

Nebraska Monthly Economic Indicators: September 26, 2018

Prepared by the UNL College of Business, Bureau of Business Research

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Summary: *The Leading Economic Indicator – Nebraska (LEI-N)¹ rose by 1.00% during August of 2018. Solid growth in the LEI-N, which is designed to predict economic activity six months into the future, suggests that Nebraska economic growth will be solid during the first few months of 2019. Business expectations were a positive component of the leading indicator. Respondents to the August Survey of Nebraska Business reported plans to increase both sales and employment at their businesses over the next six months. There also was an improvement in manufacturing hours and airline passenger counts, while initial claims for unemployment insurance dropped.*

Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) during August 2018 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 1.00% in August.

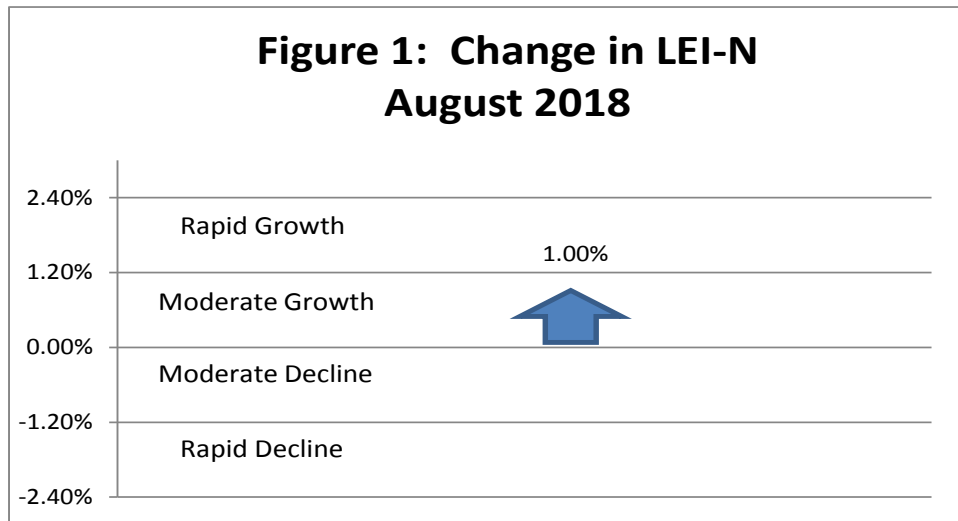


Figure 2 shows the change in the LEI-N over the last six months. The indicator rose slowly from May through July of 2018 but growth improved in August. The August improvement suggests that economic growth will be solid rather than slow in Nebraska during early 2019.

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

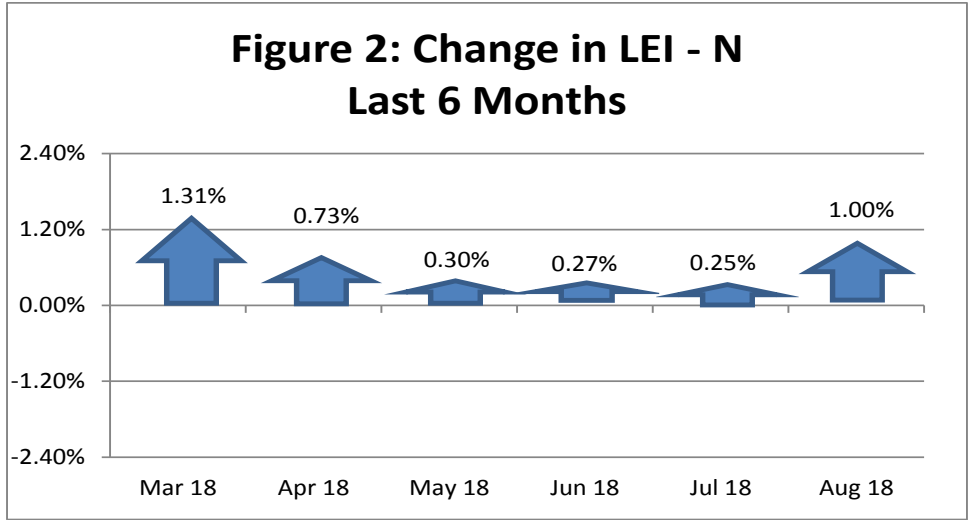
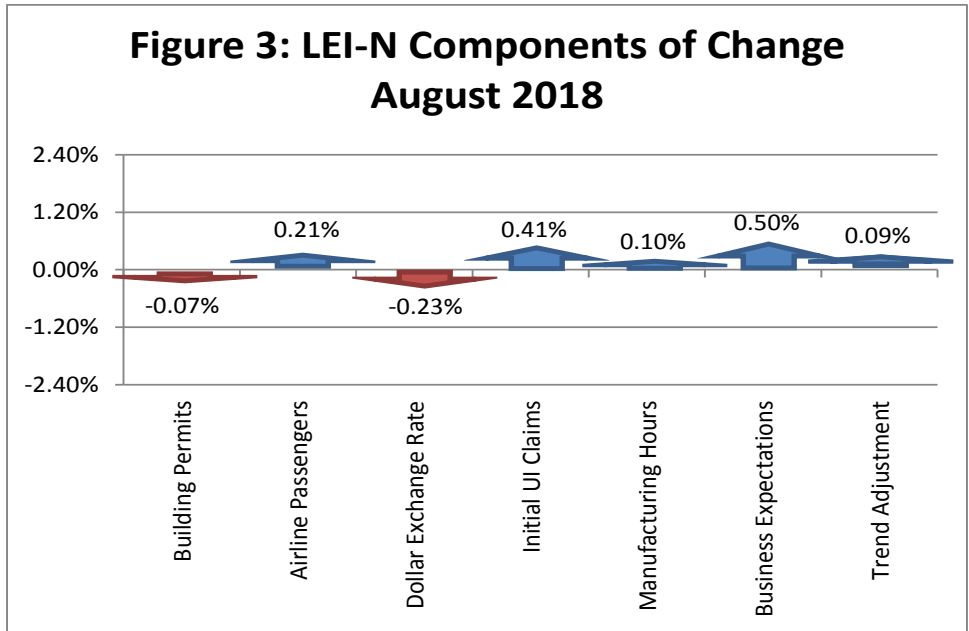


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during August 2018. The change in the overall LEI–N is the weighted average of changes in each component (see page 5). Four of six LEI–N components rose during August. Business expectations were a positive component. Respondents to the *August 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 August while initial claims for unemployment insurance dropped. Among declining components, building permits for single-family homes dropped during August. The value of the U.S. dollar also rose again in August, creating additional pressure on businesses which export. 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 0.24% during August of 2018, as seen in Figure 4.

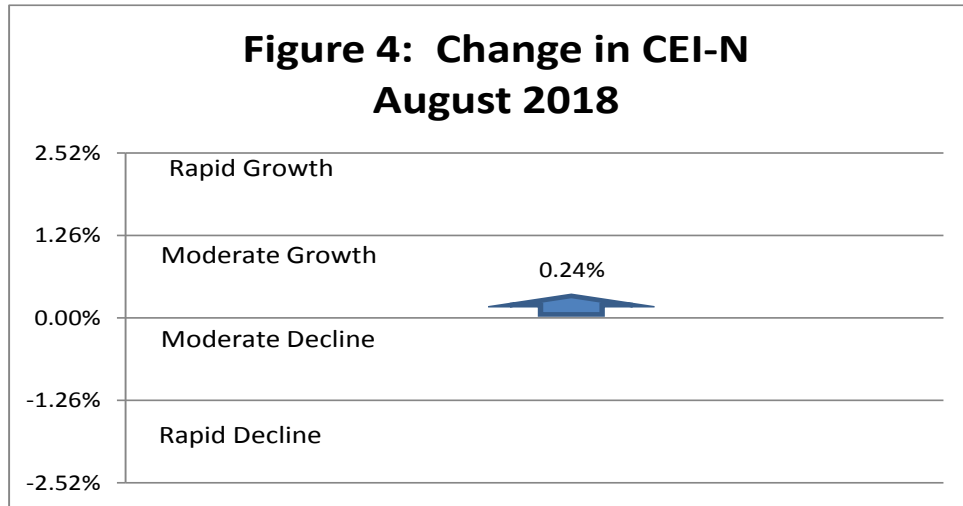
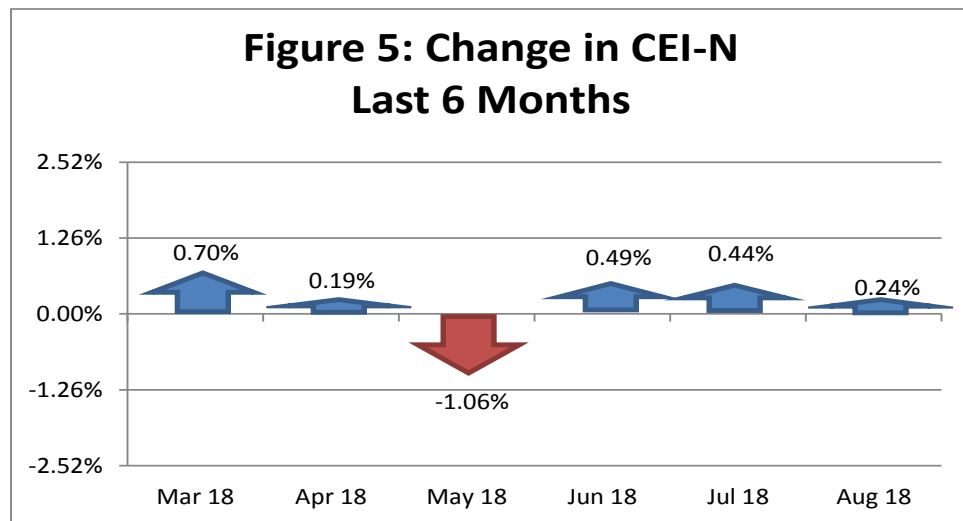


Figure 5 shows the change in the CEI-N over the last 6 months. The CEI-N has risen five of the last six months. The rate of growth declined in August relative to June and July.



Two of four CEI-N components rose during August. Business conditions were positive with respondents to the *August Survey of Nebraska Business* reporting an increase in both sales and employment during recent months. There also was an increase in electricity sales on a seasonally-adjusted basis. However, real private wages and agricultural commodity prices both fell during August. A detailed discussion of the components of the CEI-N and LEI-N can be found at www.cba.unl.edu in *Technical Report: Coincident and Leading Economic Indicators- Nebraska*.

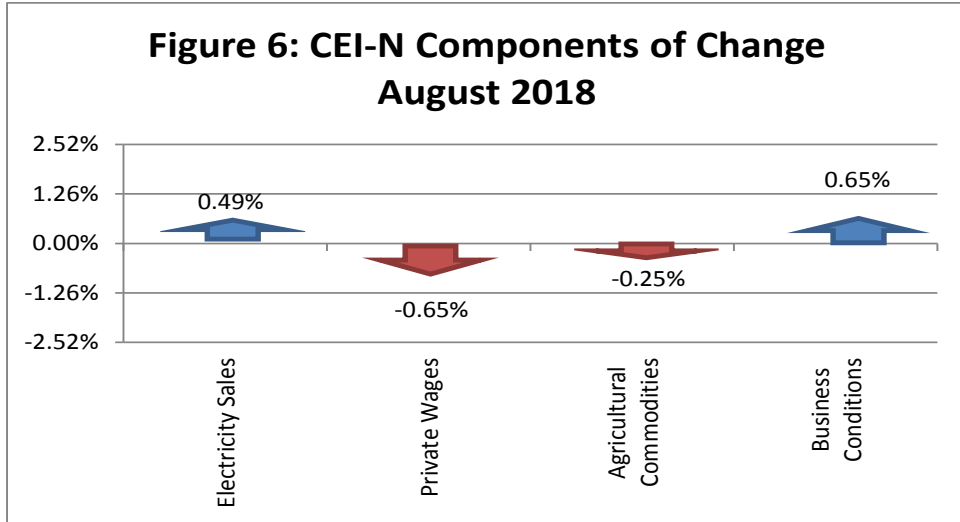
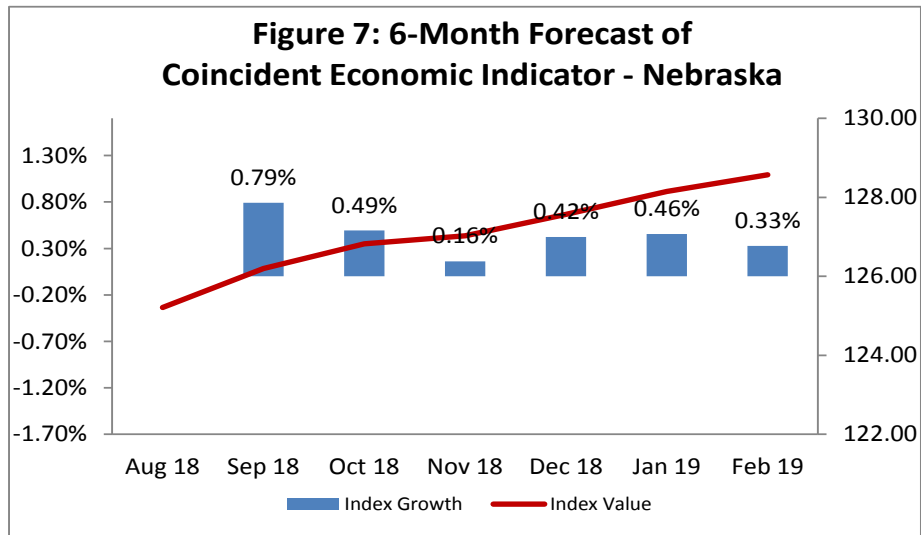


Figure 7 shows the forecast for the CEI-N over the next six months. The Nebraska economy is expected to grow throughout the second half of 2018. Economic growth also will be solid during the first two months of 2019. Forecast growth in the CEI-N is consistent with the improvements in the LEI-N over the 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.

Table 1: Component Weights for LEI-N and CEI-N							
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	13.3002	0.0752	0.0352	Electricity Sales	4.5836	0.2182	0.1602
Airline Passengers	3.2910	0.3039	0.1423	Private Wages	1.7459	0.5728	0.4206
Exchange Rate	1.1988	0.8342	0.3906	Agricultural Commodities	3.2928	0.3037	0.2230
Initial UI Claims	10.7751	0.0928	0.0435	Survey Business Conditions	3.7421	0.2672	0.1962
Manufacturing Hours	1.6804	0.5951	0.2786				
Survey Business Expectations	4.2617	0.2346	0.1099				

Tables 2 and 3 show the calculation for the change in LEI-N and CEI-N between July and August 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.

Table 2: Component Contributions to the Change in Leading Economic Indicator						
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	71.76	74.88	-3.12	0.04	-0.11	-0.07%
Airline Passengers	115.06	112.93	2.13	0.14	0.30	0.21%
U.S. Dollar Exchange Rate (Inverse)	83.41	84.27	-0.86	0.39	-0.33	-0.23%
Initial Unemployment Insurance Claims (Inverse)	169.92	155.86	14.06	0.04	0.61	0.41%
Manufacturing Hours	95.99	95.49	0.50	0.28	0.14	0.10%
Survey Business Expectations ¹	56.69		6.69	0.11	0.74	0.50%
Trend Adjustment					0.13	0.09%
Total (weighted average)	149.28	147.80			1.48	1.00%

Table 3: Component Contributions to the Change in Coincident Economic Indicator						
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	184.42	180.60	3.82	0.16	0.61	0.49%
Private Wage	111.60	113.54	-1.93	0.42	-0.81	-0.65%
Agricultural Commodities	114.27	115.68	-1.41	0.22	-0.31	-0.25%
Survey Business Conditions ¹	54.13		4.13	0.20	0.81	0.65%
Total (weighted average)	125.21	124.91			0.29	0.24%

¹ 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.

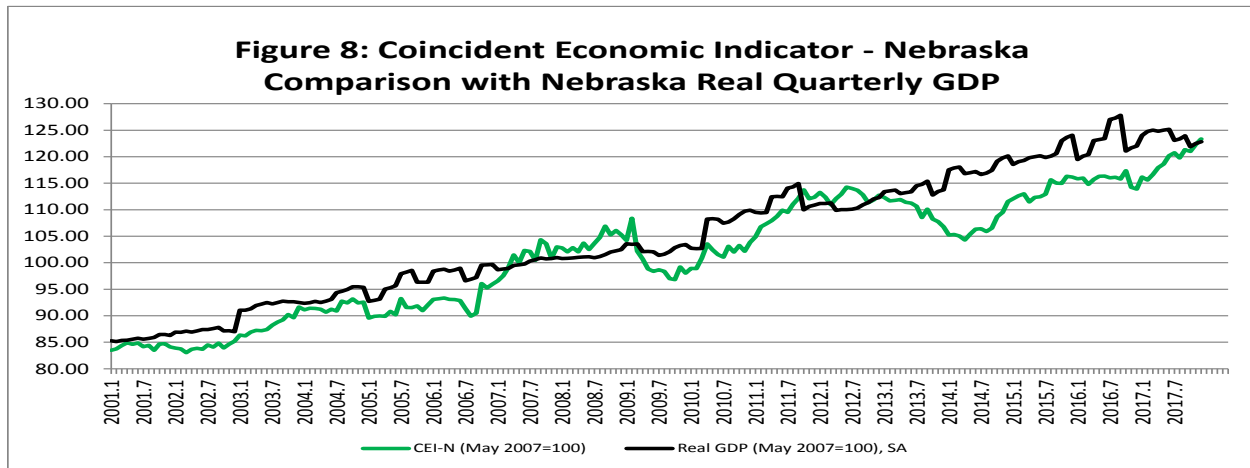


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

