

Nebraska Monthly Economic Indicators: November 18, 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) fell by 0.14% during October 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. Two of the six components of the LEI-N were negative during October. Airline passenger counts declined during the month, falling back after a sharp increase in September. There also was another increase in the value of the U.S. dollar during October, a negative for export-oriented businesses in Nebraska. Three components of the indicator rose during October, but the increases were small. There was a small increase in manufacturing hours, building permits for single-family homes, and business expectations. There was little change in initial claims for unemployment insurance during October.*

Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in October 2016 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N fell by 0.14% during October.

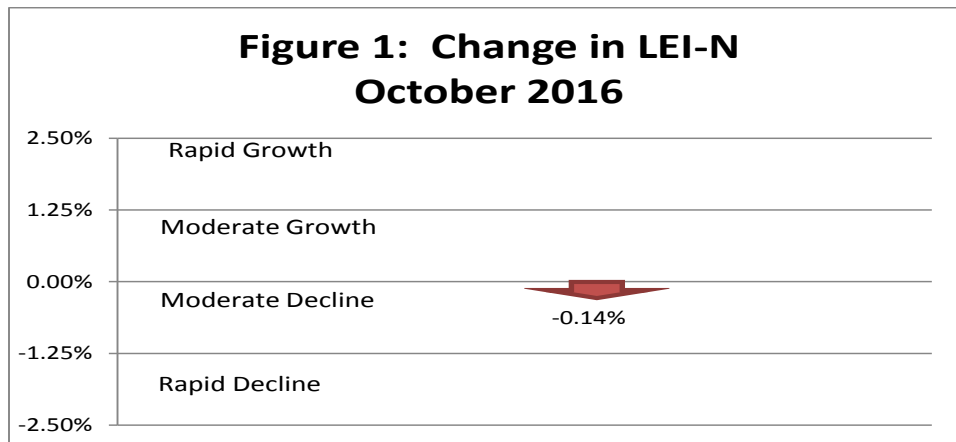


Figure 2 shows the change in the LEI-N over the last six months. The LEI-N has been mixed, with increases in just 3 of the last 6 months. Increases during June and September, however, were larger than declines in other months.¹ Overall, the leading indicator increased modestly during the period.

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

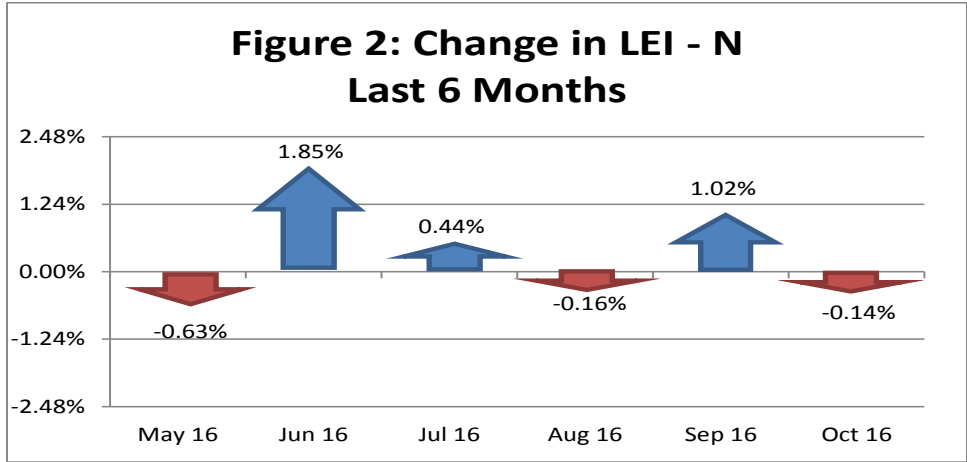
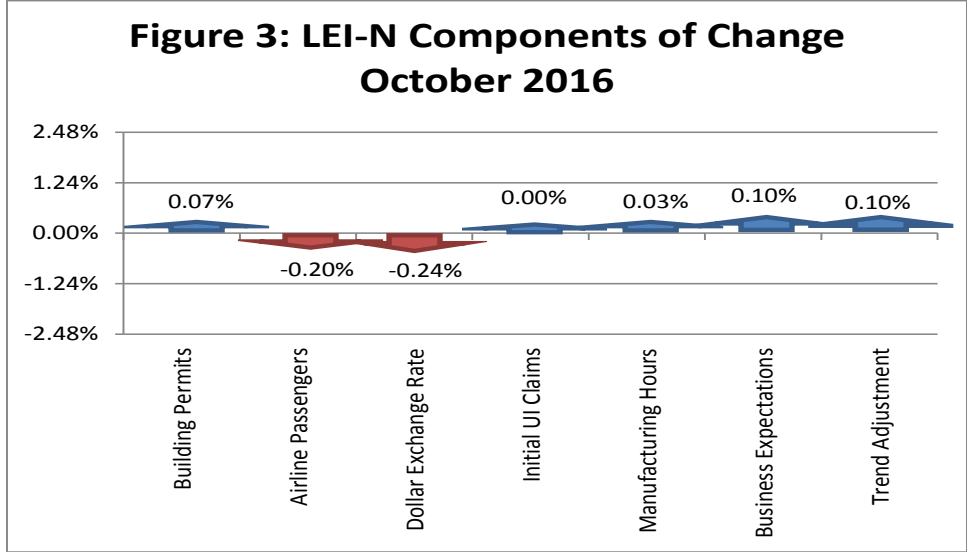
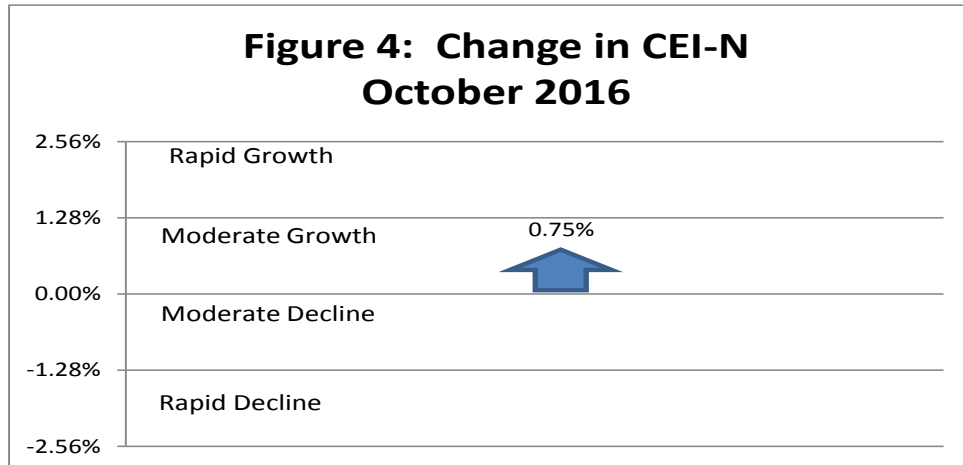


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during October 2016. The change in the overall LEI–N is the weighted average of changes in each component (see page 5). Looking at individual components, there was a decline in two of six components. Airline passenger counts dropped during October after a sharp increase during September. The value of the U.S. dollar also rose again during October. This is negative for Nebraska exporters, including in agriculture and manufacturing. There was almost no change in initial claims for unemployment insurance, on a seasonally adjusted basis. There was a small increase in manufacturing hours and building permits for single-family homes during October. Business expectations also were slightly positive. Respondents to the October *Survey of Nebraska Business* predicted modest growth in employment at their businesses over the next six months. Note that the trend adjustment component pictured in Figure 3 is discussed on page 5.

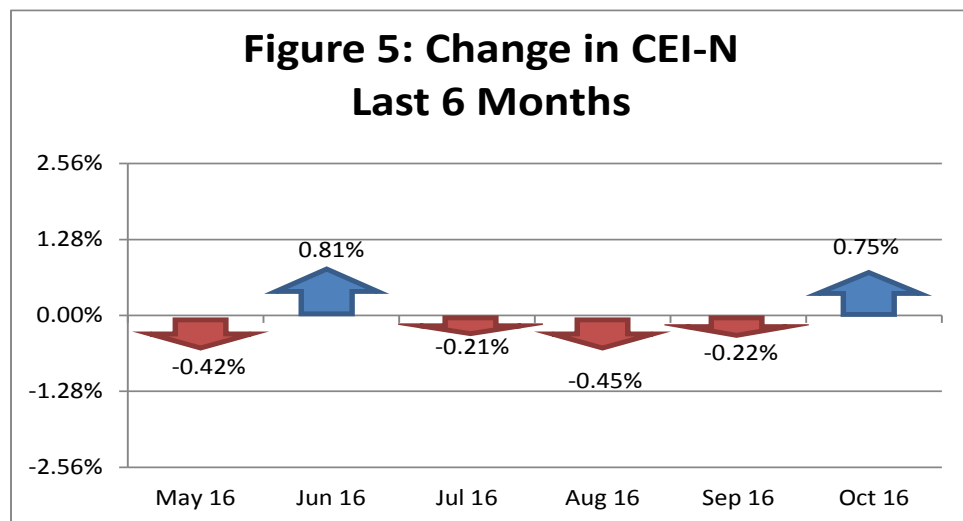


Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. The CEI-N rose by 0.75% during October 2016, as seen in Figure 4.



The CEI-N has been mixed over the last six months, as seen in Figure 5. The CEI-N declined during four of the last six months. However, increases during June and October were larger than the declines during other months. Overall, the CEI-N has improved modestly over the last six months, despite a struggling farm sector in the state.



Three components of the CEI-N rose during October. There was an increase in private wages, reflecting an improvement in employment, weekly hours-worked and real hourly wages. Electricity sales also rose, after adjusting for weather and other seasonal factors. Further, there was a modest improvement in business conditions. In particular, respondents of the October *Survey of Nebraska Business* reported a modest increase in employment in recent months. The one component to decline during October was

agricultural commodity prices. Commodity prices were down sharply in October as crop prices remained low and beef prices continued to drop. 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*.

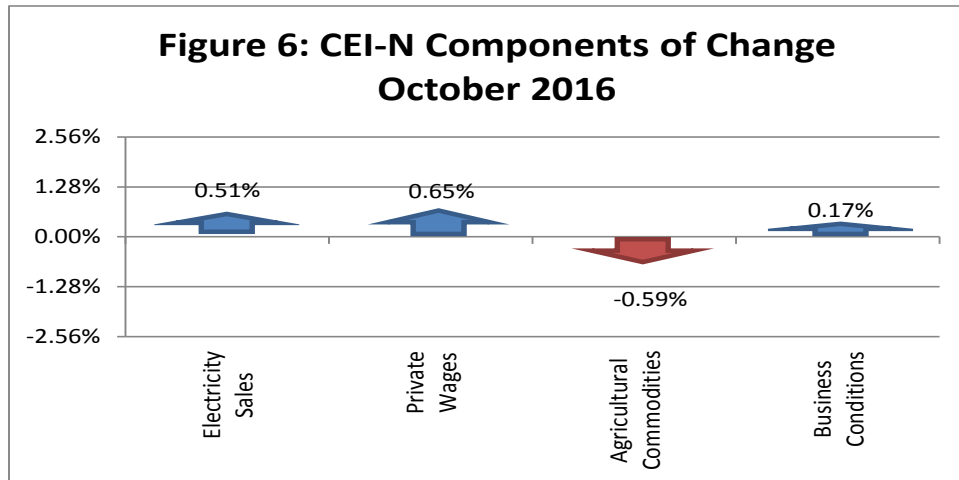
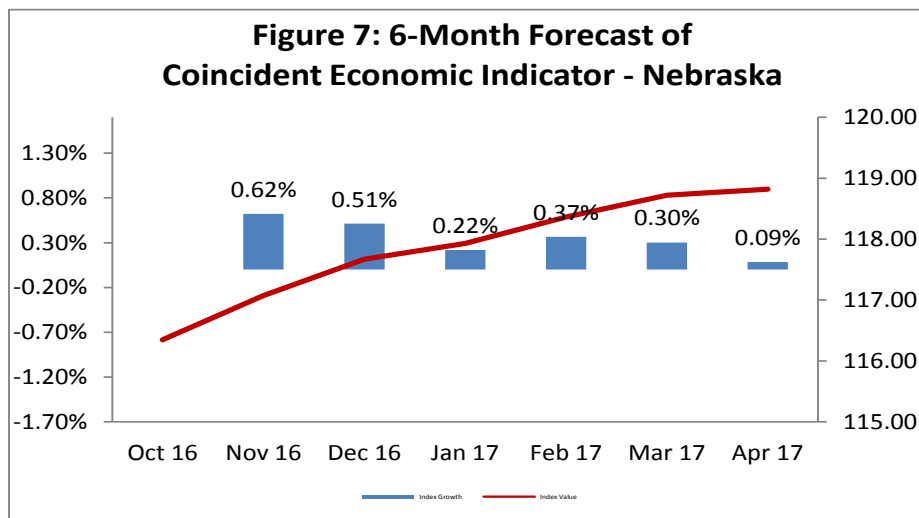


Figure 7 shows the forecast for the CEI-N over the next six months. The rate of economic growth is expected to moderate during the first four months of 2017. The economy will expand, however, given that the LEI-N has risen overall over the last six months (see Figure 2).



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.

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	13.3172	0.0751	0.0352	Electricity Sales	4.7812	0.2092	0.1527
Airline Passengers	3.3614	0.2975	0.1393	Private Wages	1.6803	0.5951	0.4346
Exchange Rate	1.2079	0.8279	0.3877	Agricultural Commodities	3.3032	0.3027	0.2211
Initial UI Claims	10.0638	0.0994	0.0465	Survey Business Conditions	3.8112	0.2624	0.1916
Manufacturing Hours	1.6576	0.6033	0.2825				
Survey Business Expectations	4.3066	0.2322	0.1087				

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

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	70.17	67.78	2.39	0.04	0.08	0.07%
Airline Passengers	99.44	101.24	-1.80	0.14	-0.25	-0.20%
U.S. Dollar Exchange Rate (Inverse)	85.06	85.85	-0.79	0.39	-0.31	-0.24%
Initial Unemployment Insurance Claims (Inverse)	146.48	146.44	0.04	0.05	0.00	0.00%
Manufacturing Hours	100.77	100.64	0.14	0.28	0.04	0.03%
Survey Business Expectations ¹	51.16		1.16	0.11	0.13	0.10%
Trend Adjustment					0.13	0.10%
Total (weighted average)	128.06	128.24			-0.18	-0.14%

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	154.46	150.58	3.89	0.15	0.59	0.51%
Private Wage	108.30	106.57	1.74	0.43	0.75	0.65%
Agricultural Commodities	115.29	118.37	-3.08	0.22	-0.68	-0.59%
Survey Business Conditions ¹	51.01		1.01	0.19	0.19	0.17%
Total (weighted average)	116.35	115.49			0.86	0.75%

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.

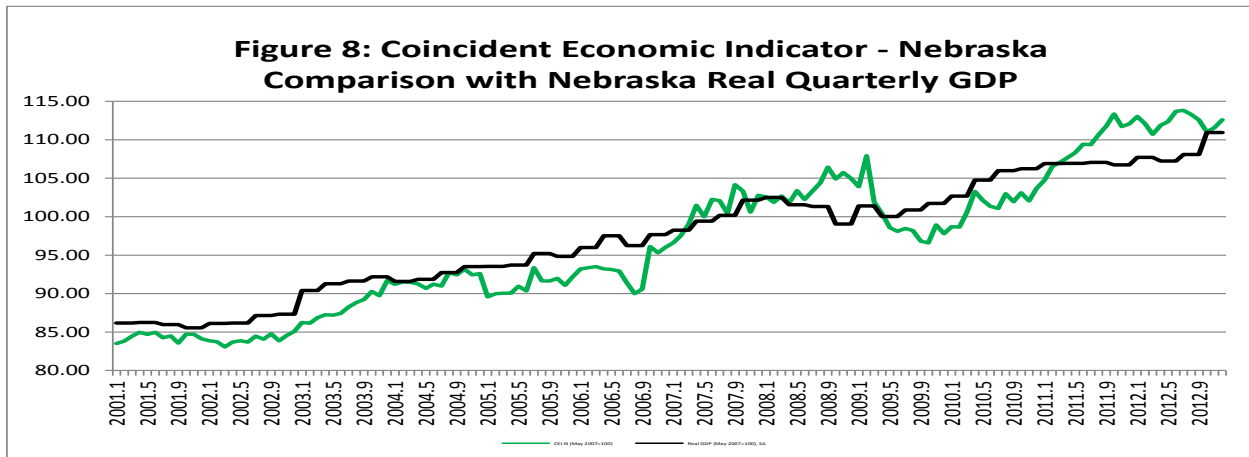


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

