

# Nebraska Monthly Economic Indicators: September 16, 2016

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**Summary:** *The Leading Economic Indicator – Nebraska (LEI-N) fell by 0.32% during August of 2016. The decline in the LEI-N, which predicts economic growth in the state six months in the future, followed an increase of similar magnitude during July. Taken together, the two months of results suggest slow economic growth in Nebraska in early 2017. Three of the six components of the LEI-N were negative during August. There was an increase in initial claims for unemployment insurance, as well as a decline in manufacturing hours during the month. There also was a small decline in airline passenger counts. At the same time, three components of the LEI-N were positive during August. Business expectations were positive, as respondents to the August Survey of Nebraska Business reported plans to increase sales and employment over the next 6 months. There also was an increase in building permits for single-family homes. Finally, the value of the U.S. dollar dropped during August, which is positive for Nebraska businesses which export.*

## Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in August 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 August.

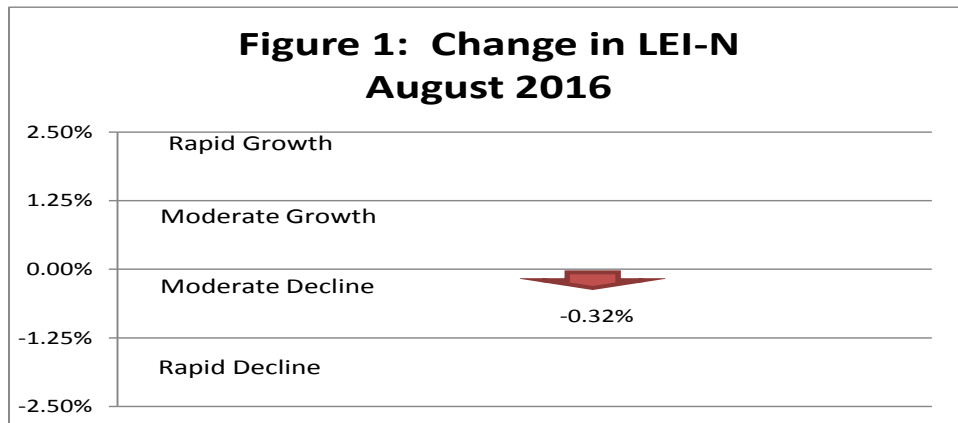


Figure 2 shows the change in the LEI-N over the last six months. The figure shows a mixed result for the LEI-N during July and August, with increase in July is reversed by the drop in August. These results suggest that growth in the Nebraska economy will be slow in early 2017. Prior to July, the LEI-N rose sharply during three of the four months, suggesting strong growth in Nebraska for the rest of this year.

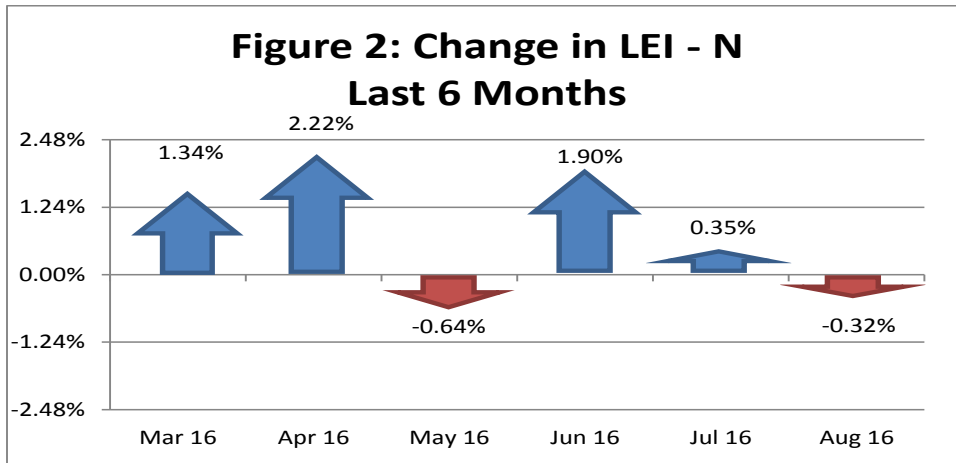
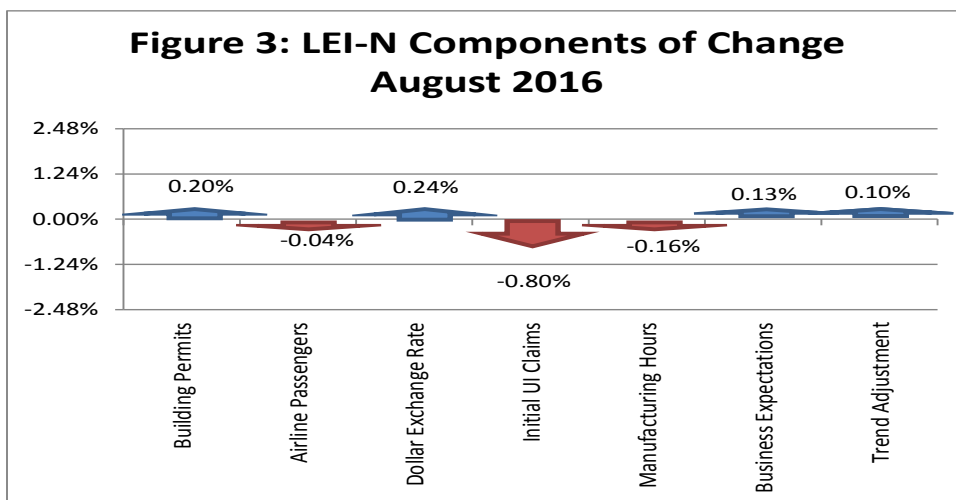
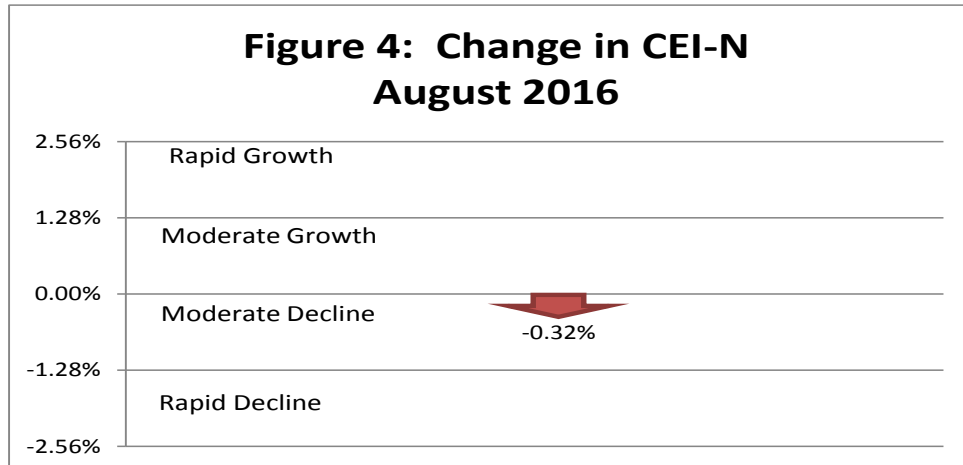


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during August 2016. The change in the overall LEI-N is the weighted average of changes in each component (see page 5). Looking at individual components, there was an increase in initial claims for unemployment insurance during the month. This increase suggests some weakening of what has been a robust Nebraska labor market. In addition, there was a drop in manufacturing hours during August and a modest decline in airline passenger counts. By contrast, business expectations were a positive component of the LEI-N. Respondents to the August *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. Finally, there was a drop in the value of the U.S. dollar during August. This is a positive for Nebraska exporters, including in agriculture and manufacturing. Note that the trend adjustment component pictured in Figure 3 is discussed on page 5.

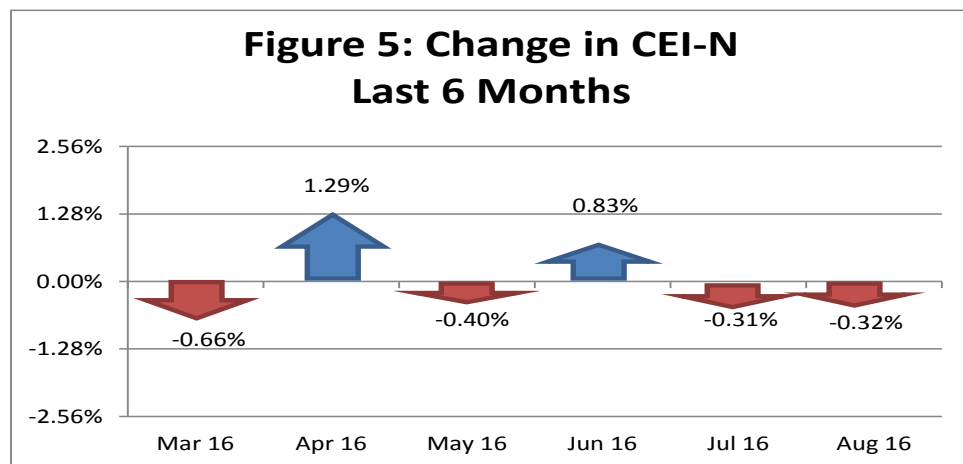


## Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. The CEI-N also fell by 0.32% during August 2016, as seen in Figure 4.



As seen in Figure 5, the CEI-N has been mixed over the last six months. Declines during July and August reverse a solid increase during June. Results also are mixed for the March to May period. It will be critical to monitor whether the CEI-N expands during the last four months of the year, as would be expected given large increases in the LEI-N during the months of March through June.



As seen in Figure 6, three components of the CEI-N fell during August. There was a decline in private wages, reflecting a drop in real hourly wages and weekly hours. There also was a decline in business conditions, as respondents of the *August Survey of Nebraska Business* reported a drop in sales in recent months. Finally, agricultural commodity prices continued to decline in August. Electricity sales was the only improving component of the CEI-N. Electricity sales rose after adjusting for weather and other

seasonal factors. 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*.

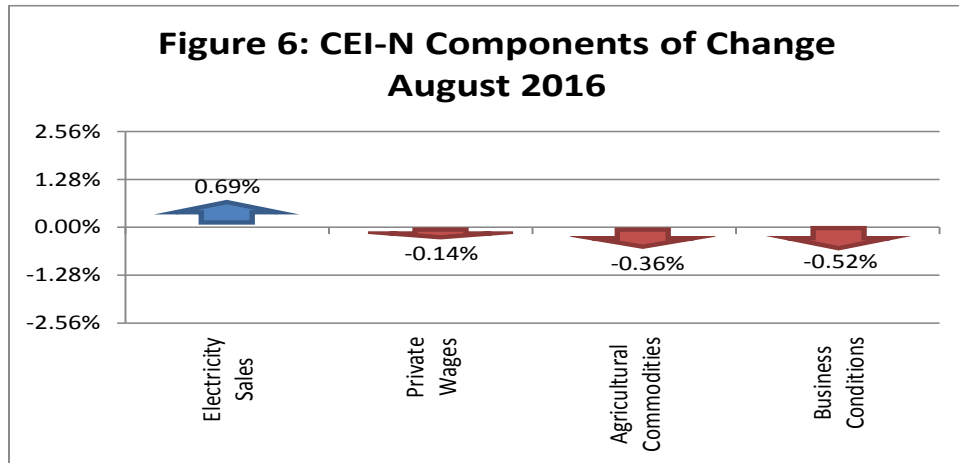
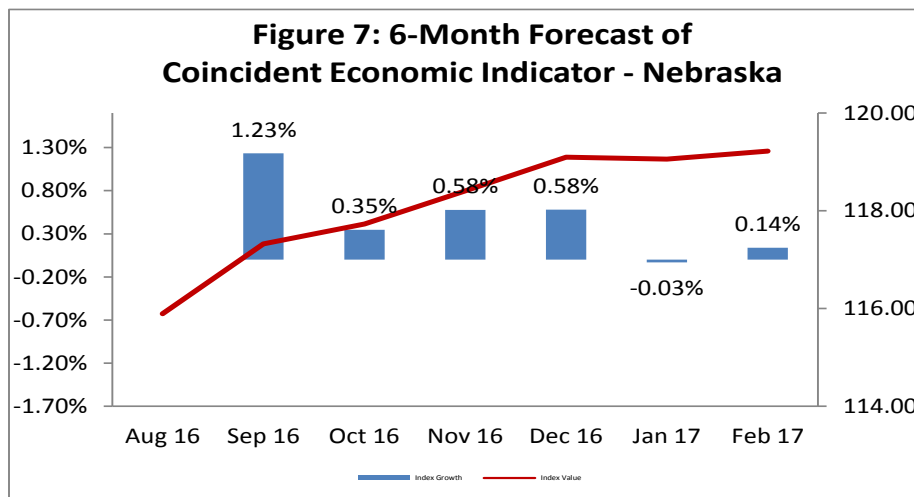


Figure 7 shows the forecast for the CEI-N over the next six months. The forecast calls for strong economic growth in Nebraska during the rest of 2016 but slow growth during the first two months of 2017. This outlook is consistent with recent values for the LEI-N, which rose sharply from March through June but were mixed during July and August (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.

<b>Table 1: Component Weights for LEI-N and CEI-N</b>							
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	13.3998	0.0746	0.0351	Electricity Sales	4.8149	0.2077	0.1523
Airline Passengers	3.3651	0.2972	0.1398	Private Wages	1.7006	0.5880	0.4311
Exchange Rate	1.2074	0.8282	0.3895	Agricultural Commodities	3.2679	0.3060	0.2244
Initial UI Claims	10.1257	0.0988	0.0464	Survey Business Conditions	3.8131	0.2623	0.1923
Manufacturing Hours	1.6772	0.5962	0.2804				
Survey Business Expectations	4.3217	0.2314	0.1088				

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

<b>Table 2: Component Contributions to the Change in Leading Economic Indicator</b>						
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	66.20	58.85	7.35	0.04	0.26	0.20%
Airline Passengers	95.47	95.84	-0.37	0.14	-0.05	-0.04%
U.S. Dollar Exchange Rate (Inverse)	86.53	85.74	0.79	0.39	0.31	0.24%
Initial Unemployment Insurance Claims (Inverse)	136.49	158.45	-21.95	0.05	-1.02	-0.80%
Manufacturing Hours	101.00	101.74	-0.74	0.28	-0.21	-0.16%
Survey Business Expectations <sup>1</sup>	51.56		1.56	0.11	0.17	0.13%
Trend Adjustment					0.13	0.10%
<b>Total (weighted average)</b>	<b>126.59</b>	<b>127.00</b>			<b>-0.41</b>	<b>-0.32%</b>

<sup>1</sup> Survey results are a diffusion Index, which is always compared to 50

<b>Table 3: Component Contributions to the Change in Coincident Economic Indicator</b>						
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	148.97	143.71	5.26	0.15	0.80	0.69%
Private Wage	107.36	107.74	-0.38	0.43	-0.16	-0.14%
Agricultural Commodities	122.08	123.92	-1.84	0.22	-0.41	-0.36%
Survey Business Conditions <sup>1</sup>	46.86		-3.14	0.19	-0.60	-0.52%
<b>Total (weighted average)</b>	<b>115.89</b>	<b>116.27</b>			<b>-0.38</b>	<b>-0.32%</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.

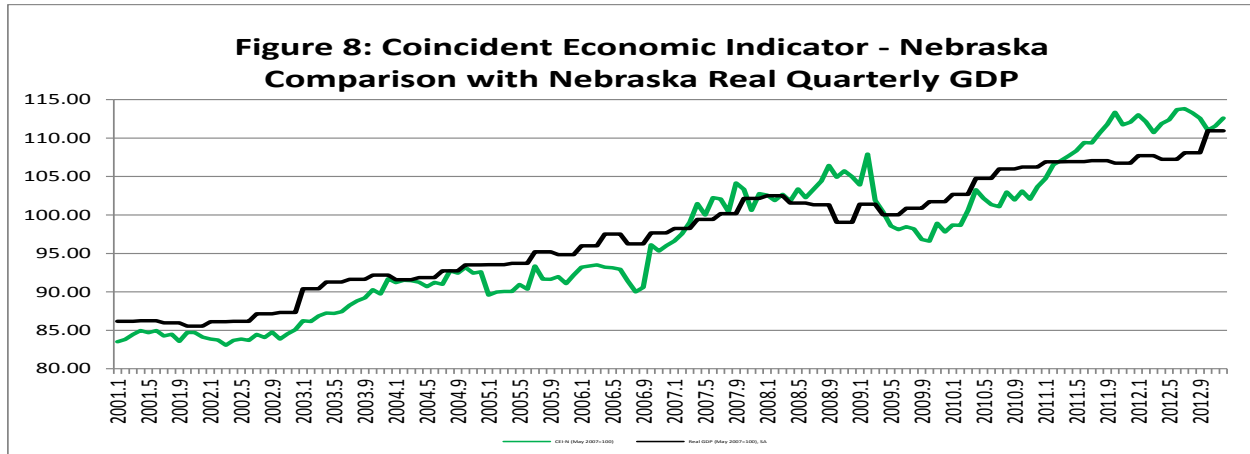


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

