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# Nebraska Monthly Economic Indicators: January 17, 2014

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## Nebraska Monthly Economic Indicators: January 17, 2014

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**Summary:** *The Leading Economic Indicator – Nebraska (LEI-N) increased by 0.78% during December 2013. The increase in the LEI-N, which predicts economic growth in the state six months in the future, follows a decline in November. Taken together, recent results for the LEI-N suggest that the Nebraska economy will grow only modestly in the second quarter of 2014, but that the rate of growth may begin to improve in June, as summer begins. During December, four components of the leading economic indicator expanded and two declined. Among expanding components, there was a solid increase in single-family building permits, consistent with the continued recovery of the housing industry in Nebraska. There also were modest increases in both airline passenger counts and manufacturing hours. Further, there was a modest improvement in business expectations. Respondents to the Survey of Nebraska Business predicted an increase in employment at their business over the next six month. Among declining components, initial unemployment claims rose in December on a seasonally-adjusted basis. There also was an increase in the value of the U.S. dollar, a negative for the state’s exporters.*

### Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in December 2013, compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N increased by 0.78% in December.

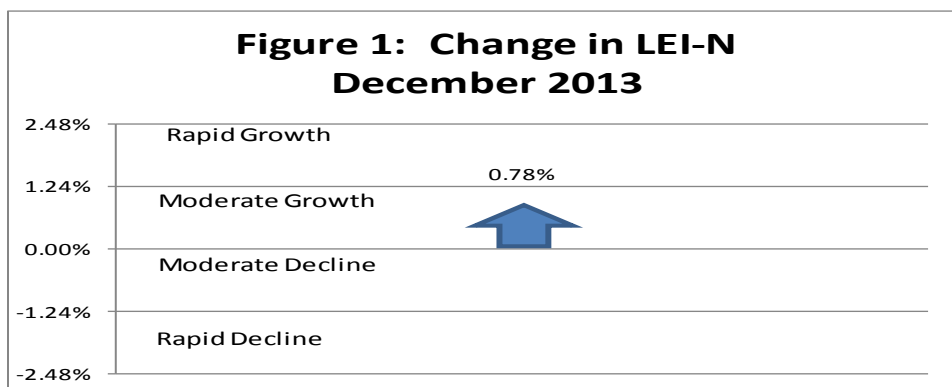


Figure 2 shows the growth in the LEI-N over the last 6 months. Results are mixed. A drop in the indicator in one month is often reversed in the month or months that follow. Taken together, results suggest weak growth in the Nebraska economy during second quarter of 2014. However, given the solid increase in the LEI-N during December, economic growth should improve in June as the summer begins.

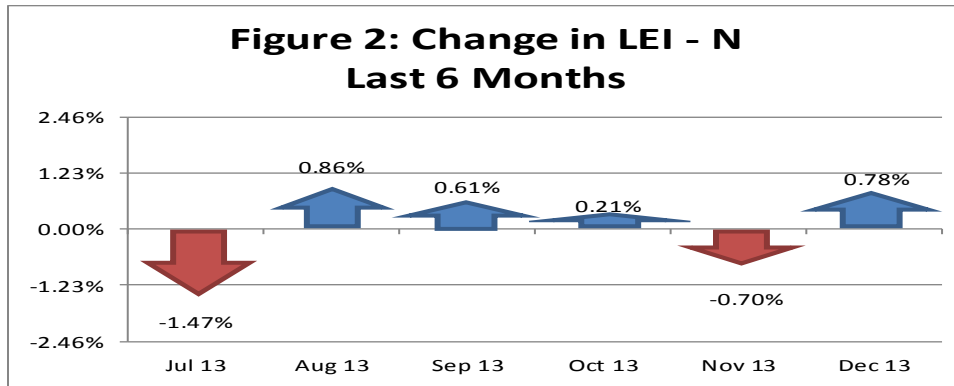
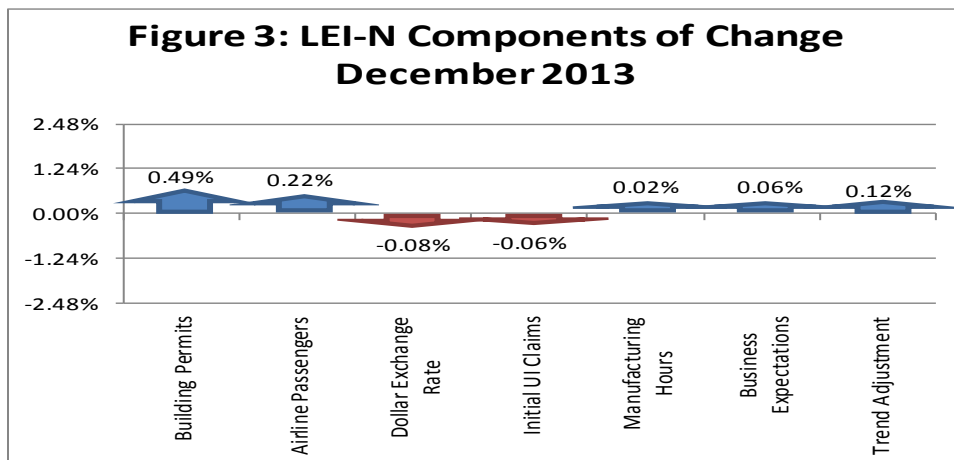
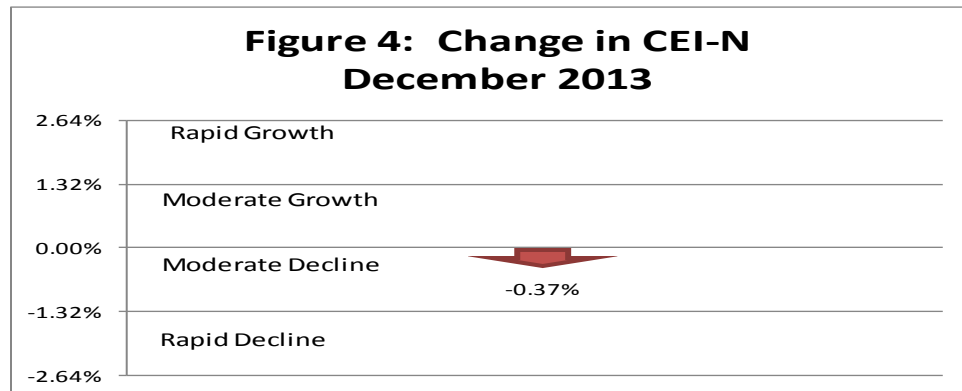


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during December 2013. The change in the overall LEI-N is the weighted average of changes in each component (see page 5). During December, four components of the indicator grew and two declined. Single-family building permit counts rose solidly in December on a seasonally-adjusted basis, consistent with the ongoing recovery of housing construction in Nebraska. Airline passenger counts and manufacturing hours also rose modestly during December. Further, business expectations were modestly positive in Nebraska in December, according to results of the *Survey of Nebraska Business*. Respondents to the survey projected an increase employment at their business over the next six months. Among declining components, initial unemployment claims also rose modestly in December. The value of the U.S. dollar also increased during December, which is negative for export activity. Note that the trend adjustment component pictured in Figure 3 is discussed on page 5.

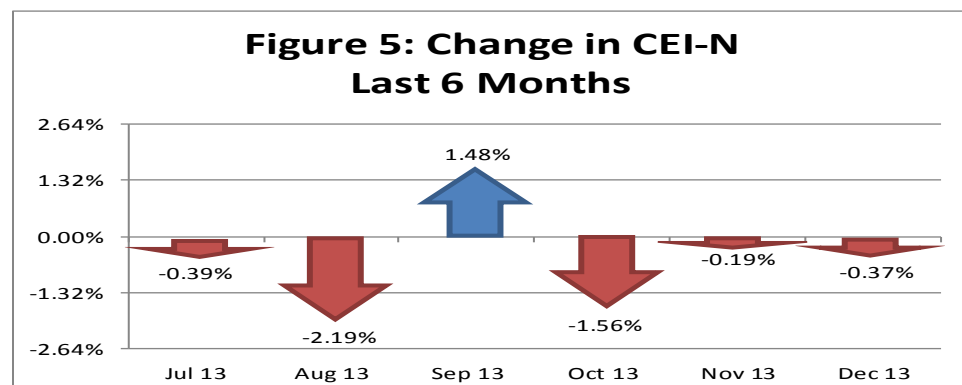


## Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. The CEI-N declined by 0.37% between November and December of 2013, as seen in Figure 4.



The modest decline in the CEI-N during December and the previous month, as seen in Figure 5, reflects stabilization in the Nebraska economy. The CEI-N was down overall in the August through October period. There was a sharp drop in agricultural commodity prices during this period. The decline in agricultural prices continues to impact the state economy but the situation has stabilized in the last two months. It will be important to monitor if the CEI-N remains stable during the first few months of 2014.



As seen in Figure 6, two of the four components of the CEI-N increased during December. Real weekly private wages grew during the month, suggesting growth in employment opportunities, hours-worked per week and real wages. Electricity sales also rose during December, after accounting for weather and seasonal trends. Among declining components, respondents to the *Survey of Nebraska Business* reported a modest decline in sales activity and employment in recent months. There also was continued decline in the agricultural commodity price component. A detailed discussion of the components of the CEI-N, as well as the LEI-N, can be found at [www.cba.unl.edu](http://www.cba.unl.edu) in *Technical Report: Coincident and Leading Economic Indicators- Nebraska*.

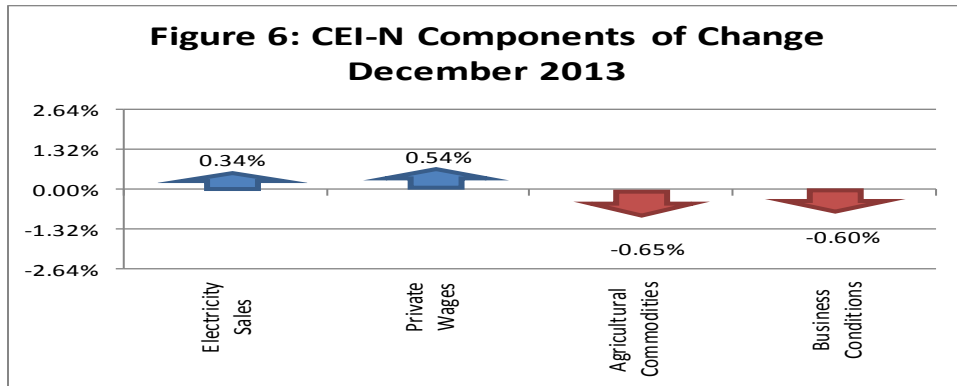
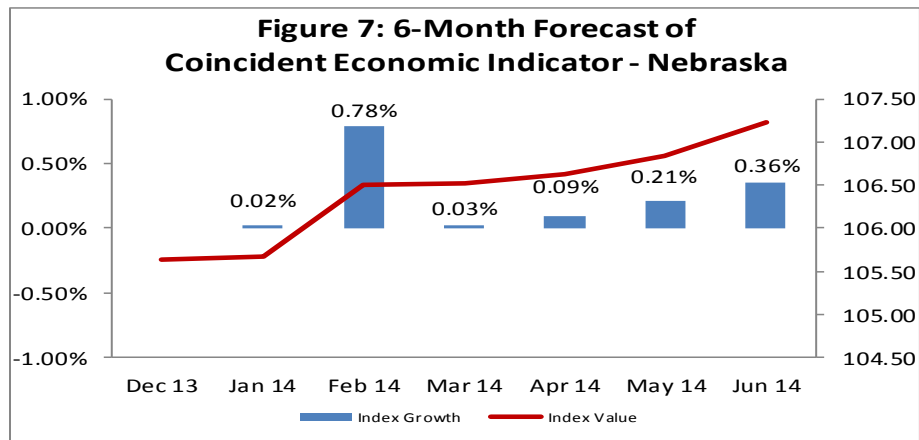


Figure 7 shows the forecast for the CEI-N over the next six months. The forecast suggests moderate growth in the CEI-N during the first quarter of 2014, though growth during the quarter will be concentrated in the month of February. Growth will be weak in the second quarter of 2014, though growth will improve in June, consistent with the increase in LEI-N during December (see Figure 1). The forecast in Figure 7 suggests that the economic growth in Nebraska may accelerate in the summer of 2014, beginning in June.



## 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	13.9480	0.0717	0.0325	Electricity Sales	5.0062	0.1998	0.1367
Airline Passengers	3.5616	0.2808	0.1271	Private Wages	1.7347	0.5765	0.3945
Exchange Rate	1.2123	0.8249	0.3735	Agricultural Commodities	3.1268	0.3198	0.2189
Initial UI Claims	10.0791	0.0992	0.0449	Survey Business Conditions	2.7387	0.3651	0.2499
Manufacturing Hours	1.4560	0.6868	0.3110				
Survey Business Expectations	4.0765	0.2453	0.1111				

Tables 2 and 3 show the calculation for the change in CEI-N and LEI-N between November and December of 2013. 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)						
<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	89.14	72.95	16.20	0.03	0.53	0.49%
Airline Passengers	92.00	90.11	1.89	0.13	0.24	0.22%
U.S. Dollar Exchange Rate (Inverse)	102.47	102.68	-0.22	0.37	-0.08	-0.08%
Initial Unemployment Insurance Claims (Inverse)	75.74	77.13	-1.40	0.04	-0.06	-0.06%
Manufacturing Hours	93.72	93.64	0.08	0.31	0.02	0.02%
Survey Business Expectations <sup>1</sup>	50.56		0.56	0.11	0.06	0.06%
Trend Adjustment					0.13	0.12%
Total (weighted average)	107.89	107.05			0.84	0.78%

<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	122.68	120.03	2.65	0.14	0.36	0.34%
Private Wage	96.54	95.09	1.45	0.39	0.57	0.54%
Agricultural Commodities	145.13	148.27	-3.14	0.22	-0.69	-0.65%
Survey Business Conditions <sup>1</sup>	47.45		-2.55	0.25	-0.64	-0.60%
Total (weighted average)	105.64	106.03			-0.39	-0.37%

<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 0.95.

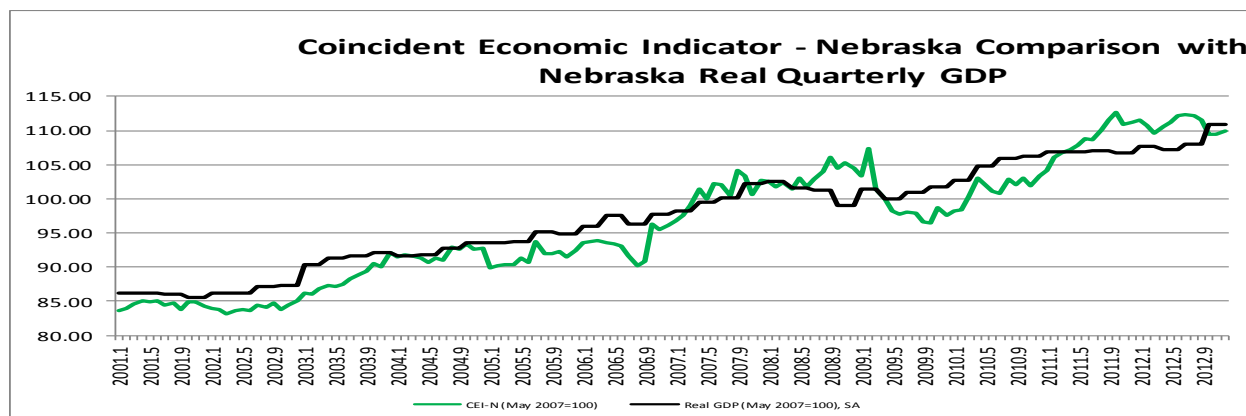


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

