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Nebraska Monthly Economic Indicators: February 17, 2017

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Prepared by the UNL College of Business Administration, Bureau of Business Research

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Summary: The Leading Economic Indicator – Nebraska (LEI-N)¹ rose by 1.97% during January of 2017. The rapid increase in the LEI-N, which predicts economic activity six months in the future, reversed a drop in the indicator during November and December of 2016. The increase during January suggests that growth will improve in Nebraska in the second half of 2017. Business expectations, building permits and manufacturing hours all improved during January. There also an a decline in initial claims for unemployment insurance in January following a sharp increase during December. The value of the U.S. dollar was steady during January, a positive sign for Nebraska’s export-oriented economy.

Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in January 2017 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 1.97% during January.

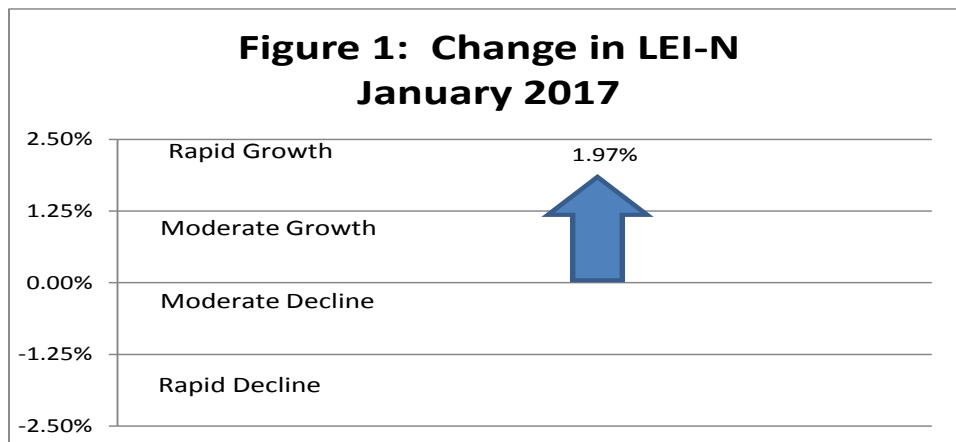


Figure 2 shows the change in the LEI-N over the last six months. The rapid increase in the LEI-N during January reversed declines in the indicator during November and December of 2016. The indicator rose overall during the November to January period. The LEI-N also advanced from August through October.

¹ The author would like to thank Dr. William Walstad for helping to design the LEI-N.

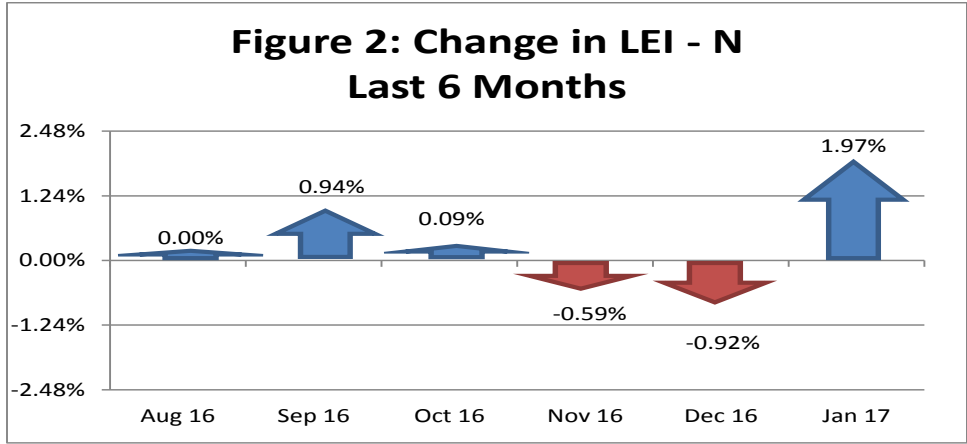
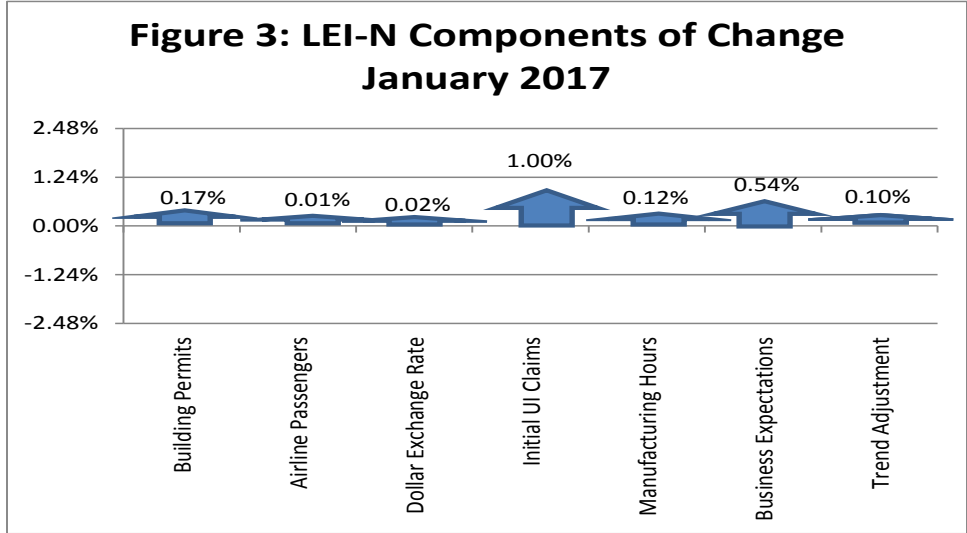
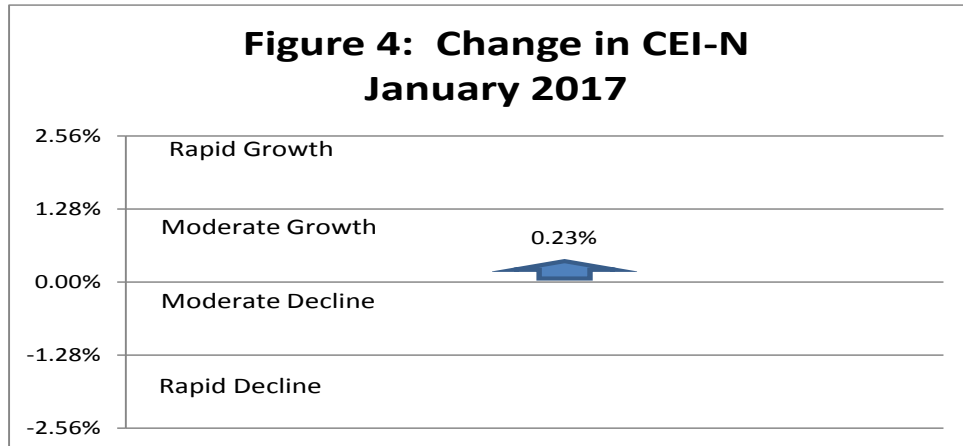


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during January 2017. The change in the overall LEI–N is the weighted average of changes in each component (see page 5). Business expectations were positive during January. Respondents to the *January Survey of Nebraska Business* predicted growth in both sales and employment at their businesses over the next six months. Building permits and manufacturing hours also rose during January. At the same time, initial claims for unemployment insurance fell in January after a sharp increase during December. There was little change in other components. Notably, the U.S. dollar was stable during January, after rising steadily during the second half of 2016. Note that the trend adjustment component pictured in Figure 3 is discussed on page 5.

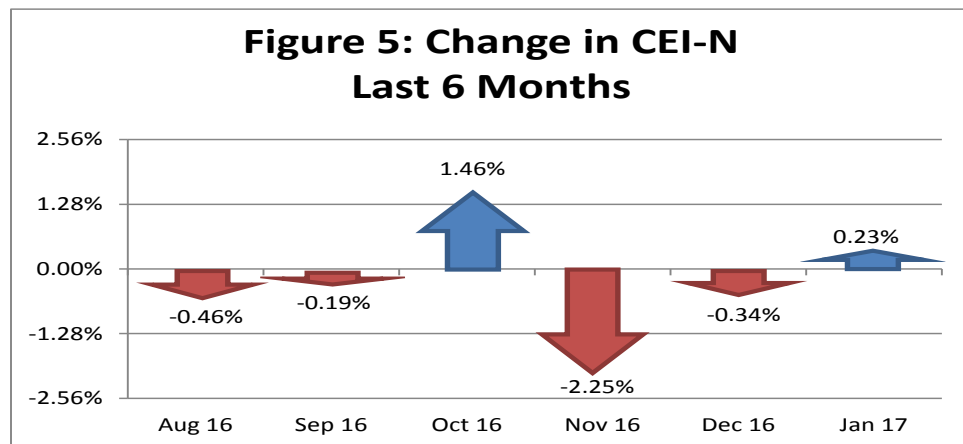


Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. The CEI-N rose by 0.23% during January 2017, as seen in Figure 4.



The increase in the CEI-N during January suggests improving economic growth during Nebraska. The CEI-N fell during the second half of 2016. There was a sharp drop in the CEI-N during November after a strong increase during October. The CEI-N value for December was revised to a 0.34% decline due to data revisions.



Two components of the CEI-N rose during January (Figure 6). There was an increase in private wages, reflecting a rise in employment, weekly hours and real hourly wages. There also was an improvement in business conditions during January, with respondents to the *January Survey of Nebraska Business* indicating that sales had grown in recent months. Electricity sales declined during January after adjusting for weather and other seasonal factors. Agricultural commodity prices were relatively stable after months of decline. A detailed discussion of the components of the CEI-N and LEI-N can be found at www.cba.unl.edu in *Technical Report: Coincident and Leading Economic Indicators- Nebraska*.

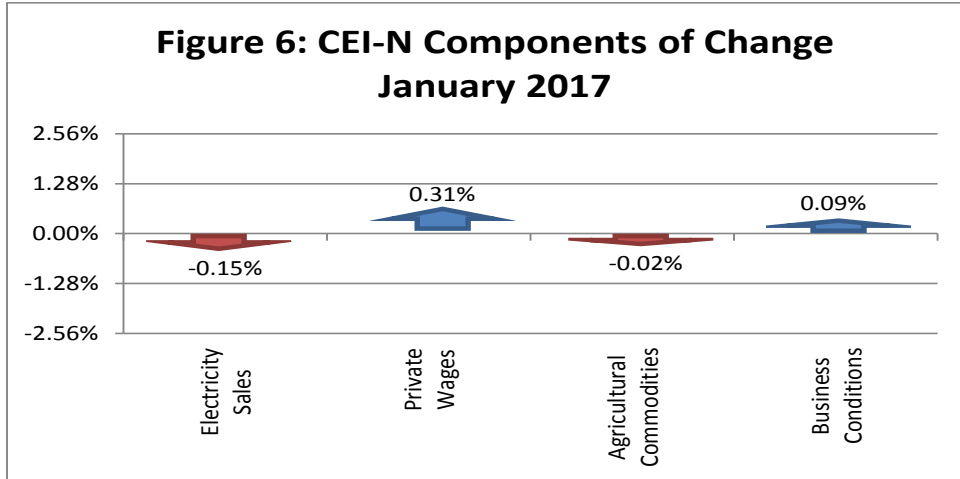
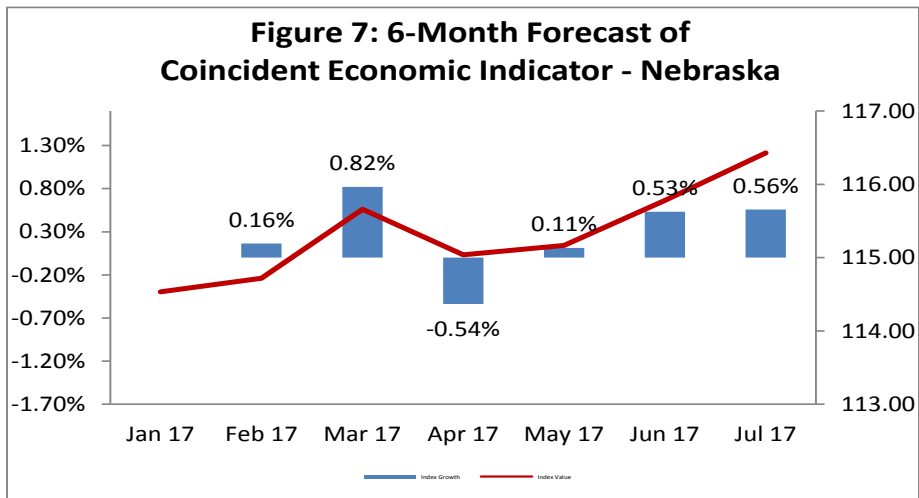


Figure 7 shows the forecast for the CEI-N over the next six months. Growth is expected to decelerate in early 2017 but improve mid-year. In particular, the CEI-N is expected to grow at a solid rate through March of 2017, decline during April and return to stronger growth during June and July.



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.

Table 1: Component Weights for LEI-N and CEI-N							
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	13.3302	0.0750	0.0352	Electricity Sales	4.7547	0.2103	0.1547
Airline Passengers	3.3571	0.2979	0.1396	Private Wages	1.7140	0.5834	0.4291
Exchange Rate	1.2096	0.8267	0.3874	Agricultural Commodities	3.3089	0.3022	0.2223
Initial UI Claims	10.4154	0.0960	0.0450	Survey Business Conditions	3.7922	0.2637	0.1939
Manufacturing Hours	1.6523	0.6052	0.2836				
Survey Business Expectations	4.2907	0.2331	0.1092				

Tables 2 and 3 show the calculation for the change in CEI-N and LEI-N between December of 2016 and January of 2017. 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.

Table 2: Component Contributions to the Change in Leading Economic Indicator						
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	109.67	103.52	6.15	0.04	0.22	0.17%
Airline Passengers	99.55	99.48	0.07	0.14	0.01	0.01%
U. S. Dollar Exchange Rate (Inverse)	81.92	81.84	0.08	0.39	0.03	0.02%
Initial Unemployment Insurance Claims (Inverse)	120.59	92.63	27.96	0.04	1.26	1.00%
Manufacturing Hours	98.49	97.94	0.55	0.28	0.16	0.12%
Survey Business Expectations ¹	56.29		6.29	0.11	0.69	0.54%
Trend Adjustment					0.13	0.10%
Total (weighted average)	128.81	126.32			2.49	1.97%

¹ Survey results are a diffusion Index, which is always compared to 50

Table 3: Component Contributions to the Change in Coincident Economic Indicator						
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	156.42	157.56	-1.14	0.15	-0.18	-0.15%
Private Wage	106.41	105.59	0.82	0.43	0.35	0.31%
Agricultural Commodities	112.29	112.39	-0.10	0.22	-0.02	-0.02%
Survey Business Conditions ¹	50.56		0.56	0.19	0.11	0.09%
Total (weighted average)	114.53	114.27			0.26	0.23%

¹ 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. 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.

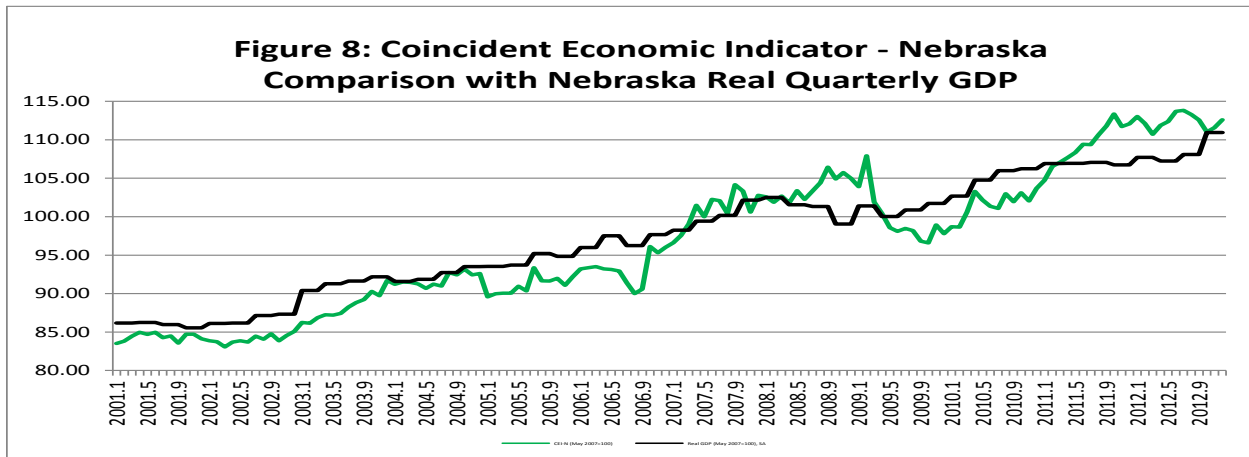


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

