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# Nebraska Monthly Economic Indicators: September 19, 2014

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

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Leading Economic Indicator.....	1
Coincident Economic Indicator.....	3
Weights and Component Shares.....	5
Performance of the LEI-N and CEI-N.....	6

**Summary:** The Leading Economic Indicator – Nebraska (LEI-N) rose by 1.37% during August 2014. The rise in the LEI-N, which predicts economic growth in the state six months in the future, is the fifth in six months. The increase in the LEI-N represents a strong upward bounce after a decline during July. Taking to two months together, results suggest that Nebraska should experience solid economic growth during the first few months of 2015. Three components contributed to the rise in the leading economic indicator in August. Single-family building permits rose during August while initial unemployment claims declined. Both measures improved significantly in August after being a source of weakness in July. Business expectations also were positive in August. In particular, respondents to the Survey of Nebraska Business predicted an increase in both sales and employment over the next six months. Among other components, there was a decline in airline passenger counts and manufacturing hours during August. There also was an increase in the value of the U.S. dollar during August, which is a negative for Nebraska exporters.

## Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in August 2014, compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 1.37% in July.

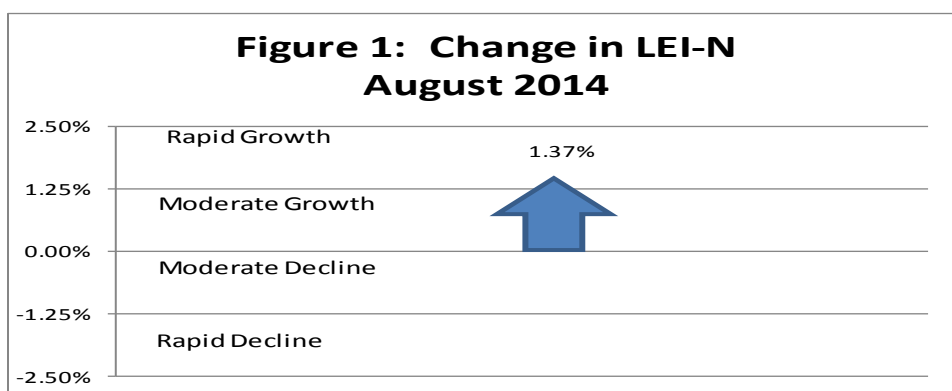


Figure 2 shows the change in the LEI-N over the last 6 months. The leading indicator rose in five of the last six months. The increase in August is a strong recovery after the decline in July. Results from March through June suggest that the Nebraska economy will experience strong growth for the remainder of 2014. Results for July and August, taken together, suggest that growth will continue during early 2015.

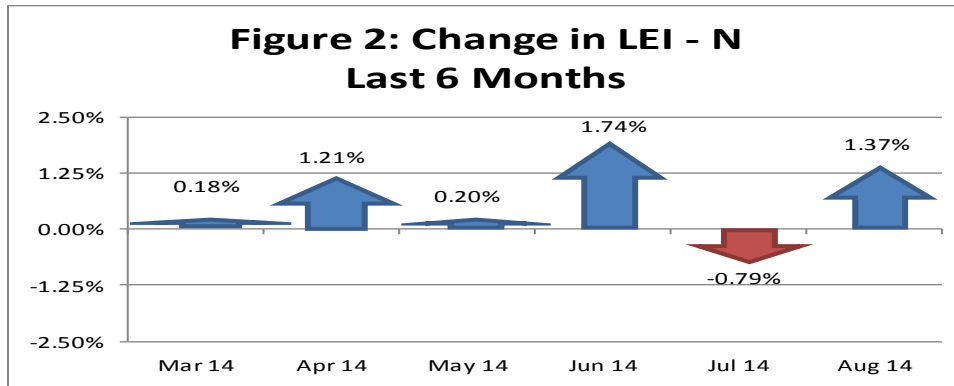
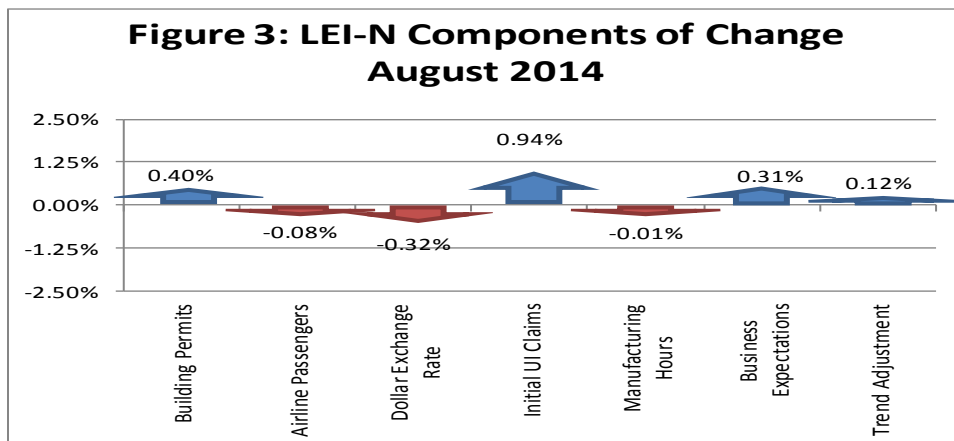
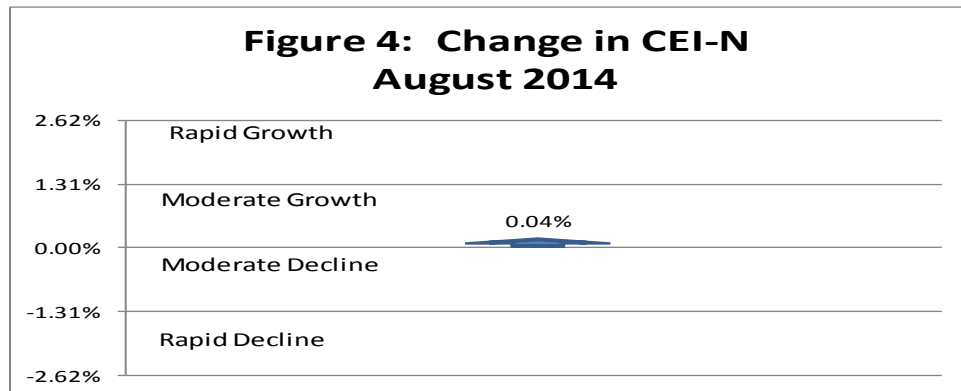


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during August 2014. The change in the overall LEI-N is the weighted average of changes in each component (see page 5). During August, three of the six components of the LEI-N rose. Single-family building permits rose solidly in August. Further, in a positive sign for the labor market, there also was a sharp decline in initial unemployment insurance claims during the month. Both of these indicators improved during August after substantial weakness during July. Business expectations also were positive in August as respondents to the *Survey of Nebraska Business* predicted an increase in both sales and employment over the next six months. Among negative components, there was a modest decline in airline passenger counts and manufacturing hours in August. There also was a sharp increase in the value of the U.S. dollar, which is a negative for Nebraska exporters. Note that the trend adjustment component pictured in Figure 3 is discussed on page 5.

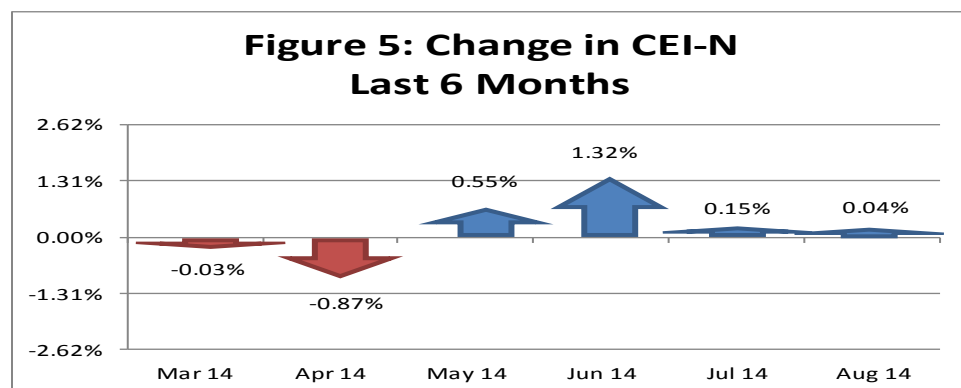


## Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. As seen in Figure 4, the CEI-N rose by just 0.04% last month.



The CEI-N has grown for four consecutive months, as seen in Figure 5. Growth has been modest, however, over the last two months. It will be important to monitor whether the pace of growth improves in the coming months.



As seen in Figure 6, two components of the CEI-N rose during August while two fell. Agricultural commodity prices rose during August due to solid increases in beef prices during the month, although corn prices fell. Real hourly wages improved during August as due to an improvement in employment, hours worked and real hourly wages. There was a slight decline in business conditions as respondents to the *Survey of Nebraska Business* reported a decline in sales. The major decline was in electricity sales. Electricity sales declined during August even after adjusting for seasonally modest weather during the second half of the month. 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*.

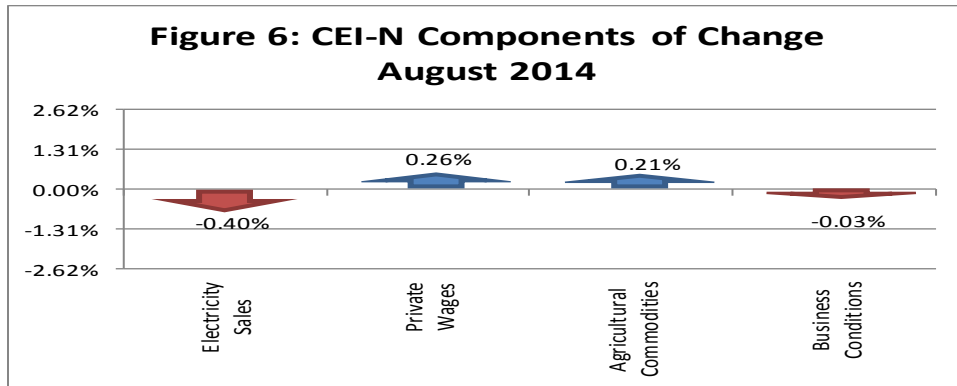
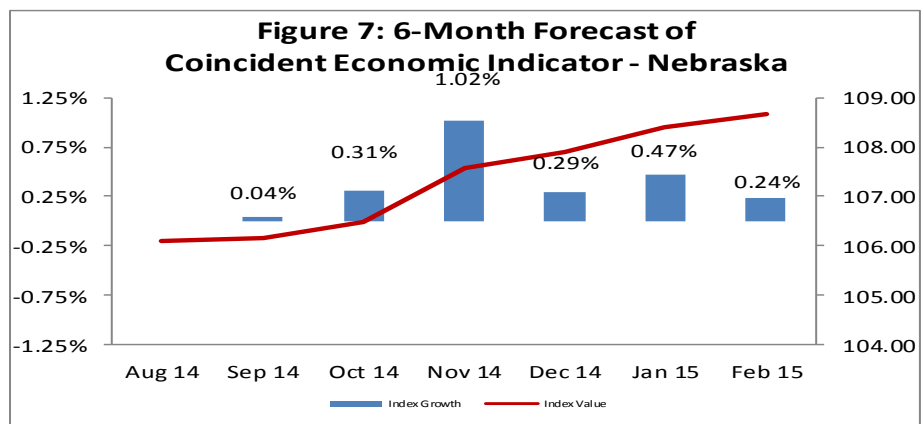


Figure 7 shows the forecast for the CEI-N over the next six months. The forecast suggests strong economic growth during the fourth quarter of 2014. Economic growth also will be solid during the first two months of 2015, though growth may moderate. These positive expectations are consistent with recent values for the LEI-N (see Figure 2).



## Weights and Component Shares

Table 1 shows the weights that were 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	13.8661	0.0721	0.0329	Electricity Sales	4.8337	0.2069	0.1502
Airline Passengers	3.5291	0.2834	0.1293	Private Wages	1.6655	0.6004	0.4359
Exchange Rate	1.1898	0.8405	0.3836	Agricultural Commodities	3.2355	0.3091	0.2244
Initial UI Claims	10.5688	0.0946	0.0432	Survey Business Conditions	3.8322	0.2609	0.1895
Manufacturing Hours	1.4736	0.6786	0.3097				
Survey Business Expectations	4.5029	0.2221	0.1013				

Tables 2 and 3 show the calculation for the change in CEI-N and LEI-N between July and August of 2014. 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 0.12% 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)						
Component	Current	Previous	Difference	Weight	Contribution	Percentage Contribution (Relative to Previous LEI-N)
SF Building Permits	59.49	45.94	13.55	0.03	0.45	0.40%
Airline Passengers	89.70	90.41	-0.71	0.13	-0.09	-0.08%
U.S. Dollar Exchange Rate (Inverse)	101.27	102.19	-0.91	0.38	-0.35	-0.32%
Initial Unemployment Insurance Claims (Inverse)	104.03	79.93	24.10	0.04	1.04	0.94%
Manufacturing Hours	96.14	96.17	-0.03	0.31	-0.01	-0.01%
Survey Business Expectations <sup>1</sup>	53.42		3.42	0.10	0.35	0.31%
Trend Adjustment					0.13	0.12%
Total (weighted average)	112.14	110.63			1.51	1.37%

<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)						
Component	Current	Previous	Difference	Weight	Contribution	Percentage Contribution (Relative to Previous CEI-N)
Electricity Sales	110.45	113.26	-2.81	0.15	-0.42	-0.40%
Private Wage	98.04	97.41	0.63	0.44	0.28	0.26%
Agricultural Commodities	150.85	149.86	1.00	0.22	0.22	0.21%
Survey Business Conditions <sup>1</sup>	49.83		-0.17	0.19	-0.03	-0.03%
Total (weighted average)	106.16	106.11			0.05	0.04%

<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.

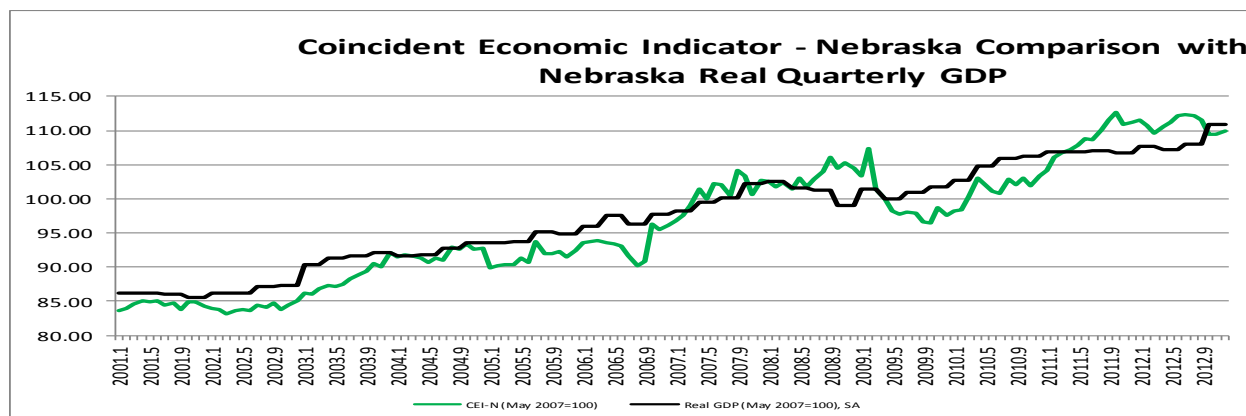


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months 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 0.91.

