

# Nebraska Monthly Economic Indicators: October 21, 2016

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**Summary:** *The Leading Economic Indicator – Nebraska (LEI-N) rose by 1.14% during September of 2016. The increase in the LEI-N, which predicts economic activity six months in the future, suggests moderate economic growth in Nebraska in the first quarter of 2017. Four of the six components of the LEI-N were positive during September. There was a strong increase in airline passenger counts and an increase manufacturing hours during the month. There also was a decline in initial claims for unemployment insurance. Buisness also optimistic. Respondents to the September Survey of Nebraska Business reported plans to increase sales and employment over the next 6 months. Among negative components, there was a decline in building permits for single-family homes during September. The value of the the U.S. dollar also rose during the month, a negative for Nebraska businesses which export.*

## Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in September 2016 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 1.14% during September.

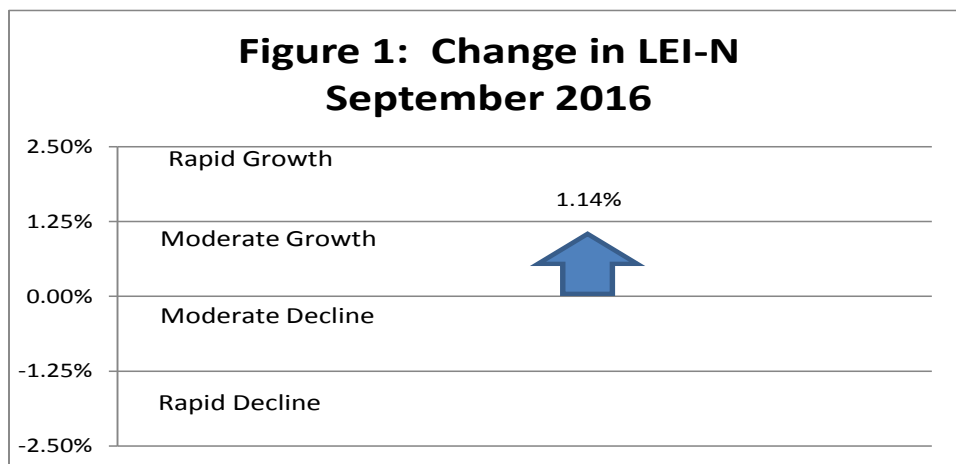


Figure 2 shows the change in the LEI-N over the last six months. There were strong increases in the LEI-N during the second quarter of 2016. Growth was mixed during July and August before the September increase. The overall picture is of growth in the leading indicator.

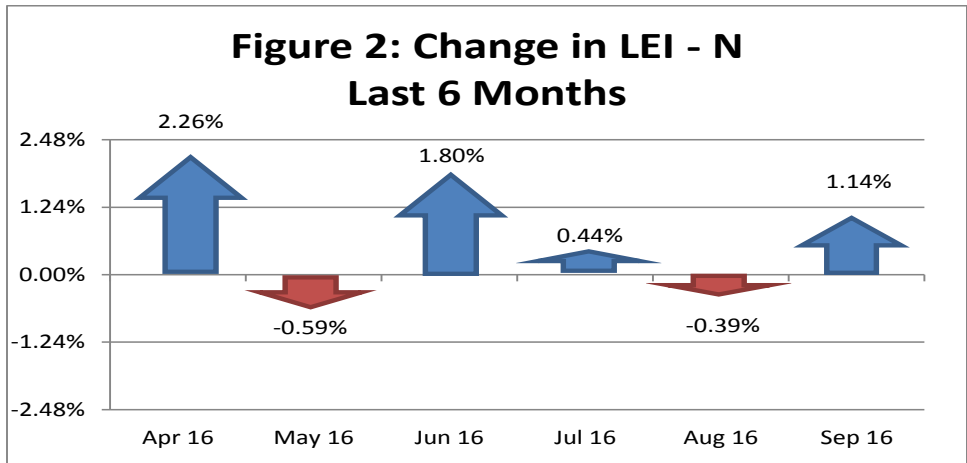
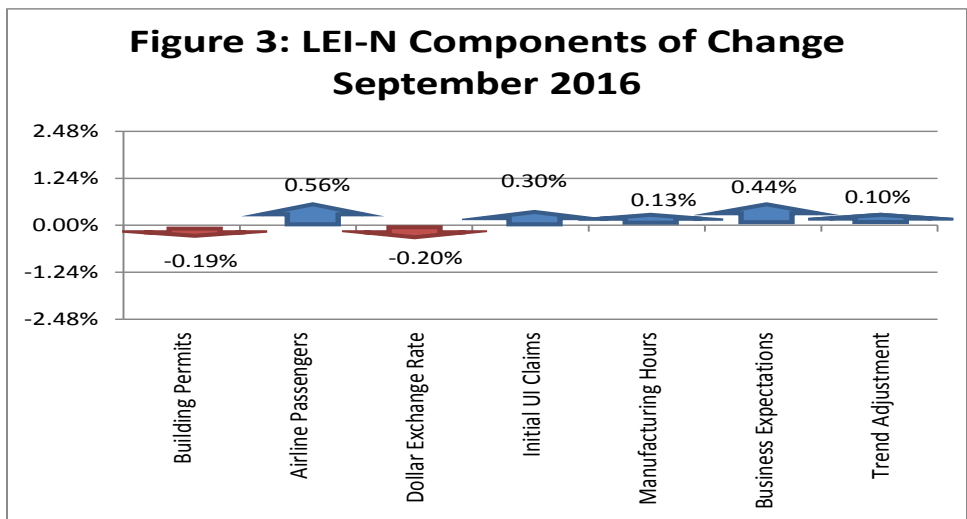
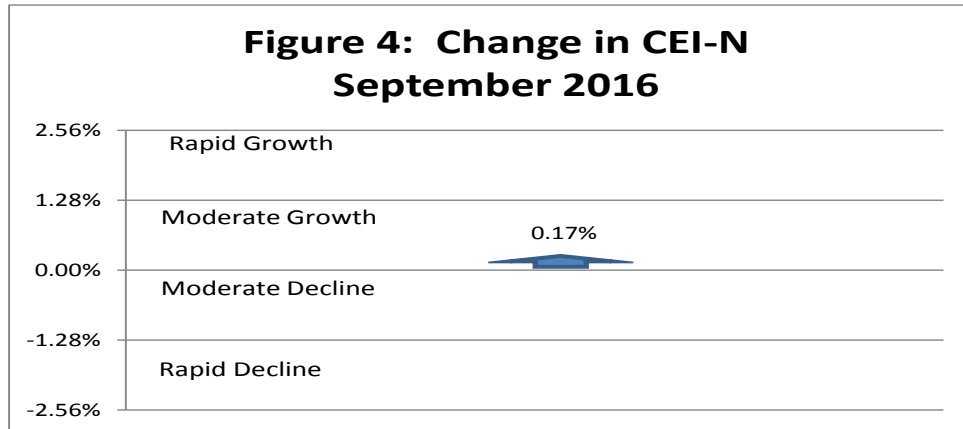


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during September 2016. The change in the overall LEI–N is the weighted average of changes in each component (see page 5). Looking at individual components, there was an increase in four of six components. Airline passenger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

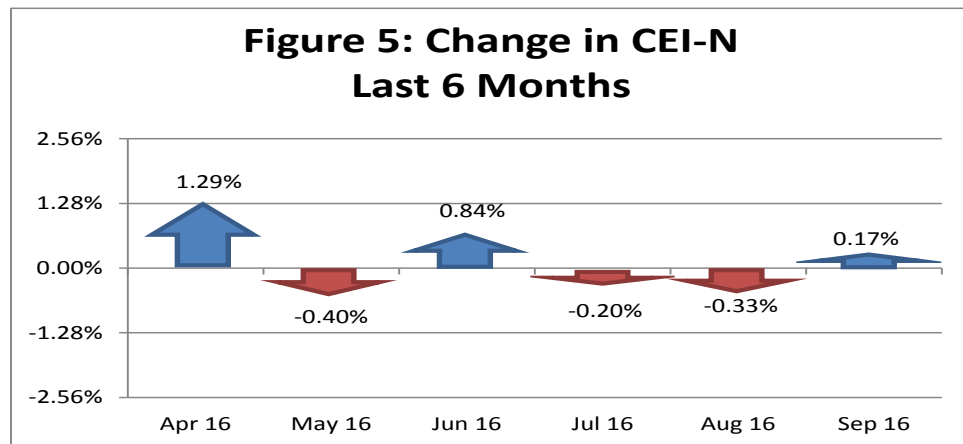


## Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. The CEI-N rose by 0.17% during September 2016, as seen in Figure 4.



The CEI-N has been mixed over the last six months, as seen in Figure 5. There was solid economic growth in Nebraska during the April through June period; a small decline in July and August and an increase during September. Given the September increase, it will be critical to monitor whether the CEI-N continues to expand during the last three months of the year.



As seen in Figure 6, agricultural commodity prices are the primary drag on the Nebraska economy. The commodity price component of the CEI-N was down sharply in September. The three other components, however, rose during the month. There was an increase in private wages, reflecting an improvement in employment and real hourly wages. Electricity sales also rose, after adjusting for weather and other seasonal factors. Finally, business conditions improved as respondents of the September *Survey of Nebraska Business* reported an increase in sales and employment in recent months. A detailed discussion of the components of the CEI-N and LEI-N can be found at [www.cba.unl.edu](http://www.cba.unl.edu) in *Technical Report: Coincident and Leading Economic Indicators- Nebraska*.

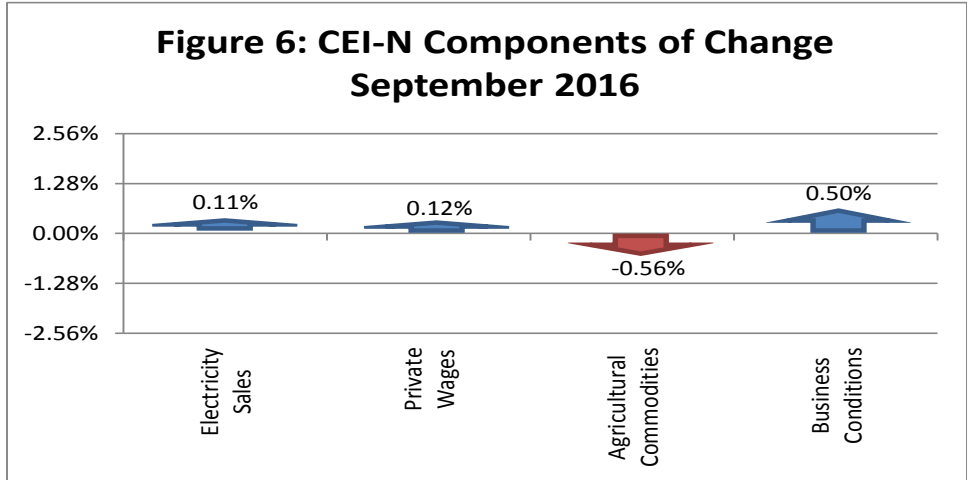
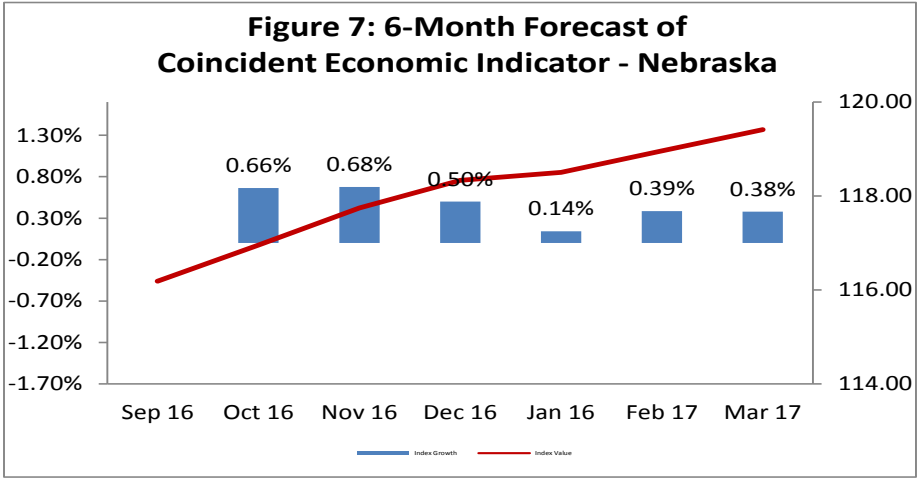


Figure 7 shows the forecast for the CEI-N over the next six months. The forecast calls for strong economic growth in Nebraska during the fourth quarter of 2016 but moderate growth during the first quarter of 2017. This outlook is consistent with recent values for the LEI-N, which rose sharply from April through June but was mixed during July through September (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	13.3563	0.0749	0.0353	Electricity Sales	4.7966	0.2085	0.1529
Airline Passengers	3.3676	0.2969	0.1400	Private Wages	1.6976	0.5891	0.4320
Exchange Rate	1.2097	0.8266	0.3898	Agricultural Commodities	3.2903	0.3039	0.2229
Initial UI Claims	10.1056	0.0990	0.0467	Survey Business Conditions	3.8171	0.2620	0.1921
Manufacturing Hours	1.6913	0.5913	0.2788				
Survey Business Expectations	4.3113	0.2320	0.1094				

Tables 2 and 3 show the calculation for the change in CEI-N and LEI-N between August and September 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	67.45	74.16	-6.72	0.04	-0.24	-0.19%
Airline Passengers	101.34	96.24	5.11	0.14	0.72	0.56%
U.S. Dollar Exchange Rate (Inverse)	85.85	86.51	-0.66	0.39	-0.26	-0.20%
Initial Unemployment Insurance Claims (Inverse)	146.22	138.19	8.03	0.05	0.37	0.30%
Manufacturing Hours	100.03	99.45	0.58	0.28	0.16	0.13%
Survey Business Expectations <sup>1</sup>	55.10		5.10	0.11	0.56	0.44%
Trend Adjustment					0.13	0.10%
<b>Total (weighted average)</b>	<b>128.14</b>	<b>126.70</b>			<b>1.45</b>	<b>1.14%</b>

<sup>1</sup> 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	149.99	149.18	0.81	0.15	0.12	0.11%
Private Wage	108.21	107.90	0.31	0.43	0.13	0.12%
Agricultural Commodities	118.54	121.43	-2.89	0.22	-0.64	-0.56%
Survey Business Conditions <sup>1</sup>	53.02		3.02	0.19	0.58	0.50%
<b>Total (weighted average)</b>	<b>116.19</b>	<b>115.99</b>			<b>0.19</b>	<b>0.17%</b>

<sup>1</sup> 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. The comparison ends in 2012 since this is the last year for which data on real gross state product is available. 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.

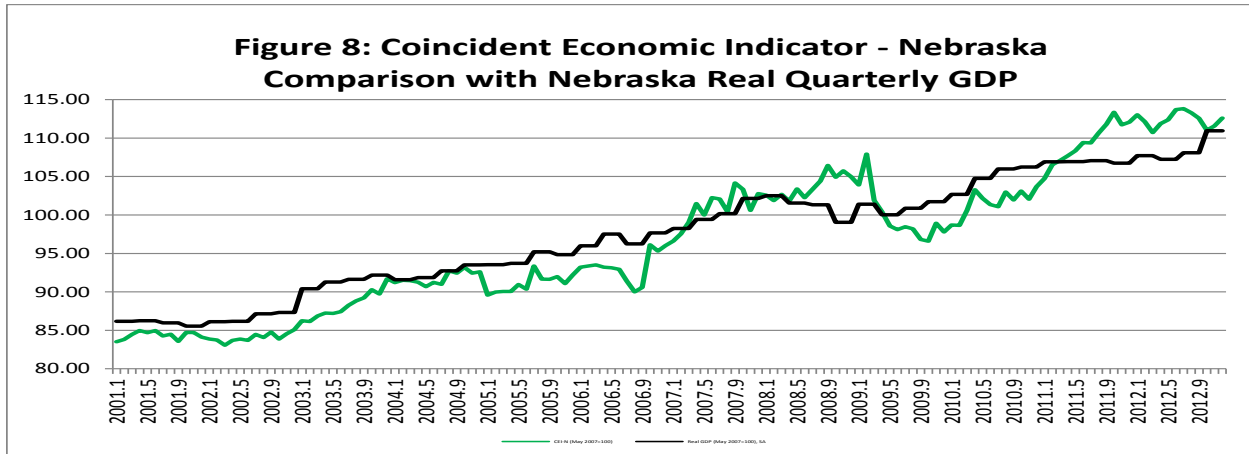


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

