

# Nebraska Monthly Economic Indicators: July 26, 2017

Prepared by the UNL College of Business Administration, Bureau of Business Research

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**Summary:** The Leading Economic Indicator – Nebraska (LEI-N)<sup>1</sup> rose by 2.75% during June of 2017. The rapid increase in the LEI-N indicates that the Nebraska economy will grow quickly at the end of 2017. All components of the indicator rose during June. Business expectations were strong while the value of the U.S. dollar fell, a positive sign for Nebraska’s export-oriented businesses. There also was a sharp increase in building permits for single-family homes during the month.

## Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) during June 2017 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 2.75% in June.

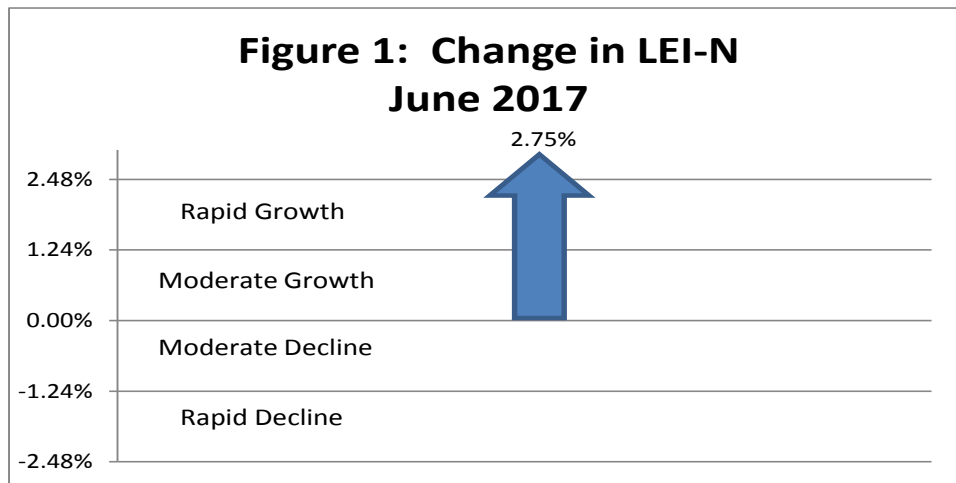


Figure 2 shows the change in the LEI-N over the last six months. The indicator rose sharply during the first quarter of 2017. The LEI-N but fell in April and May but returned to rapid growth in June. Indicator values over the last six months suggest that economic activity will expand in Nebraska during the second half of 2017.

<sup>1</sup> The author would like to thank Dr. William Walstad for helping to design the LEI-N.

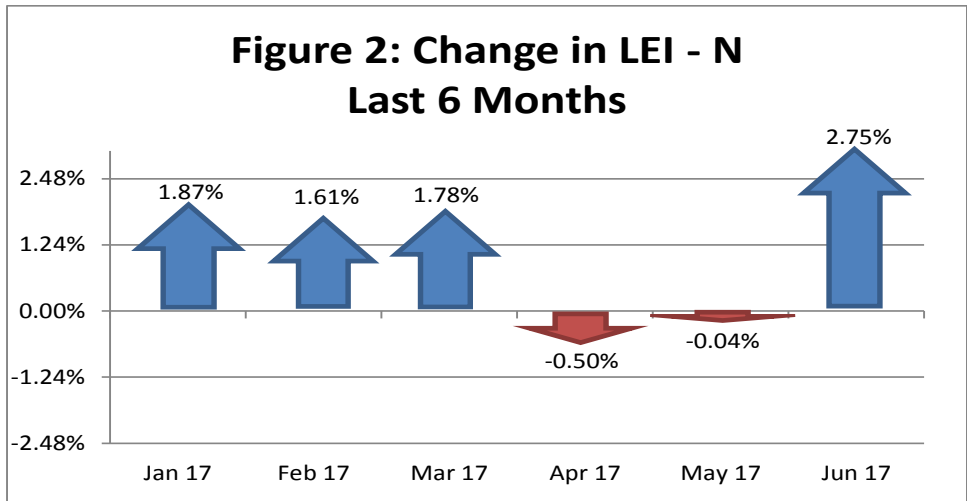
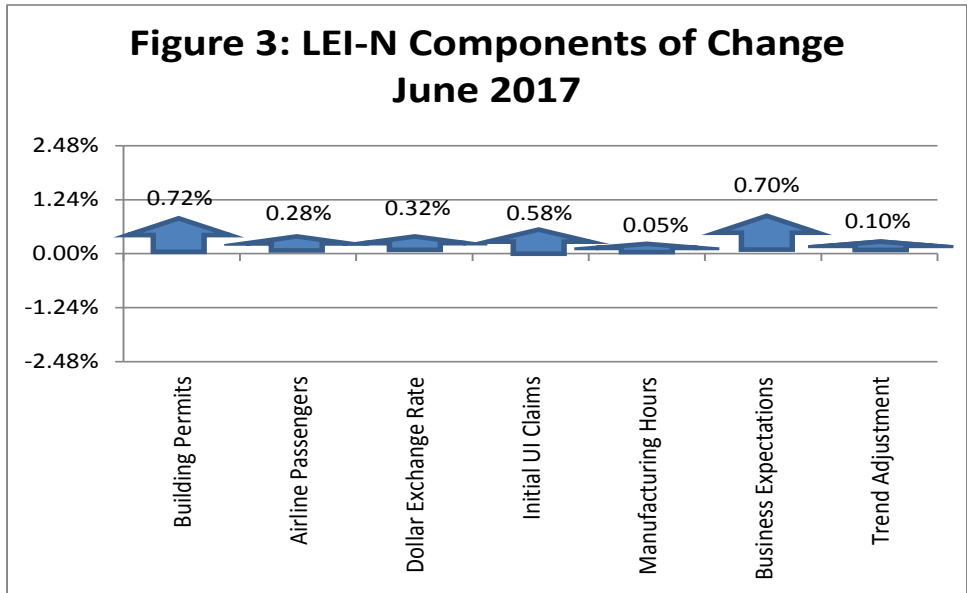


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during June 2017. The change in the overall LEI-N is the weighted average of changes in each component (see page 5). All six components of the LEI-N rose during June. Business expectations were very strong. Respondents to the *June Survey of Nebraska Business* predicted strong growth in both sales and employment at their businesses over the next six months. There also was a sharp increase in building permits for single-family homes during June. Further, there was a decline in initial claims for unemployment insurance, a sign of strength for the labor market and the value of the U.S. dollar fell during June, a positive development for Nebraska’s export-oriented businesses. There also was growth in airline passenger counts and manufacturing hours during the month. 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 1.64% during June 2017, as seen in Figure 4.

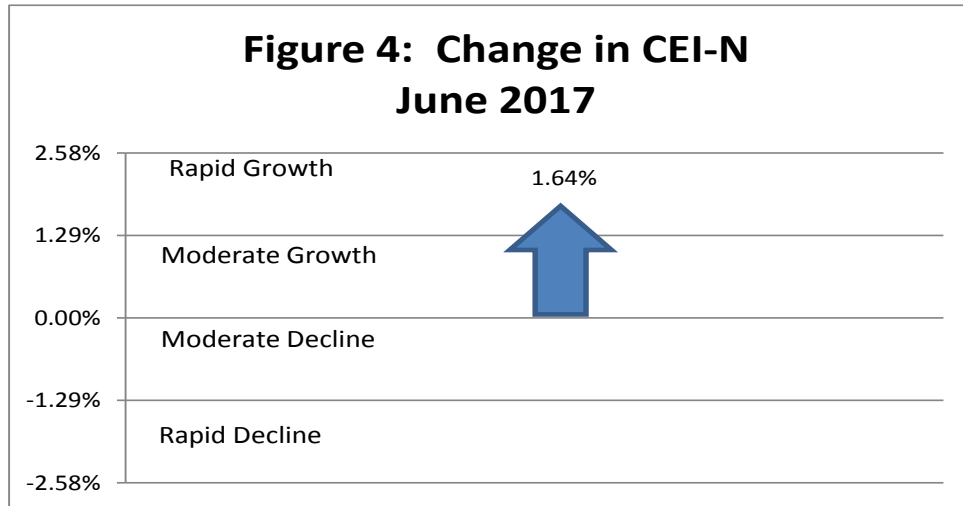
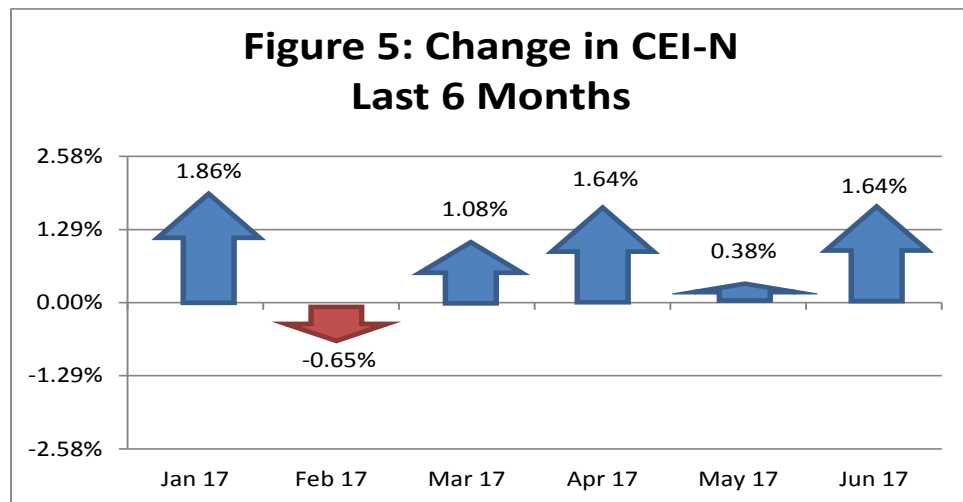


Figure 5 shows the change in the CEI-N over the last 6 months. Economic conditions appear to be improving in Nebraska. The indicator has risen five of the last six months.



All four components of the CEI-N rose during June (Figure 6). Electricity sales increased after adjusting for weather and seasonality. There also was a strong increase in real private wages, reflecting growth in employment and hours worked. Agricultural commodity prices improved during June. Finally, respondents to the June *Survey of Nebraska Business* reported a modest increase in sales and employment at their businesses in recent months. 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*.

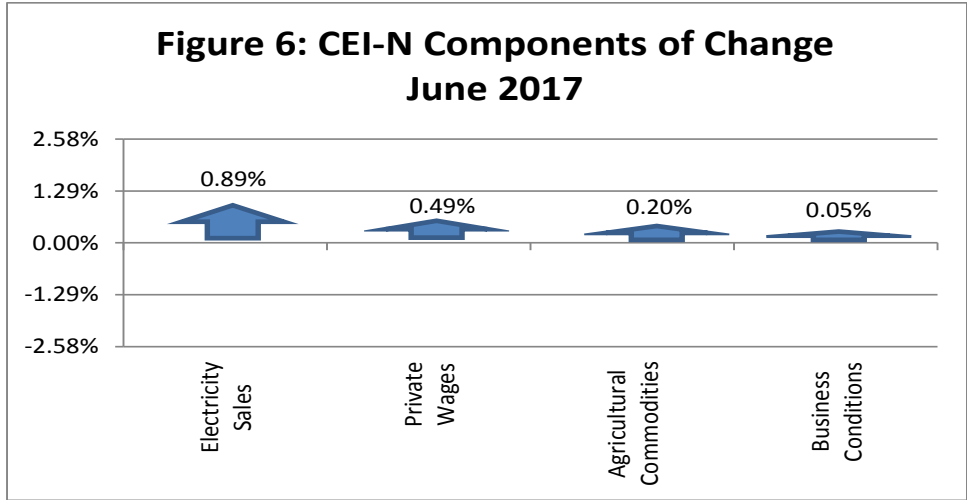
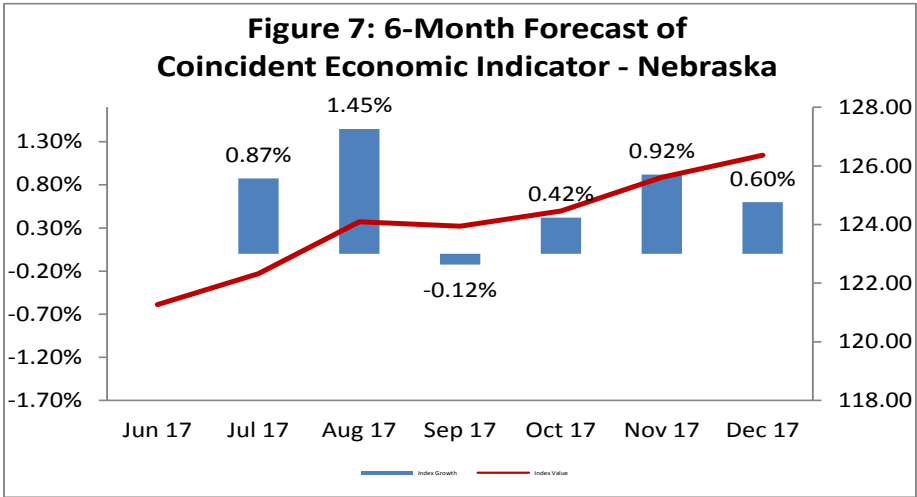


Figure 7 shows the forecast for the CEI-N over the next six months. The Nebraska economy is expected to grow during the second half of 2017. The rate of growth will be strong during the rest of the summer, slow in September and October, and then accelerate again at the end of the year. These expectations are consistent with the improvement in the LEI-N during the first half of 2017 (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>							
<b>Leading Economic Indicator - Nebraska</b>				<b>Coincident Economic Indicator - Nebraska</b>			
Variable	Standard Deviation	Inverse STD	Weight (Inverse STD Standardize)	Variable	Standard Deviation	Inverse STD	Weight (Inverse STD Standardize)
SF Housing Permits	13.4117	0.0746	0.0350	Electricity Sales	4.6372	0.2156	0.1609
Airline Passengers	3.3221	0.3010	0.1411	Private Wages	1.8068	0.5535	0.4129
Exchange Rate	1.2019	0.8320	0.3901	Agricultural Commodities	3.2790	0.3050	0.2275
Initial UI Claims	10.8129	0.0925	0.0434	Survey Business Conditions	3.7559	0.2662	0.1986
Manufacturing Hours	1.6637	0.6011	0.2818				
Survey Business Expectations	4.3198	0.2315	0.1085				

Tables 2 and 3 show the calculation for the change in LEI-N and CEI-N between May and June of 2017. 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 0.10% 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	103.08	75.86	27.22	0.03	0.95	0.72%
Airline Passengers	102.81	100.19	2.61	0.14	0.37	0.28%
U.S. Dollar Exchange Rate (Inverse)	85.51	84.43	1.08	0.39	0.42	0.32%
Initial Unemployment Insurance Claims (Inverse)	120.67	103.00	17.67	0.04	0.77	0.58%
Manufacturing Hours	95.62	95.39	0.23	0.28	0.06	0.05%
Survey Business Expectations <sup>1</sup>	58.47		8.47	0.11	0.92	0.70%
Trend Adjustment					0.13	0.10%
<b>Total (weighted average)</b>	<b>135.12</b>	<b>131.50</b>			<b>3.62</b>	<b>2.75%</b>

<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	166.55	159.96	6.59	0.16	1.06	0.89%
Private Wage	112.87	111.45	1.42	0.41	0.59	0.49%
Agricultural Commodities	120.74	119.68	1.06	0.23	0.24	0.20%
Survey Business Conditions <sup>1</sup>	50.32		0.32	0.20	0.06	0.05%
<b>Total (weighted average)</b>	<b>121.26</b>	<b>119.31</b>			<b>1.95</b>	<b>1.64%</b>

<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 2016. 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 0.95.

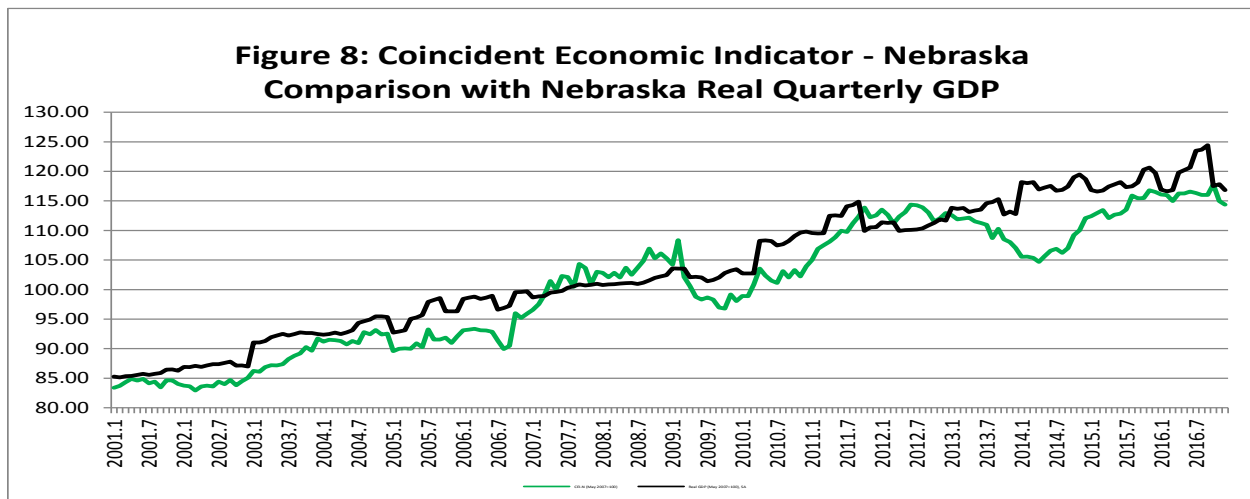


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

