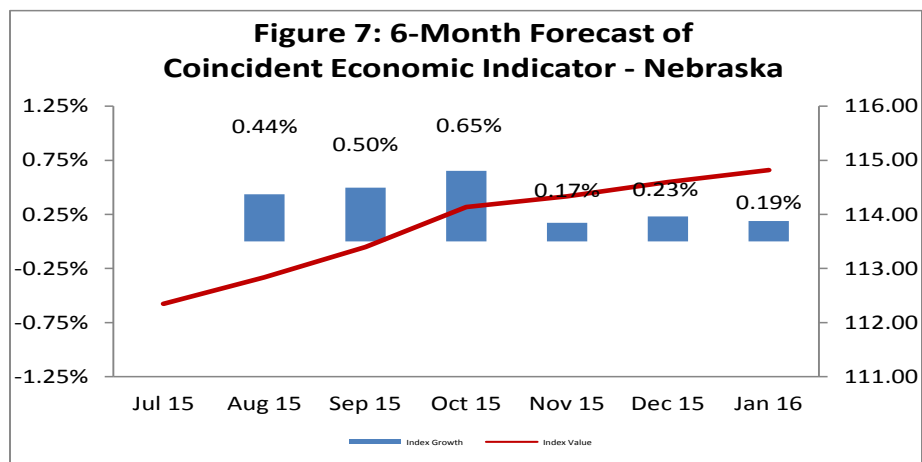


Figure 7 shows the forecast for the CEI-N over the next six months. The forecast calls for consistent economic growth in Nebraska through the end of the year and into early 2016. Growth should be strongest over the next 3 months. Results are in line with improvements in the LEI-N in five of the last six months (see Figure 2), including the sharp increase in the LEI-N during April.



## Weights and Component Shares

Table 1 shows the weights 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                                    | 13.6659                   | 0.0732             | 0.0335                                  | Electricity Sales                               | 4.7601                    | 0.2101             | 0.1522                                  |
| Airline Passengers                                    | 3.4402                    | 0.2907             | 0.1329                                  | Private Wages                                   | 1.6738                    | 0.5974             | 0.4327                                  |
| Exchange Rate   | 1.2102                    | 0.8263             | 0.3778                                  | Agricultural Commodities                        | 3.2076                    | 0.3118             | 0.2258                                  |
| Initial UI Claims                                     | 10.3559                   | 0.0966             | 0.0442                                  | Survey Business Conditions                      | 3.8260                    | 0.2614             | 0.1893                                  |
| Manufacturing Hours                                   | 1.4822                    | 0.6747             | 0.3085                                  |   |                           |                    |   |
| Survey Business Expectations                          | 4.4332                    | 0.2256             | 0.1031                                  |   |                           |                    |   |

Tables 2 and 3 show the calculation for the change in CEI-N and LEI-N between June and July of 2015. 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 0.11% 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)  |         |          |            |        |              |  |
| Component   | Current | Previous | Difference | Weight | Contribution | Percentage Contribution (Relative to Previous LEI-N) |
| SF Building Permits   | 63.31   | 58.86    | 4.45       | 0.03   | 0.15         | 0.13%  |
| Airline Passengers  | 93.34   | 92.08    | 1.26       | 0.13   | 0.17         | 0.14%  |
| U.S. Dollar Exchange Rate (Inverse)   | 89.26   | 90.78    | -1.52      | 0.38   | -0.57        | -0.50%   |
| Initial Unemployment Insurance Claims (Inverse)                                     | 106.90  | 110.54   | -3.65      | 0.04   | -0.16        | -0.14%   |
| Manufacturing Hours   | 95.68   | 95.92    | -0.24      | 0.31   | -0.07        | -0.06%   |
| Survey Business Expectations <sup>1</sup>   | 55.44   |          | 5.44       | 0.10   | 0.56         | 0.48%  |
| Trend Adjustment  |         |          |            |        | 0.13         | 0.11%  |
| Total (weighted average)  | 116.07  | 115.87   |            |        | 0.20         | 0.17%  |

<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)   |         |          |            |        |              |  |
| Component  | Current | Previous | Difference | Weight | Contribution | Percentage Contribution (Relative to Previous CEI-N) |
| Electricity Sales  | 122.40  | 122.11   | 0.29       | 0.15   | 0.04         | 0.04%  |
| Private Wage   | 100.85  | 100.06   | 0.80       | 0.43   | 0.35         | 0.31%  |
| Agricultural Commodities   | 148.45  | 149.81   | -1.36      | 0.23   | -0.31        | -0.27%   |
| Survey Business Conditions <sup>1</sup>  | 49.97   |          | -0.03      | 0.19   | -0.01        | -0.01%   |
| Total (weighted average)   | 112.35  | 112.27   |            |        | 0.08         | 0.07%  |

<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.

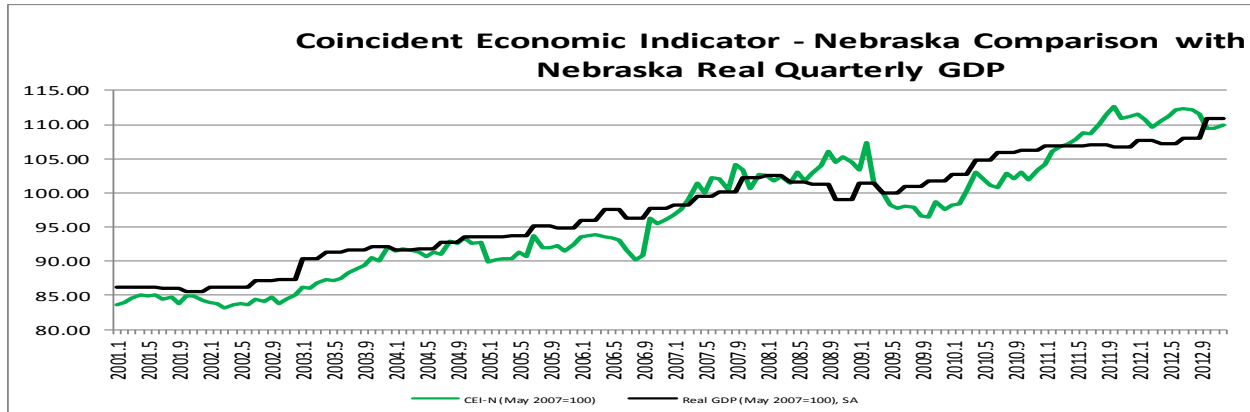


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months 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.

