

# Nebraska Monthly Economic Indicators: June 21, 2017

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**Summary:** *The Leading Economic Indicator – Nebraska (LEI-N)<sup>1</sup> fell by 0.51% during May of 2017. This is the second consecutive monthly decline in the LEI-N. The declines followed three months of rapid increase from January through March of 2017. Taken together, the LEI-N values imply a moderation in economic growth in Nebraska in late 2017 after strong growth midyear. Among the components of the indicator, business expectations were strong during May while the value of the U.S. dollar fell, which is a positive sign for Nebraska’s export-oriented businesses. However, manufacturing hours, building permits and airline passenger counts all declined during May, while initial claims for unemployment insurance rose.*

## Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) during May 2017 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N fell by 0.51% in May.

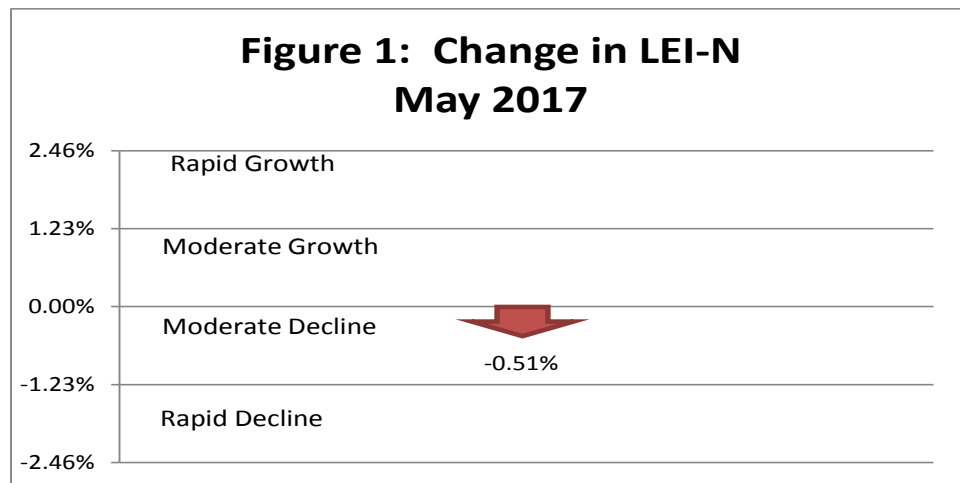


Figure 2 shows the change in the LEI-N over the last six months. The indicator increased sharply during the first quarter of 2017 but fell in April and May. Indicator values over the last six months suggest that economic activity will accelerate in Nebraska during the summer of 2017 but growth will moderate at the end of the year.

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

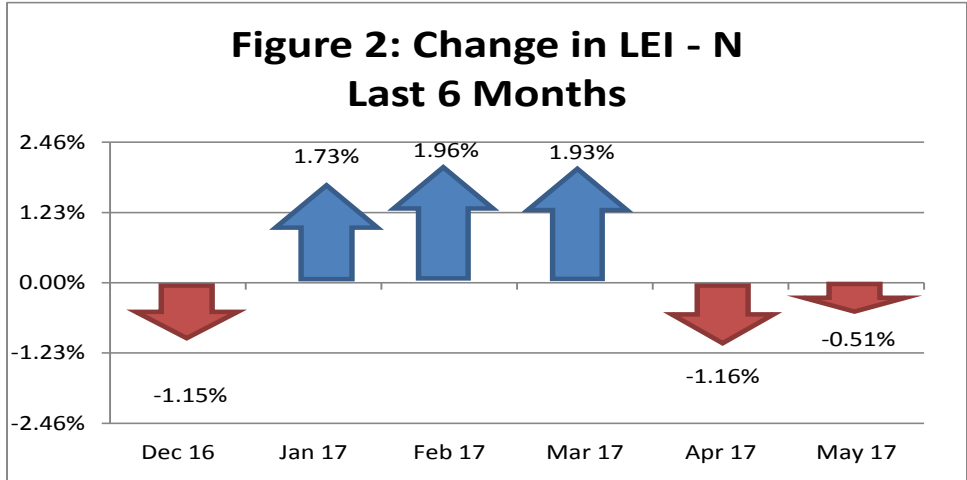
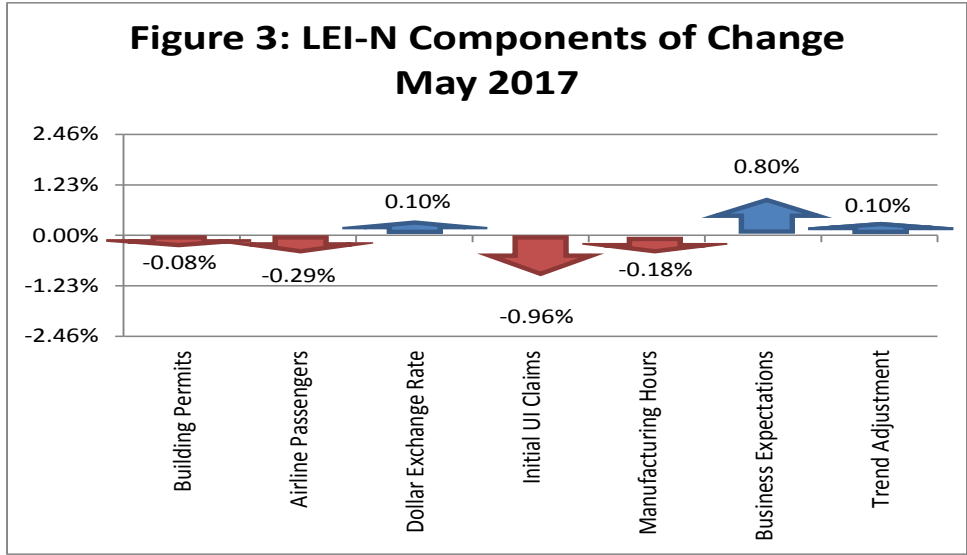


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during May 2017. The change in the overall LEI-N is the weighted average of changes in each component (see page 5). Four of the six components of the LEI-N declined during May. There was a decline in building permits, airline passenger counts and manufacturing hours on a seasonally adjusted basis. Initial claims for unemployment insurance also rose during May, signaling a softening of the labor market. However, two components of the LEI-N were positive in May. Business expectations were very strong. Respondents to the *May Survey of Nebraska Business* predicted strong growth in both sales and employment at their businesses over the next six months. In addition, the value of the U.S. dollar fell modestly during May, a positive development for Nebraska’s export-oriented businesses. 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 0.32% during May 2017, as seen in Figure 4.

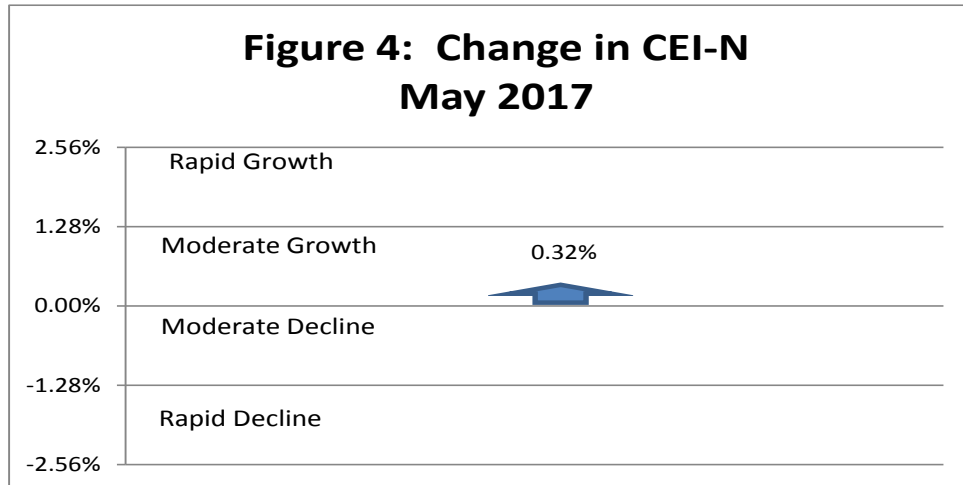
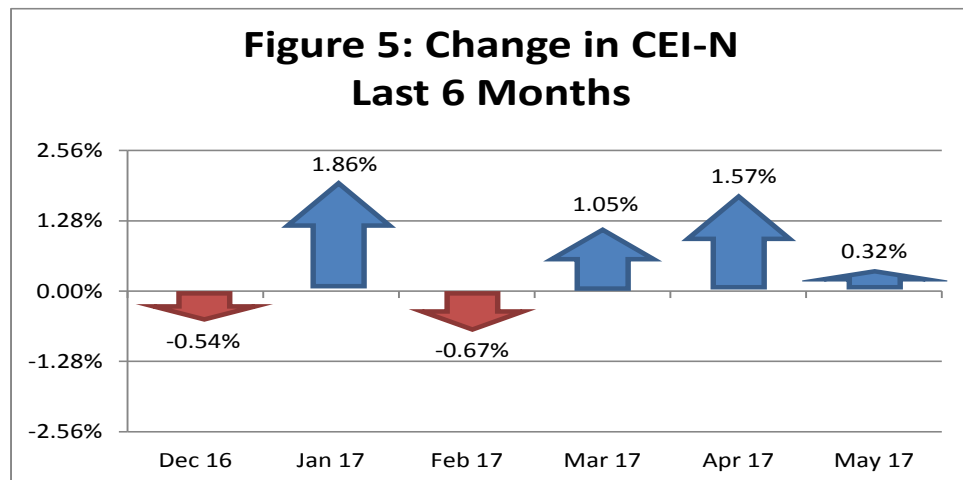


Figure 5 shows the change in the CEI-N over the last 6 months. Economic conditions appear to be improving in Nebraska. The indicator has risen during each of the last three months.



Three components contributed to the increase in the CEI-N rose during May (Figure 6). Agricultural commodity prices improved during May, especially prices for cattle. Business conditions also were positive, with respondents to the *May Survey of Nebraska Business* reporting that employment rose at their businesses in recent months. Further, electricity sales increased after adjusting for weather and seasonality. Real private wages were the only declining component, dropping after a sharp increase during April. 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*.

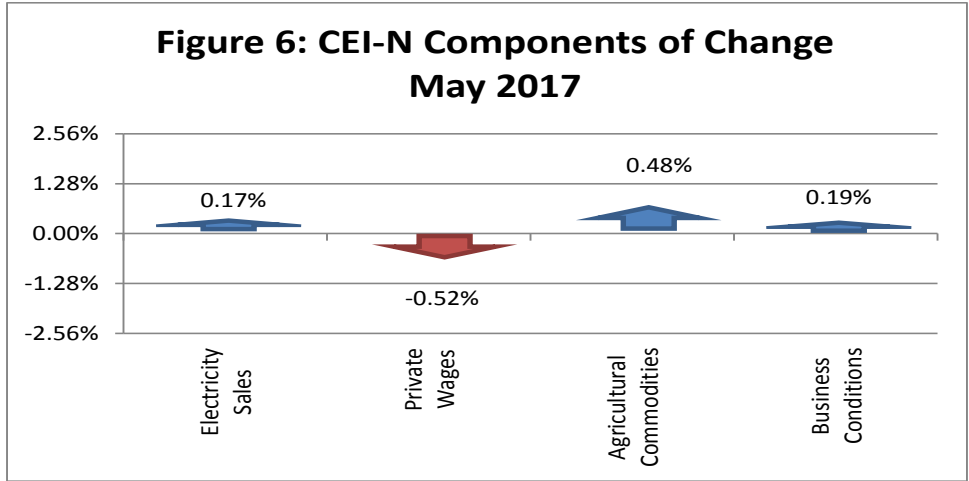
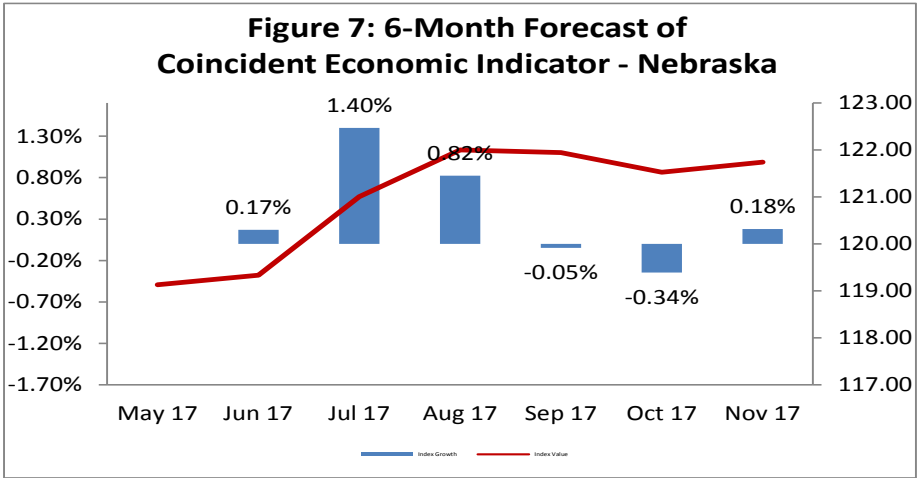


Figure 7 shows the forecast for the CEI-N over the next six months. Growth is expected to be strong during the summer but tepid during the fourth quarter of the year. These expectations are consistent with the first quarter increases in the value of the LEI-N as well as its April and May decline (Figure 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	13.2820	0.0753	0.0354	Electricity Sales	4.6424	0.2154	0.1610
Airline Passengers	3.3392	0.2995	0.1407	Private Wages	1.8112	0.5521	0.4126
Exchange Rate	1.2024	0.8317	0.3907	Agricultural Commodities	3.2794	0.3049	0.2279
Initial UI Claims	10.8742	0.0920	0.0432	Survey Business Conditions	3.7636	0.2657	0.1986
Manufacturing Hours	1.6692	0.5991	0.2814				
Survey Business Expectations	4.3208	0.2314	0.1087				

Tables 2 and 3 show the calculation for the change in LEI-N and CEI-N between April and May 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>						
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	64.79	67.92	-3.13	0.04	-0.11	-0.08%
Airline Passengers	96.45	99.14	-2.69	0.14	-0.38	-0.29%
U.S. Dollar Exchange Rate (Inverse)	84.43	84.07	0.35	0.39	0.14	0.10%
Initial Unemployment Insurance Claims (Inverse)	103.54	132.75	-29.21	0.04	-1.26	-0.96%
Manufacturing Hours	95.39	96.25	-0.86	0.28	-0.24	-0.18%
Survey Business Expectations <sup>1</sup>	59.68		9.68	0.11	1.05	0.80%
Trend Adjustment					0.13	0.10%
<b>Total (weighted average)</b>	<b>130.63</b>	<b>131.30</b>			<b>-0.67</b>	<b>-0.51%</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>						
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	158.31	157.06	1.25	0.16	0.20	0.17%
Private Wage	111.62	113.12	-1.50	0.41	-0.62	-0.52%
Agricultural Commodities	119.69	117.18	2.51	0.23	0.57	0.48%
Survey Business Conditions <sup>1</sup>	51.15		1.15	0.20	0.23	0.19%
<b>Total (weighted average)</b>	<b>119.13</b>	<b>118.75</b>			<b>0.38</b>	<b>0.32%</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.

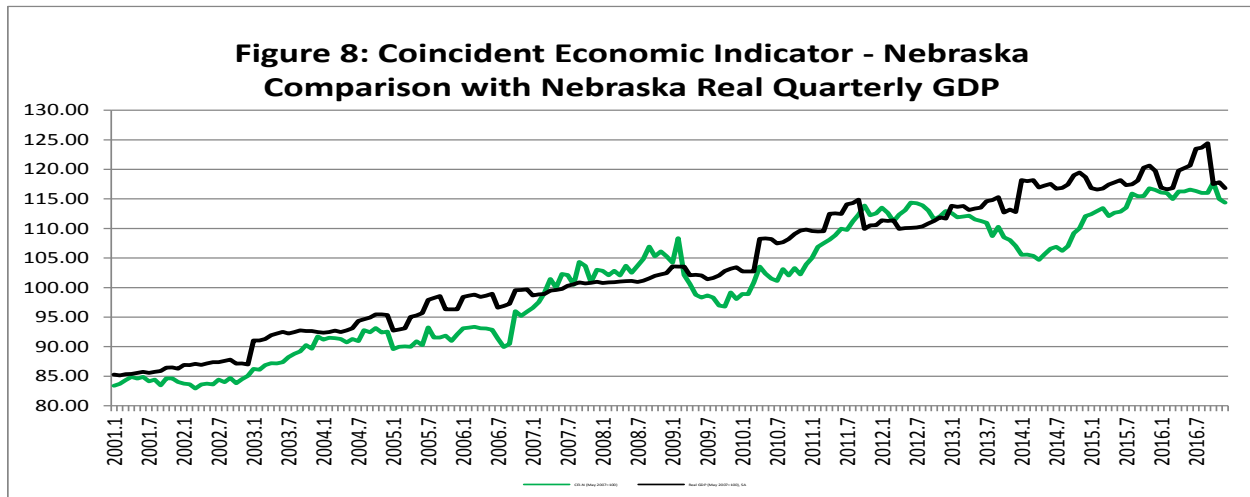


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

