

# Nebraska Monthly Economic Indicators: October 23, 2019

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

Author: Dr. Eric Thompson

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**Summary:** *The Leading Economic Indicator – Nebraska (LEI-N)<sup>1</sup> rose by 0.89% during September of 2019. The increase in the LEI-N, which is designed to predict economic activity six months into the future, implies modest economic growth in Nebraska at the end of 2019 and the first quarter of 2020. The leading indicator rose due to solid business expectations and a drop in initial claims for unemployment insurance. Respondents to the September Survey of Nebraska Business reported plans to increase in sales and employment at their businesses over the next six months. Among other components, building permits for single-family homes rose during September but manufacturing hours and airline passenger counts declined.*

## Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) during September 2019 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 0.89% during September.

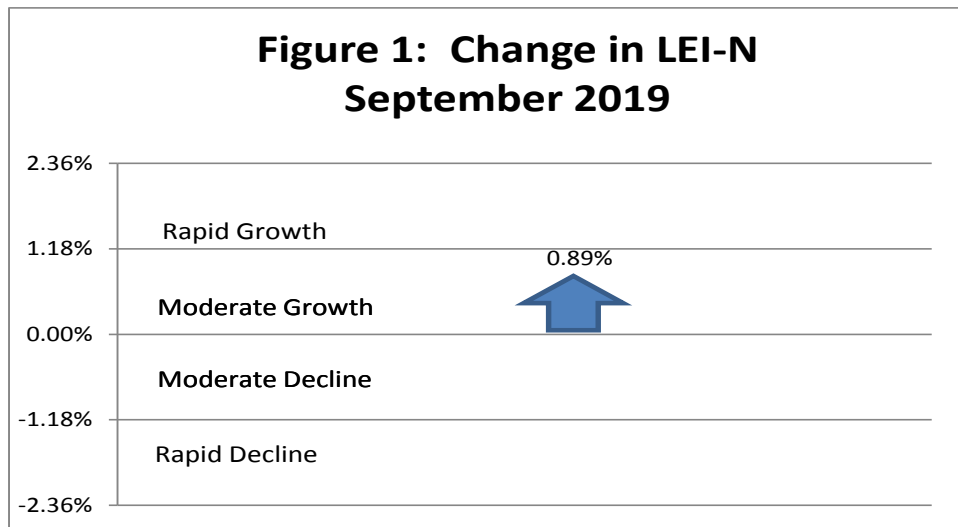


Figure 2 shows that the LEI-N has been volatile in recent months. After steady growth in April and May of 2019, growth has been mixed in June through September, with only a modest overall increase.

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

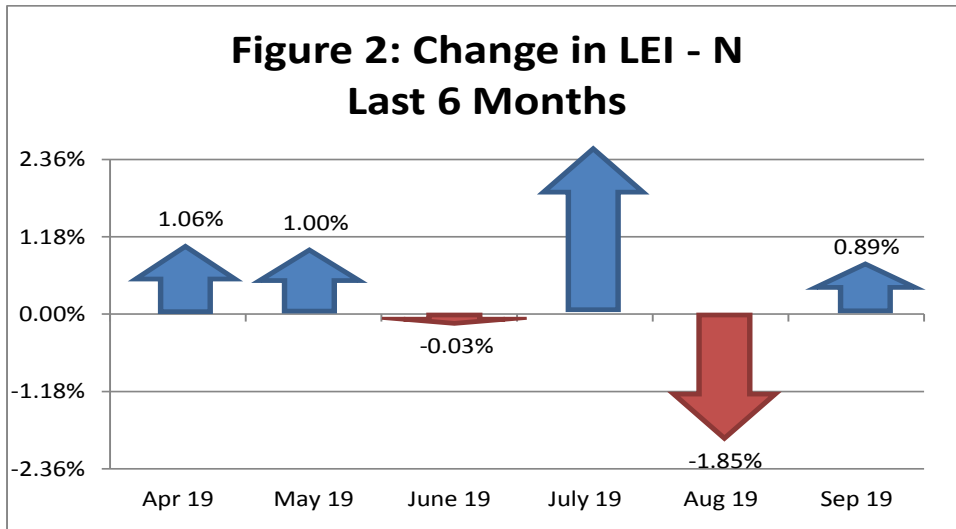
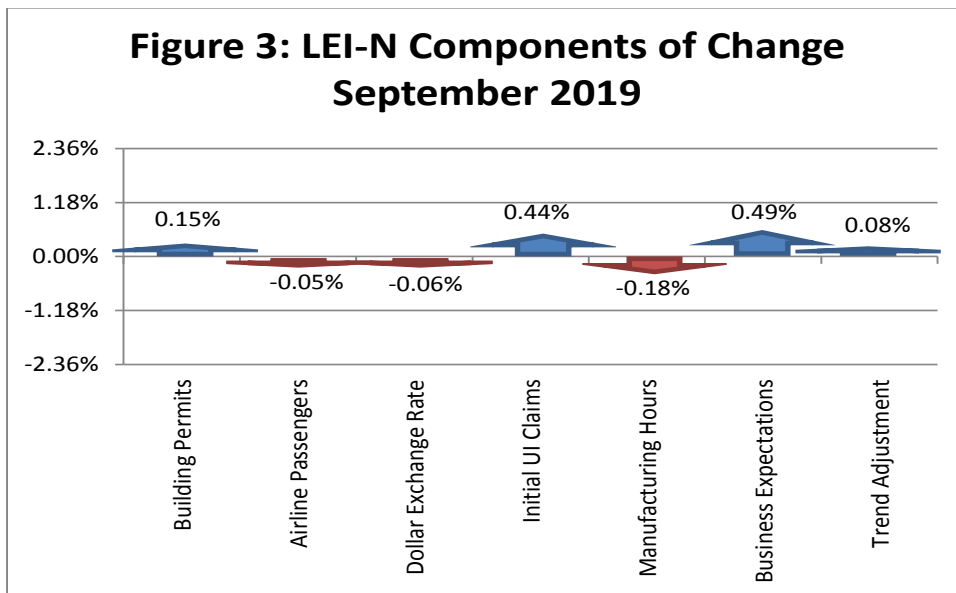


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during September of 2019. The change in the overall LEI–N is the weighted average of changes in each component (see page 5). The increase in the leading indicator primarily resulted from a drop in initial claims for unemployment insurance and solid business expectations. Respondents to the September *Survey of Nebraska Business* reported plans to increase sales and employment at their business over the next six months. Among the remaining components of the leading indicator, building permits for single-family homes rose during September while airline passenger counts and manufacturing hours declined. The value of the dollar also rose modestly, a slight negative for Nebraska 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 2.48% during September of 2019, as seen in Figure 4.

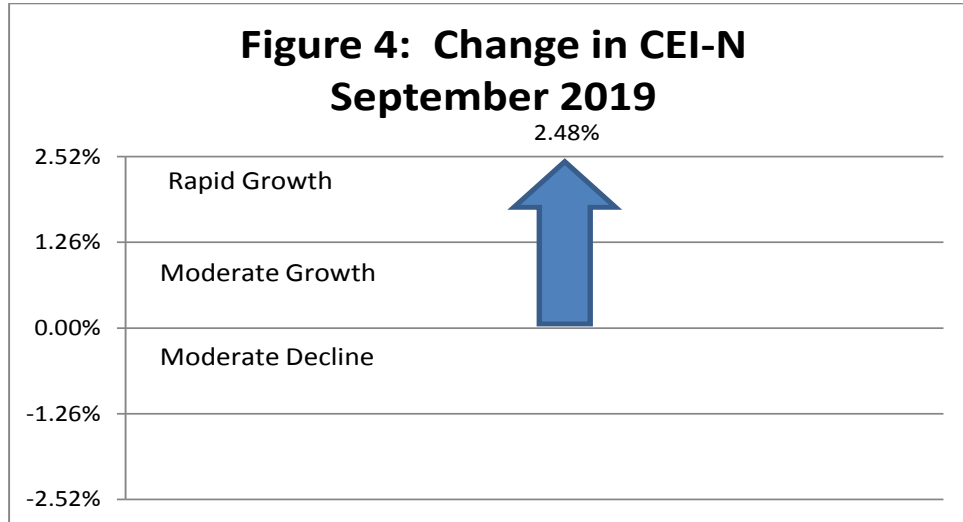
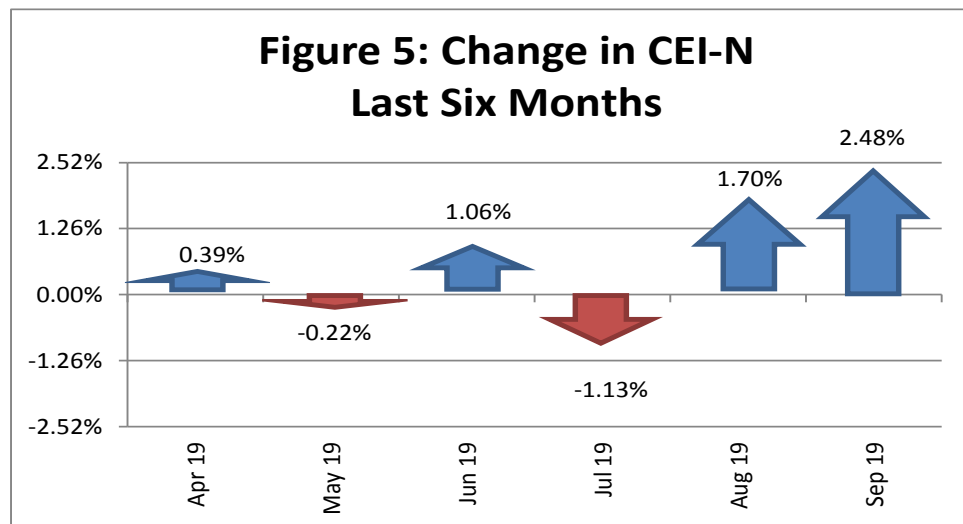


Figure 5 shows the change in the CEI-N over the last 6 months. The CEI-N has risen over the last two months but was mixed during the April to July 2019 period.



The CEI-N rose during September due to an increase in real private wages and electricity sales. Real private wages increased due to rising real wages and weekly hours-worked. Business conditions also were strong. Respondents to the September *Survey of Nebraska Business* reported an increase in sales and employment in recent months. Agricultural commodity prices were little changed during September. A detailed discussion of the components of the CEI-N and LEI-N can be found at [www.business.unl.edu](http://www.business.unl.edu) in *Technical Report: Coincident and Leading Economic Indicators- Nebraska*.

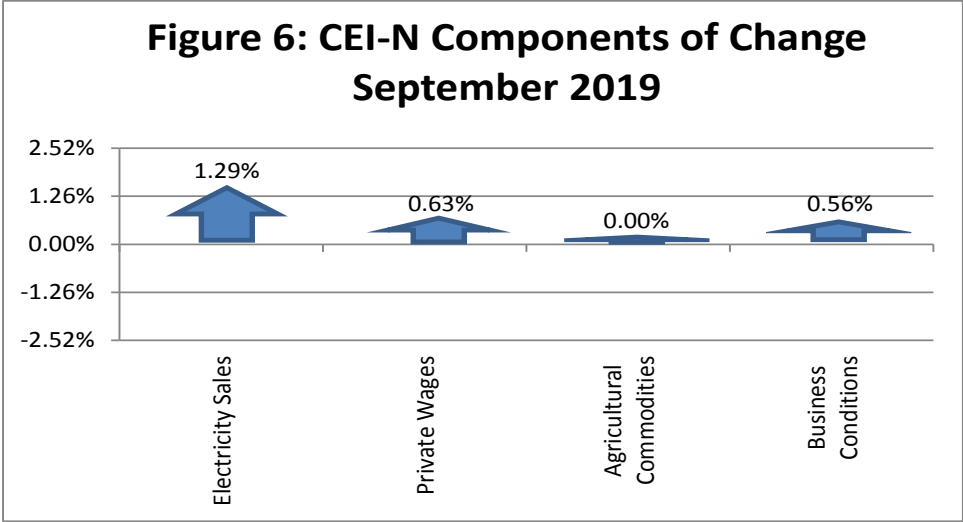
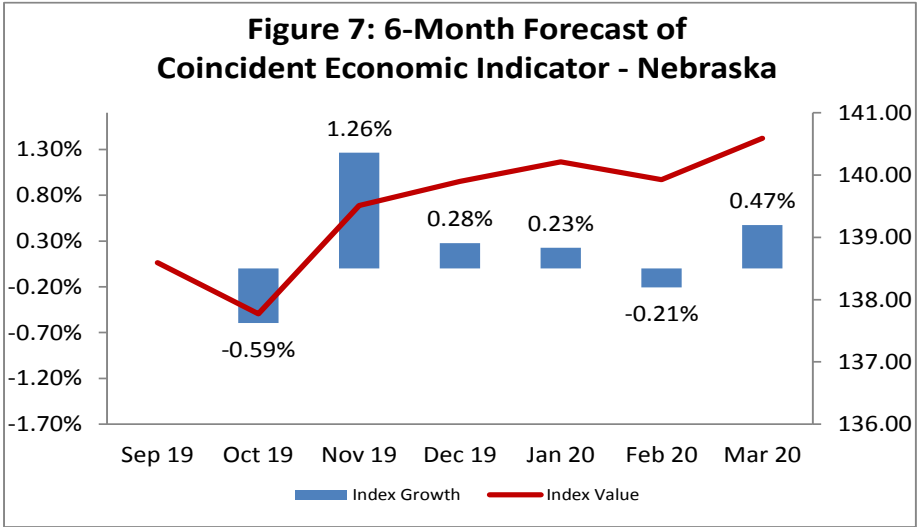


Figure 7 shows the forecast for the CEI-N over the next six months. Solid economic growth is expected in November but the rate of growth will slow afterwards. Overall, modest economic growth is expected in Nebraska at the end of 2019 and the first quarter of 2020. Modest growth in the CEI-N is consistent with uneven growth in the LEI-N in recent 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.

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	13.3362	0.0750	0.0348	Electricity Sales	4.5441	0.2201	0.1652
Airline Passengers	3.2310	0.3095	0.1437	Private Wages	1.8620	0.5371	0.4031
Exchange Rate	1.1761	0.8503	0.3947	Agricultural Commodities	3.2350	0.3091	0.2320
Initial UI Claims	11.7504	0.0851	0.0395	Survey Business Conditions	3.7579	0.2661	0.1997
Manufacturing Hours	1.6726	0.5979	0.2775				
Survey Business Expectations	4.2277	0.2365	0.1098				

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

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	71.60	64.97	6.63	0.03	0.23	0.15%
Airline Passengers	108.63	109.20	-0.57	0.14	-0.08	-0.05%
U.S. Dollar Exchange Rate (Inverse)	79.96	80.19	-0.23	0.39	-0.09	-0.06%
Initial Unemployment Insurance Claims (Inverse)	170.09	152.10	17.99	0.04	0.71	0.45%
Manufacturing Hours	94.29	95.28	-0.99	0.28	-0.28	-0.18%
Survey Business Expectations <sup>1</sup>	57.12		7.12	0.11	0.78	0.50%
Trend Adjustment					0.13	0.08%
Total (weighted average)	158.40	156.99			1.40	0.89%

<sup>1</sup> Survey results are a diffusion Index, which is always compared to 50

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	212.03	201.47	10.56	0.17	1.74	1.29%
Private Wage	117.99	115.87	2.13	0.40	0.86	0.63%
Agricultural Commodities	118.07	118.05	0.02	0.23	0.00	0.00%
Survey Business Conditions <sup>1</sup>	53.76		3.76	0.20	0.75	0.56%
Total (weighted average)	138.59	135.24			3.36	2.48%

<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.

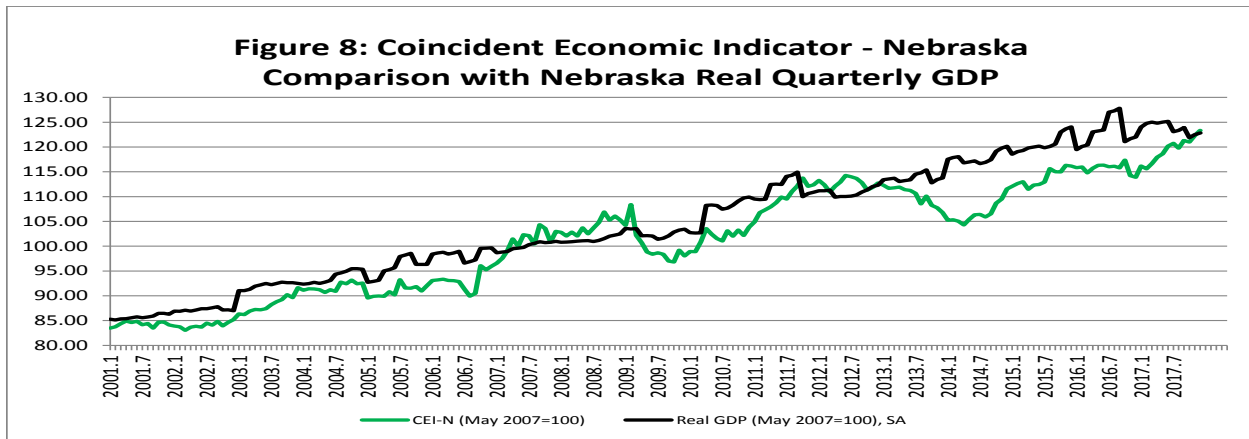


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months 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 0.94.

