

Nebraska Monthly Economic Indicators: December 16, 2016

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

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Summary: *The Leading Economic Indicator – Nebraska (LEI-N)¹ fell by 0.32% during November of 2016. The decline in the LEI-N, which predicts economic activity six months in the future, suggests that economic growth will be modest in Nebraska during the first half of 2017. Four of six components of the LEI-N were negative during November. Airline passenger counts and manufacturing hours both declined during the month. There also was another increase in the value of the U.S. dollar during November, a negative for export-oriented businesses in Nebraska. Initial claims for unemployment insurance rose during the month. Two components of the indicator improved during November. There was an increase in building permits for single-family homes. Further, business expectations for both sales and employment were positive during November.*

Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in November 2016 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N fell by 0.32% during November.

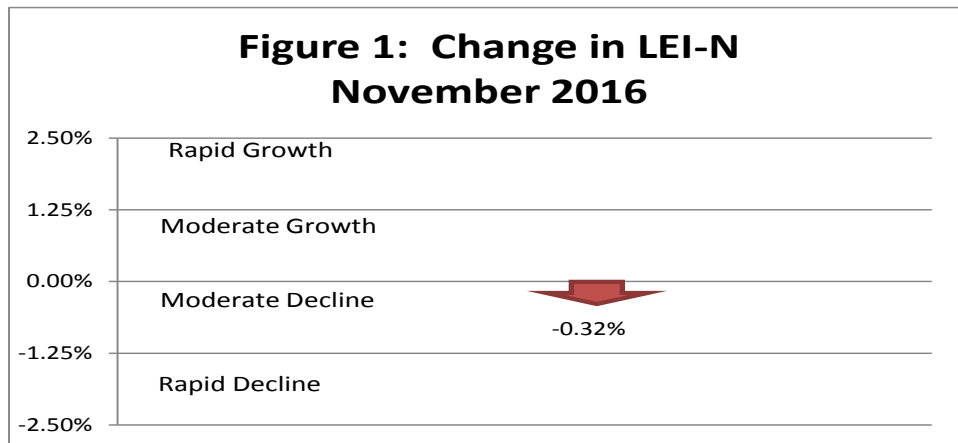


Figure 2 shows the change in the LEI-N over the last six months. The LEI-N has been largely positive, rising four of the last six months. The increases in the LEI-N were large in June and September but modest in other months. The decline in November does not appear to be part of an overall downward trend.

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

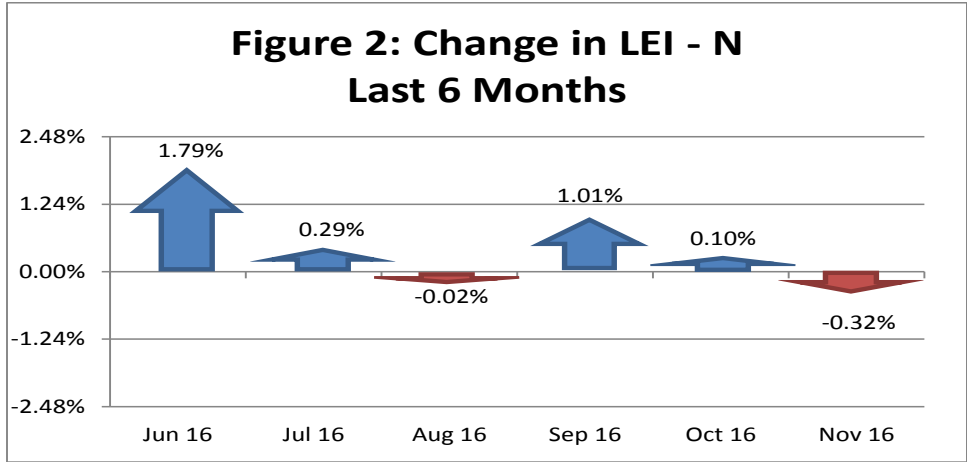
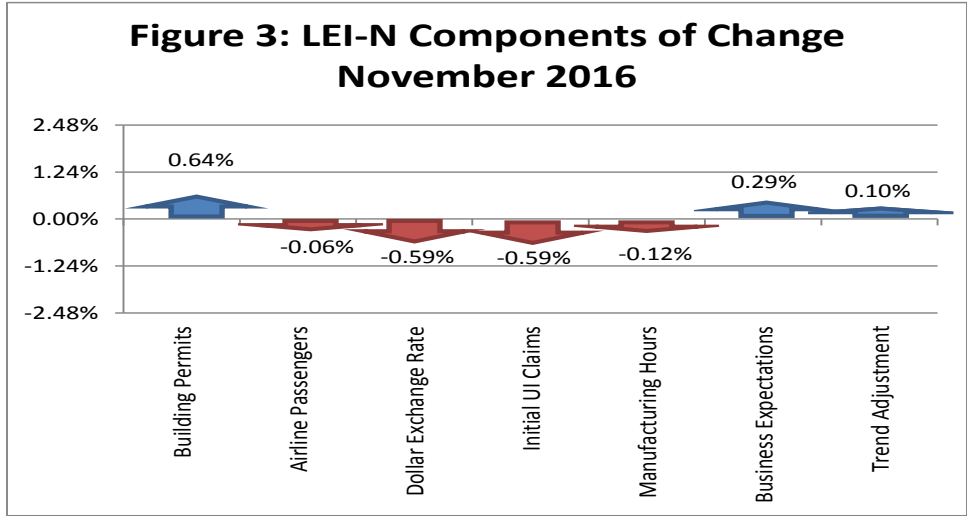
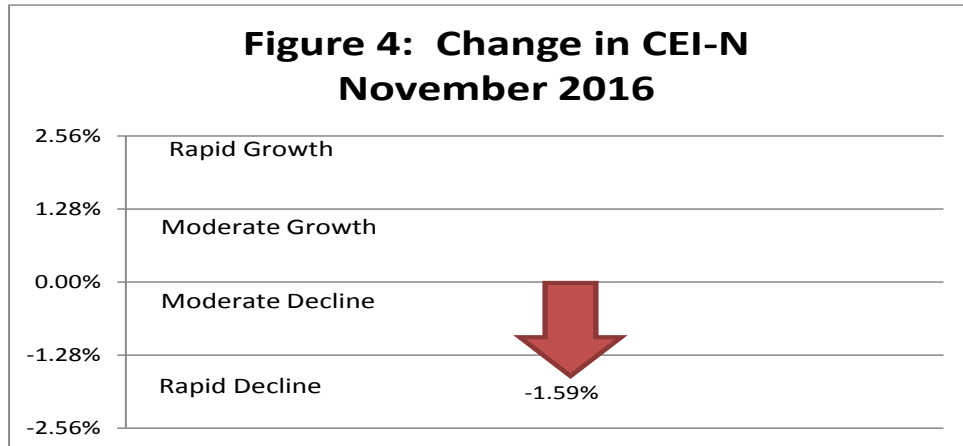


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during November 2016. The change in the overall LEI-N is the weighted average of changes in each component (see page 5). Looking at individual components, there was a decline in four of six components. Airline passenger counts and manufacturing hours dropped during November. The value of the U.S. dollar rose again in November, which is negative for Nebraska exporters, including in agriculture and manufacturing. Further, there was an increase in initial claims for unemployment insurance, on a seasonally adjusted basis. Business expectations were one positive for the leading indicator. Respondents to the November *Survey of Nebraska Business* predicted growth in both sales and employment at their businesses over the next six months. There also was an increase in building permits for single-family homes during November. Note that the trend adjustment component pictured in Figure 3 is discussed on page 5.

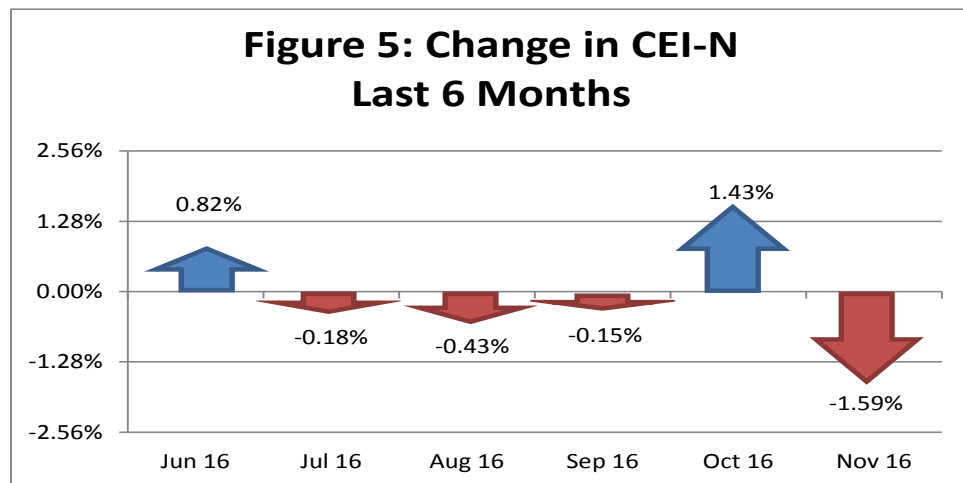


Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. The CEI-N fell by 1.59% during November 2016, as seen in Figure 4.



The drop in the CEI-N during November followed a sharp increase during October (Figure 5). The outlook for the fourth quarter of 2016 is now mixed, and will ultimately depend on growth in the CEI-N during December. Note that the CEI-N declined modestly during the third quarter, from July through September. Overall, economic growth has been modest in Nebraska during the second half of 2016.



Three components of the CEI-N fell during November (Figure 6). There was a decrease in private wages, reflecting a drop in weekly hours and real hourly wages. There also was a decline in business conditions, as reported by respondents of the November *Survey of Nebraska Business*. Respondents reported a decline in sales in recent months and small drop in employment. Agricultural commodity prices continued to decline in November. Electricity sales was the one positive component of the CEI-N. 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*.

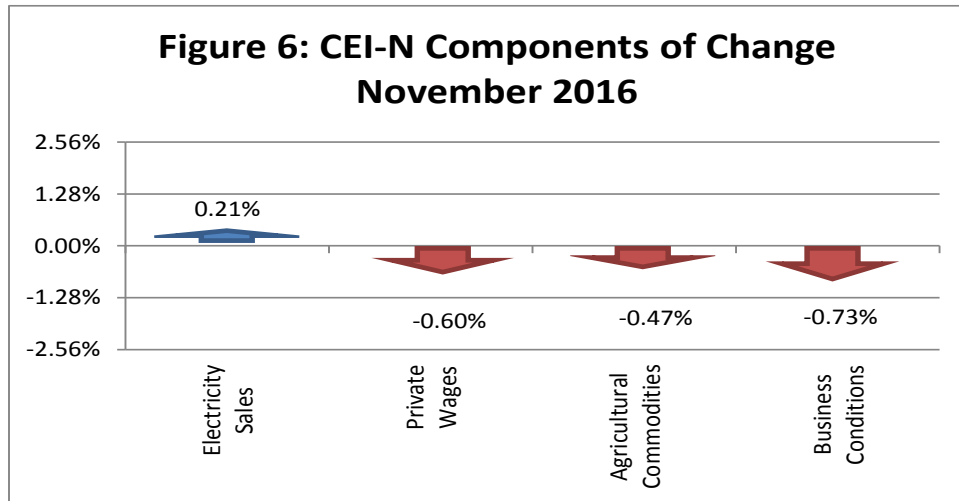
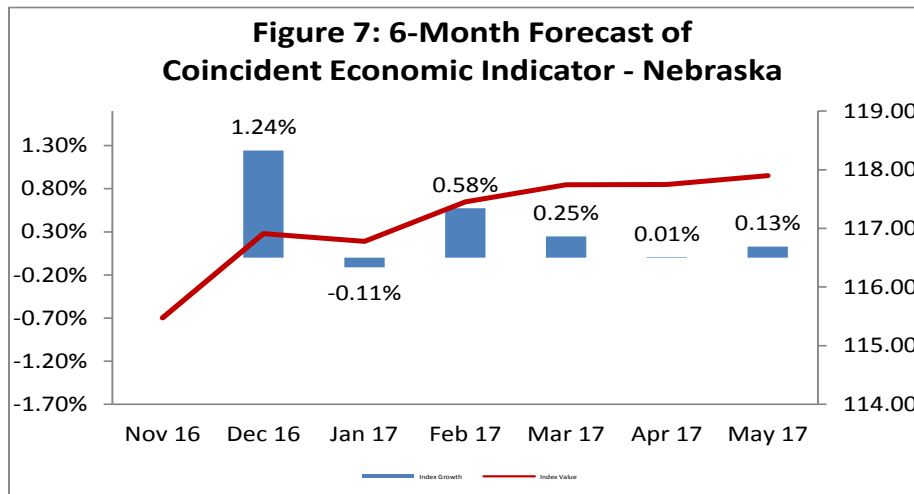


Figure 7 shows the forecast for the CEI-N over the next six months. The LEI-N is expected to bounce back during December, after its sharp November decline (see Figure 5). Looking further ahead, the rate of economic growth is expected to be modest during the first half of 2017. This outlook is consistent with values for the LEI-N over the last six months (see 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 that regularly has large movements.

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	13.3954	0.0747	0.0350	Electricity Sales	4.7783	0.2093	0.1534
Airline Passengers	3.3540	0.2981	0.1396	Private Wages	1.6986	0.5887	0.4315
Exchange Rate	1.2125	0.8247	0.3862	Agricultural Commodities	3.2933	0.3036	0.2226
Initial UI Claims	10.0693	0.0993	0.0465	Survey Business Conditions	3.8080	0.2626	0.1925
Manufacturing Hours	1.6498	0.6061	0.2838				
Survey Business Expectations	4.2967	0.2327	0.1090				

Tables 2 and 3 show the calculation for the change in CEI-N and LEI-N between October and November of 2016. 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 0.10% 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	94.80	71.12	23.67	0.03	0.83	0.64%
Airline Passengers	98.77	99.29	-0.52	0.14	-0.07	-0.06%
U.S. Dollar Exchange Rate (Inverse)	83.10	85.06	-1.96	0.39	-0.76	-0.59%
Initial Unemployment Insurance Claims (Inverse)	126.83	143.26	-16.43	0.05	-0.76	-0.59%
Manufacturing Hours	101.81	102.36	-0.54	0.28	-0.15	-0.12%
Survey Business Expectations ¹	53.47		3.47	0.11	0.38	0.29%
Trend Adjustment					0.13	0.10%
Total (weighted average)	128.03	128.44			-0.41	-0.32%

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	156.74	155.11	1.63	0.15	0.25	0.21%
Private Wage	108.37	110.00	-1.63	0.43	-0.70	-0.60%
Agricultural Commodities	113.21	115.69	-2.48	0.22	-0.55	-0.47%
Survey Business Conditions ¹	45.55		-4.45	0.19	-0.86	-0.73%
Total (weighted average)	115.47	117.34			-1.86	-1.59%

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 2012. 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 0.96.

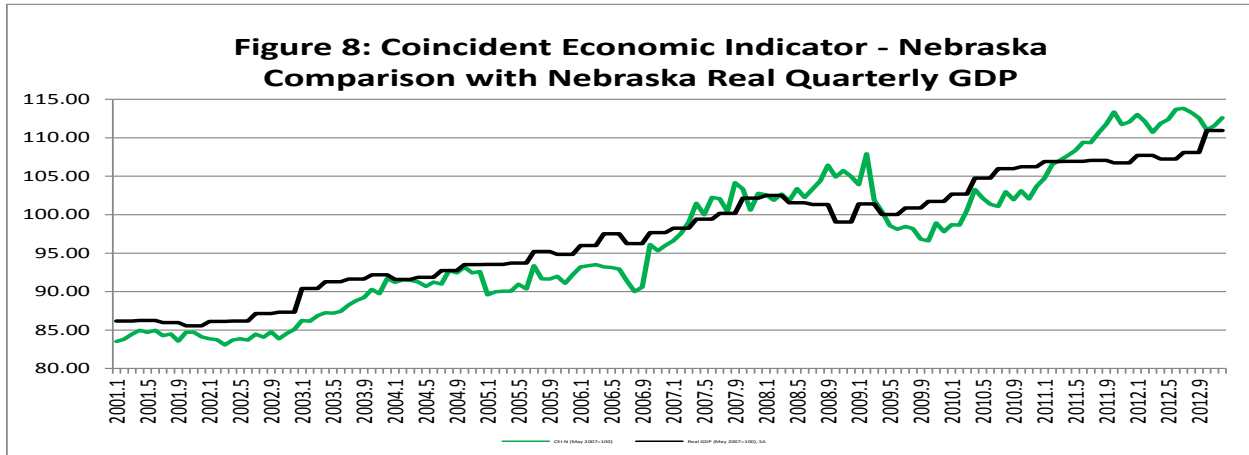


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months 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 0.92.

