Nebraska Monthly Economic Indicators: January 29, 2021

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

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Summary: *The LEI-N rose by 0.36% during December 2020. The indicator has risen during each of the last three months. The rising indicator suggests that the Nebraska economy will expand solidly over the next 6 months. Three of the six components of the leading indicator improved during December. Building permits for single-family homes and airline passenger counts both rose modestly. Further, the value of the U.S. dollar dropped sharply in December, which will improve competitive conditions for agricultural producers, manufacturers, and other Nebraska businesses which export. Business expectations, however, were one area of concern. Respondents to the December Survey of Nebraska Business plan to keep employment steady over the next six months, but expect that sales will fall. Manufacturing hours-worked also declined in December*

Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) during December of 2020 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 0.36% during December.

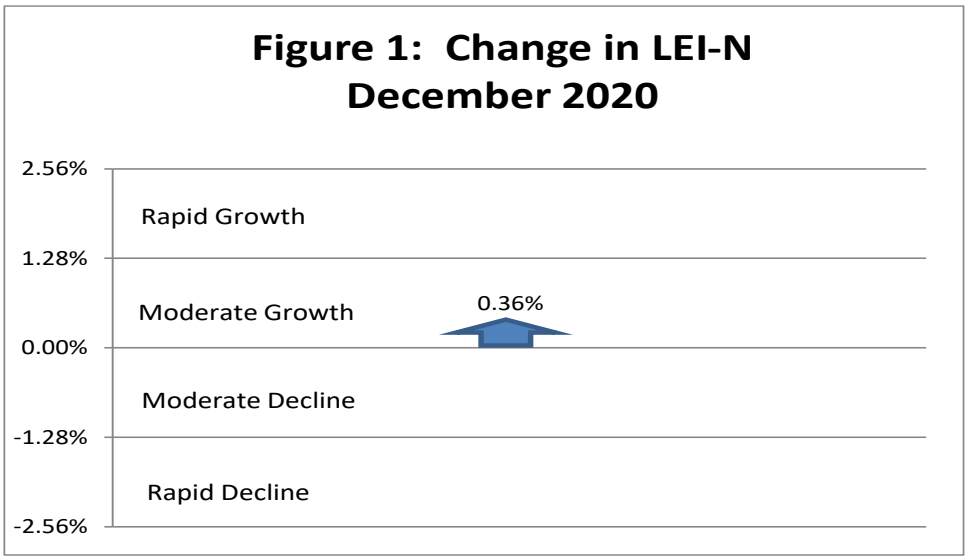


Figure 2 shows the change in the leading indicator over the last six months. The leading indicator has risen for three consecutive months. This pattern is consistent with an expectation of economic growth in Nebraska through mid-2021.

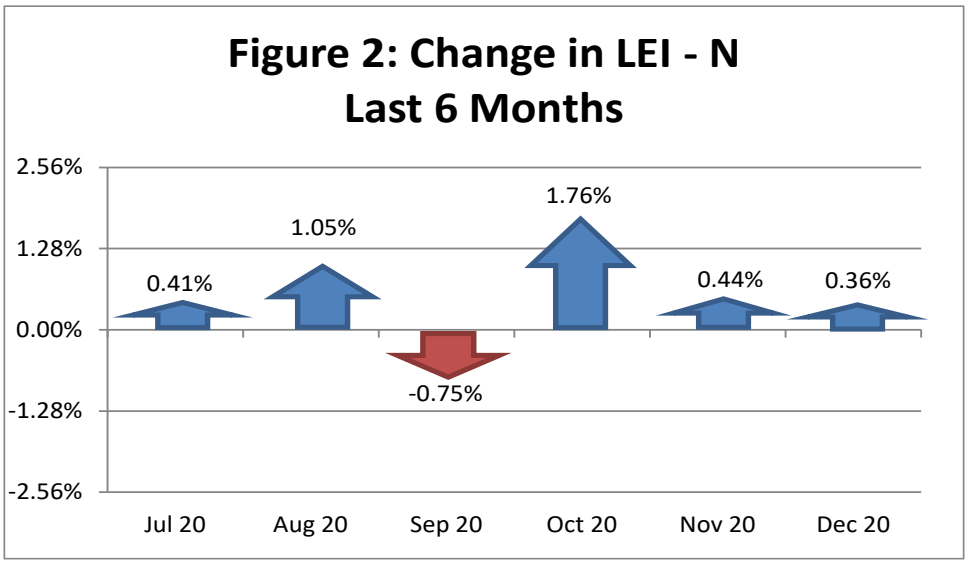
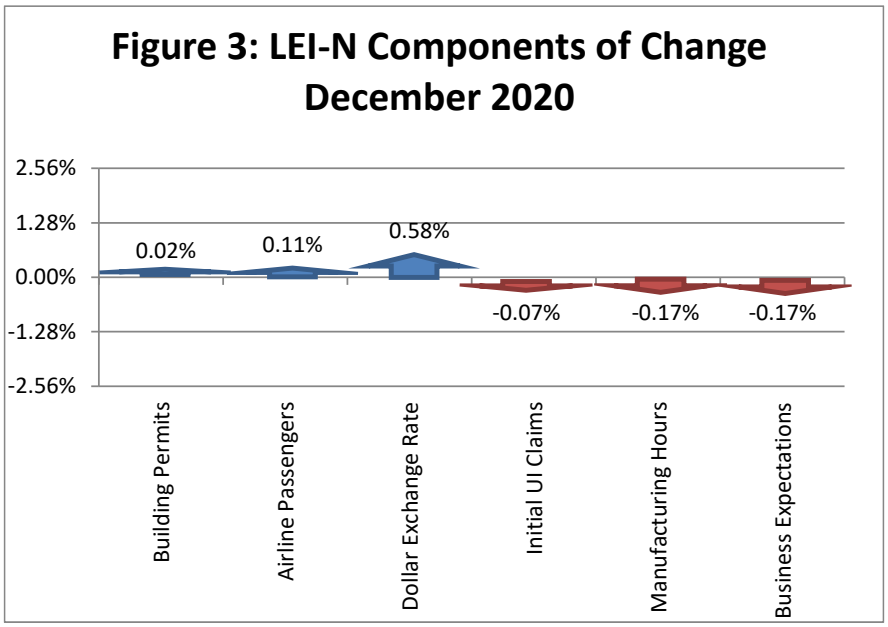


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during December 2020. The change in the LEI–N is the weighted average of changes in each component (see page 5). Three of six LEI-N components improved during December. Building permits for single-family homes and airline passenger counts both rose modestly during December. There also was a sharp drop in the value of the U.S. dollar. A declining dollar improves the competitive position of agricultural producers, manufacturers, and other businesses that export. Business expectations were one area of concern. Respondents to the December *Survey of Nebraska Business* reported plans to hold employment steady at their businesses over the next six months but expect sales to drop. Manufacturing hours-worked also declined during December.



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 fell by 1.74% during December 2020, as seen in Figure 4.

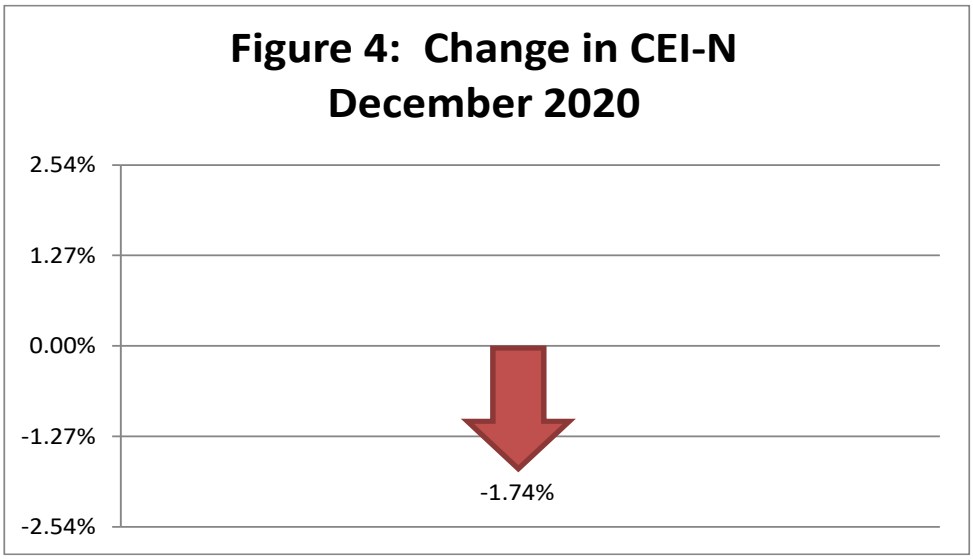
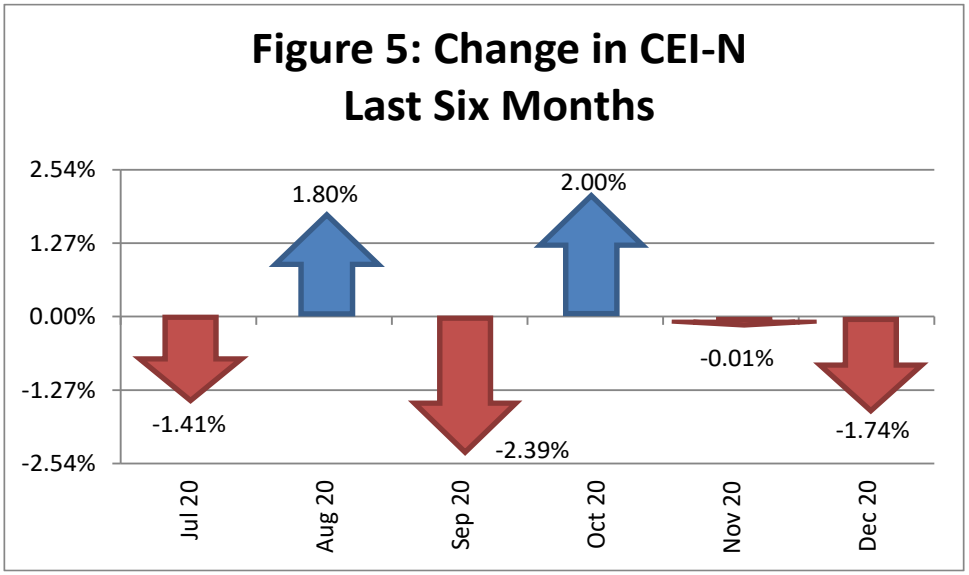


Figure 5 shows the change in the CEI-N over the last 6 months. Economic growth has been mixed in Nebraska, with the economy expanding in some months and declining in others. The overall pattern was a decline in the CEI-N in the third quarter of 2020 but a small increase in the fourth quarter.



Three of four components of the CEI-N fell during December, as seen in Figure 6. Business conditions were negative as respondents to the December *Survey of Nebraska Business* reported a decline in both sales and employment in recent months. There also was a modest decline in the revenue from electricity sales during December and a drop in real private wages. Agricultural commodity prices, however, did rise during December, as corn prices have been increasing. A detailed discussion of the components of the CEI-N and LEI-N can be found at https://business.unl.edu/research/bureau-of-business-research/ in *Technical Report: Coincident and Leading Economic Indicators- Nebraska.*

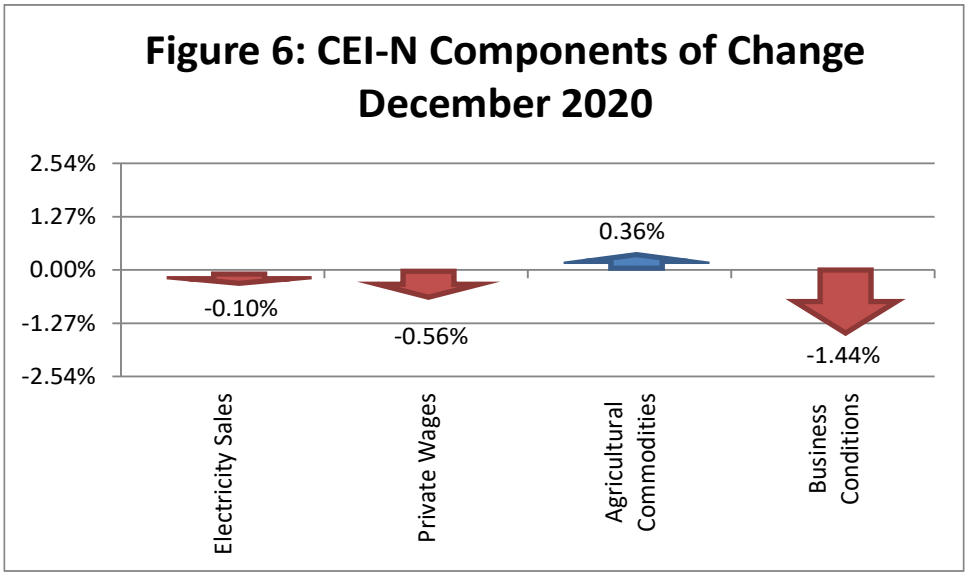
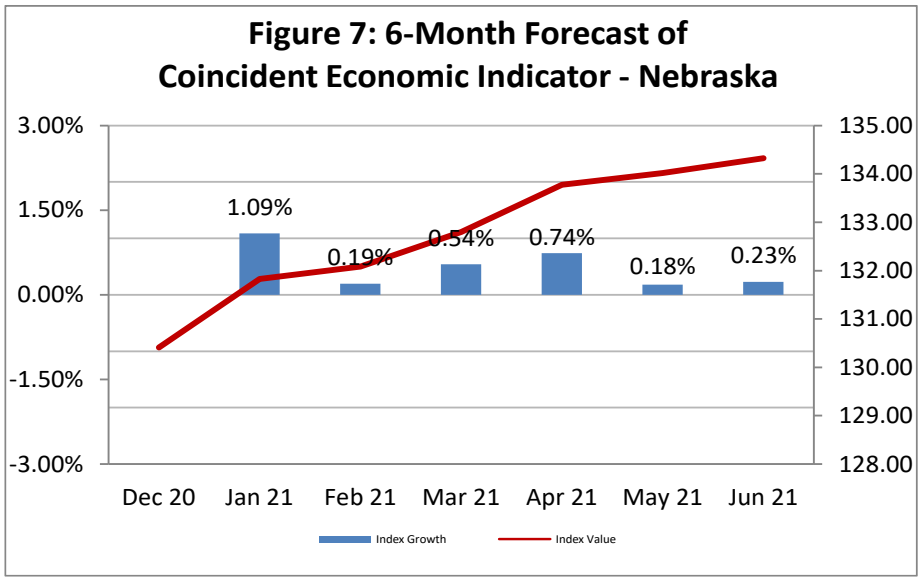


Figure 7 shows a forecast for the CEI-N over the next six months. The forecast calls for growth in the CEI-N through June 2021. This finding is consistent with the recent increase in the LEI-N reported in Figure 2.



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.

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	13.5456	0.0738	0.0376	Electricity Sales	4.1372	0.2417	0.1921
Airline Passengers	6.0887	0.1642	0.0836	Private Wages	2.1256	0.4705	0.3739
Exchange Rate	1.1864	0.8429	0.4289	Agricultural Commodities	3.3868	0.2953	0.2346
Initial UI Claims	17.6223	0.0567	0.0289	Survey Business Conditions	3.9846	0.2510	0.1994
Manufacturing Hours	1.7015	0.5877	0.2991				
Survey Business Expectations	4.1739	0.2396	0.1219				

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

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	84.94	81.31	3.63	0.04	0.14	0.09%
Airline Passengers	42.50	40.49	2.01	0.08	0.17	0.11%
U.S. Dollar Exchange Rate (Inverse)	84.14	82.03	2.11	0.43	0.90	0.58%
Initial Unemployment Insurance Claims (Inverse)	86.69	90.65	-3.96	0.03	-0.11	-0.07%
Manufacturing Hours	93.75	94.66	-0.91	0.30	-0.27	-0.17%
Survey Business Expectations[1]	47.88		-2.12	0.12	-0.26	-0.17%
Total (weighted average)	156.81	156.25			0.56	0.36%

[1] Survey results are a diffusion Index, which is always compared to 50

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	157.83	158.54	-0.71	0.19	-0.14	-0.10%
Private Wage	114.11	116.11	-1.99	0.37	-0.75	-0.56%
Agricultural Commodities	111.45	109.41	2.03	0.23	0.48	0.36%
Survey Business Conditions[1]	40.45		-9.55	0.20	-1.91	-1.44%
Total (weighted average)	130.41	132.72			-2.31	-1.74%

[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 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.

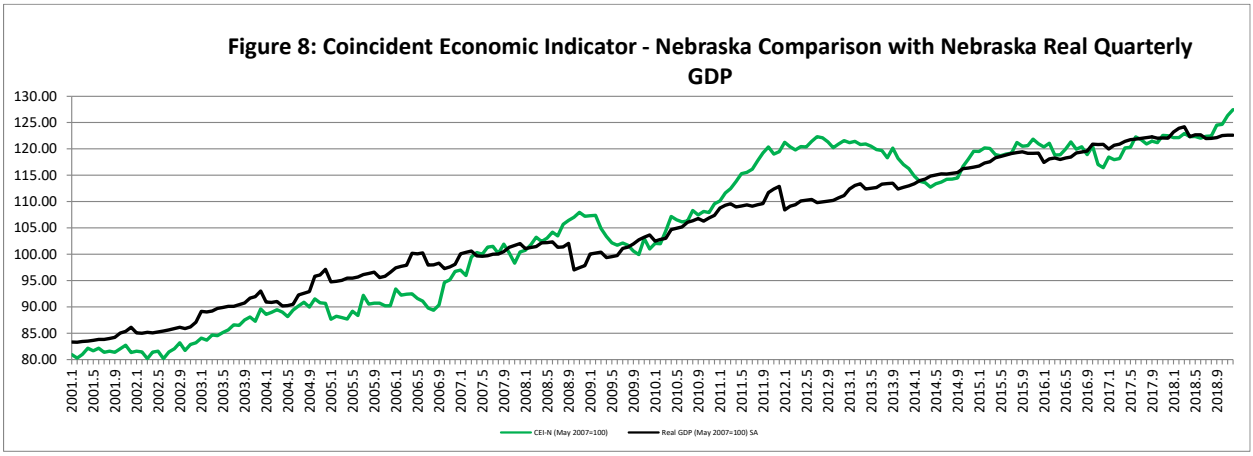


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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