

Nebraska Monthly Economic Indicators: April 29, 2020

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

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Summary: *The LEI-N fell by 7.96% during March of 2020 as the COVID-19 Pandemic impacted Nebraska’s economy. The leading indicator primarily fell due to a spike in initial claims for unemployment insurance and a sharp drop in the airline passenger enplanements during March. Other components of the leading indicator also were impacted, given a decline in both building permits for single-family homes and manufacturing hours-worked. There also was a sharp increase in the value of the U.S. dollar during March, which creates additional challenges for both agriculture and manufacturing businesses. The decline in the leading indicator suggests that the Nebraska economy will be smaller in the fall of 2020 than it was during January and February of this year.*

Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) during March 2020 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N fell by 7.96% during March.

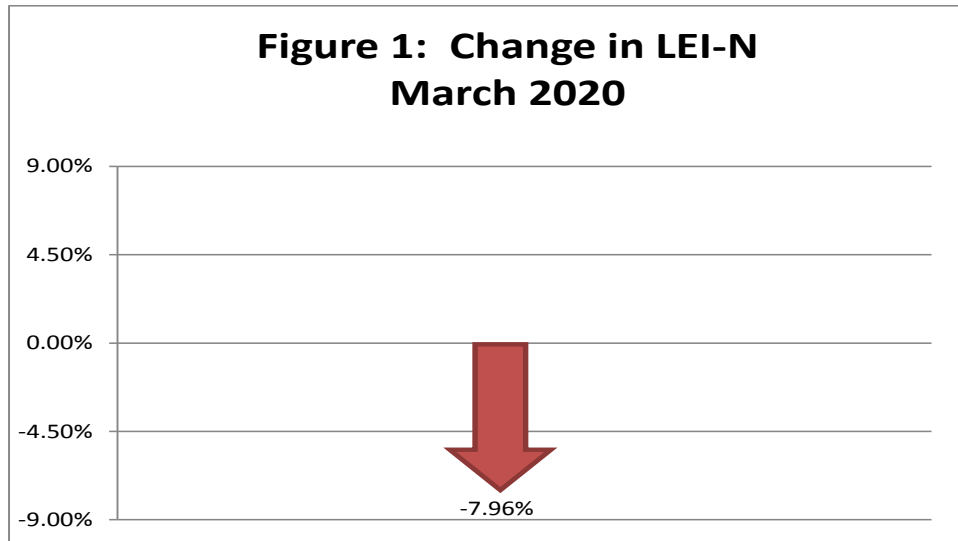


Figure 2 shows the value of the leading indicator over the last six months. The leading indicator rose steadily in October and November and rose sharply in December. The leading indicator was mixed in January and February of 2020 before the sharp drop in March.

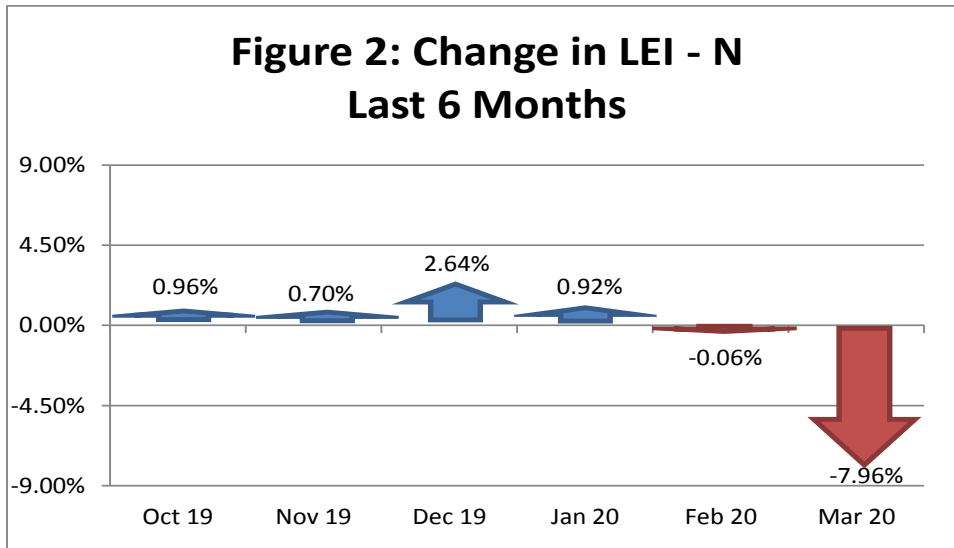
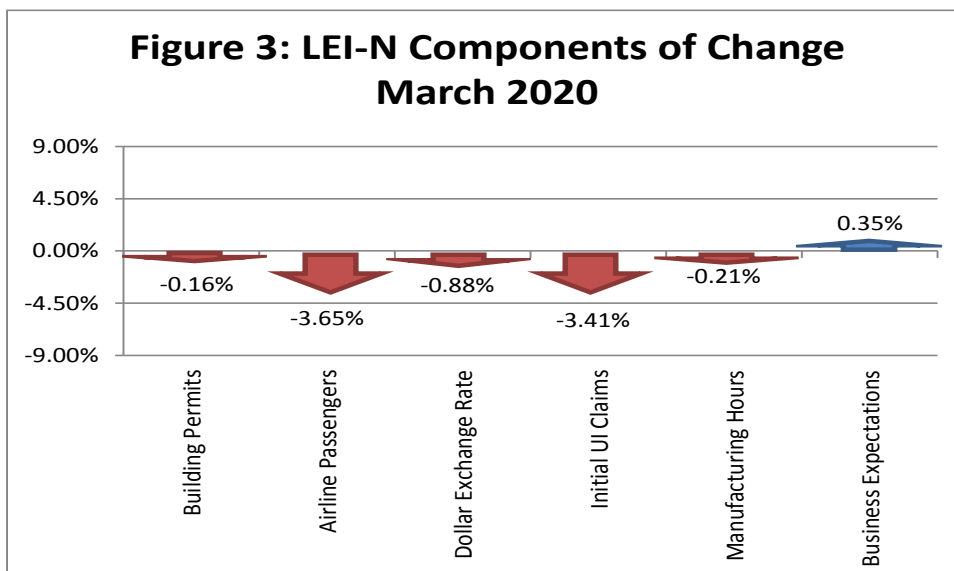


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during March 2020. The change in the overall LEI–N is the weighted average of changes in each component (see page 5). The sharp drop in the leading indicator primarily resulted from a spike in initial claims for unemployment insurance and a rapid decline in airline passenger enplanements during March. Other components of the leading indicator also declined as the broader economy was impacted. There was a decline in building permits for single-family homes and manufacturing hours-worked. There also was a sharp increase in the value of the U.S. dollar, which creates further challenges for businesses in industries such as manufacturing and agriculture. Notably, business expectations were slightly positive in March. Respondents to the March *Survey of Nebraska Business* expect a recovery in sales and employment at their business over the next six months. Many of the business respondents completed their survey during the first two weeks of March. 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 fell by 1.63% during March of 2020, as seen in Figure 4.

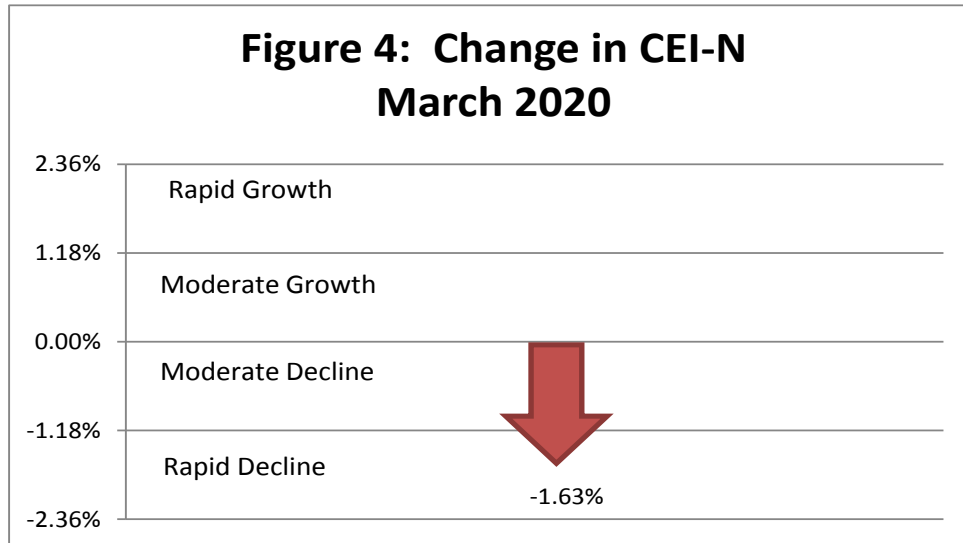
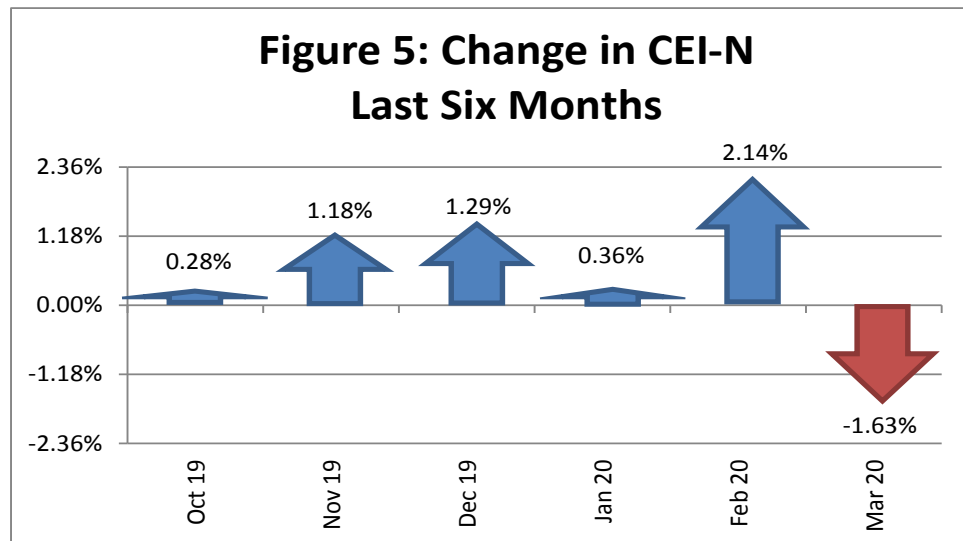
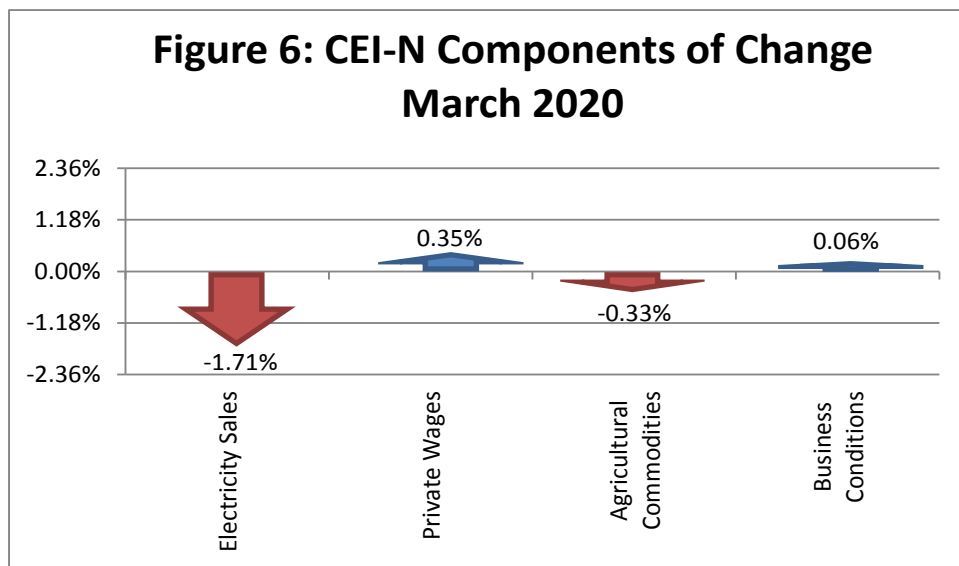


Figure 5 shows the change in the CEI-N over the last 6 months. The Nebraska economy grew from October 2019 through February of 2020, before a significant decline during March of 2020.



Two of the four components of the CEI-N fell during March. There was a drop in agricultural commodity prices and the value of electricity sales during the month. Private wage growth and business conditions remained positive; however, these data primarily reflect conditions in the early part of March. Most respondents to the *March Survey of Nebraska Business* responded to the survey during the first few weeks of the month. Likewise, data on real private wages are based on figures from mid-March, before the most severe employment impacts occurred. The modest improvement in real wages also reflects a decline in the consumer price index during March, implying that real wages grew faster than nominal wages. 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*.



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	13.2932	0.0752	0.0375	Electricity Sales	4.2551	0.2350	0.1741
Airline Passengers	5.1709	0.1934	0.0963	Private Wages	1.8267	0.5474	0.4055
Exchange Rate	1.1835	0.8450	0.4207	Agricultural Commodities	3.2846	0.3045	0.2255
Initial UI Claims	17.8957	0.0559	0.0278	Survey Business Conditions	3.8000	0.2632	0.1949
Manufacturing Hours	1.6649	0.6006	0.2991				
Survey Business Expectations	4.1972	0.2383	0.1186				

Tables 2 and 3 show the calculation for the change in LEI-N and CEI-N between February and March 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. Note also that the LEI-N no longer utilizes a trend adjustment.

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	69.46	76.57	-7.11	0.04	-0.27	-0.16%
Airline Passengers	57.24	119.35	-62.10	0.10	-5.98	-3.65%
U.S. Dollar Exchange Rate (Inverse)	77.22	80.64	-3.42	0.42	-1.44	-0.88%
Initial Unemployment Insurance Claims (Inverse)	10.65	211.56	-200.92	0.03	-5.59	-3.41%
Manufacturing Hours	98.45	99.60	-1.15	0.30	-0.34	-0.21%
Survey Business Expectations ¹	54.88		4.88	0.12	0.58	0.35%
Total (weighted average)	150.85	163.89			-13.04	-7.96%

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	152.53	166.07	-13.54	0.17	-2.36	-1.71%
Private Wage	120.24	119.03	1.20	0.41	0.49	0.35%
Agricultural Commodities	117.83	119.83	-2.00	0.23	-0.45	-0.33%
Survey Business Conditions ¹	50.41		0.41	0.19	0.08	0.06%
Total (weighted average)	135.25	137.49			-2.24	-1.63%

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.

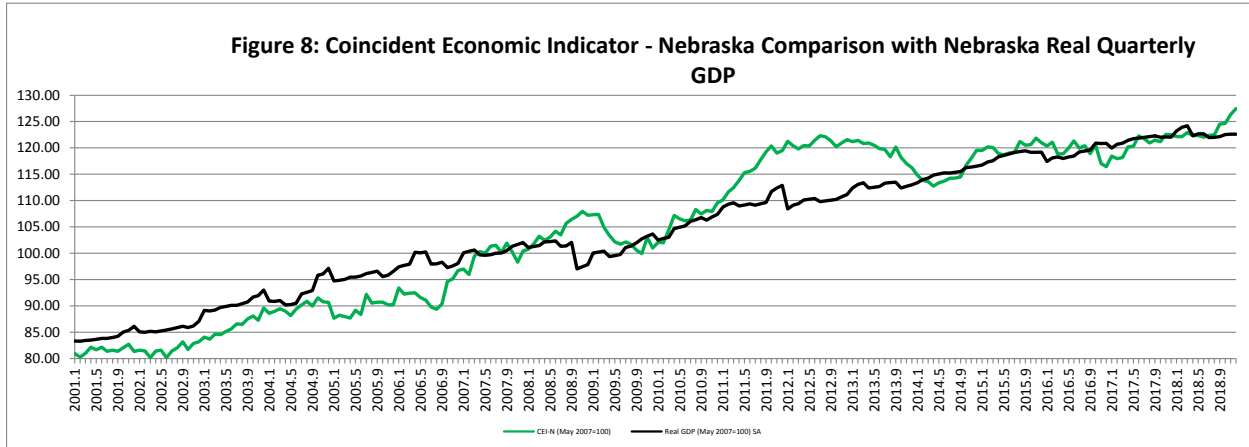


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

