

2015

# Nebraska Monthly Economic Indicators: October 16, 2015

Eric Thompson

*University of Nebraska-Lincoln*, ethompson2@unl.edu

William Walstad

*University of Nebraska-Lincoln*, wwalstad1@unl.edu

Follow this and additional works at: <http://digitalcommons.unl.edu/bbrleir>



Part of the [Business Commons](#)

---

Thompson, Eric and Walstad, William, "Nebraska Monthly Economic Indicators: October 16, 2015" (2015). *Leading Economic Indicator Reports*. 66.

<http://digitalcommons.unl.edu/bbrleir/66>

This Article is brought to you for free and open access by the Bureau of Business Research at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Leading Economic Indicator Reports by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

# Nebraska Monthly Economic Indicators: October 16, 2015

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

Authors: Dr. Eric Thompson, Dr. William Walstad

|   |   |
|---|---|
| Leading Economic Indicator.....         | 1 |
| Coincident Economic Indicator.....      | 3 |
| Weights and Component Shares.....       | 5 |
| Performance of the LEI-N and CEI-N..... | 6 |

**Summary:** *The Leading Economic Indicator – Nebraska (LEI-N) fell by 0.13% in September 2015. The decline in the LEI-N, which predicts economic growth in the state six months in the future, is the first in the last six months. The decline suggests that economic growth will be modest in Nebraska in the first quarter of 2016. The LEI-N fell because of a decline in manufacturing hours and an increase in initial claims for unemployment insurance during September. There also was an increase in the value of the U.S. dollar during the month, which creates a challenge for exporters, particularly in agriculture and manufacturing. Among rising components of the LEI-N, there was an increase in building permits for single-family homes and airline passenger counts during September. There also was an increase in business expectations, according to the results of the September Survey of Nebraska Business.*

## Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in September 2015, compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N declined by 0.13% during September.

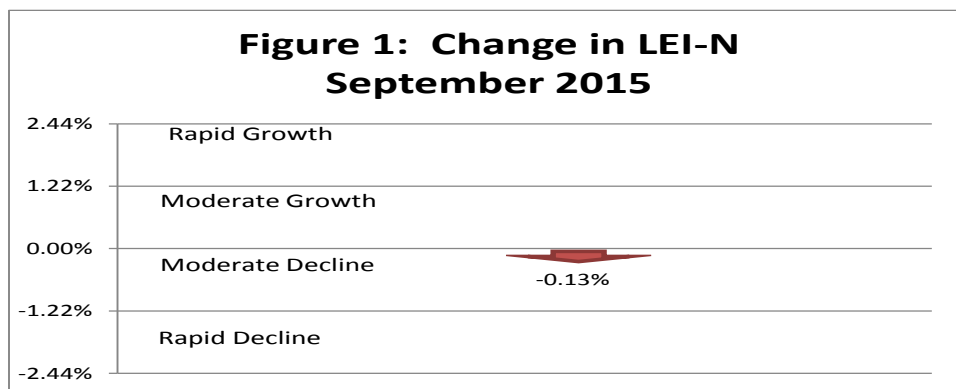


Figure 2 shows the change in the LEI-N over the last 6 months. The LEI-N has risen five out of the last six months. There were solid increases from April to July, but the modest increase in August was roughly equal to the decline in September. The pattern in the LEI-N over the last six months suggests solid growth in the Nebraska economy at the end of 2015 but that growth will be modest in the first quarter of 2016.

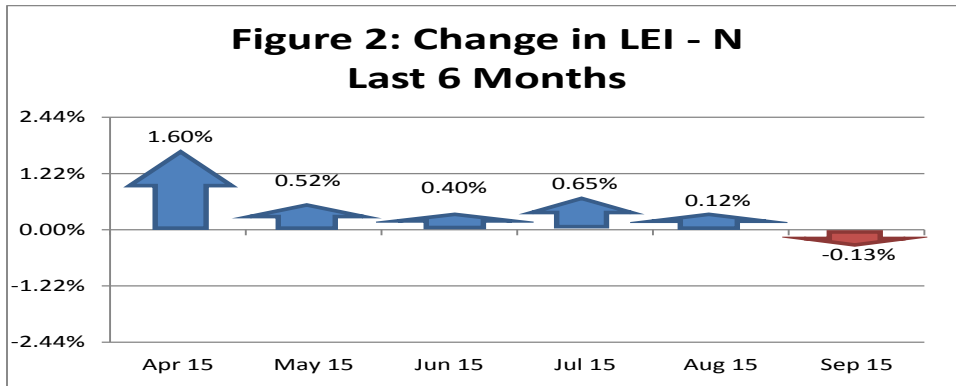
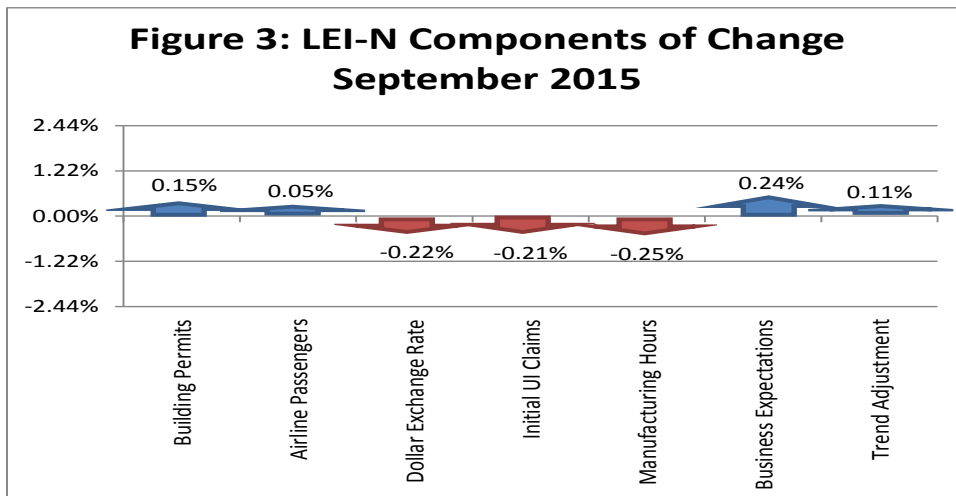
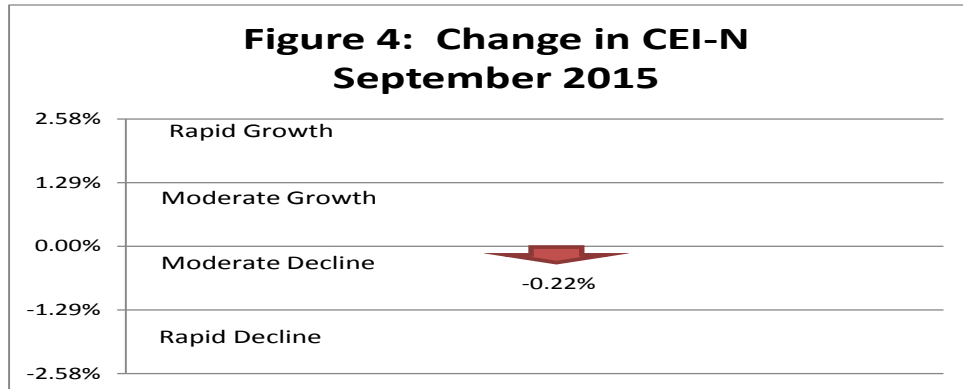


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during September 2015. The change in the overall LEI–N is the weighted average of changes in each component (see page 5). The leading indicator fell because of a decline in manufacturing hours and an increase in the value of the U.S. dollar. The increase in the dollar creates headwinds for Nebraska exporters in agriculture and manufacturing. There also was an increase in initial claims for unemployment insurance during September. Among improving components of the LEI–N, there was an increase in building permits for single-family homes as well as an increase in airline passenger counts. Further, respondents to the September *Survey of Nebraska Business* reported that they expect to increase employment at their businesses over the next six months, and modestly increase sales. Note that the trend adjustment component pictured in Figure 3 is discussed on page 5.

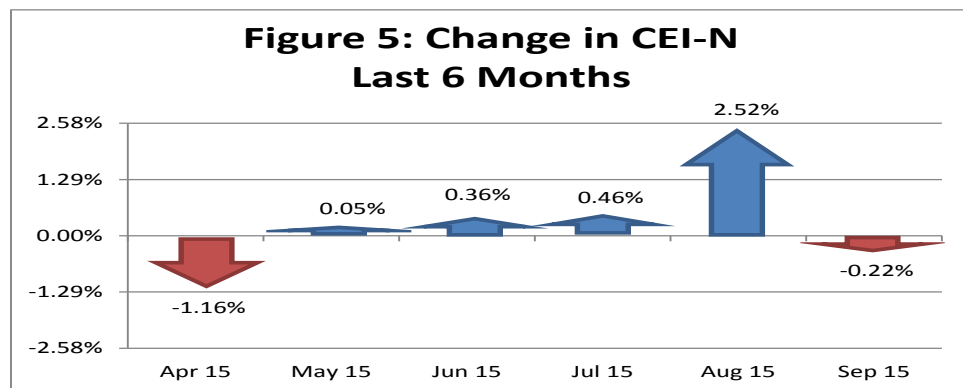


## Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. The CEI-N fell by 0.22% during September, as seen in Figure 4.



Despite its modest decline during September, the CEI-N has strengthened during the second half of the year, as seen in Figure 5. There was very rapid growth during August, reflecting upward revisions in real private wage growth.



As seen in Figure 6, two of the four components of the CEI-N declined during September. After a strong increase in August, there was a decline in real private wages during September, reflecting a drop in employment, weekly hours-worked and real hourly wages. There also was a decline in agricultural commodity prices. Weak corn prices, and in recent months falling beef prices, have been an ongoing problem for the Nebraska economy. Among rising components, electricity sales rose in September after adjusting for weather and other seasonal factors. There also was an improvement in business conditions during the month. In particular, respondents to the September *Survey of Nebraska Business* reported growth in both sales and employment at their businesses. 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*.

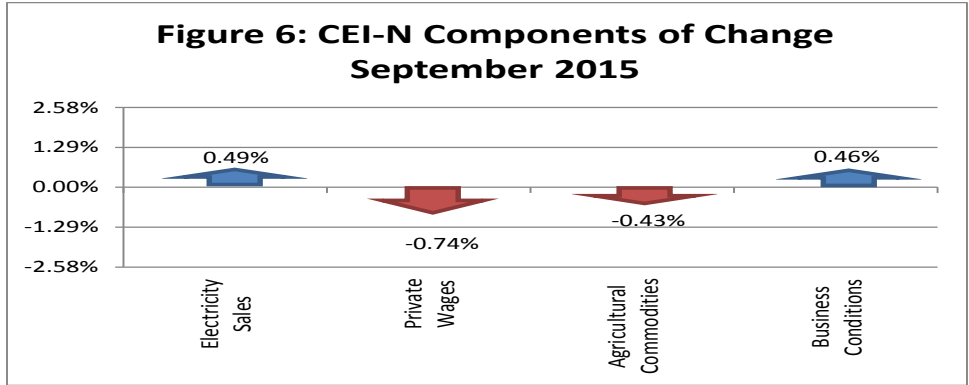
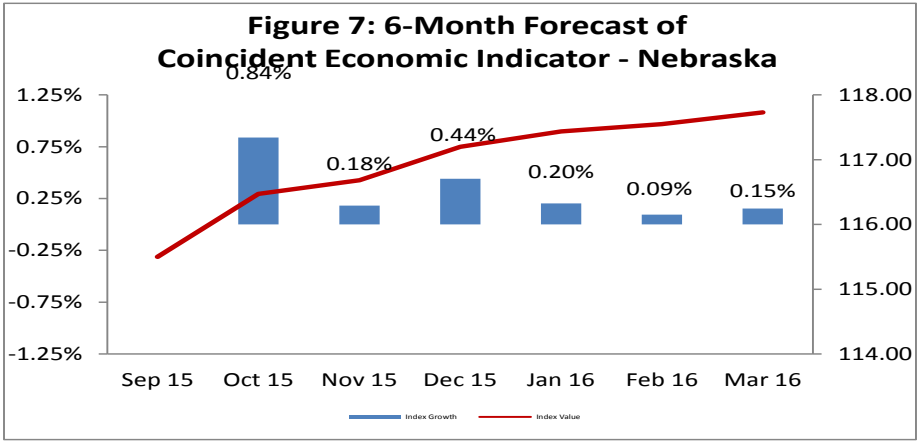


Figure 7 shows the forecast for the CEI-N over the next six months. The forecast calls for solid economic growth in Nebraska through the end of the year and modest growth during first quarter of 2016. Results are in line with improvements in the LEI-N during the last six months (see Figure 2).



## 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> |                    |             |                                  |  |                    |             |                                  |
|---|--------------------|-------------|----------------------------------|--|--------------------|-------------|----------------------------------|
| Leading Economic Indicator - Nebraska                 |                    |             |                                  | Coincident Economic Indicator - Nebraska |                    |             |                                  |
| Variable  | Standard Deviation | Inverse STD | Weight (Inverse STD Standardize) | Variable                                 | Standard Deviation | Inverse STD | Weight (Inverse STD Standardize) |
| SF Housing Permits                                    | 13.6446            | 0.0733      | 0.0335                           | Electricity Sales                        | 4.7607             | 0.2101      | 0.1543                           |
| Airline Passengers                                    | 3.4225             | 0.2922      | 0.1335                           | Private Wages                            | 1.7172             | 0.5823      | 0.4279                           |
| Exchange Rate   | 1.2135             | 0.8241      | 0.3765                           | Agricultural Commodities                 | 3.2529             | 0.3074      | 0.2259                           |
| Initial UI Claims                                     | 10.3193            | 0.0969      | 0.0443                           | Survey Business Conditions               | 3.8295             | 0.2611      | 0.1919                           |
| Manufacturing Hours                                   | 1.4800             | 0.6757      | 0.3087                           |  |                    |             |                                  |
| Survey Business Expectations                          | 4.4112             | 0.2267      | 0.1036                           |  |                    |             |                                  |

Tables 2 and 3 show the calculation for the change in CEI-N and LEI-N between August and September 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> |         |          |            |        |              |  |
|---|---------|----------|------------|--------|--------------|--|
| Leading Economic Indicator - Nebraska   |         |          |            |        |              |  |
| Component Index Value (May 2007=100)  |         |          |            |        |              |  |
| Component   | Current | Previous | Difference | Weight | Contribution | Percentage Contribution (Relative to Previous LEI-N) |
| SF Building Permits   | 65.98   | 60.69    | 5.30       | 0.03   | 0.18         | 0.15%  |
| Airline Passengers  | 92.71   | 92.32    | 0.40       | 0.13   | 0.05         | 0.05%  |
| U.S. Dollar Exchange Rate (Inverse)   | 86.85   | 87.53    | -0.69      | 0.38   | -0.26        | -0.22%   |
| Initial Unemployment Insurance Claims (Inverse)                                     | 103.17  | 108.62   | -5.45      | 0.04   | -0.24        | -0.21%   |
| Manufacturing Hours   | 98.54   | 99.48    | -0.94      | 0.31   | -0.29        | -0.25%   |
| Survey Business Expectations <sup>1</sup>   | 52.72   |          | 2.72       | 0.10   | 0.28         | 0.24%  |
| Trend Adjustment  |         |          |            |        | 0.13         | 0.11%  |
| Total (weighted average)  | 116.89  | 117.04   |            |        | -0.15        | -0.13%   |

<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> |         |          |            |        |              |  |
|--|---------|----------|------------|--------|--------------|--|
| Coincident Economic Indicator - Nebraska   |         |          |            |        |              |  |
| Component Index Value (May 2007=100)   |         |          |            |        |              |  |
| Component  | Current | Previous | Difference | Weight | Contribution | Percentage Contribution (Relative to Previous CEI-N) |
| Electricity Sales  | 133.17  | 129.50   | 3.68       | 0.15   | 0.57         | 0.49%  |
| Private Wage   | 104.13  | 106.13   | -2.00      | 0.43   | -0.86        | -0.74%   |
| Agricultural Commodities   | 144.03  | 146.26   | -2.23      | 0.23   | -0.50        | -0.43%   |
| Survey Business Conditions <sup>1</sup>  | 52.79   |          | 2.79       | 0.19   | 0.53         | 0.46%  |
| Total (weighted average)   | 115.50  | 115.76   |            |        | -0.26        | -0.22%   |

<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.

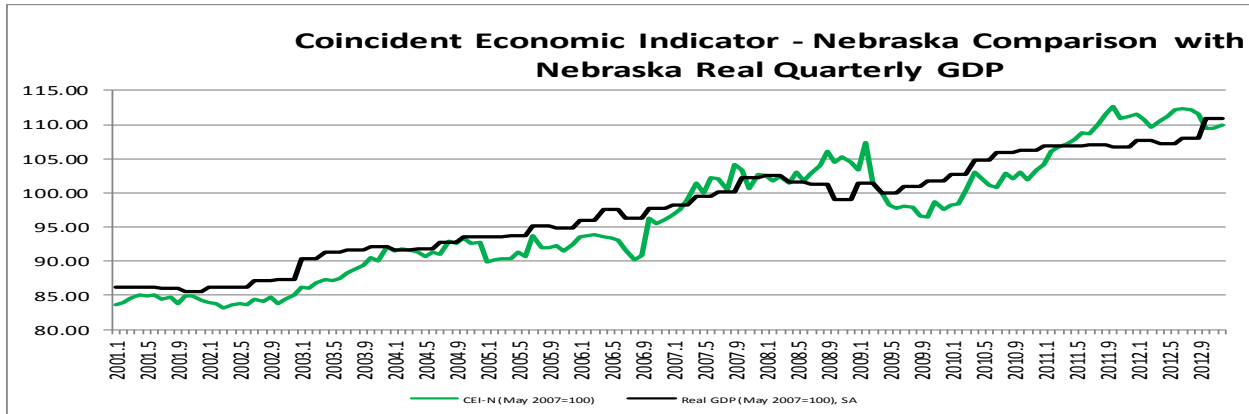


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

