

# Nebraska Monthly Economic Indicators: July 29, 2016

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**Summary:** *The Leading Economic Indicator – Nebraska (LEI-N) rose by 1.70% in June 2016. The rapid increase in the LEI-N, which predicts economic growth in the state six months in the future, is the third rapid increase in the last four months. Taken together, these rapid increases indicate that economic growth will be strong in Nebraska for the rest of 2016. Four of the six components of the LEI-N rose during June. There was growth in manufacturing hours and airline passenger counts during the month. There also was strong business expectations, with respondents to the June Survey of Nebraska Business reporting that they expect to expand both sales and employment over the next 6 months. Further, initial claims for unemployment insurance dropped during June. Among declining components, there was a modest decline in single-family home building permits in June and the value of the U.S. dollar rose slightly. A higher dollar is negative for Nebraska export businesses in agriculture and manufacturing.*

## Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in June 2016 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 1.70% during June.

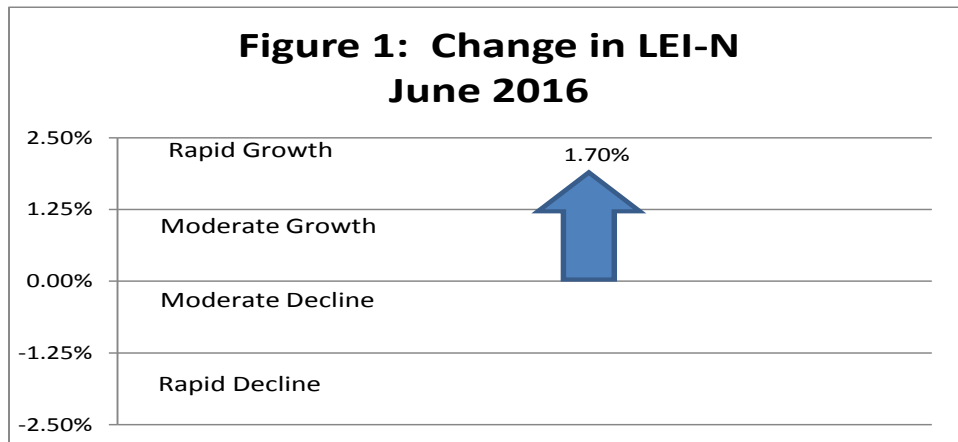


Figure 2 shows the change in the LEI-N over the last six months. The figure shows that there was a rapid increase in the LEI-N in 4 of the 6 months during the January through June period. This portends strong economic growth in Nebraska during the second half of 2016.

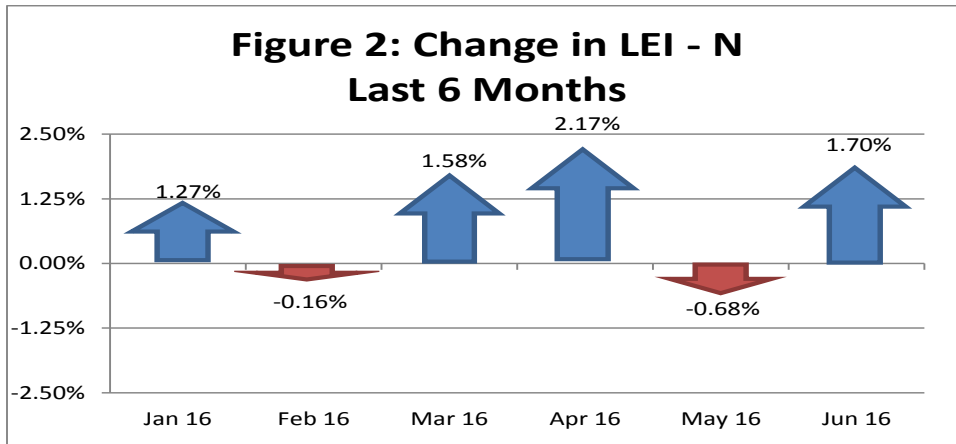
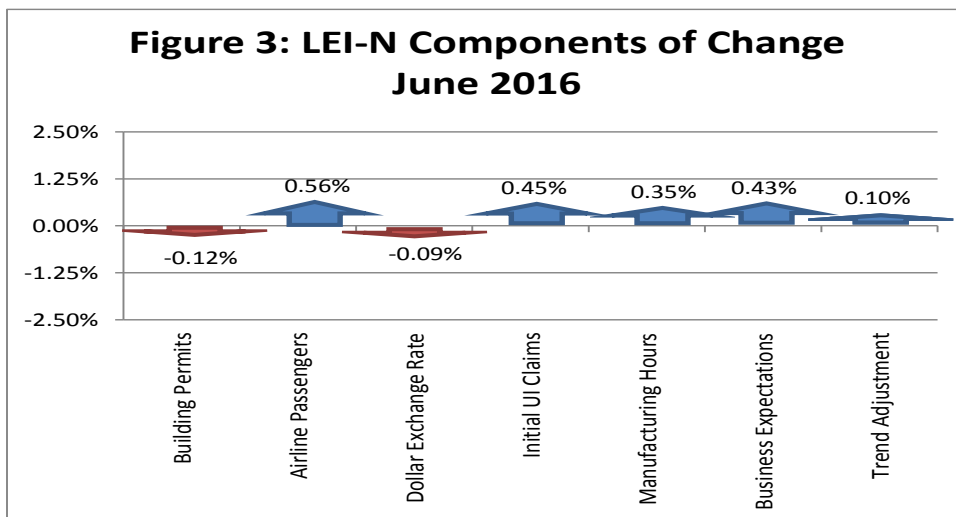
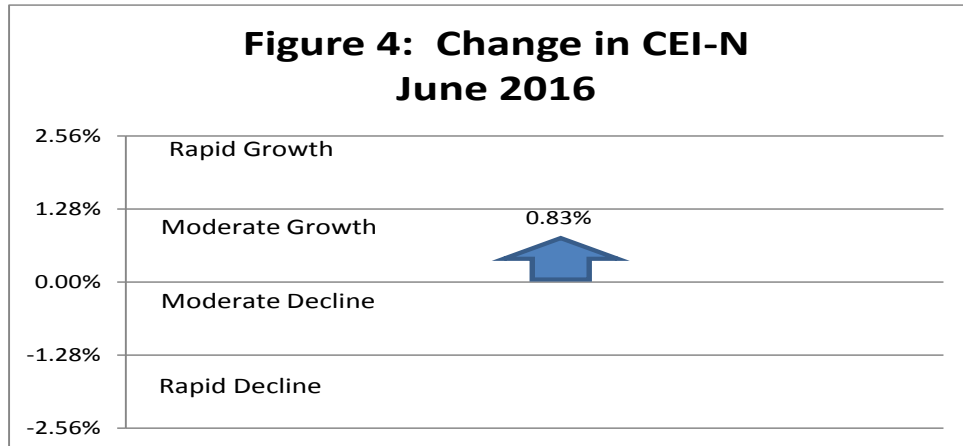


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during June 2016. The change in the overall LEI–N is the weighted average of changes in each component (see page 5). Looking at individual components, business expectations were strong. Respondents to the *June Survey of Nebraska Business* predicted strong growth in both sales and employment at their businesses over the next six months. There also was a solid increase in both manufacturing hours and airline passenger counts during June. Further, initial claims for unemployment insurance dropped during June, an encouraging sign for the Nebraska labor market. Only two components of the leading indicator worsened in June. There was a modest decline in building permits for single-family homes. There also was a slight increase in the value of the U.S. dollar, which will place some additional competitive pressure on Nebraska exporters. Note that the trend adjustment component pictured in Figure 3 is discussed on page 5.

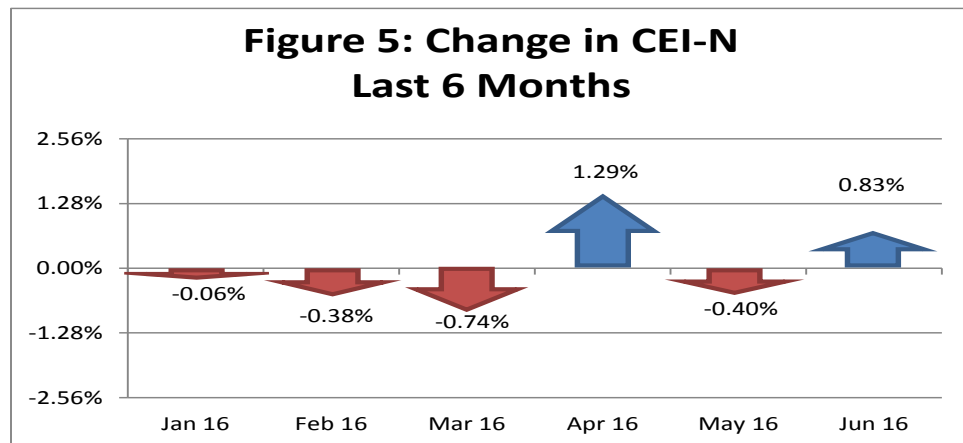


## Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. The CEI-N rose by 0.83% during June 2016, as seen in Figure 4.



As seen in Figure 5, the CEI-N rose during both April and June, after dropping from January through March. These results indicate that the Nebraska economy was weak at the beginning of 2016 but is now gaining momentum. It will be critical to monitor whether this momentum continues. Note that the CEI-N value in May was revised from slight growth in last month's report to a decline in this month's report, due to a downward revision in manufacturing hours during May.



As seen in Figure 6, an increase in electricity sales drove the June increase in the CEI-N. Electricity sales rose rapidly in June, even after accounting for weather and other seasonal factors. The remaining three components of the CEI-N fell during June. There was a decline in real private wages, primarily due to a reduction in hourly wages. Employment and weekly hours worked both improved during the month. There also was a slight decline in business conditions. Respondents to the June *Survey of Nebraska Business* reported a modest decline in sales in recent months, although employment expanded. There also was a

modest decline in agricultural commodity prices. 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*.

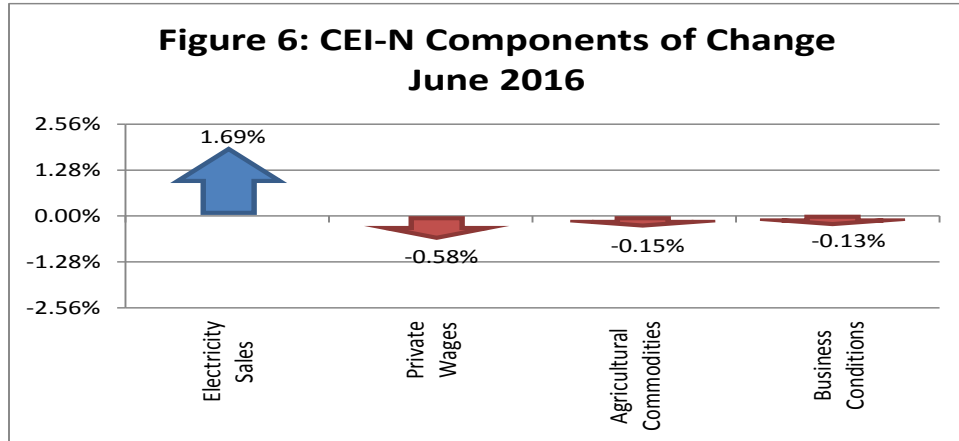
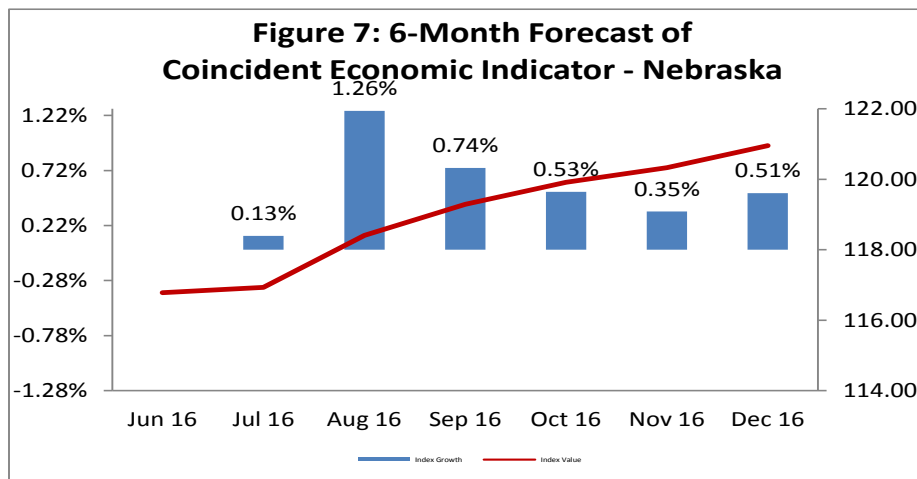


Figure 7 shows the forecast for the CEI-N over the next six months. The forecast calls for strong economic growth in Nebraska during the second half of 2016. This outlook is consistent with recent values for the LEI-N, which rose sharply during 4 of the 6 months in the January and June 2016 period (see 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	13.4439	0.0744	0.0350	Electricity Sales	4.7783	0.2093	0.1537
Airline Passengers	3.3732	0.2965	0.1397	Private Wages	1.7141	0.5834	0.4284
Exchange Rate	1.2116	0.8254	0.3888	Agricultural Commodities	3.2528	0.3074	0.2258
Initial UI Claims	10.0045	0.1000	0.0471	Survey Business Conditions	3.8222	0.2616	0.1921
Manufacturing Hours	1.6784	0.5958	0.2807				
Survey Business Expectations	4.3348	0.2307	0.1087				

Tables 2 and 3 show the calculation for the change in CEI-N and LEI-N between May and June of 2016. 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	64.60	68.70	-4.10	0.04	-0.14	-0.12%
Airline Passengers	99.07	94.07	5.00	0.14	0.70	0.56%
U.S. Dollar Exchange Rate (Inverse)	86.29	86.57	-0.27	0.39	-0.11	-0.09%
Initial Unemployment Insurance Claims (Inverse)	142.54	130.59	11.95	0.05	0.56	0.45%
Manufacturing Hours	99.87	98.32	1.55	0.28	0.44	0.35%
Survey Business Expectations <sup>1</sup>	54.96		4.96	0.11	0.54	0.43%
Trend Adjustment					0.13	0.11%
<b>Total (weighted average)</b>	<b>126.26</b>	<b>124.15</b>			<b>2.12</b>	<b>1.70%</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	148.39	135.69	12.70	0.15	1.95	1.69%
Private Wage	106.68	108.24	-1.56	0.43	-0.67	-0.58%
Agricultural Commodities	125.70	126.48	-0.78	0.23	-0.18	-0.15%
Survey Business Conditions <sup>1</sup>	49.24		-0.76	0.19	-0.15	-0.13%
<b>Total (weighted average)</b>	<b>116.78</b>	<b>115.82</b>			<b>0.96</b>	<b>0.83%</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 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.

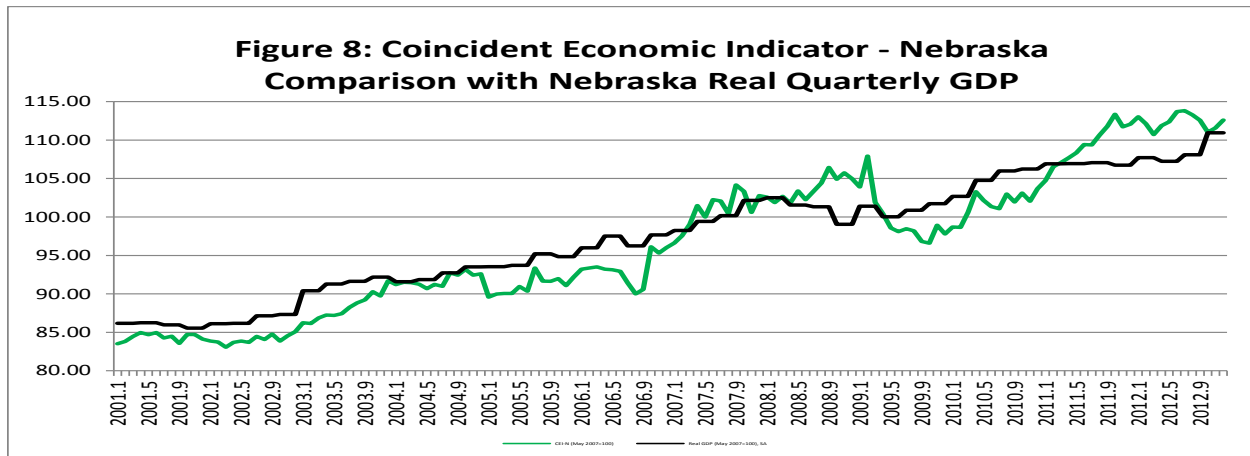


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months 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 0.92.

