

# Nebraska Monthly Economic Indicators: February 26, 2020

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

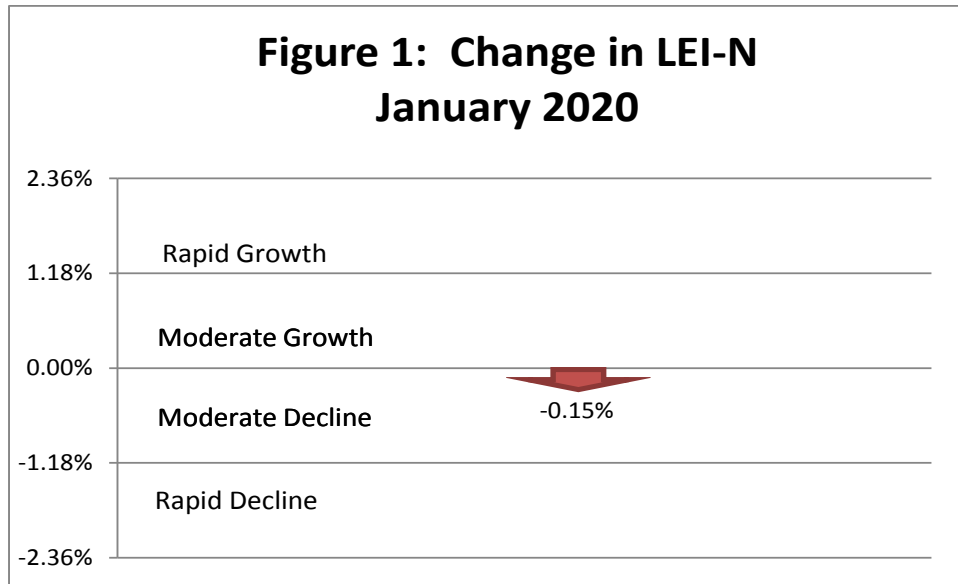
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**Summary:** *The Leading Economic Indicator – Nebraska (LEI-N)<sup>1</sup> fell by 0.15% during January of 2020. The modest decrease in the LEI-N, which is designed to predict economic activity six months into the future, followed a strong increase in December 2019. Taken together, the two monthly results indicate moderate economic growth in Nebraska through mid-2020. The leading indicator fell due to a drop in airline passenger enplanements and an increase in initial claims for unemployment insurance. However, business expectations remained positive during the month, with respondents to the January Survey of Nebraska Business reporting plans to increase sales and employment at their businesses over the next six months. Building permits for single-family homes and the value of the U.S. dollar were little changed during January.*

## Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) during January 2020 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N fell by 0.15% during January.



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

Figure 2 shows the value of the leading indicator over the last six months. After an August decline, the leading indicator rose steadily from September through November and rose sharply in December. The December increase exceeds the initial estimate presented in last month's LEI-N report, due to a larger than expected increase in airline passenger counts.

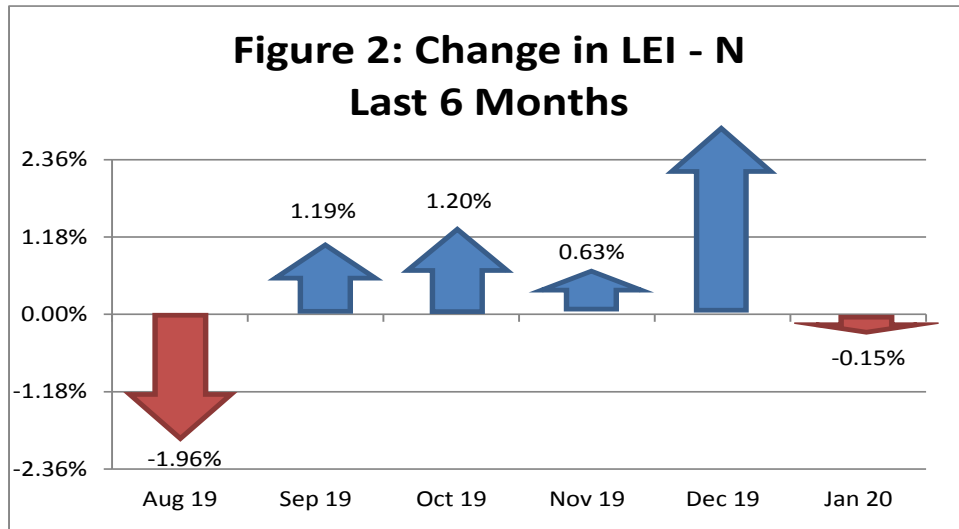
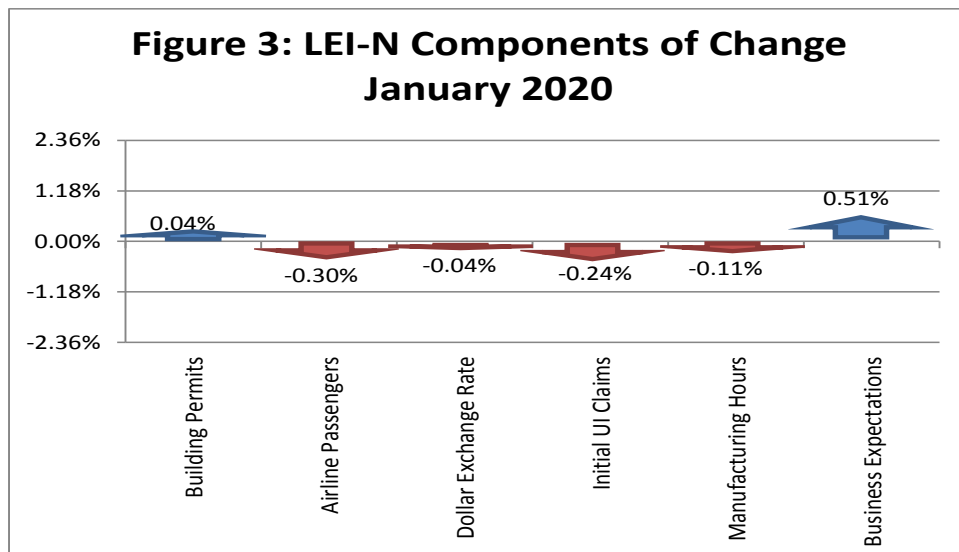


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during January 2020. The change in the overall LEI–N is the weighted average of changes in each component (see page 5). The decrease in the leading indicator resulted from a decline in airline passenger enplanements (after high levels posted during December 2019) and an increase in initial claims for unemployment insurance. However, business expectations were positive. Respondents to the January *Survey of Nebraska Business* reported plans to increase sales and employment at their business over the next six months. During January, there was little change in the dollar exchange rate or in building permits for single-family homes. Note that the Leading Economic Indicator – Nebraska no longer requires a trend adjustment.



## 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 0.33% during January of 2020, as seen in Figure 4.

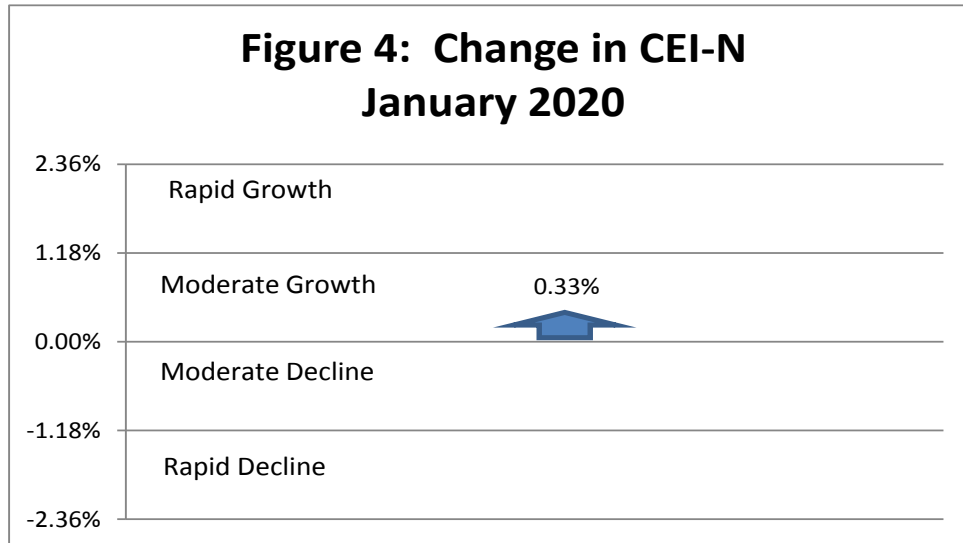
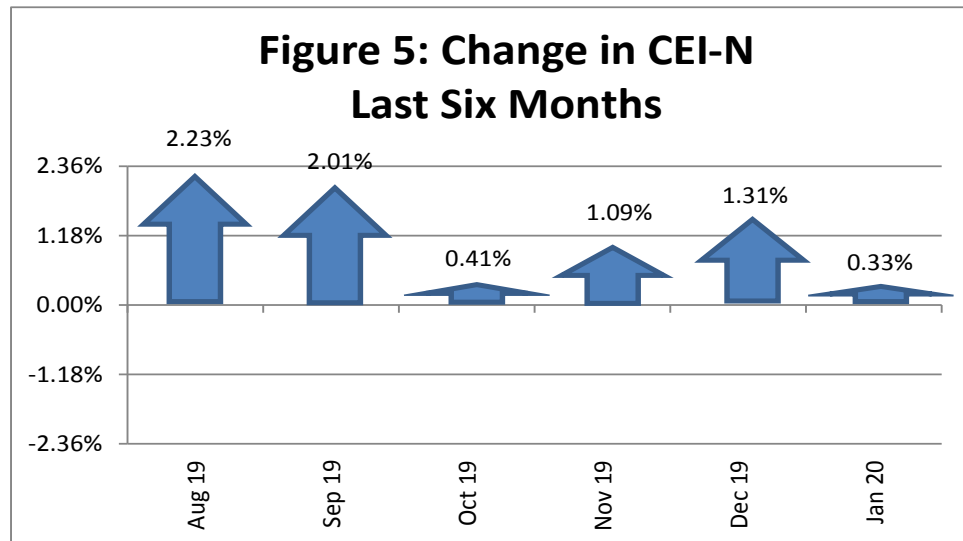


Figure 5 shows the change in the CEI-N over the last 6 months. The Nebraska economy grew at a rapid rate in August and September 2019. Growth moderated during the 4<sup>th</sup> quarter of 2019 and was modest during the 1<sup>st</sup> month of 2020.



Three of four components of the CEI-N rose during January. Respondents to the January *Survey of Nebraska Business* reported positive business conditions in recent months. Further, electricity sales and agricultural commodity prices rose modestly during January. Note that the CEI-N utilizes a new measure of electricity sales in Nebraska, using data provided by the U.S. Department of Energy. Real wages are expected to have fallen during January of 2020. A detailed discussion of the components of the CEI-N and LEI-N can be found at <https://business.unl.edu/outreach/bureau-of-business-research/> in *Technical Report: Coincident and Leading Economic Indicators- Nebraska*.

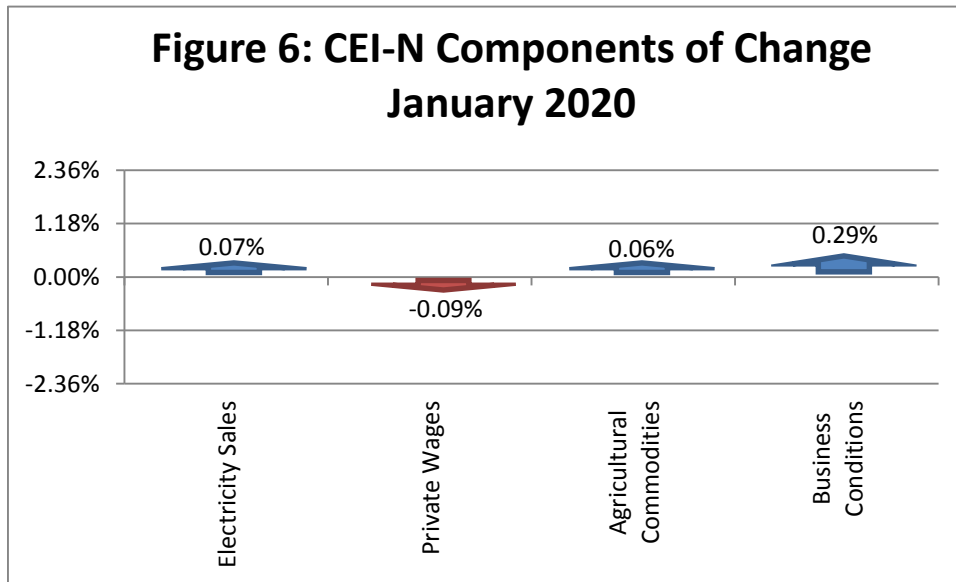
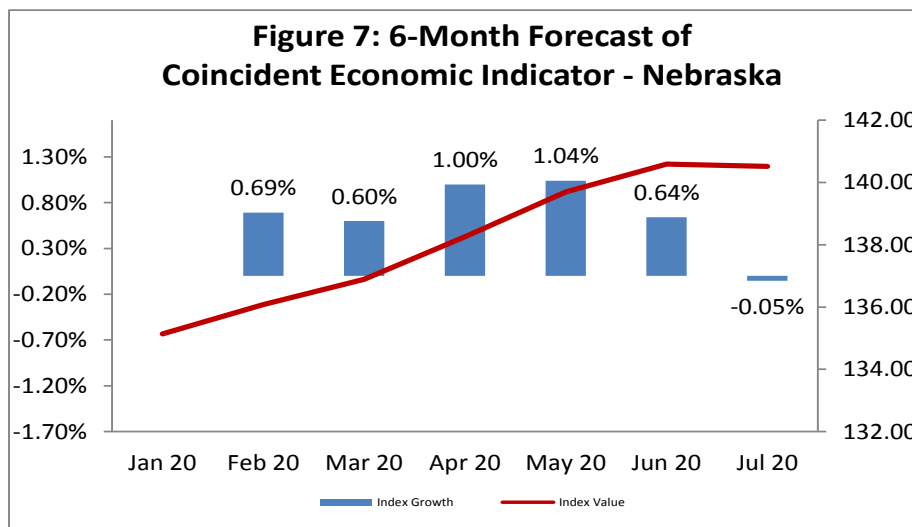


Figure 7 shows the forecast for the CEI-N over the next six months. Moderate economic growth is expected through mid-2020, including a modest decline during July. These expectations for growth in the CEI-N are consistent with growth in the LEI-N over the last 6 months (Figure 2).



## 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 a smaller standard deviation, 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	13.3056	0.0752	0.0348	Electricity Sales	4.1871	0.2388	0.1759
Airline Passengers	3.3142	0.3017	0.1398	Private Wages	1.8353	0.5449	0.4014
Exchange Rate	1.1669	0.8570	0.3971	Agricultural Commodities	3.2141	0.3111	0.2292
Initial UI Claims	12.1546	0.0823	0.0381	Survey Business Conditions	3.8059	0.2628	0.1935
Manufacturing Hours	1.6557	0.6040	0.2799				
Survey Business Expectations	4.2069	0.2377	0.1102				

Tables 2 and 3 show the calculation for the change in LEI-N and CEI-N between December of 2019 and January of 2020. 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 the CEI-N utilizes a new measure of electricity sales for Nebraska using data from the U.S. Department of Energy. The new data source yields a lower value for the CEI-N and its energy sales component. Note also that the LEI-N no longer utilizes 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	78.38	76.38	1.99	0.03	0.07	0.04%
Airline Passengers	115.77	119.29	-3.52	0.14	-0.49	-0.30%
U.S. Dollar Exchange Rate (Inverse)	80.66	80.82	-0.16	0.40	-0.06	-0.04%
Initial Unemployment Insurance Claims (Inverse)	251.63	261.97	-10.34	0.04	-0.39	-0.24%
Manufacturing Hours	95.99	96.66	-0.66	0.28	-0.19	-0.11%
Survey Business Expectations <sup>1</sup>	57.50		7.50	0.11	0.83	0.51%
<b>Total (weighted average)</b>	<b>161.75</b>	<b>161.99</b>			<b>-0.24</b>	<b>-0.15%</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	161.94	161.38	0.56	0.18	0.10	0.07%
Private Wage	115.96	116.26	-0.30	0.40	-0.12	-0.09%
Agricultural Commodities	120.68	120.33	0.35	0.23	0.08	0.06%
Survey Business Conditions <sup>1</sup>	51.99		1.99	0.19	0.38	0.29%
<b>Total (weighted average)</b>	<b>135.14</b>	<b>134.70</b>			<b>0.44</b>	<b>0.33%</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 2018, using data provided by the Bureau of Economic Analysis, U.S. Department of Commerce. CEI-N closely tracks Nebraska’s real GDP for the period. The correlation coefficient between the two-pictured series is 0.95.

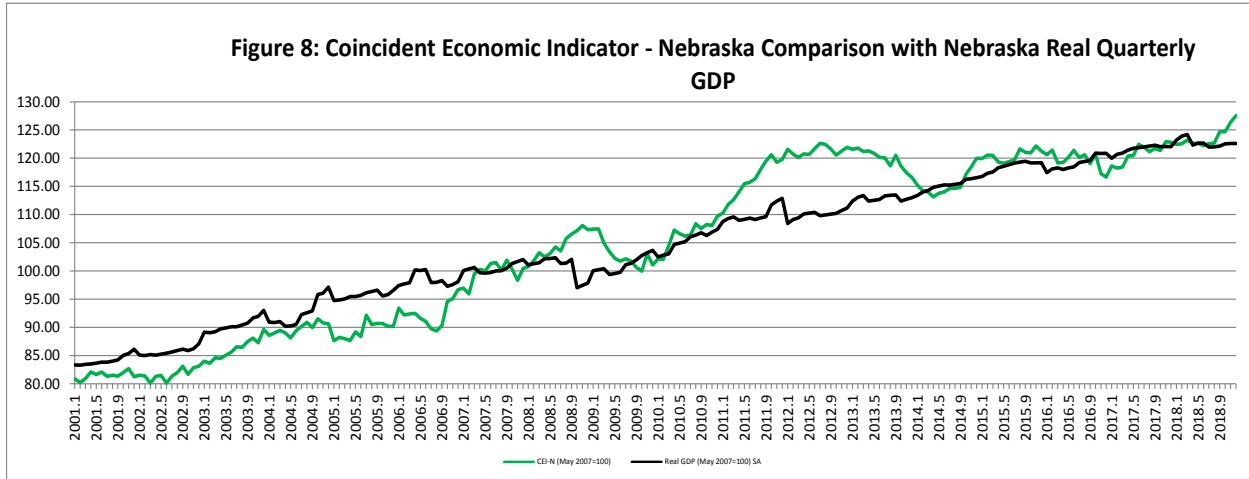


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months earlier) with the actual movement in CEI-N. In Figure 9, predicted values using the LEI-N track trends and movement in the CEI-N. The correlation coefficient between CEI-N and six-month forward values of LEI-N is 0.84.

