

# Nebraska Monthly Economic Indicators: August 21, 2019

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**Summary:** *The Leading Economic Indicator – Nebraska (LEI-N)<sup>1</sup> rose by 2.66% during July of 2019. The sharp increase in the LEI-N, which is designed to predict economic activity six months into the future, implies solid economic growth in Nebraska through the end of 2019 and into early 2020. The leading indicator rose primarily due to a sharp drop in initial claims for unemployment insurance during July as well as strong business expectations. Respondents to the July Survey of Nebraska Business reported plans to increase in sales and employment at their businesses over the next six months.*

## Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) during July 2019 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose sharply during July, by 2.66%.

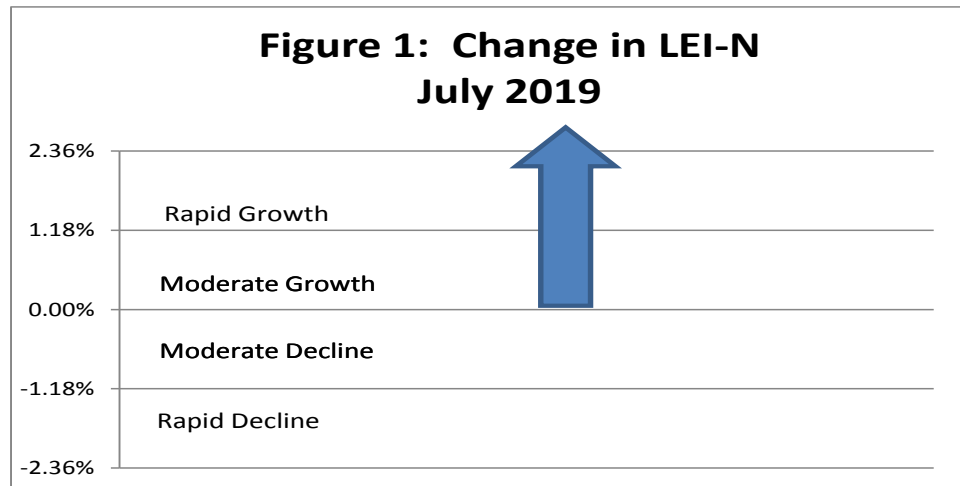


Figure 2 shows that the July increase reverses a modest decline in the LEI-N during June. The leading indicator rose at an average of more than 1% over the last five months.

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

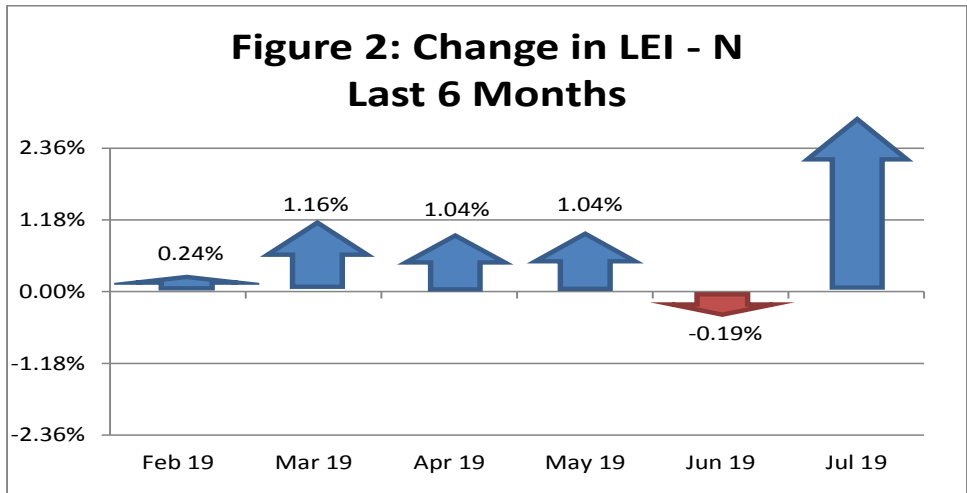
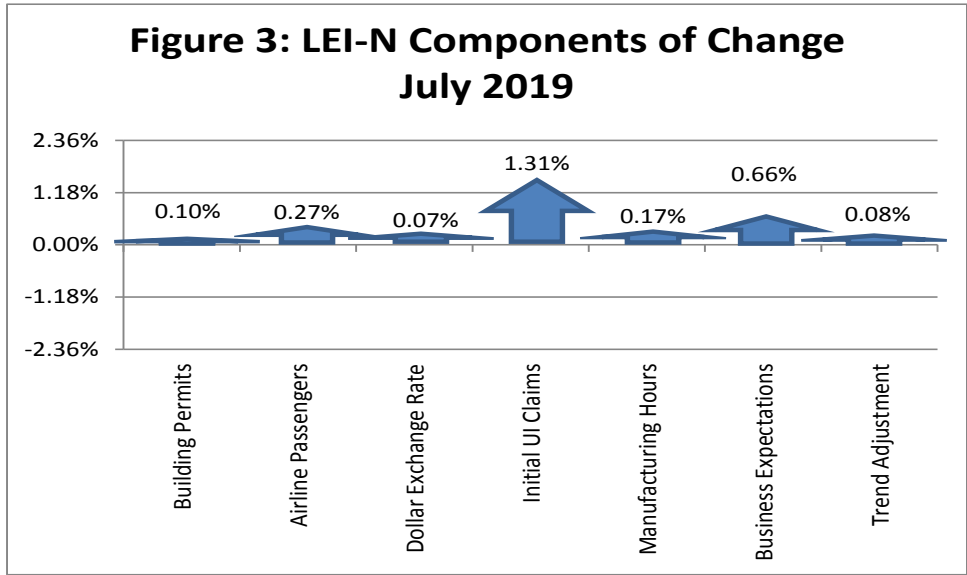


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during July of 2019. The change in the overall LEI-N is the weighted average of changes in each component (see page 5). All six components of the leading indicator rose during July. There were modest increases in manufacturing hours-worked, airline passenger counts and building permits for single-family homes. But, the primary reason for the rising LEI-N was a sharp drop in initial claims for unemployment insurance. Business expectations also were strong during July. Respondents to the July *Survey of Nebraska Business* reported plans to increase sales and employment at their business over the next six months. 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 1.10% during July of 2019, as seen in Figure 4.

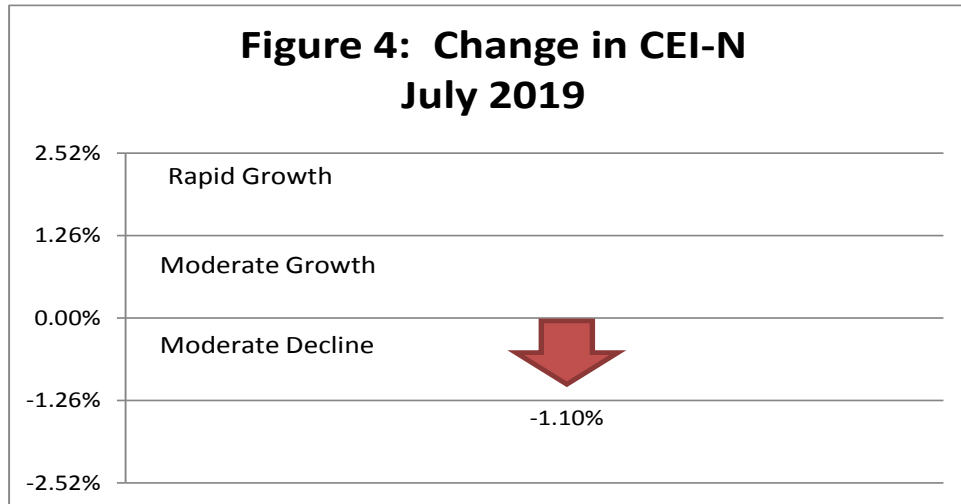
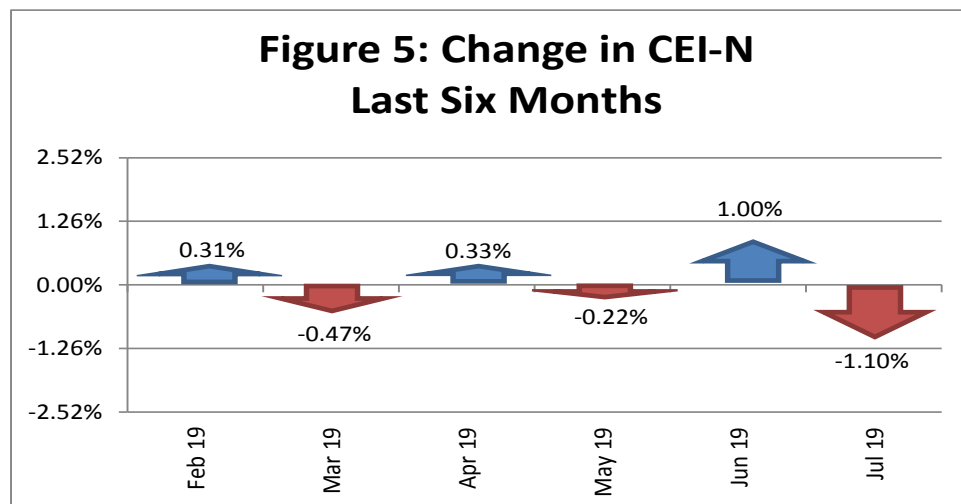


Figure 5 shows the change in the CEI-N over the last 6 months. The CEI-N has alternated between growth and decline over the last six months. Cumulatively, the CEI-N has changed little over the period.



The CEI-N fell during July due to a sharp drop in real private wages, reflecting a decline in private employment, weekly hours-worked and real hourly wages. There also was a decline in electricity sales after adjusting for weather and other seasonal factors. Agricultural commodity prices were little changed but businesses reported positive business conditions. Respondents to the *July Survey of Nebraska Business* reported an increase in employment 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*.

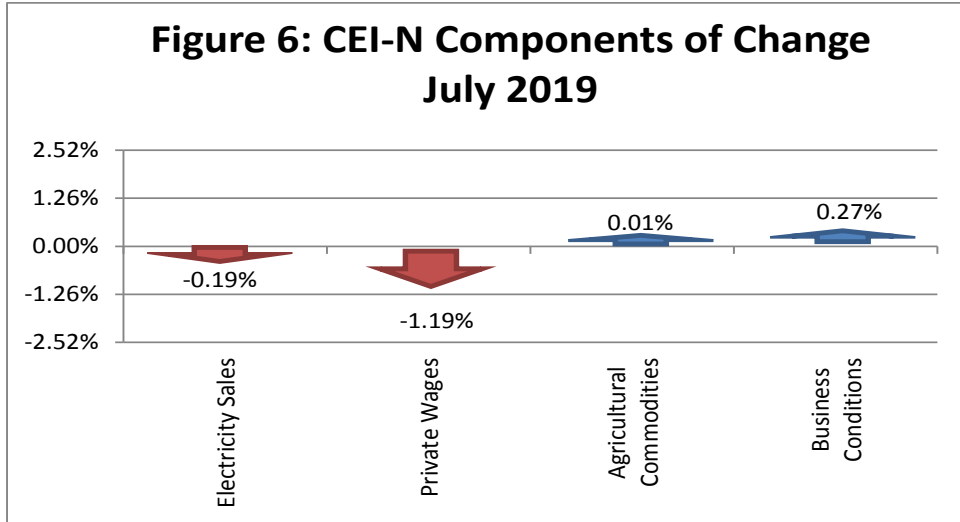
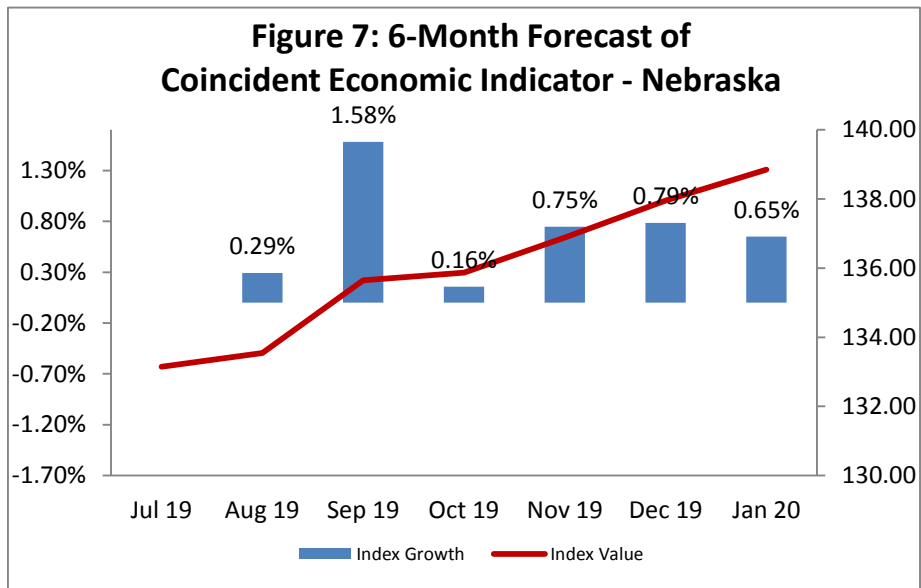


Figure 7 shows the forecast for the CEI-N over the next six months. Solid economic growth is expected in Nebraska from late 2019 through January of 2020. Forecast growth in the CEI-N is consistent with strong improvement in the LEI-N over the last six months (Figure 2).



## 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 with significant month-to-month fluctuations.

<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	13.4318	0.0745	0.0346	Electricity Sales	4.5103	0.2217	0.1667
Airline Passengers	3.2561	0.3071	0.1426	Private Wages	1.8733	0.5338	0.4015
Exchange Rate	1.1768	0.8498	0.3946	Agricultural Commodities	3.2510	0.3076	0.2313
Initial UI Claims	11.1875	0.0894	0.0415	Survey Business Conditions	3.7515	0.2666	0.2005
Manufacturing Hours	1.6746	0.5972	0.2773				
Survey Business Expectations	4.2415	0.2358	0.1095				

Tables 2 and 3 show the calculation for the change in LEI-N and CEI-N between June and July of 2019. 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 0.08% 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	55.05	50.68	4.37	0.03	0.15	0.10%
Airline Passengers	112.97	110.03	2.94	0.14	0.42	0.27%
U.S. Dollar Exchange Rate (Inverse)	81.77	81.51	0.26	0.39	0.10	0.07%
Initial Unemployment Insurance Claims (Inverse)	201.96	152.63	49.33	0.04	2.05	1.31%
Manufacturing Hours	98.63	97.69	0.94	0.28	0.26	0.17%
Survey Business Expectations <sup>1</sup>	59.39		9.39	0.11	1.03	0.66%
Trend Adjustment					0.13	0.08%
<b>Total (weighted average)</b>	<b>159.99</b>	<b>155.85</b>			<b>4.14</b>	<b>2.66%</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	196.72	198.23	-1.51	0.17	-0.25	-0.19%
Private Wage	113.51	117.51	-4.00	0.40	-1.61	-1.19%
Agricultural Commodities	118.15	118.09	0.05	0.23	0.01	0.01%
Survey Business Conditions <sup>1</sup>	51.83		1.83	0.20	0.37	0.27%
<b>Total (weighted average)</b>	<b>133.15</b>	<b>134.63</b>			<b>-1.48</b>	<b>-1.10%</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 2017. 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.

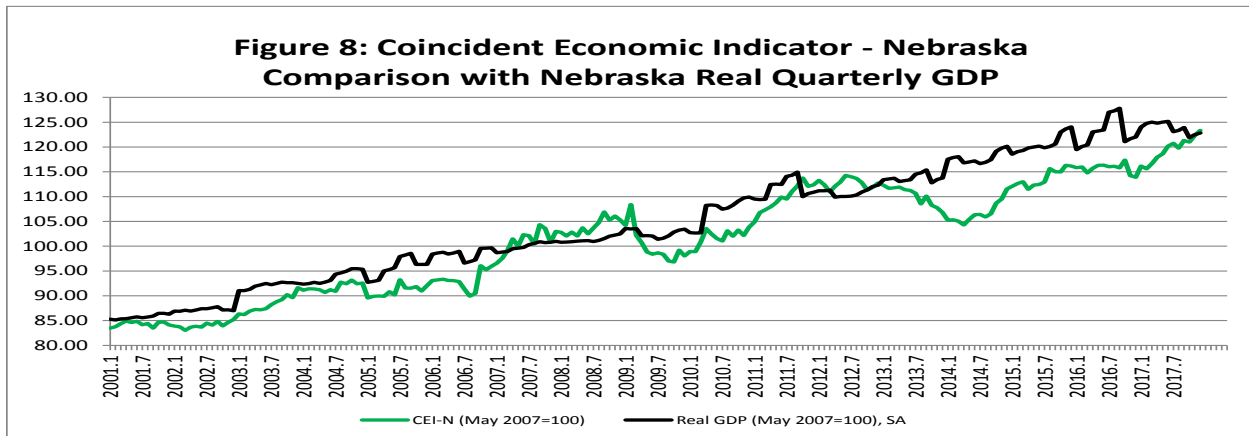


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months 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 0.93.

