

# Nebraska Monthly Economic Indicators: August 22, 2018

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**Summary:** *The Leading Economic Indicator – Nebraska (LEI-N)<sup>1</sup> was flat during July of 2018, rising by just 0.05%. A flat value for the LEI-N, which is designed to predict economic activity six months into the future, suggests that Nebraska economic growth will slow significantly at the end of 2018 and the beginning of 2019. Business expectations were a positive component of the leading indicator. Respondents to the July Survey of Nebraska Business reported plans to increase both sales and employment at their businesses over the next six months. However, a rising U.S. dollar and a drop in building permits for single-family homes will limit growth.*

## Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) during July 2018 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N was flat in July, rising by just 0.05%.

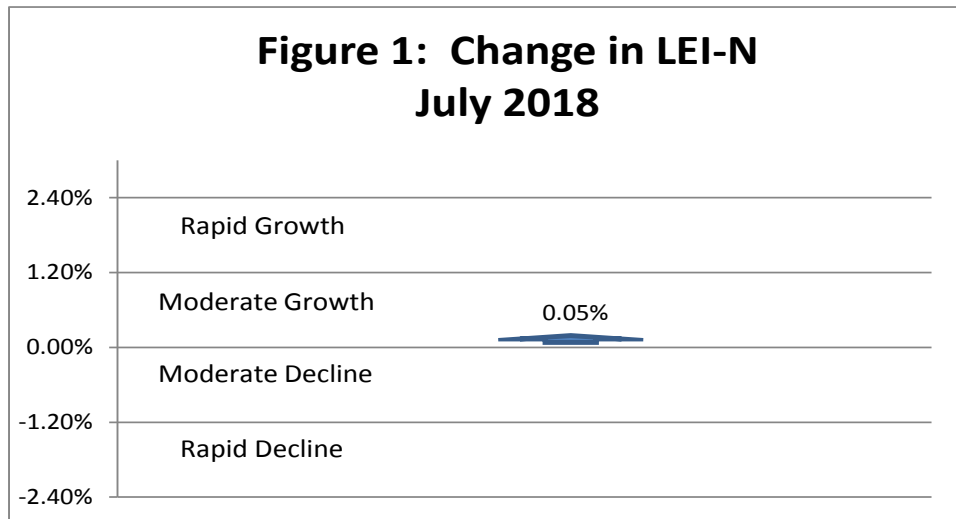


Figure 2 shows the change in the LEI-N over the last six months. The indicator rose throughout the period but the rate of increase decline throughout, suggesting that economic growth will slow later this year. Note that there was a significant revision in the June 2018 value of the LEI-N. After uncovering an error in their monthly calculation, the Nebraska Department of Labor significantly reduced the June value for

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

initial claims for unemployment insurance. The corrected initial claims data caused a revision in the LEI-N, from a modest decline in the LEI-N during June 2018 to the modest increase shown in Figure 2.

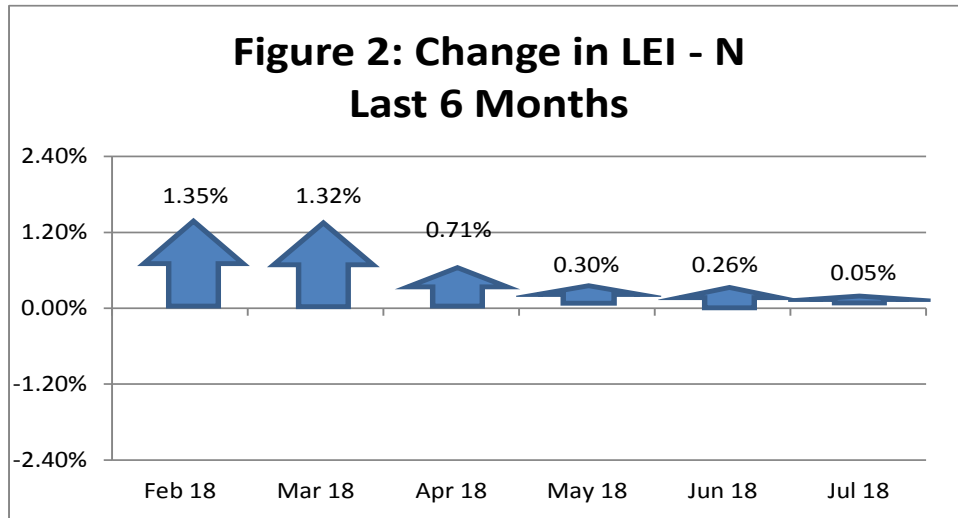
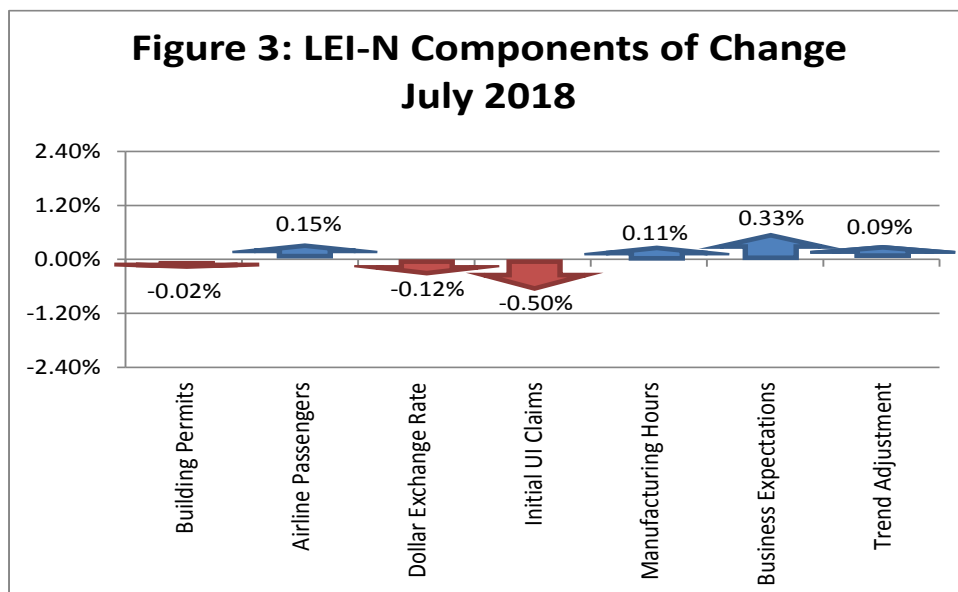


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during July 2018. The change in the overall LEI-N is the weighted average of changes in each component (see page 5). Three of six LEI-N components rose during July. Business expectations were a positive component. Respondents to the *July Survey of Nebraska Business* reported plans to increase both sales and employment at their businesses over the next six months. Manufacturing hours and airline passenger counts both rose during July. Among declining components, the value of the U.S. dollar rose again in July, creating additional pressure on businesses which export. There also was an increase in initial claims for unemployment insurance and a slight drop in building permits for single-family homes. 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 0.87% during July of 2018, as seen in Figure 4.

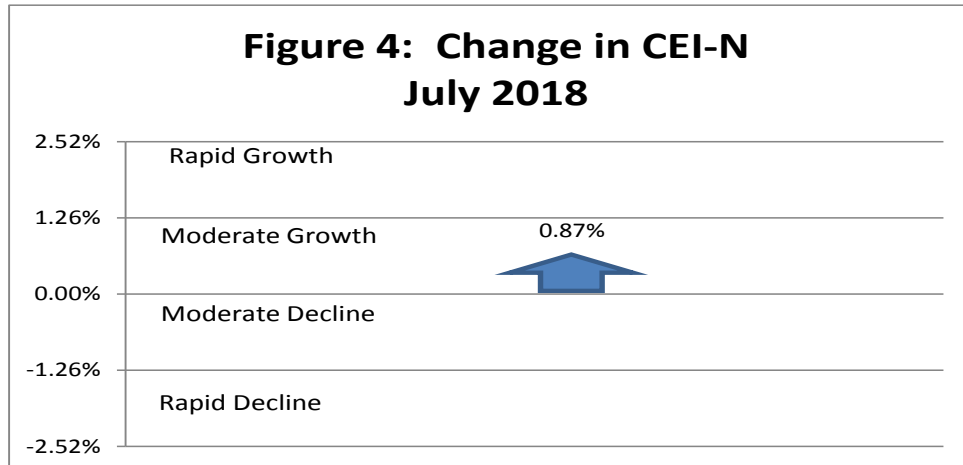
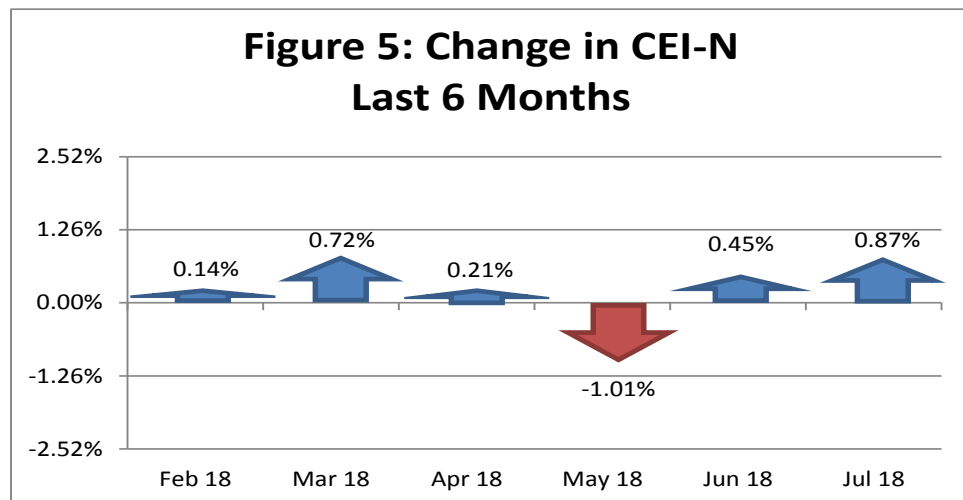


Figure 5 shows the change in the CEI-N over the last 6 months. The CEI-N has risen five of the last six months. The July increase is the largest increase during the 6-month period. Economic growth is strong in Nebraska at the moment, consistent with large increases in the LEI-N early in the year (Figure 2).



Three of four CEI-N components rose during July. Real private wages rose during July, due to an increase in real hourly wages and employment. Business conditions also were positive with respondents to the July *Survey of Nebraska Business* reporting an increase in employment during recent months. There was a small increase in electricity sales but a 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*.

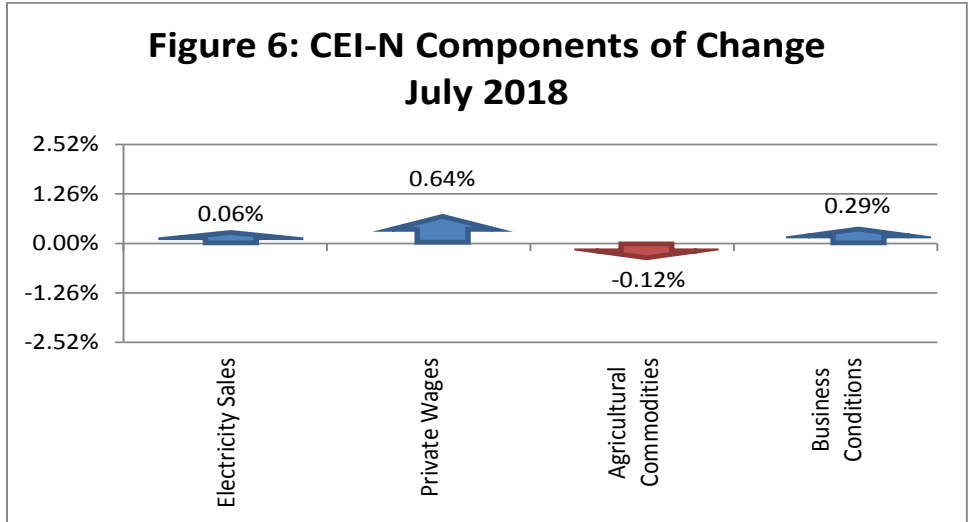
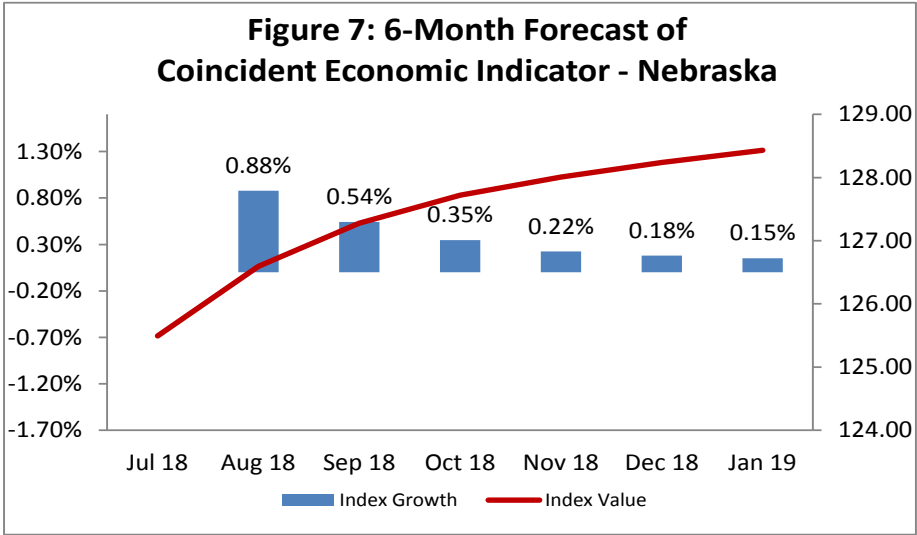


Figure 7 shows the forecast for the CEI-N over the next six months. The Nebraska economy is expected to grow throughout the second half of 2018 but the pace of growth will slow significantly. Growth also will be slow in early 2019. This decline in growth is consistent with the change in the LEI-N over 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	13.3434	0.0749	0.0352	Electricity Sales	4.5846	0.2181	0.1602
Airline Passengers	3.2963	0.3034	0.1423	Private Wages	1.7469	0.5724	0.4204
Exchange Rate	1.2001	0.8333	0.3908	Agricultural Commodities	3.2968	0.3033	0.2227
Initial UI Claims	10.7732	0.0928	0.0435	Survey Business Conditions	3.7324	0.2679	0.1967
Manufacturing Hours	1.6853	0.5934	0.2783				
Survey Business Expectations	4.2680	0.2343	0.1099				

Tables 2 and 3 show the calculation for the change in LEI-N and CEI-N between June and July of 2018. 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 0.09% 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	73.23	74.28	-1.04	0.04	-0.04	-0.02%
Airline Passengers	112.54	110.94	1.60	0.14	0.23	0.15%
U.S. Dollar Exchange Rate (Inverse)	84.25	84.69	-0.43	0.39	-0.17	-0.12%
Initial Unemployment Insurance Claims (Inverse)	155.85	172.93	-17.09	0.04	-0.74	-0.50%
Manufacturing Hours	94.57	93.96	0.61	0.28	0.17	0.11%
Survey Business Expectations <sup>1</sup>	54.44		4.44	0.11	0.49	0.33%
Trend Adjustment					0.13	0.09%
Total (weighted average)	147.44	147.37			0.07	0.05%

<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	180.30	179.82	0.48	0.16	0.08	0.06%
Private Wage	114.93	113.03	1.91	0.42	0.80	0.64%
Agricultural Commodities	115.81	116.50	-0.68	0.22	-0.15	-0.12%
Survey Business Conditions <sup>1</sup>	51.81		1.81	0.20	0.36	0.29%
Total (weighted average)	125.49	124.41			1.08	0.87%

<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.

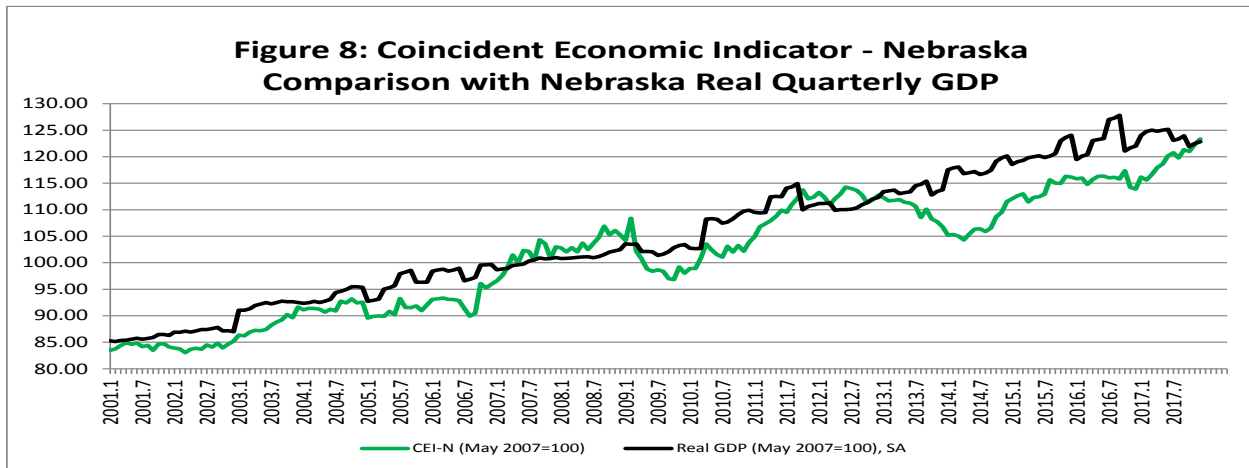


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

