

2016

# Nebraska Monthly Economic Indicators: April 15, 2016

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Prepared by the UNL College of Business Administration, Department of Economics

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**Summary:** The Leading Economic Indicator – Nebraska (LEI-N) rose by 1.92% in March 2016. This rapid increase in the LEI-N, which predicts economic growth in the state six months in the future, suggests that economic growth will be strong in Nebraska during the second half of 2016. Five of the six components of the LEI-N improved during March. Business expectations were strong. Respondents to the March Survey of Nebraska Business predicted growth in sales and employment at their businesses over the next 6 months. There also was an increase in manufacturing hours and building permits for single-family homes. In addition, for the second consecutive months, there was a drop in the value of the U.S. dollar during March. This supports export-oriented businesses in Nebraska. Finally, airline passengers counts were up slightly and there was a small increase in initial claims for unemployment insurance during March.

### Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in March 2016 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by a rapid 1.92% during March.

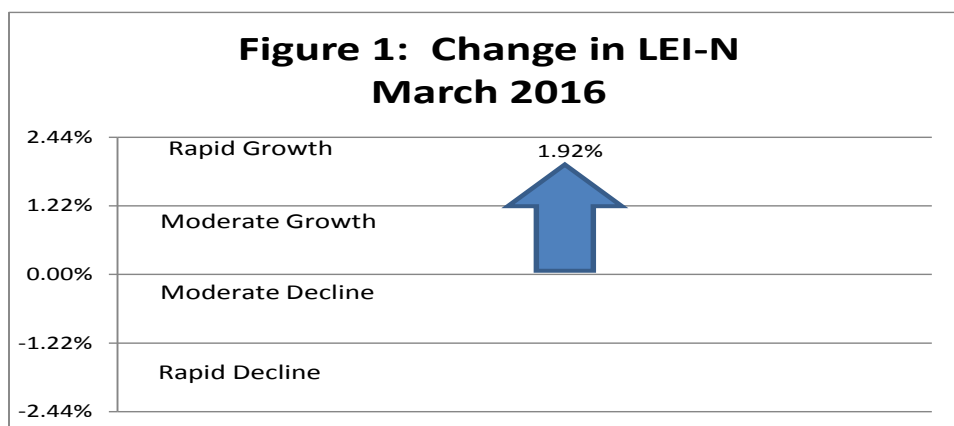


Figure 2 shows the change in the LEI-N over the last six months. The figure shows that the LEI-N has risen five of the last six months. The LEI-N has been particularly strong during the first three months of 2016, suggesting strong growth in the Nebraska economy during the second half of 2016.

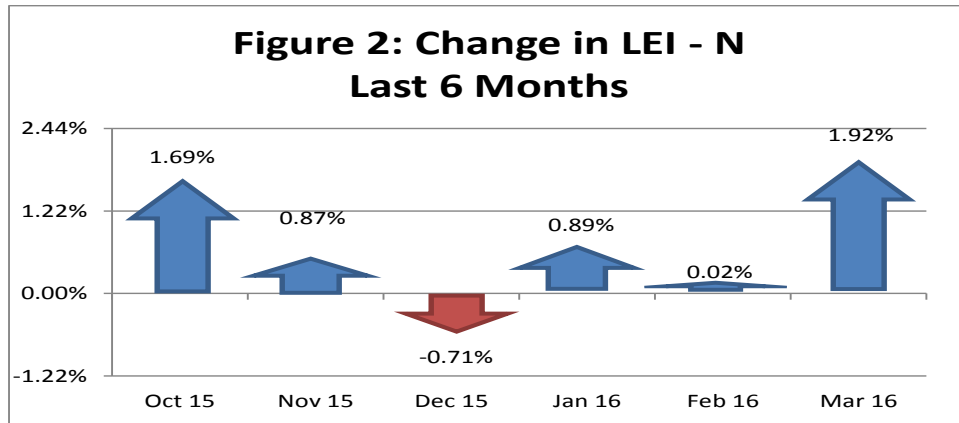
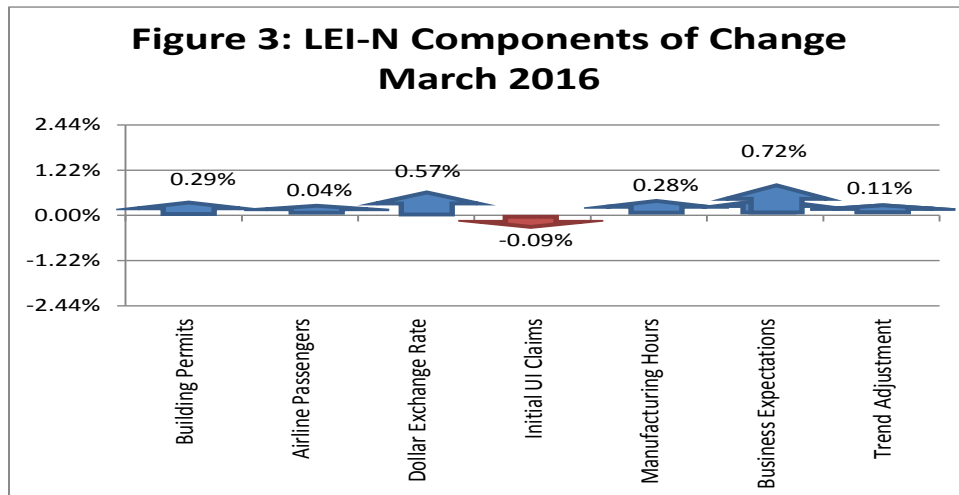
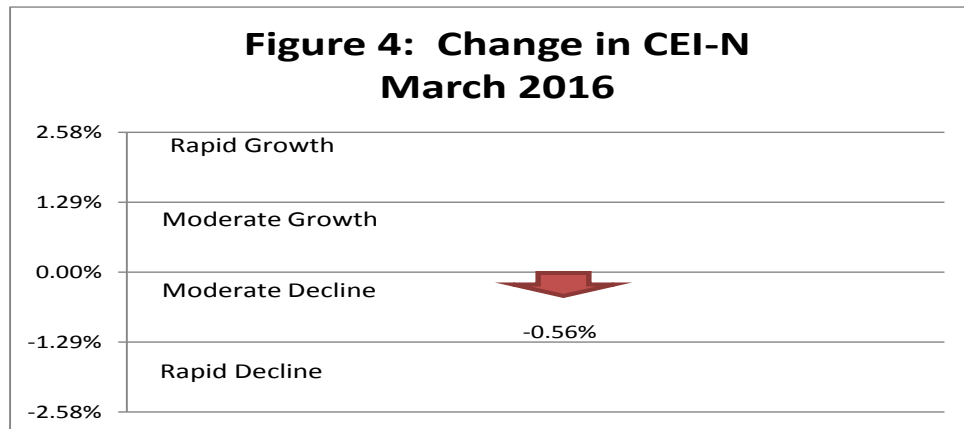


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during March 2016. The change in the overall LEI-N is the weighted average of changes in each component (see page 5). Looking at individual components, business expectations were especially strong. Respondents to the *March Survey of Nebraska Business* predicted strong growth in both sales and employment at their businesses over the next six months. Further, for the second consecutive month, there was a drop in the value of the U.S. dollar in March. A decline in the value of the dollar is positive for Nebraska’s export-oriented businesses in manufacturing and agriculture. There also was solid growth in both building permits for single-family homes and manufacturing hours during March. There was little change in airline passenger counts, which rose slightly. The only negative component was initial claims for unemployment insurance, which rose modestly. Note that the trend adjustment component pictured in Figure 3 is discussed on page 5.

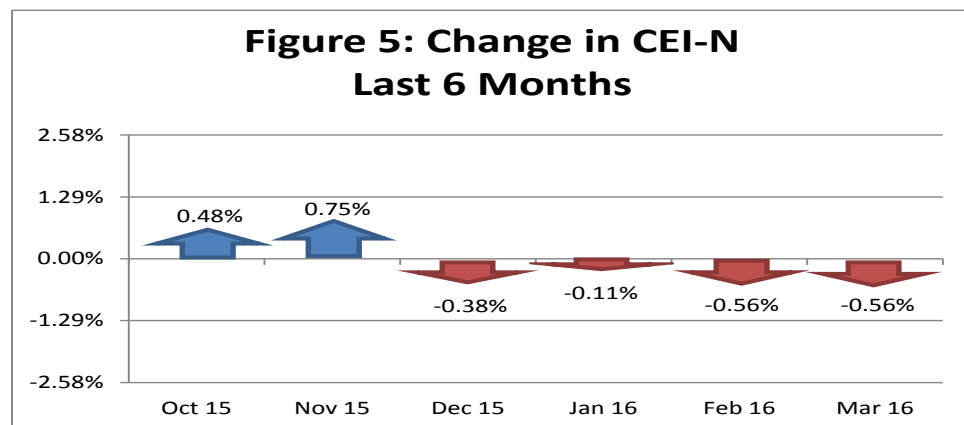


## Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. The CEI-N fell by 0.56% during March, as seen in Figure 4.



As seen in Figure 5, the CEI-N has declined modestly during each of the last 4 months, after solid gains in October and November of 2015. Declines of this magnitude suggest that the Nebraska economy has been weak in recent months but by themselves do not suggest a serious slowdown. Naturally, it will be critical to monitor whether the CEI-N begins to grow again in subsequent months.



As seen in Figure 6, three of four components of the CEI-N declined during March. There was a modest decline in business conditions, as measured in the March *Survey of Nebraska Business*. Responding businesses reported a recent decline in sales but an increase in employment. Electricity sales and agricultural commodity prices also fell during the month. There was, however, an increase in real private wages during March, reflecting an increase in employment, weekly hours and real hourly wages. 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*.

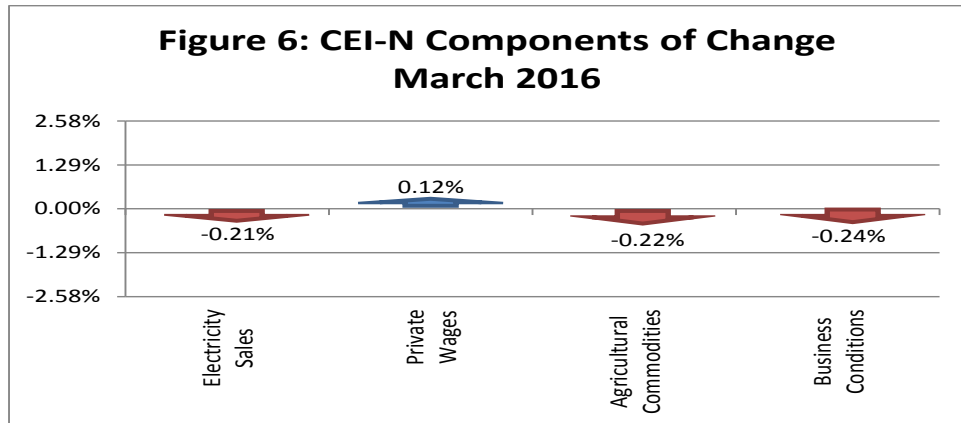
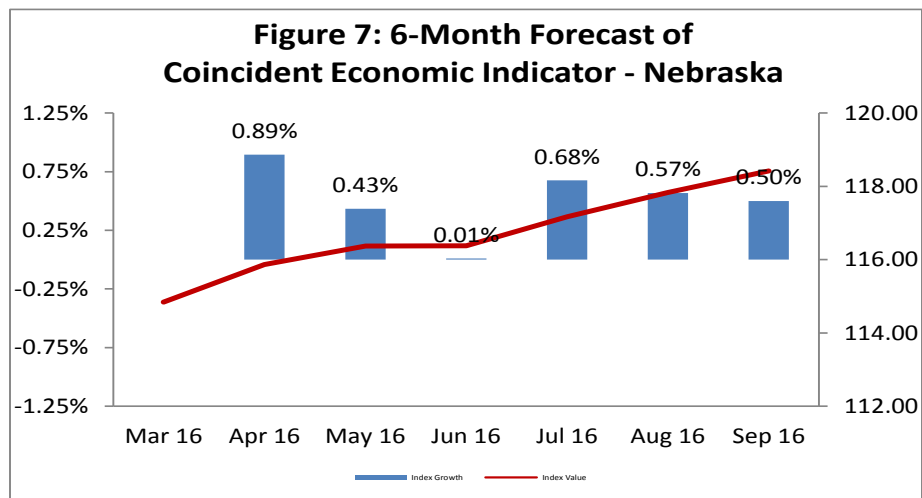


Figure 7 shows the forecast for the CEI-N over the next six months. The forecast calls for strong economic growth in Nebraska. This outlook is consistent with recent values for the LEI-N, which have risen five of the last six months (see Figure 2).



## 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.

<b>Table 1: Component Weights for LEI-N and CEI-N</b>							
<b>Leading Economic Indicator - Nebraska</b>				<b>Coincident Economic Indicator - Nebraska</b>			
<b>Variable</b>	<b>Standard Deviation</b>	<b>Inverse STD</b>	<b>Weight (Inverse STD Standardize)</b>	<b>Variable</b>	<b>Standard Deviation</b>	<b>Inverse STD</b>	<b>Weight (Inverse STD Standardize)</b>
SF Housing Permits	13.6007	0.0735	0.0345	Electricity Sales	4.7230	0.2117	0.1549
Airline Passengers	3.3766	0.2962	0.1390	Private Wages	1.7065	0.5860	0.4287
Exchange Rate	1.2148	0.8232	0.3862	Agricultural Commodities	3.2433	0.3083	0.2256
Initial UI Claims	10.1653	0.0984	0.0462	Survey Business Conditions	3.8330	0.2609	0.1909
Manufacturing Hours	1.6374	0.6107	0.2866				
Survey Business Expectations	4.3610	0.2293	0.1076				

Tables 2 and 3 show the calculation for the change in CEI-N and LEI-N between February and March 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 0.11% 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>						
<b>Leading Economic Indicator - Nebraska</b>						
Component Index Value (May 2007=100)						
<b>Component</b>	<b>Current</b>	<b>Previous</b>	<b>Difference</b>	<b>Weight</b>	<b>Contribution</b>	<b>Percentage Contribution (Relative to Previous LEI-N)</b>
SF Building Permits	70.44	60.22	10.22	0.03	0.35	0.29%
Airline Passengers	95.61	95.26	0.35	0.14	0.05	0.04%
U.S. Dollar Exchange Rate (Inverse)	86.05	84.29	1.76	0.39	0.68	0.57%
Initial Unemployment Insurance Claims (Inverse)	130.86	133.25	-2.38	0.05	-0.11	-0.09%
Manufacturing Hours	99.01	97.84	1.17	0.29	0.34	0.28%
Survey Business Expectations <sup>1</sup>	58.06		8.06	0.11	0.87	0.72%
Trend Adjustment					0.13	0.11%
Total (weighted average)	122.60	120.30			2.31	1.92%

<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>						
<b>Coincident Economic Indicator - Nebraska</b>						
Component Index Value (May 2007=100)						
<b>Component</b>	<b>Current</b>	<b>Previous</b>	<b>Difference</b>	<b>Weight</b>	<b>Contribution</b>	<b>Percentage Contribution (Relative to Previous CEI-N)</b>
Electricity Sales	140.72	142.31	-1.59	0.15	-0.25	-0.21%
Private Wage	104.82	104.51	0.31	0.43	0.13	0.12%
Agricultural Commodities	128.78	129.94	-1.15	0.23	-0.26	-0.22%
Survey Business Conditions <sup>1</sup>	48.54		-1.46	0.19	-0.28	-0.24%
Total (weighted average)	114.84	115.49			-0.65	-0.56%

<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.

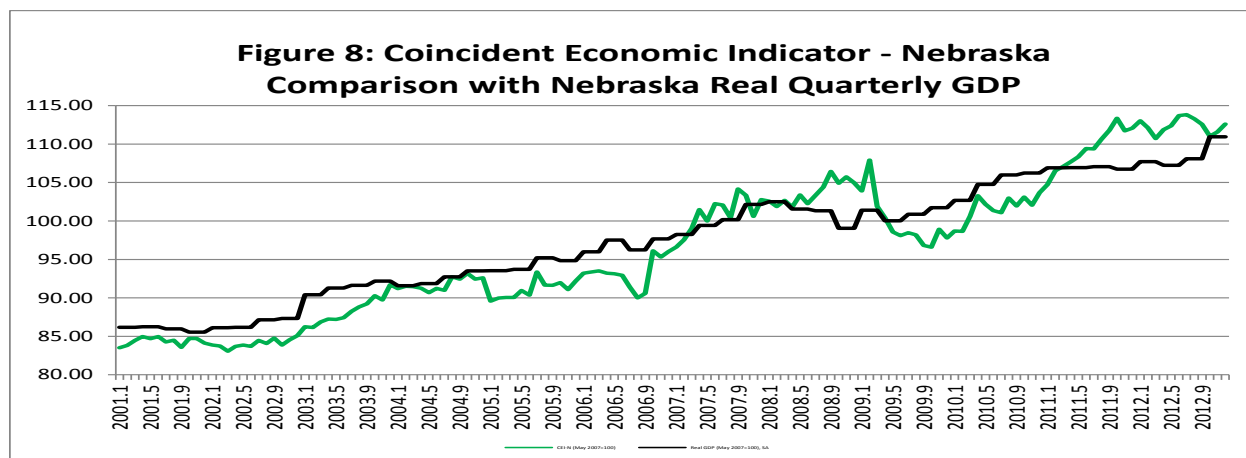


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

