

# Nebraska Monthly Economic Indicators: August 19, 2016

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**Summary:** The Leading Economic Indicator – Nebraska (LEI-N) rose by 0.23% in July 2016. The modest increase in the LEI-N, which predicts economic growth in the state six months in the future, followed a rapid increase in June. The modest increase suggests that economic growth will begin to moderate in Nebraska in January 2017, after strong growth towards the end of 2016. Three of the six components of the LEI-N rose during July. Business expectations were positive, as respondents to the Survey of Nebraska Business reported plans to increase employment over the next 6 months. There also was growth in airplane passenger counts and a drop in initial claims for unemployment insurance during July. Among declining components, there was a drop in building permits and manufacturing hours during the month. There also was an increase in the value of the U.S. dollar, a challenge for exporters in the manufacturing and agriculture industries.

## Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in July 2016 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 0.23% during July.

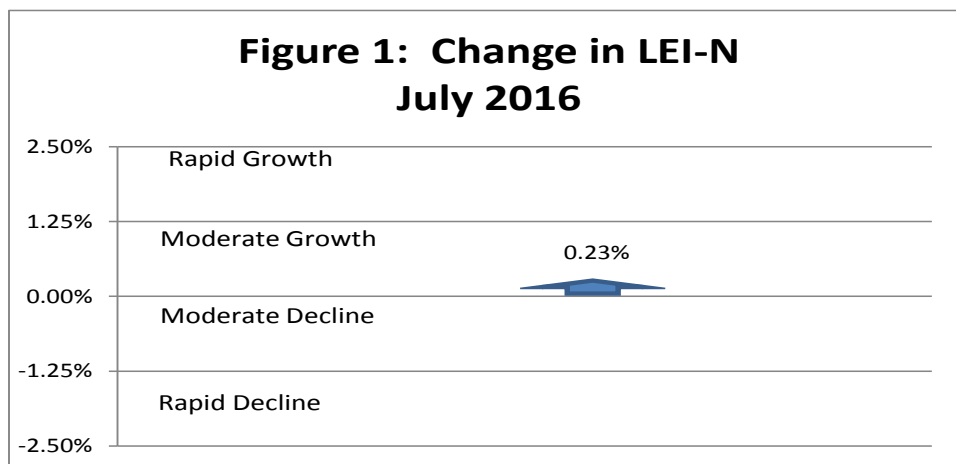


Figure 2 shows the change in the LEI-N over the last six months. The figure shows that there was a rapid increase in the LEI-N in 3 of the last 6 months. This portends strong economic growth in Nebraska during the remainder of 2016. The modest increase during July, however, indicates that the rate of growth should moderate in early 2017.

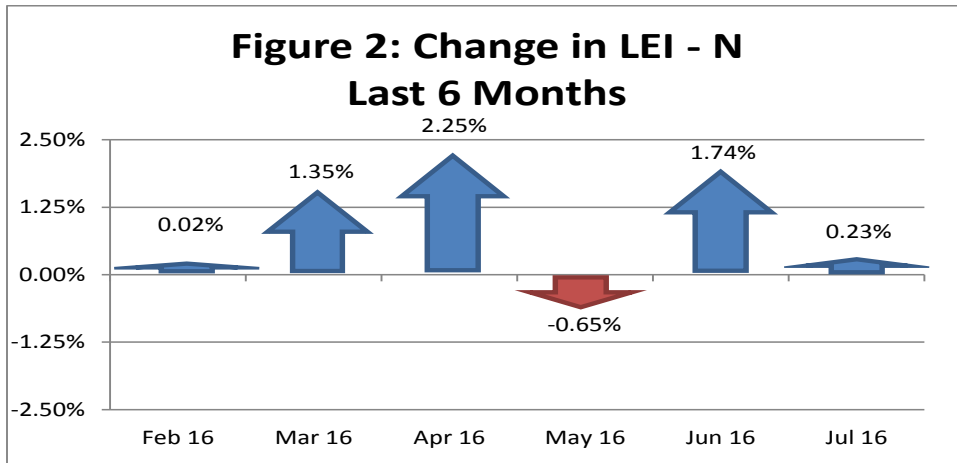
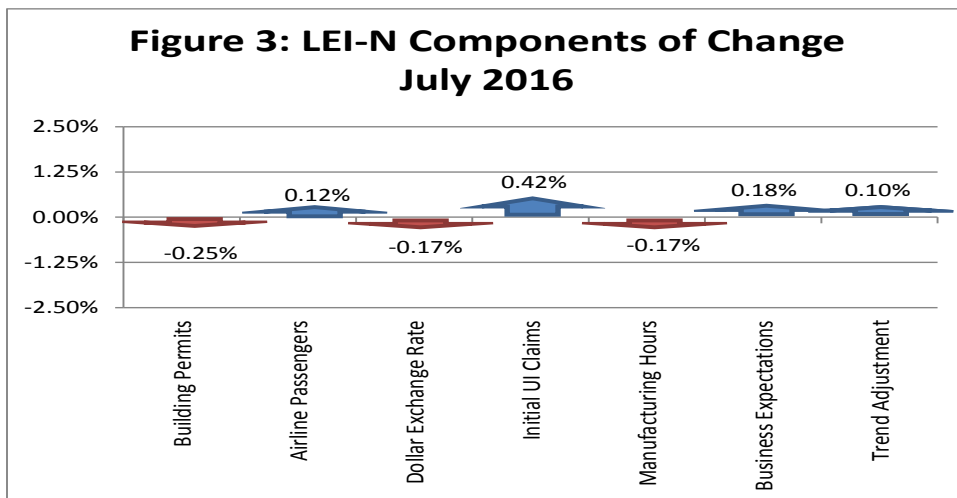
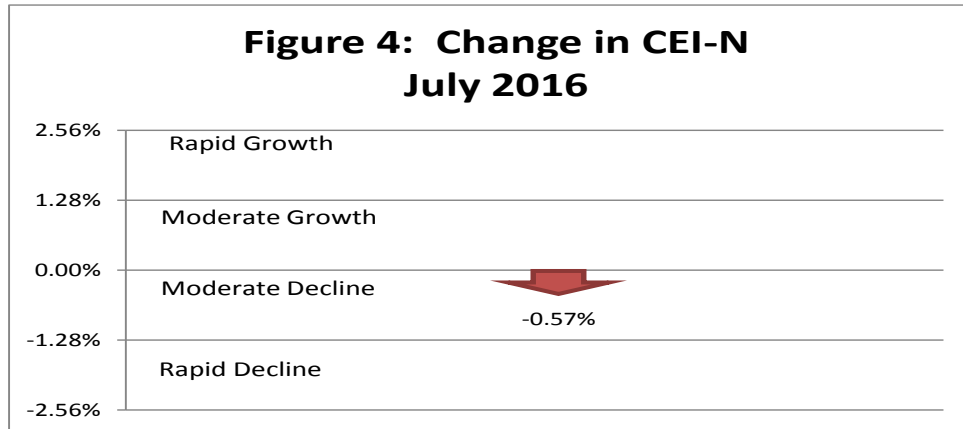


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during July 2016. The change in the overall LEI-N is the weighted average of changes in each component (see page 5). Looking at individual components, business expectations were solid. Respondents to the *July Survey of Nebraska Business* predicted solid growth in employment at their businesses over the next six months as well as a slight increase in sales. There also was an increase in airline passenger counts on a seasonally adjusted basis and a decline in initial claims for unemployment insurance. The decline in initial claims indicates that the Nebraska labor market continues to strengthen. Among declining components, there was a drop in building permits and manufacturing hours during July. There also was an increase in the value of the U.S. dollar. This is the third straight monthly increase, indicating a challenging environment for Nebraska exporters. Note that the trend adjustment component pictured in Figure 3 is discussed on page 5.

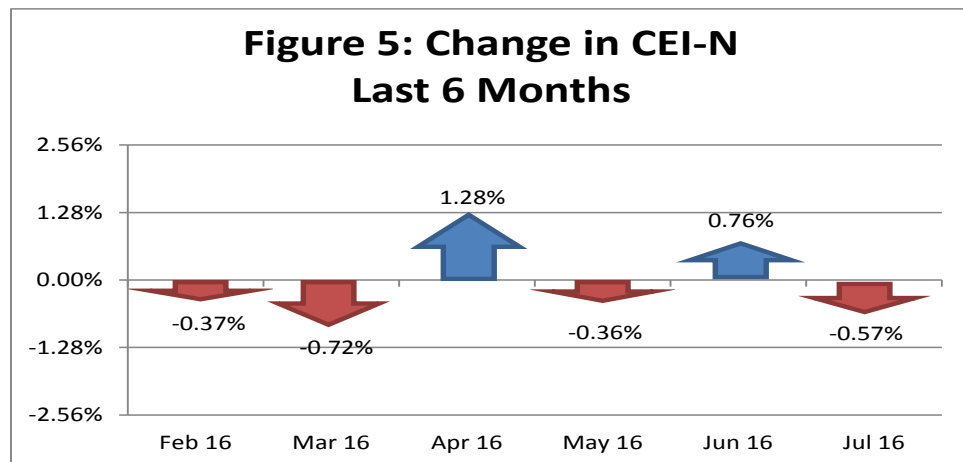


## Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. The CEI-N fell by 0.57% during July 2016, as seen in Figure 4.



As seen in Figure 5, the CEI-N has improved over the last four months. In particular, increases in April and June were much larger than declines in May and July, meaning that the Nebraska economy expanded overall during the April through July period. This growth is in contrast to a drop in the CEI-N during the first three months of 2016. It will be critical to monitor whether the economy continues to expand during the last part of the year, as would be expected given large increases in the LEI-N during many recent months.



As seen in Figure 6, two components of the CEI-N rose during July while two components fell. Private wages rose during July, pointing to an increase in private employment, weekly hours and real hourly wages. Business conditions also improved, according to respondents of the July *Survey of Nebraska Business*. Respondents to the survey reported an increase in employment in recent months. Among declining components, electricity sales declined during July, after adjusting for weather and other

seasonal factors. There also was a sharp decline in agricultural commodity prices in July. Both corn and beef prices fell. 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*.

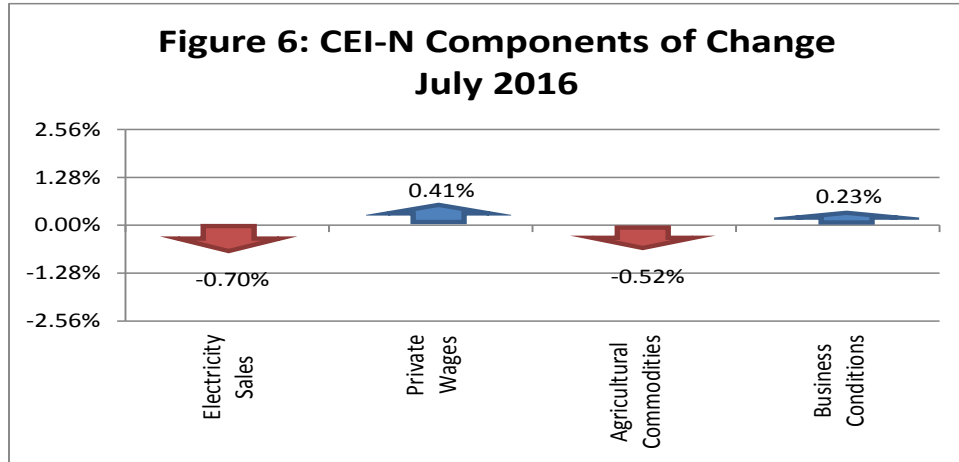
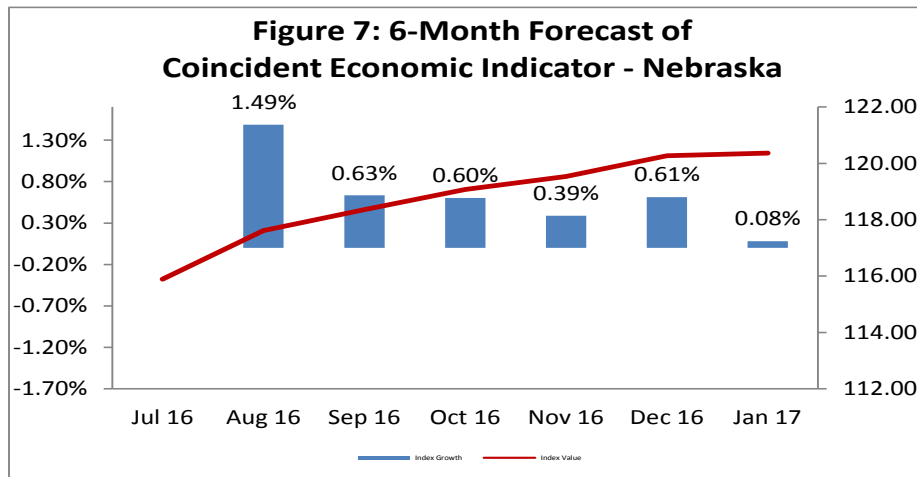


Figure 7 shows the forecast for the CEI-N over the next six months. The forecast calls for strong economic growth in Nebraska during the rest of 2016 but slowing growth at the beginning of 2017. This outlook is consistent with recent values for the LEI-N, which rose sharply in many recent months but rose modestly during July (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	13.4498	0.0744	0.0350	Electricity Sales	4.7922	0.2087	0.1540
Airline Passengers	3.3681	0.2969	0.1396	Private Wages	1.7093	0.5850	0.4318
Exchange Rate	1.2091	0.8271	0.3890	Agricultural Commodities	3.3410	0.2993	0.2209
Initial UI Claims	10.0252	0.0997	0.0469	Survey Business Conditions	3.8209	0.2617	0.1932
Manufacturing Hours	1.6747	0.5971	0.2808				
Survey Business Expectations	4.3265	0.2311	0.1087				

Tables 2 and 3 show the calculation for the change in CEI-N and LEI-N between June and July 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	58.12	67.29	-9.16	0.03	-0.32	-0.25%
Airline Passengers	100.10	99.02	1.08	0.14	0.15	0.12%
U.S. Dollar Exchange Rate (Inverse)	85.74	86.29	-0.55	0.39	-0.22	-0.17%
Initial Unemployment Insurance Claims (Inverse)	155.21	143.94	11.27	0.05	0.53	0.42%
Manufacturing Hours	99.11	99.87	-0.76	0.28	-0.21	-0.17%
Survey Business Expectations <sup>1</sup>	52.09		2.09	0.11	0.23	0.18%
Trend Adjustment					0.13	0.11%
<b>Total (weighted average)</b>	<b>126.70</b>	<b>126.42</b>			<b>0.29</b>	<b>0.23%</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	142.91	148.19	-5.28	0.15	-0.81	-0.70%
Private Wage	107.79	106.68	1.11	0.43	0.48	0.41%
Agricultural Commodities	122.95	125.70	-2.74	0.22	-0.61	-0.52%
Survey Business Conditions <sup>1</sup>	51.41		1.41	0.19	0.27	0.23%
<b>Total (weighted average)</b>	<b>115.89</b>	<b>116.56</b>			<b>-0.67</b>	<b>-0.57%</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.

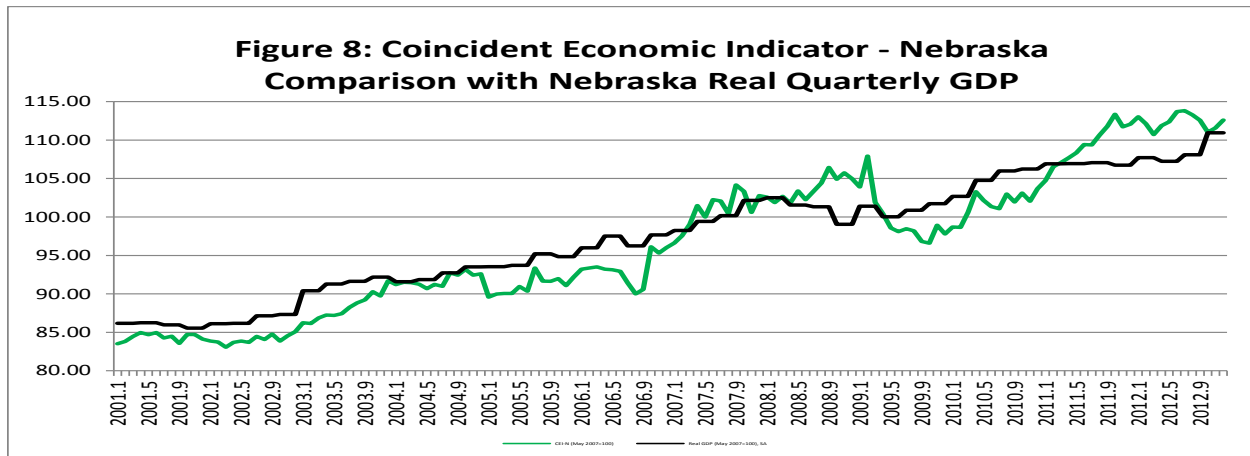


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

