

Nebraska Monthly Economic Indicators: October 28, 2020

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

Author: Dr. Eric Thompson

Leading Economic Indicator.....	1
Coincident Economic Indicator.....	3
Weights and Component Shares.....	5
Performance of the LEI-N and CEI-N.....	6

Summary: The LEI-N rose slightly during September 2020, by 0.09%. While the pace of improvement has slowed, September marks the fifth consecutive increase in the leading indicator after sharp declines in March and April. The September result indicates that the Nebraska economy will grow at a modest pace over the next 6 months. Four of the components of the leading indicator improved during September. Airline passenger enplanements grew slowly after seasonal adjustment, but there was a drop in initial claims for unemployment insurance during the month. The value of the U.S. dollar also declined, which will improve competitive conditions for businesses which export. Business expectations also were positive, according to the respondents to the monthly Survey of Nebraska Business. In terms of declining components, building permits for single-family homes declined during September and manufacturing hours-worked fell for the third consecutive month.

Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) during September of 2020 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 0.09% during September.

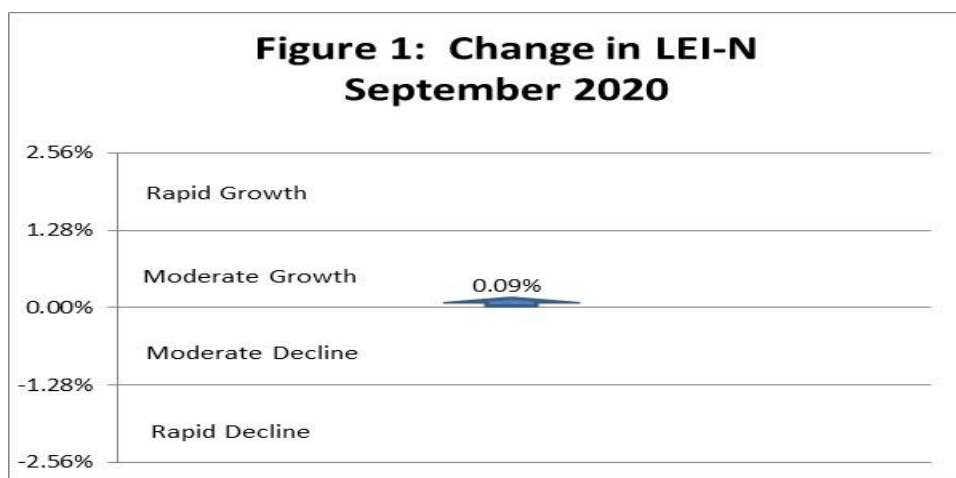


Figure 2 shows the value of the leading indicator over the last six months. The leading indicator dropped sharply in April (and March) before rebounding over the last five months. The pace of improvement, however, has slowed significantly in September.

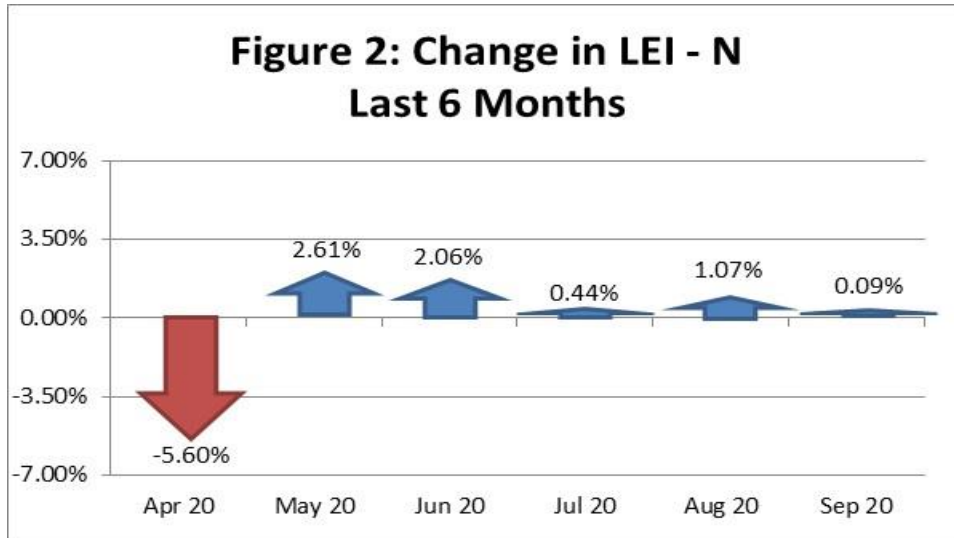
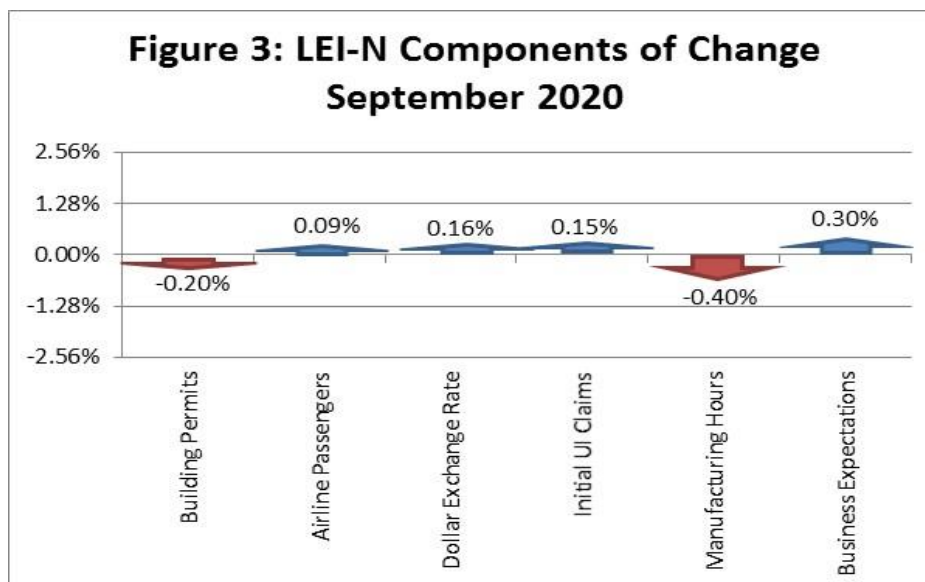


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during September 2020. The change in the overall LEI–N is the weighted average of changes in each component (see page 5). Four of six LEI–N components improved during September. Business expectations were positive, with respondents to the September *Survey of Nebraska Business* reporting plans to increase sales and employment over the next six months. Airline passenger counts also rose modestly in September, although airline activity remains far below pre-pandemic levels. In addition, initial claims for unemployment insurance and the value of the U.S. dollar dropped during the month. A decline in the dollar is positive for Nebraska businesses which export. Among declining components, there was a drop in manufacturing hours-worked, a third consecutive monthly decline. There was also a drop in building permits for single-family homes during August.

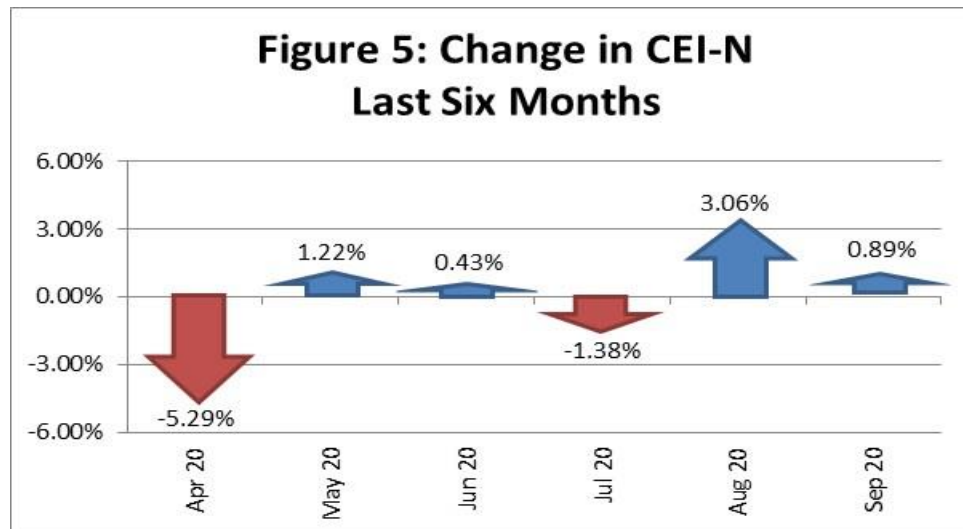


Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. The CEI-N rose by a rapid 0.89% during September 2020, as seen in Figure 4.

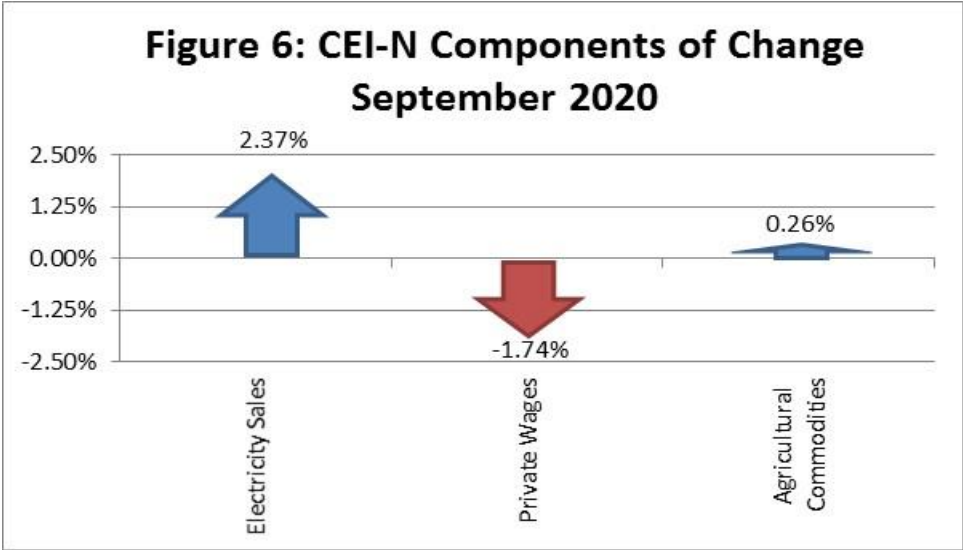


Figure 5 shows the change in the CEI-N over the last 6 months. The Nebraska economy shrank in April (as well as in March). The economy has rebounded in the months that followed but has not fully recovered from the drop in March and April.



Two components of the CEI-N rose during September, as seen in Figure 6. There was an increase in seasonally-adjusted revenue from electricity sales and agricultural commodity prices during the month. However, private wages fell during September due to a drop in real hourly wages and weekly hours-

worked. Note that the results for business conditions based on the monthly survey were excluded from the September CEI-N calculation. Such responses would likely reflect the declining economy in April much more than current conditions. 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*.



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	13.5729	0.0737	0.0372	Electricity Sales	4.2631	0.2346	0.2346
Airline Passengers	6.1388	0.1629	0.0823	Private Wages	2.1088	0.4742	0.4743
Exchange Rate	1.1811	0.8467	0.4278	Agricultural Commodities	3.4352	0.2911	0.2911
Initial UI Claims	17.7326	0.0564	0.0285				
Manufacturing Hours	1.6672	0.5998	0.3031				
Survey Business Expectations	4.1729	0.2396	0.1211				

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

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	91.03	99.09	-8.06	0.04	-0.30	-0.20%
Airline Passengers	40.41	38.70	1.71	0.08	0.14	0.09%
U.S. Dollar Exchange Rate (Inverse)	79.75	79.19	0.56	0.43	0.24	0.16%
Initial Unemployment Insurance Claims (Inverse)	98.56	90.48	8.08	0.03	0.23	0.15%
Manufacturing Hours	90.96	93.00	-2.04	0.30	-0.62	-0.40%
Survey Business Expectations ¹	53.75		3.75	0.12	0.45	0.30%
Total (weighted average)	153.79	153.65			0.15	0.09%

¹ 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	181.60	167.97	13.62	0.23	3.20	2.37%
Private Wage	112.41	117.36	-4.95	0.47	-2.35	-1.74%
Agricultural Commodities	105.59	104.37	1.22	0.29	0.36	0.26%
Total (weighted average)	136.14	134.93			1.21	0.89%

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.

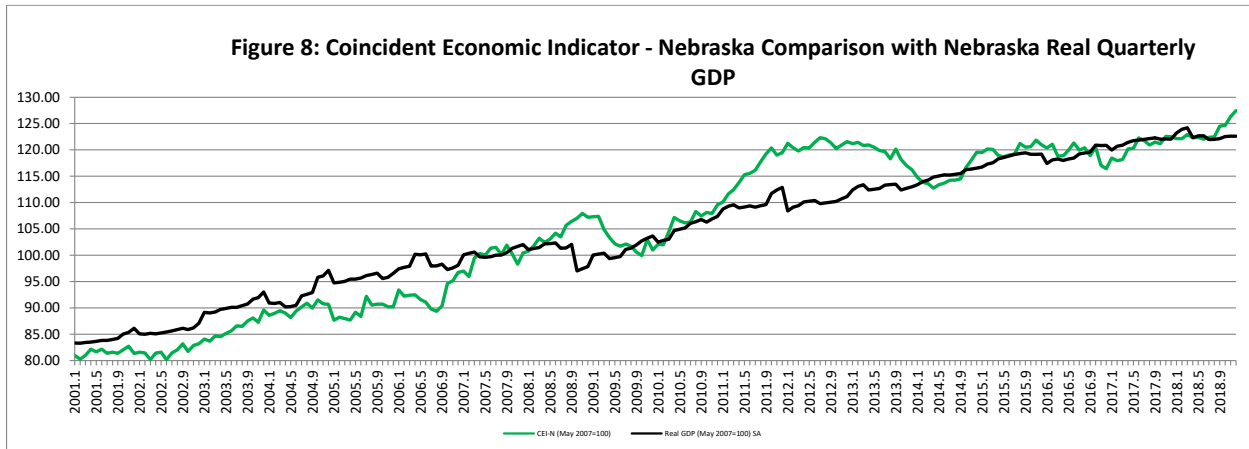


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months 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 0.85.

