

Nebraska Monthly Economic Indicators: April 25, 2018

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

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Summary: *The Leading Economic Indicator – Nebraska (LEI-N)¹ rose by 0.88% during March of 2018. The increase in the LEI-N, which is designed to predict economic activity six months into the future, suggests that the Nebraska economy will grow steadily through the summer of 2018. Strong business expectations, rising manufacturing hours and rising air passenger enplanements were the reasons for the LEI-N increase. Respondents to the March Survey of Nebraska Business reported plans to increase both sales and employment at their businesses over the next six months. Initial claims for unemployment insurance changed little during March but there was a decline in building permits for single-family homes. For the second consecutive month there was a small increase in the value of the U.S. dollar, which raises competitive pressure for Nebraska exporters.*

Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) during March 2018 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 0.88% in March.

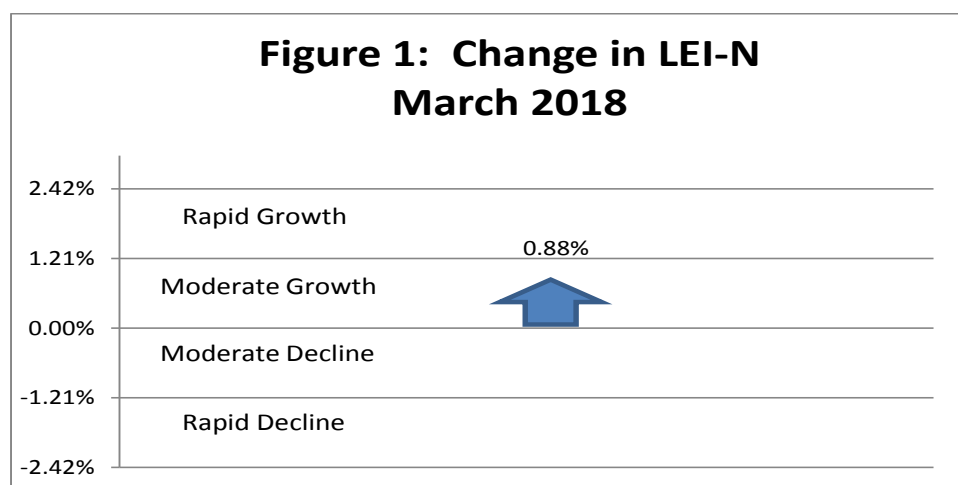


Figure 2 shows the change in the LEI-N over the last six months. The indicator has risen consistently over the last 5 months, suggesting the Nebraska economy will experience solid growth through the summer.

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

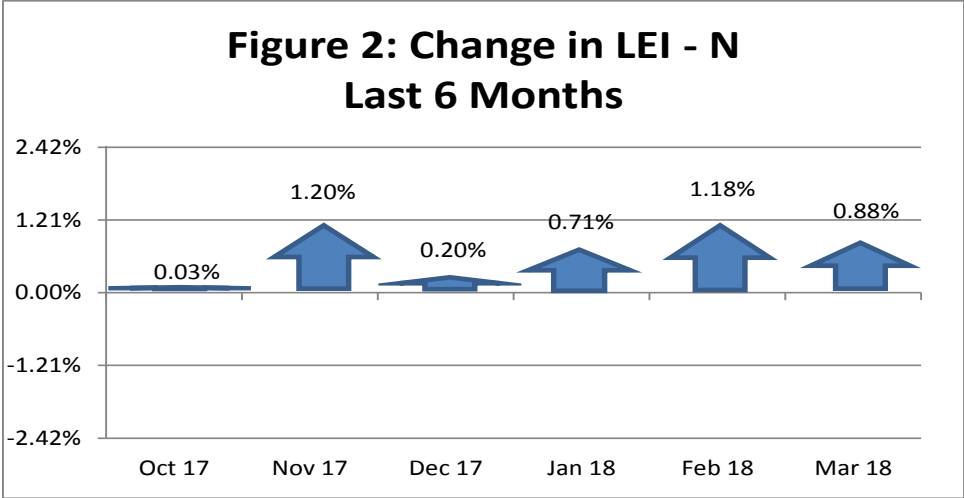
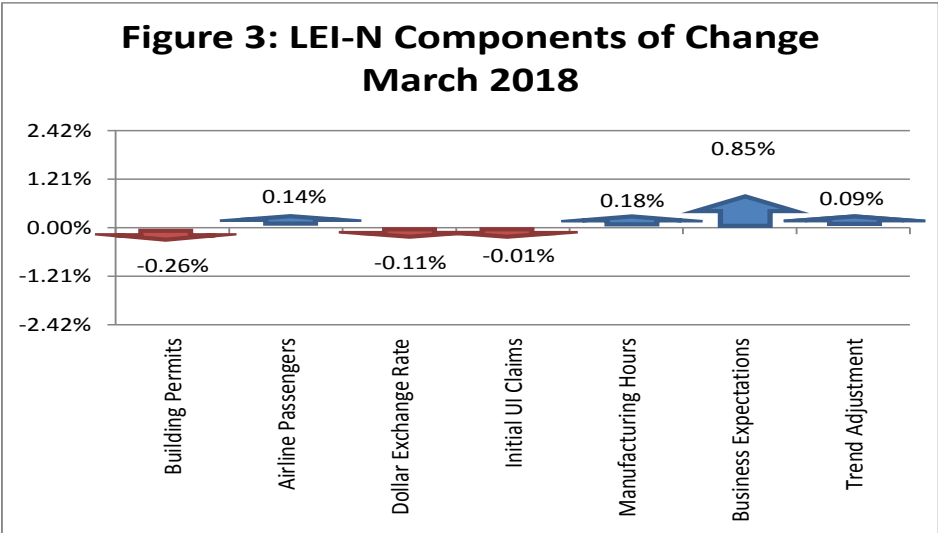


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during March 2018. The change in the overall LEI-N is the weighted average of changes in each component (see page 5). Three of six LEI-N components rose during March. Business expectations were strong as respondents to the *March Survey of Nebraska Business* predicted gains in both sales and employment at their businesses over the next six months. Airport passenger enplanements and manufacturing hours worked also grew on a seasonally-adjusted basis. In terms of negative components, building permits for single-family homes declined during March. Further, for the second consecutive month, there was a small increase in the value of the U.S. dollar. A rising dollar increases competitive pressures on Nebraska exporters, including in agriculture and manufacturing. Note that the trend adjustment component pictured in Figure 3 is discussed on page 5.



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 0.56% during March 2018, as seen in Figure 4.

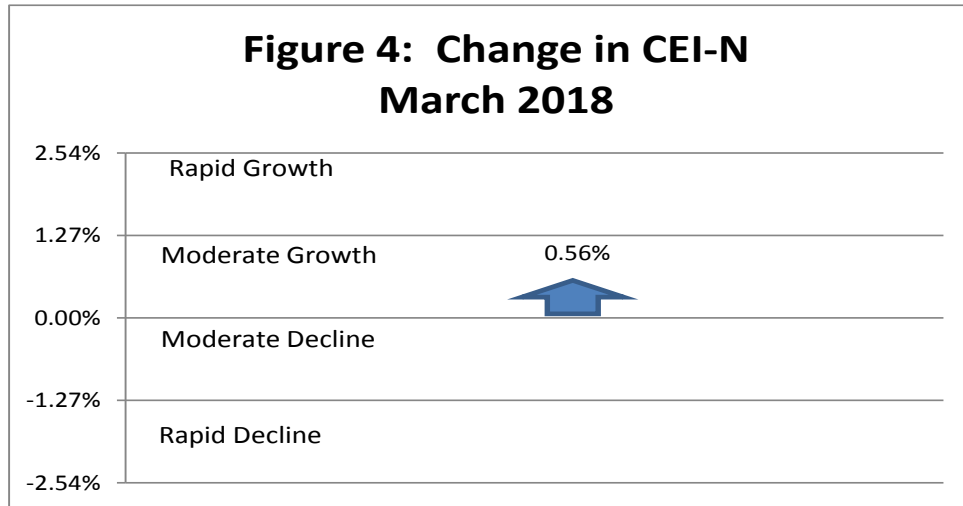
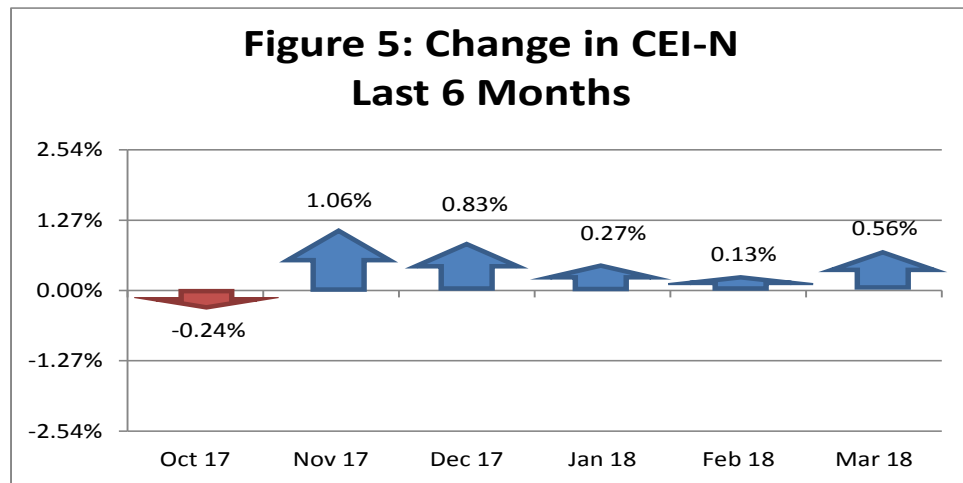


Figure 5 shows the change in the CEI-N over the last 6 months. The CEI-N rose during each of the last five months. While the rate of growth declined in recent months, the Nebraska economy has continued to expand during the first quarter of 2018.



Two of four components of the CEI-N rose during March. Agricultural commodity prices rose and there was a significant increase in electricity sales, even after adjusting for weather and seasonal factors. Real private sector wages declined slightly during March. Further, respondents to the *March Survey of Nebraska Business* reported a modest decrease in sales in recent months, while employment was flat. A detailed discussion of the components of the CEI-N and LEI-N can be found at www.cba.unl.edu in *Technical Report: Coincident and Leading Economic Indicators- Nebraska*.

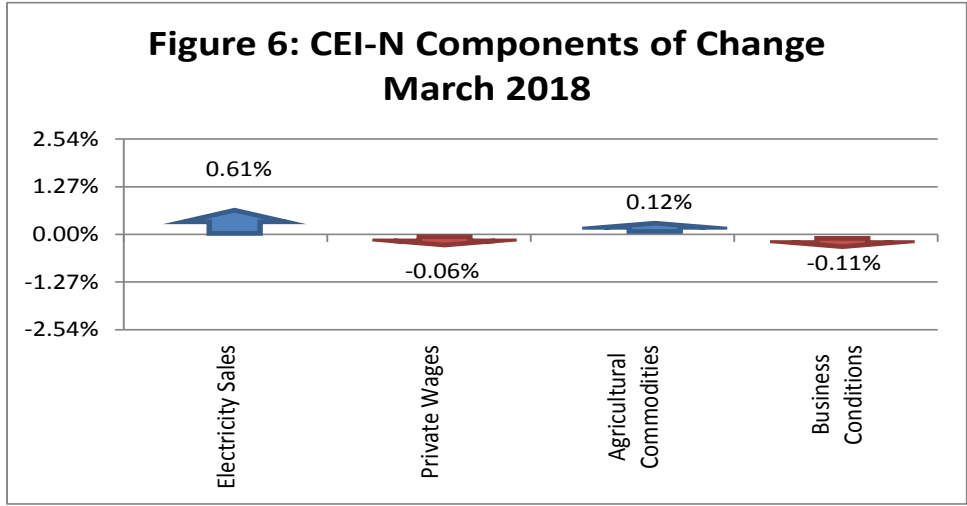
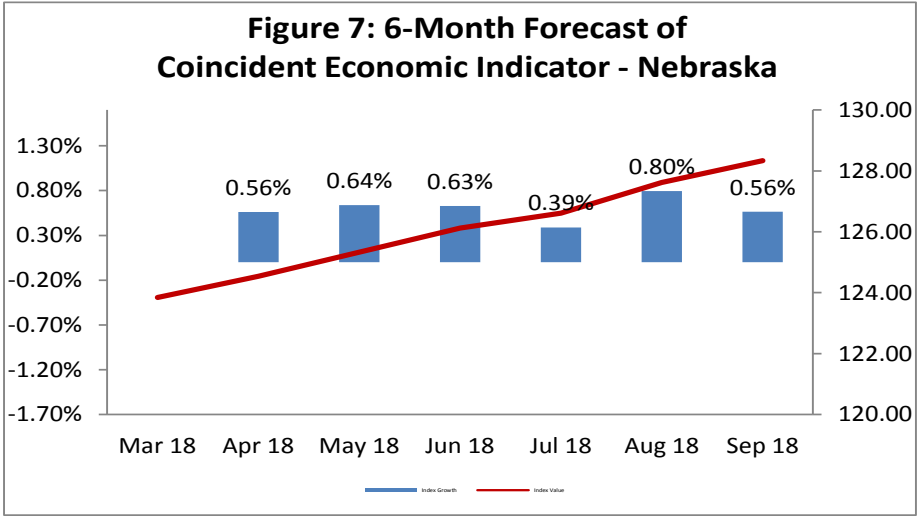


Figure 7 shows the forecast for the CEI-N over the next six months. The Nebraska economy is expected to grow steadily through September 2018. These expectations are consistent with the improvement in the LEI-N over the last five months (Figure 2).



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 smaller standard deviations, 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	13.4431	0.0744	0.0349	Electricity Sales	4.6279	0.2161	0.1601
Airline Passengers	3.3182	0.3014	0.1414	Private Wages	1.7739	0.5637	0.4177
Exchange Rate	1.1964	0.8358	0.3922	Agricultural Commodities	3.3113	0.3020	0.2238
Initial UI Claims	10.9916	0.0910	0.0427	Survey Business Conditions	3.7351	0.2677	0.1984
Manufacturing Hours	1.6790	0.5956	0.2794				
Survey Business Expectations	4.2885	0.2332	0.1094				

Tables 2 and 3 show the calculation for the change in LEI-N and CEI-N between February and March of 2018. 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 in Table 2 a trend adjustment factor is utilized in calculating LEI-N. This is done because LEI-N historically under-predicts CEI-N by 0.09% per month. The U.S. Leading Economic Indicator also has 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	62.15	72.82	-10.67	0.03	-0.37	-0.26%
Airline Passengers	107.30	105.93	1.37	0.14	0.19	0.14%
U.S. Dollar Exchange Rate (Inverse)	88.51	88.92	-0.41	0.39	-0.16	-0.11%
Initial Unemployment Insurance Claims (Inverse)	158.97	159.30	-0.33	0.04	-0.01	-0.01%
Manufacturing Hours	95.14	94.21	0.93	0.28	0.26	0.18%
Survey Business Expectations ¹	61.15		11.15	0.11	1.22	0.85%
Trend Adjustment					0.13	0.09%
Total (weighted average)	144.61	143.35			1.26	0.88%

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	183.54	178.83	4.70	0.16	0.75	0.61%
Private Wage	110.47	110.64	-0.17	0.42	-0.07	-0.06%
Agricultural Commodities	118.62	117.96	0.66	0.22	0.15	0.12%
Survey Business Conditions ¹	49.33		-0.67	0.20	-0.13	-0.11%
Total (weighted average)	124.54	123.84			0.69	0.56%

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 2016. Annual real gross state product data is provided by the Bureau of Economic Analysis, U.S. Department of Commerce, and quarterly values were estimated using quarterly earnings data. CEI-N closely tracks Nebraska real GDP for the period. The correlation coefficient between the two pictured series is 0.94.

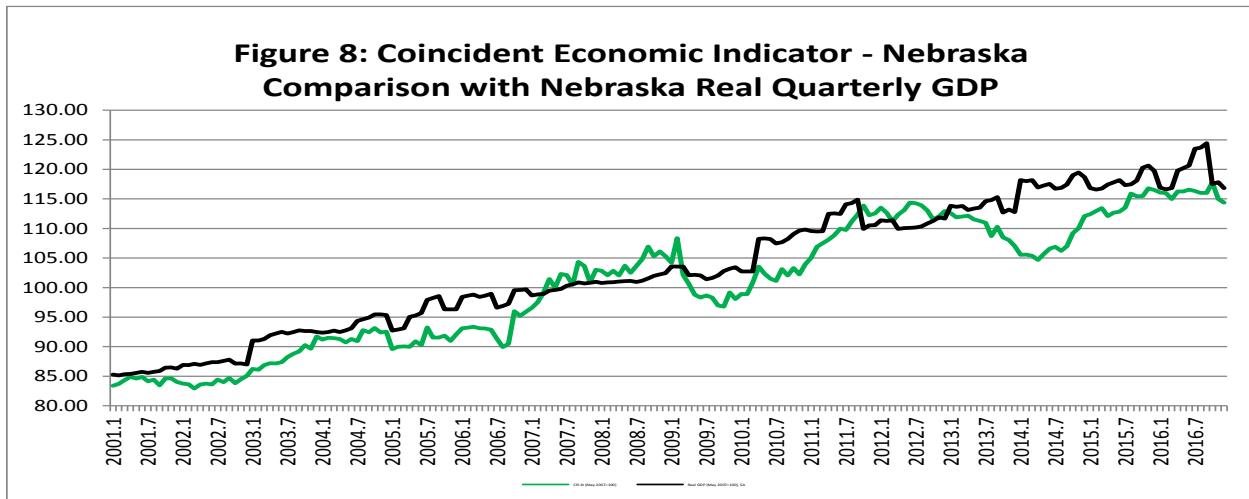


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months earlier) with the actual movement in CEI-N. In Figure 9, predicted values using the LEI-N closely track trends and movement in the CEI-N. The correlation coefficient between CEI-N and six-month forward values of LEI-N is 0.91.

