

# Nebraska Monthly Economic Indicators: May 18, 2012

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

**Authors:** Dr. Eric Thompson, Dr. William Walstad  
**Graduate Research Assistant:** Adam George

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) increased at a moderate 0.44% rate during April 2012. The increase in the LEI-N, which predicts economic growth in the state six months in the future, signals that the Nebraska economy will grow during the fall of 2012. However, recent evidence signals modest growth. The LEI-N grew by 0.44% in April but declined during March. Further, there was mixed evidence of growth among the underlying components of the leading indicator. Rising manufacturing hours, positive business expectations, and declining initial unemployment claims all point to future growth. But, other components declined. Building permits and airline passenger counts fell during April. The value of the U.S. dollar also rose, limiting future exports and growth.*

## Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in April 2012, compared to the previous month. The LEI-N, which predicts economic growth six months into the future, grew by 0.44% in March, suggesting economic growth during the fall of 2012.

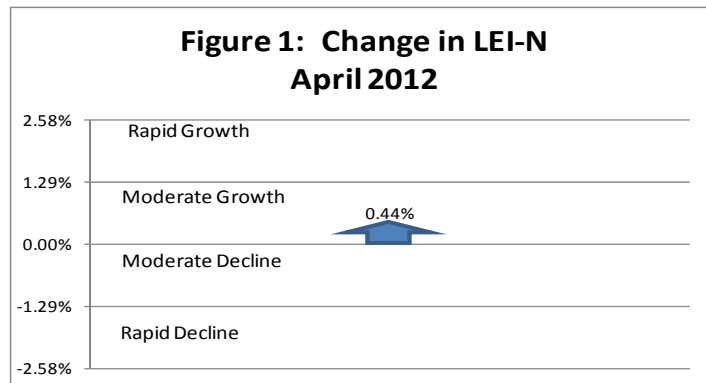


Figure 2 shows the growth in the LEI-N over the last 6 months. The LEI-N increased in 4 of the last 5 months. Sustained, moderate increases in the LEI-N during the December 2011 to February 2012 period suggest solid growth in the Nebraska economy during the summer of 2012. Changes in the LEI-N, however, have been mixed in recent months. The LEI-N declined in March 2012, and increased only moderately in April. The two months taken together suggest that the Nebraska economy will continue to grow in the fall of 2012 but the pace of growth will be modest.

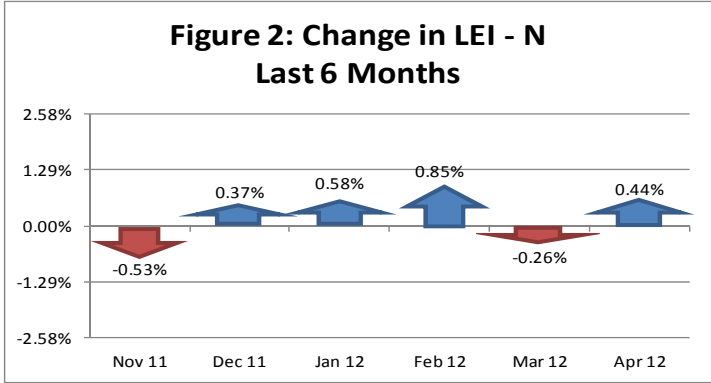
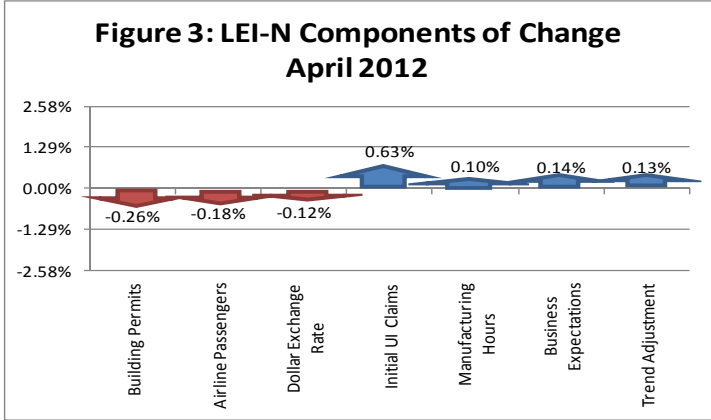
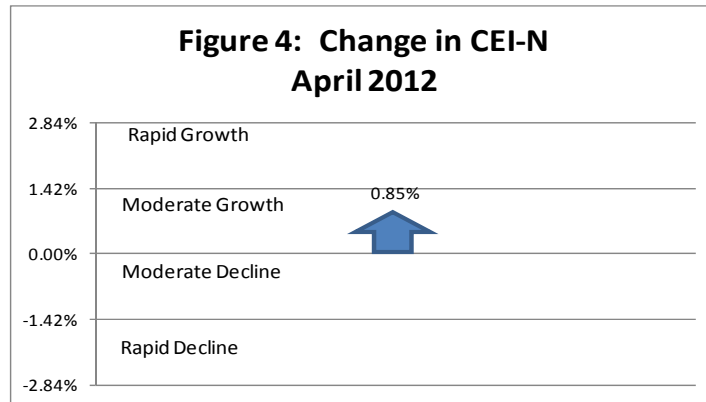


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during April 2012. The change in the overall LEI – N is the weighted average of changes in each component (see page 5). Component trends were mixed. Initial unemployment claims declined sharply in Nebraska during April, indicating fewer layoffs and that businesses anticipate a greater need for workers in the coming months. Respondents to the monthly *Survey of Nebraska Business* also reported an expectation of rising sales and employment in their businesses over the next six months. Finally, manufacturing hours also expanded in April, signaling moderate growth in this key sector. However, the number of building permits issued declined during April on a seasonally-adjusted basis, in a negative sign for residential construction. Airline passenger counts also fell during April, which is a negative signal for the broader business sector. The trade-weighted value of the U.S. Dollar increased during March 2012, discouraging exports. Thus, taken together, the components of the LEI-N send a mixed picture for the economy. Note that the trend adjustment component pictured in Figure 3 is discussed on page 5.

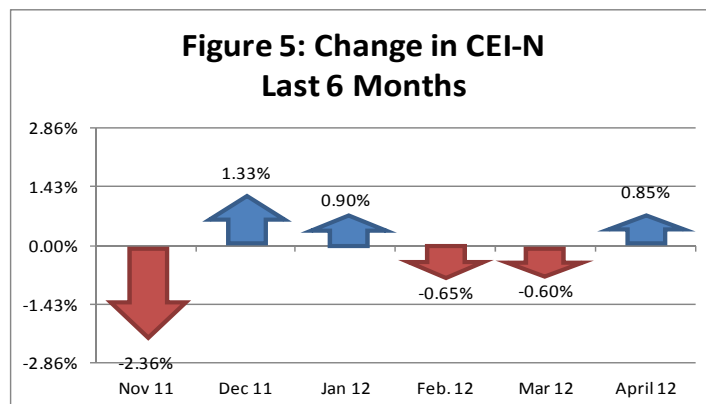


## Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. As seen in Figure 4, CEI-N increased by a moderate 0.85% during April 2012, suggesting solid growth in the Nebraska economy during the month.



As seen in Figure 5, the increase in the CEI-N during April is the first increase in 3 months. Thus the improvement in the CEI-N during April is a welcome sign. It suggests that the Nebraska economy is continuing to expand, even if the economy has been weak during the first four months of 2012.



There was also broad based improvement in the CEI-N during April 2012, as seen in Figure 6. Real (inflation adjusted) private wages increased solidly in April, making the largest contribution to growth in the CEI-N. This reflects an expansion in private employment, hours, and real hourly wages. Electricity sales also increased in Nebraska, after adjusting for weather and other seasonal factors. Respondents to the *Survey of Nebraska Business* also reported recent increases in sales and employment activity. The only CEI-N component to decline was agricultural commodity prices, but this decline was modest. 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*.

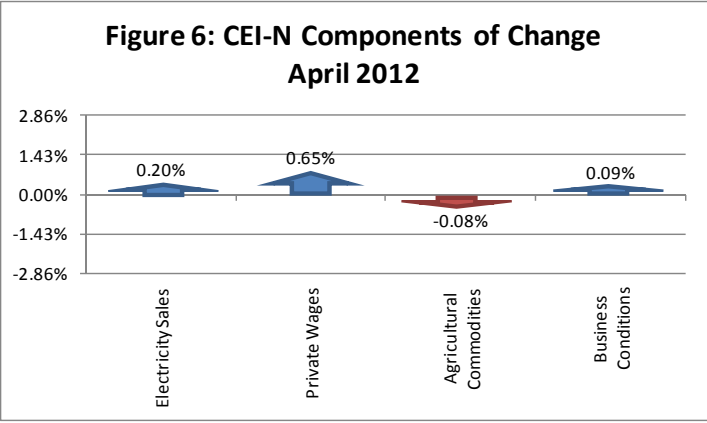
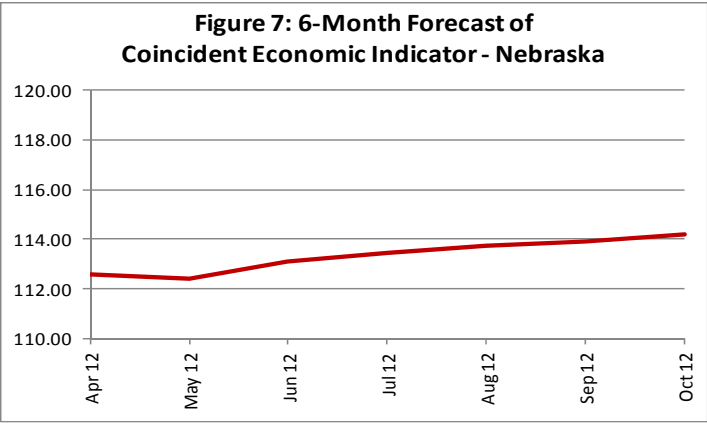


Figure 7 shows the forecast for the CEI-N over the next six months. The forecast reflects changes in the value of LEI-N between November 2011 and April 2012 (see Figure 2). The LEI-N declined in November 2011 but then increased for 3 consecutive months between December 2011 and February 2012. The LEI-N was then mixed, falling moderately in March 2012 and rising moderately in April 2012. These trends in LEI-N forecast an initial decline in CEI-N followed by sustained growth during the summer of 2012 and weak growth during the fall. This is the forecast depicted in Figure 7.



## 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 weight that is utilized is 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 be 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	14.6447	0.0683	0.0337	Electricity Sales	4.8902	0.2045	0.1734
Airline Passengers	3.7085	0.2696	0.1330	Private Wages	1.8219	0.5489	0.4654
Exchange Rate	1.2517	0.7989	0.3939	Agricultural Commodities	3.2775	0.3051	0.2587
Initial UI Claims	9.8791	0.1012	0.0499	Survey Business Conditions	8.2757	0.1208	0.1025
Manufacturing Hours	1.4777	0.6767	0.3337				
Survey Business Expectations	8.8351	0.1132	0.0558				

Tables 2 and 3 show the calculation for the change in CEI-N and LEI-N between March and April. 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 0.13% per month. There is also a trend adjustment factor for the U.S. Leading Economic Indicator.

<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	45.51	53.28	-7.78	0.03	-0.26	-0.26%
Airline Passengers	89.93	91.29	-1.36	0.13	-0.18	-0.18%
U.S. Dollar Exchange Rate (Inverse)	105.58	105.90	-0.32	0.39	-0.13	-0.12%
Initial Unemployment Insurance Claims (Inverse)	76.72	63.88	12.84	0.05	0.64	0.63%
Manufacturing Hours	87.56	87.26	0.30	0.33	0.10	0.10%
Survey Business Expectations <sup>1</sup>	52.51		2.51	0.06	0.14	0.14%
Trend Adjustment					0.13	0.13%
Total (weighted average)	101.79	101.35			0.44	0.44%

<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	107.40	106.11	1.29	0.17	0.22	0.20%
Monthly Wage	95.15	93.60	1.55	0.47	0.72	0.65%
Agricultural Commodities	147.90	148.26	-0.36	0.26	-0.09	-0.08%
Survey Business Conditions <sup>1</sup>	50.99		0.99	0.10	0.10	0.09%
Total (weighted average)	112.59	111.64			0.95	0.85%

<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 2010. The comparison ends in 2010 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 0.94.

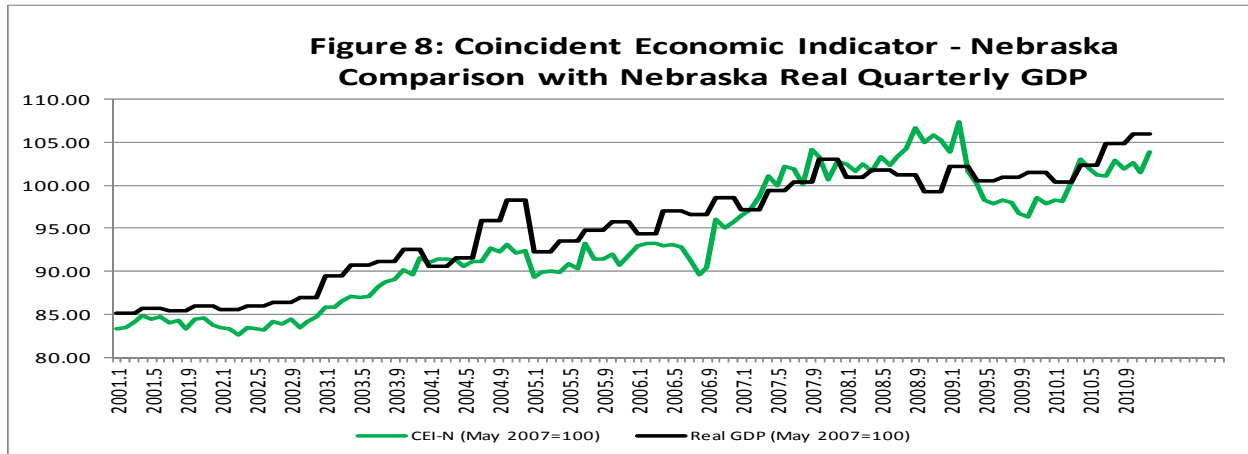


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

