

# Nebraska Monthly Economic Indicators: January 22, 2020

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

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**Summary:** *The Leading Economic Indicator – Nebraska (LEI-N)<sup>1</sup> rose by 1.10% during December of 2019. The increase in the LEI-N, which is designed to predict economic activity six months into the future, confirms expectations for moderate economic growth in Nebraska through mid-2020. The leading indicator primarily rose due to strong business expectations. Respondents to the December Survey of Nebraska Business reported plans to increase sales and employment at their businesses over the next six months. There also was a rebound in building permits for single-family homes during the month, suggesting an increase in construction activity mid-year.*

## Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) during December 2019 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 1.10% during December.

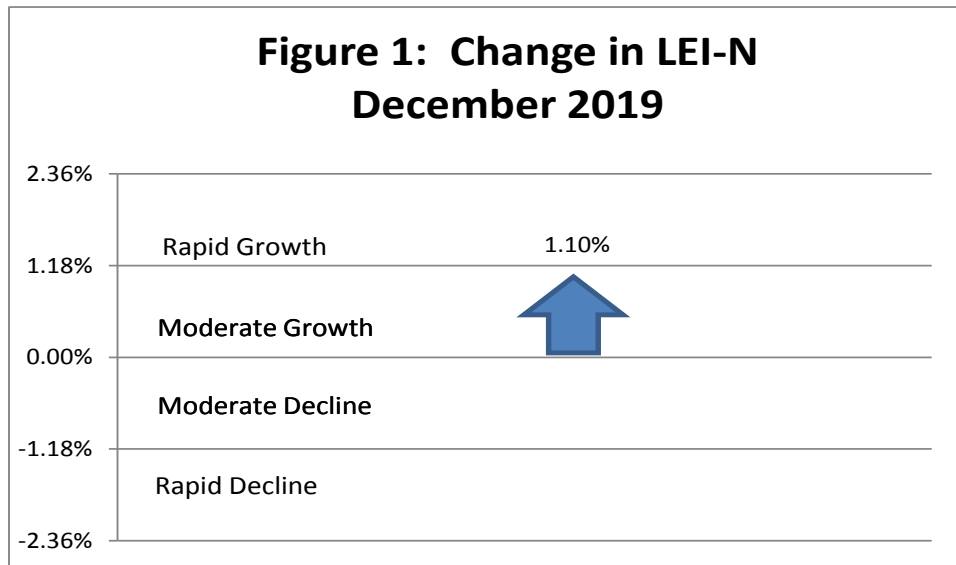


Figure 2 shows that the leading indicator has risen steadily over the last four months. More specifically, the increase in the leading indicator was moderate from September through December.

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

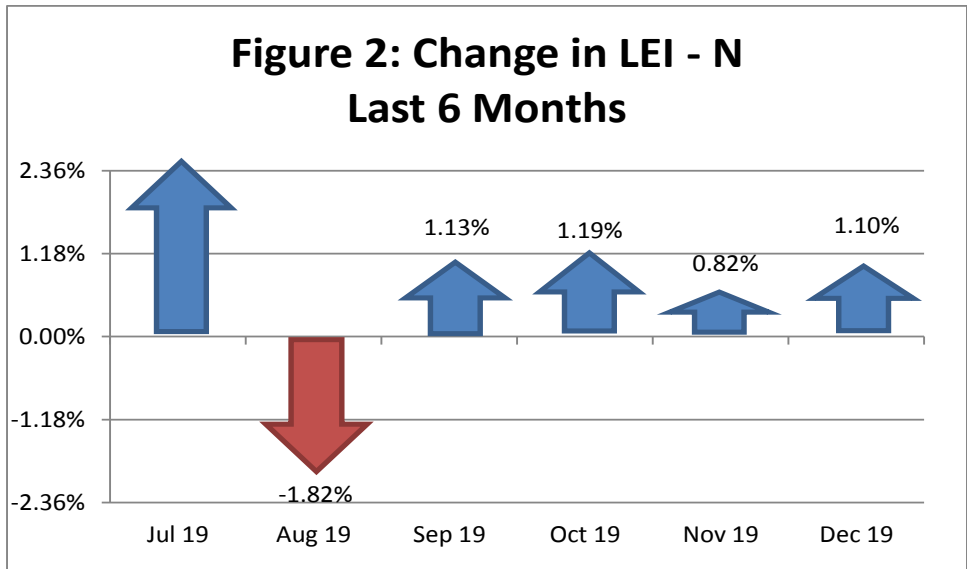
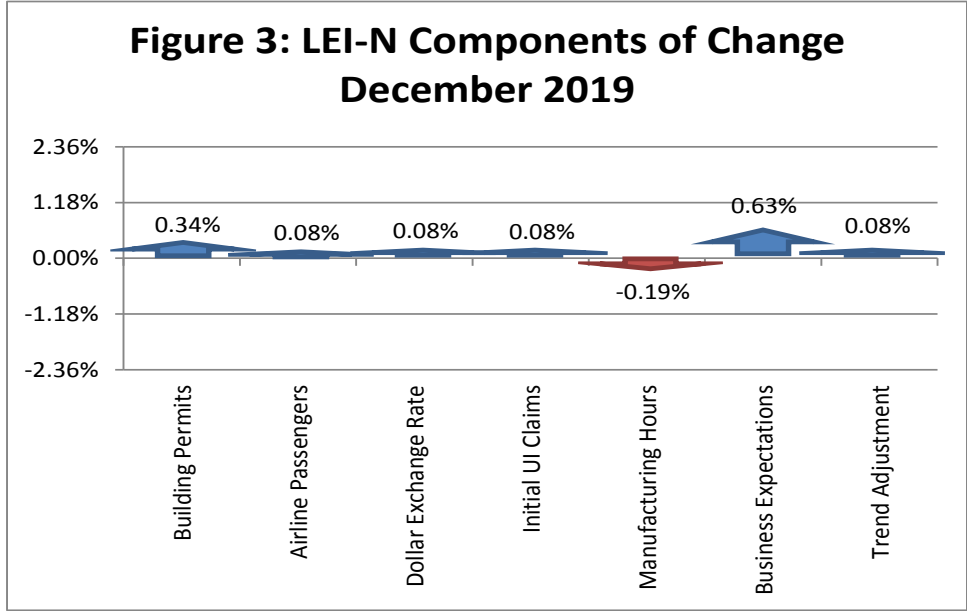


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during December. The change in the overall LEI–N is the weighted average of changes in each component (see page 5). The increase in the leading indicator primarily resulted from strong business expectations. Respondents to the December *Survey of Nebraska Business* reported plans to increase sales and employment at their business over the next six months. There also was a rebound in building permits for single-family homes during the month. 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 1.80% during December of 2019, as seen in Figure 4.

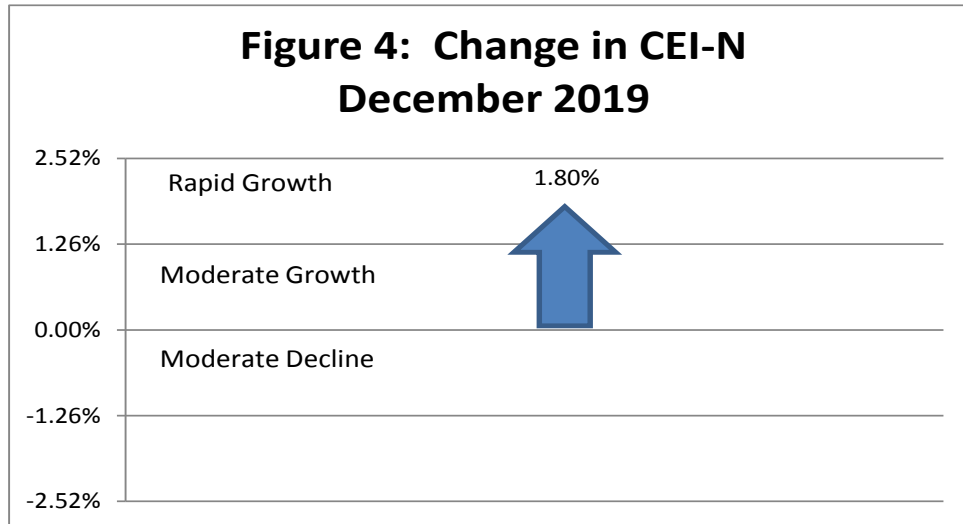
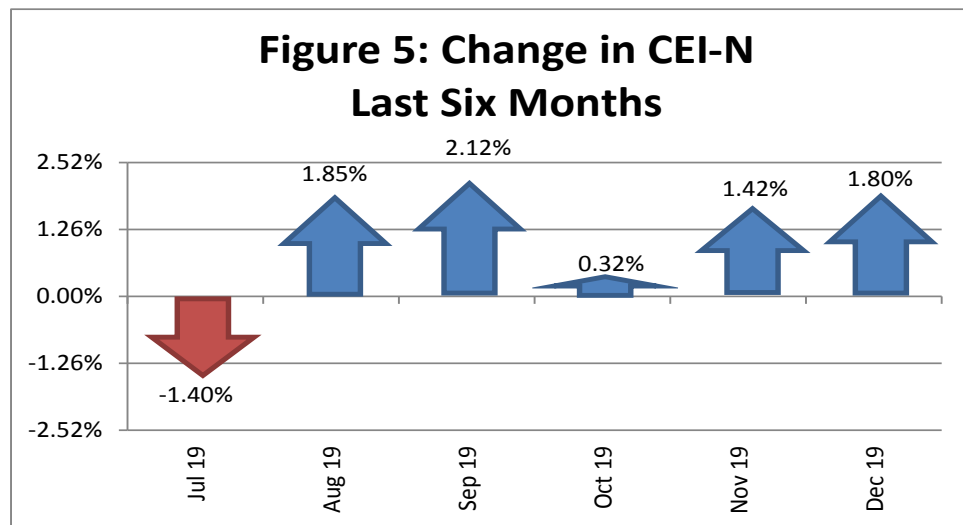


Figure 5 shows the change in the CEI-N over the last 6 months. The Nebraska economy has grown at a rapid rate for four of the last five months.



All four components of the CEI-N rose during December. Respondents to the December *Survey of Nebraska Business* reported strong business conditions in recent months. Electricity sales also rose during the month while there was little change in real weekly wages and agricultural commodity prices. 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*.

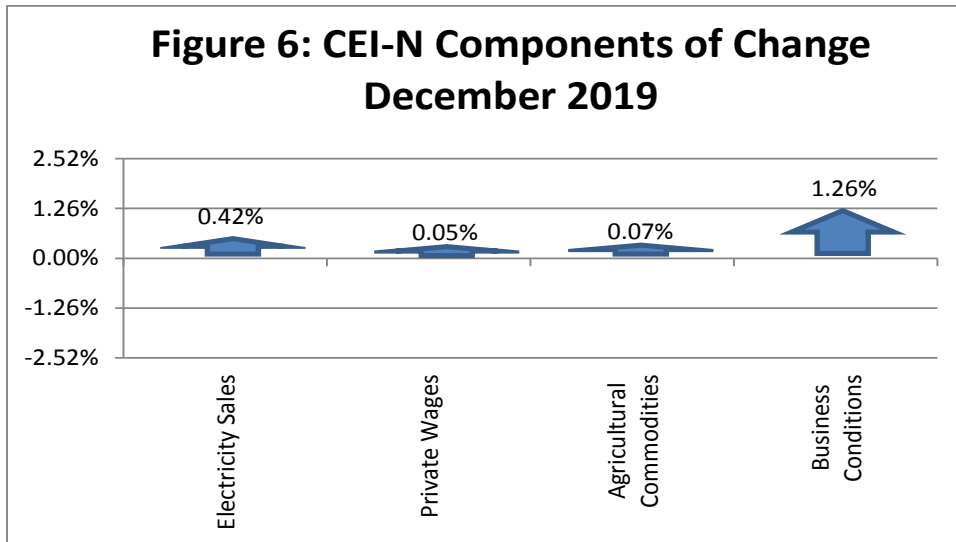
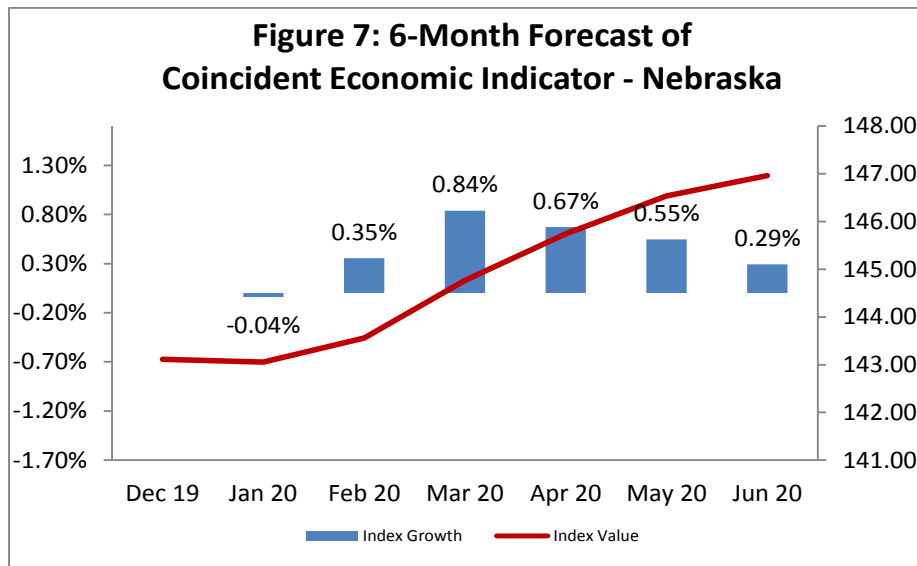


Figure 7 shows the forecast for the CEI-N over the next six months. With the exception of January, moderate economic growth is expected during the first half of 2020. Expectations for moderate growth in the CEI-N are consistent with growth in the LEI-N over the last 6 months (Figure 2).



## 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	13.3945	0.0747	0.0345	Electricity Sales	4.5442	0.2201	0.1646
Airline Passengers	3.2129	0.3112	0.1438	Private Wages	1.8401	0.5434	0.4065
Exchange Rate	1.1693	0.8552	0.3952	Agricultural Commodities	3.2172	0.3108	0.2325
Initial UI Claims	11.8937	0.0841	0.0389	Survey Business Conditions	3.8101	0.2625	0.1963
Manufacturing Hours	1.6625	0.6015	0.2780				
Survey Business Expectations	4.2123	0.2374	0.1097				

Tables 2 and 3 show the calculation for the change in LEI-N and CEI-N between November and December 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	76.85	60.77	16.08	0.03	0.55	0.34%
Airline Passengers	107.91	106.99	0.92	0.14	0.13	0.08%
U.S. Dollar Exchange Rate (Inverse)	80.82	80.47	0.35	0.40	0.14	0.08%
Initial Unemployment Insurance Claims (Inverse)	229.43	226.05	3.37	0.04	0.13	0.08%
Manufacturing Hours	96.20	97.32	-1.12	0.28	-0.31	-0.19%
Survey Business Expectations <sup>1</sup>	59.18		9.18	0.11	1.01	0.62%
Trend Adjustment					0.13	0.08%
<b>Total (weighted average)</b>	<b>163.73</b>	<b>161.94</b>			<b>1.78</b>	<b>1.10%</b>

<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	220.67	217.05	3.63	0.16	0.60	0.42%
Private Wage	117.00	116.84	0.16	0.41	0.06	0.05%
Agricultural Commodities	120.05	119.63	0.42	0.23	0.10	0.07%
Survey Business Conditions <sup>1</sup>	59.05		9.05	0.20	1.78	1.26%
<b>Total (weighted average)</b>	<b>143.11</b>	<b>140.58</b>			<b>2.54</b>	<b>1.80%</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's real GDP for the period. The correlation coefficient between the two-pictured series is 0.95.

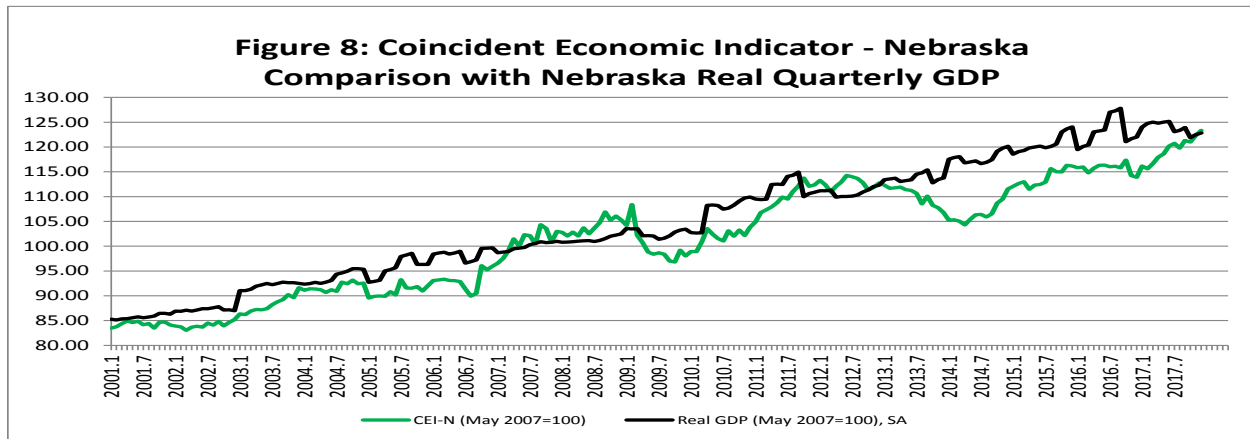


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

