

Nebraska Monthly Economic Indicators: September 23, 2020

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

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Summary: The LEI-N rose by 0.85% during August 2020. August marked the fourth consecutive increase in the leading indicator after sharp declines in March and April. The August result indicates that the Nebraska economy will grow over the next 6 months, continuing a steady recovery from large economic losses in March and April. Five of the six components of the leading indicator improved during August. Airline passenger enplanements grew modestly after seasonal adjustment, and there was a modest increase in building permits for single-family homes. There also was a drop in initial claims for unemployment insurance and the value of the U.S. dollar during August. A lower U.S. dollar improves competitive conditions for agricultural producers manufacturers, and other businesses which export. Business expectations were positive, according to the respondents to the monthly Survey of Nebraska Business. Manufacturing hours-worked, however, dropped again during August.

Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) during August of 2020 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 0.85% during August.

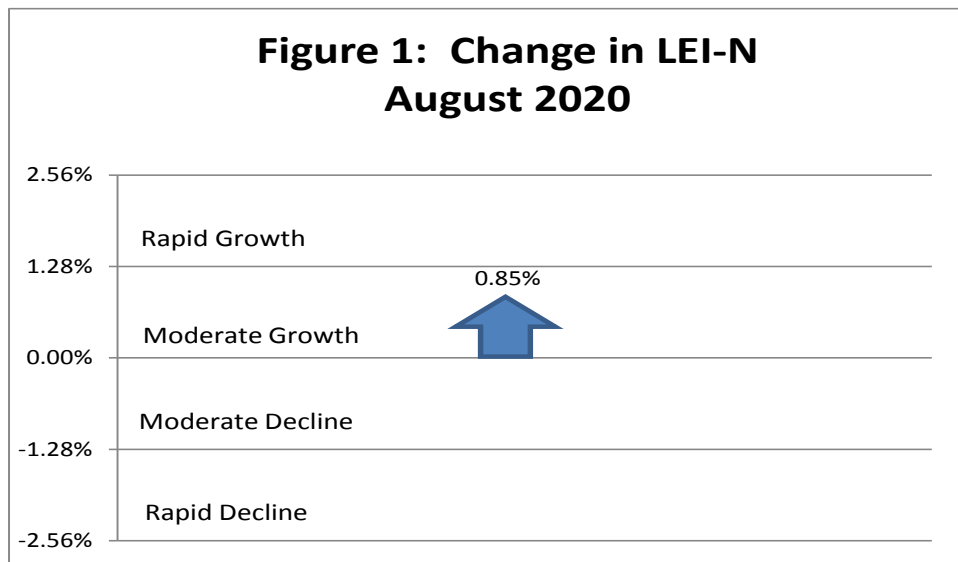


Figure 2 shows the value of the leading indicator over the last six months. The leading indicator dropped sharply in March and April before rebounding over the last four months. The pace of improvement, however, has moderated in July and August. Further, cumulative improvements from May through August continue to be small relative to the sharp drop in March and April.

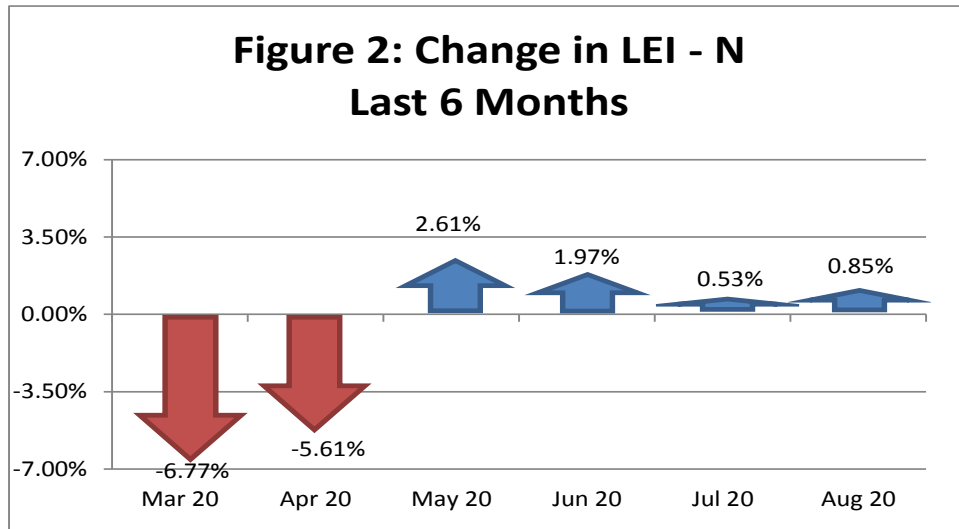
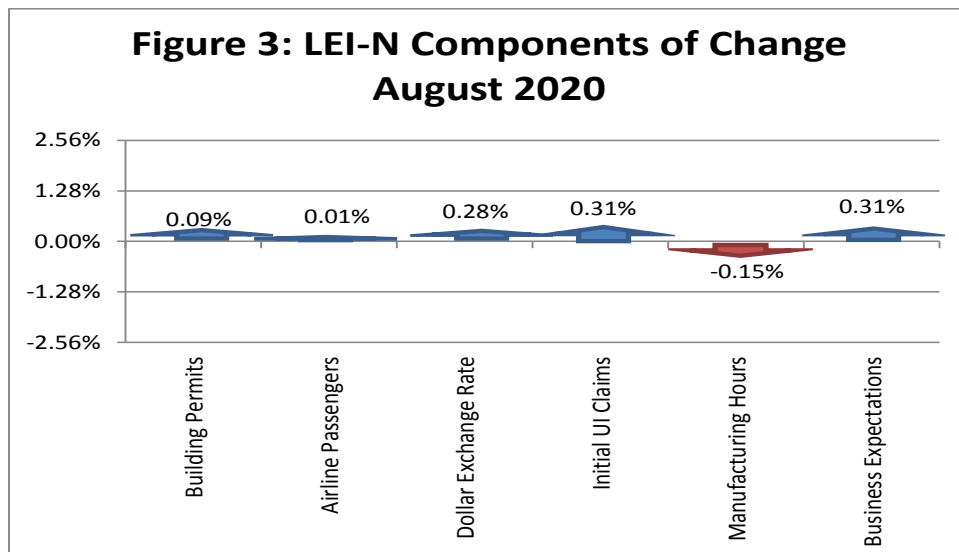


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during August 2020. The change in the overall LEI–N is the weighted average of changes in each component (see page 5). Initial claims for unemployment insurance dropped during August, along with the value of the U.S. dollar. A lower dollar is positive for Nebraska businesses which export. Business expectations also were positive, with respondents to the August *Survey of Nebraska Business* reporting plans to increase sales and employment over the next six months. Airline passenger counts and building permits for single-family homes also rose during August, but the pace of growth slowed considerably. There was an outright decline in manufacturing hours-worked during the month.



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 3.22% during August 2020, as seen in Figure 4.

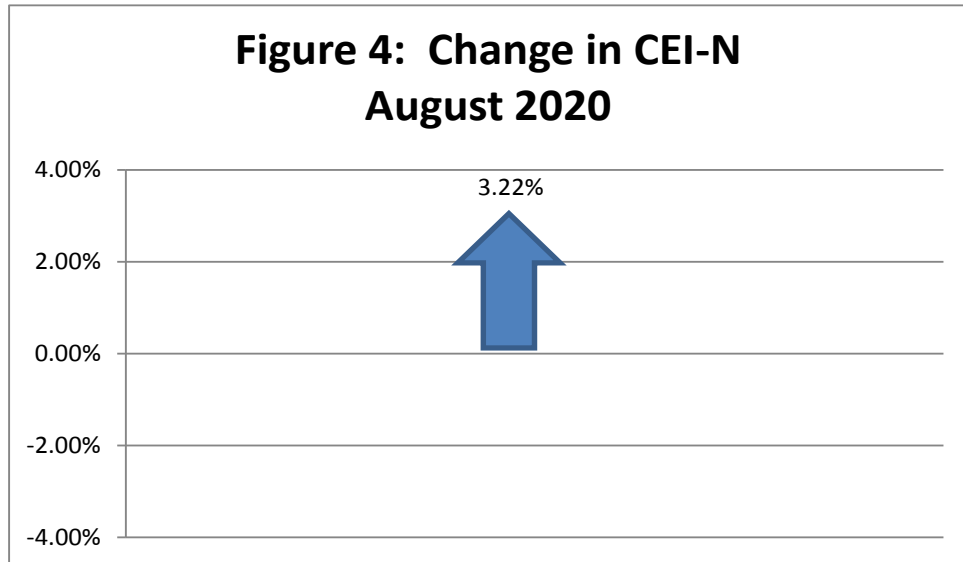
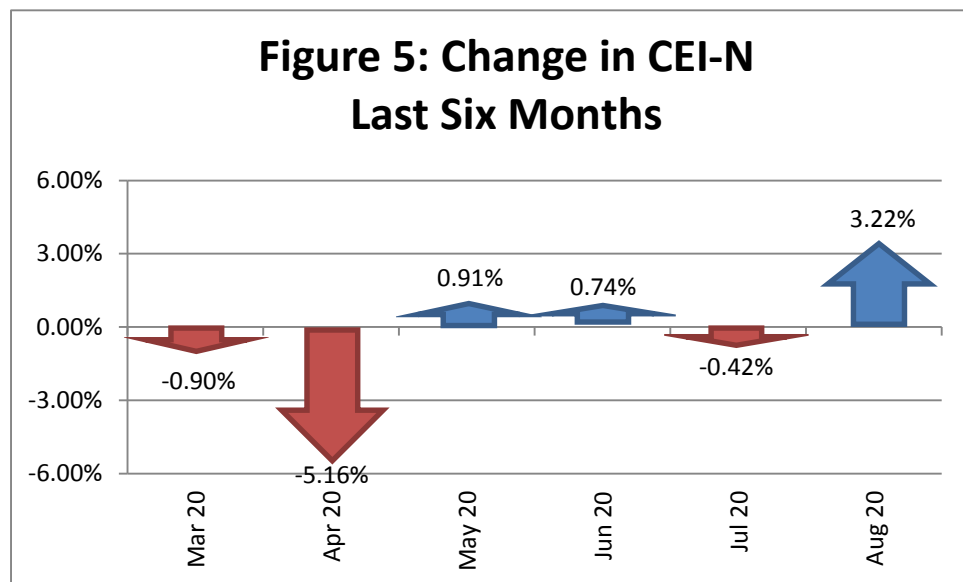
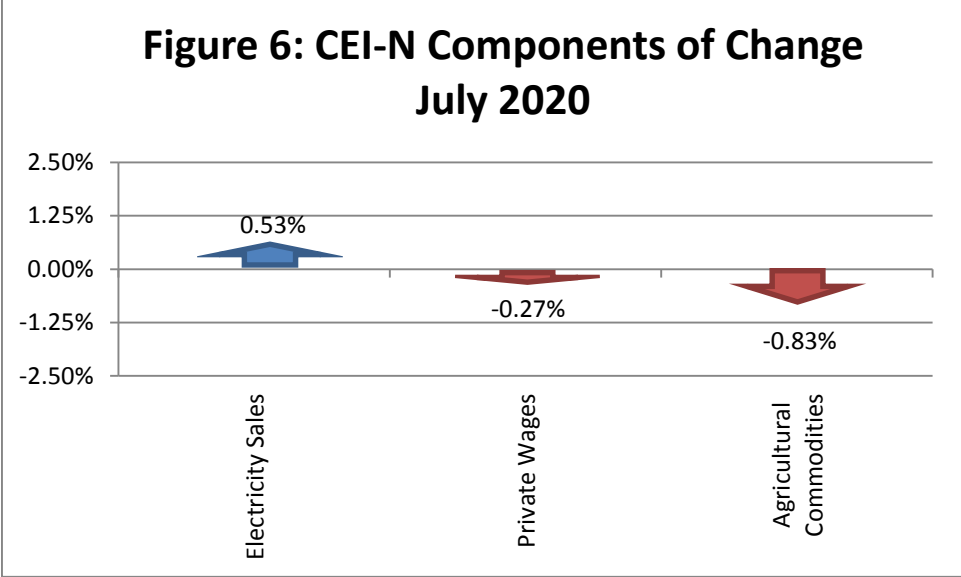


Figure 5 shows the change in the CEI-N over the last 6 months. The Nebraska economy shrank in March and dropped sharply in April. The economy improved in May but failed to sustain growth in June and July. However, the large increase in August suggests that the state economic recovery remains intact.



Two components of the CEI-N rose during August, as seen in Figure 6. There was an increase in revenue from electricity sales and private wages. Private wages rose due to an increase in average hours worked per week. Agricultural commodity prices were the declining component in the CEI-N. Results for business conditions based on the monthly survey were excluded from the August CEI-N calculation. Such responses would likely reflect the declining economy in March and 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.

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	13.5782	0.0736	0.0372	Electricity Sales	4.3040	0.2323	0.2301
Airline Passengers	6.1279	0.1632	0.0825	Private Wages	2.0728	0.4824	0.4778
Exchange Rate	1.1829	0.8454	0.4272	Agricultural Commodities	3.3903	0.2950	0.2921
Initial UI Claims	17.7489	0.0563	0.0285				
Manufacturing Hours	1.6637	0.6011	0.3038				
Survey Business Expectations	4.1813	0.2392	0.1209				

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

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	95.53	91.80	3.73	0.04	0.14	0.09%
Airline Passengers	37.69	37.45	0.24	0.08	0.02	0.01%
U.S. Dollar Exchange Rate (Inverse)	79.19	78.21	0.99	0.43	0.42	0.28%
Initial Unemployment Insurance Claims (Inverse)	87.62	70.82	16.80	0.03	0.48	0.31%
Manufacturing Hours	92.91	93.68	-0.76	0.30	-0.23	-0.15%
Survey Business Expectations ¹	53.84		3.84	0.12	0.46	0.31%
Total (weighted average)	153.21	151.92			1.29	0.85%

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	178.20	164.04	14.16	0.23	3.26	2.46%
Private Wage	116.46	113.59	2.88	0.48	1.38	1.04%
Agricultural Commodities	104.10	105.37	-1.27	0.29	-0.37	-0.28%
Total (weighted average)	136.50	132.24			4.26	3.22%

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.

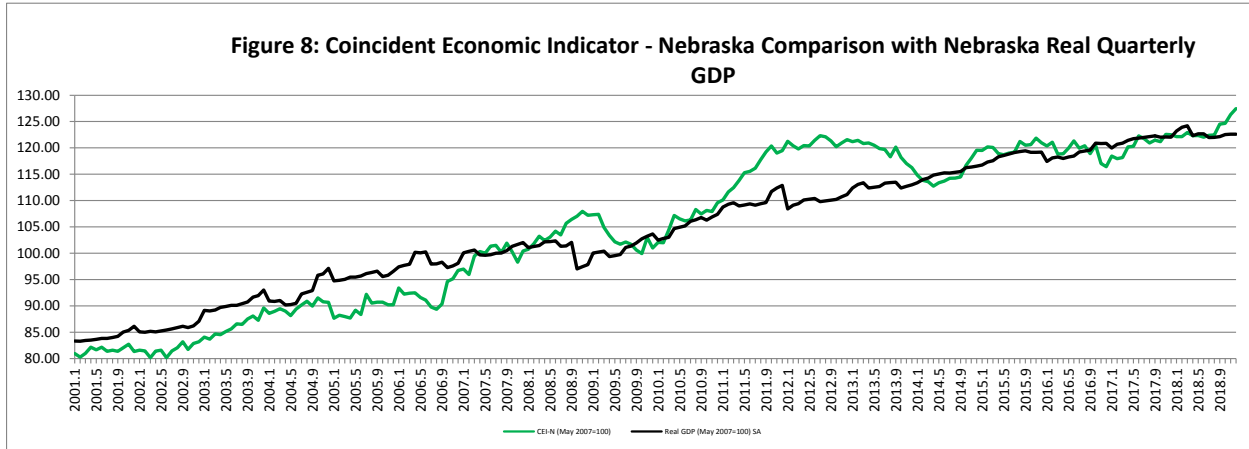


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

