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Nebraska Monthly Economic Indicators: January 20, 2017

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Nebraska Monthly Economic Indicators: January 20, 2017

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

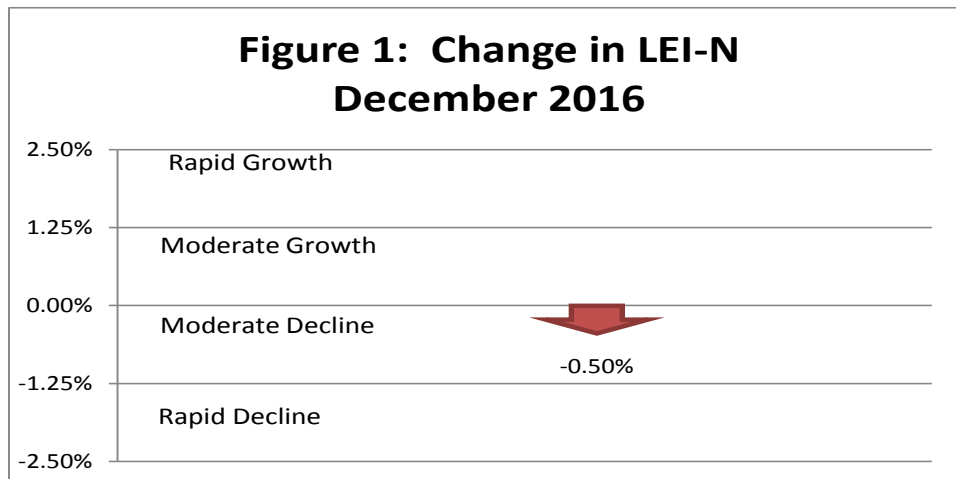
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Summary: *The Leading Economic Indicator – Nebraska (LEI-N)¹ fell by 0.50% during December of 2016. The decline in the LEI-N, which predicts economic activity six months in the future, follows a drop of 0.39% during November. The two consecutive declines suggest that economic growth will be weak in Nebraska during the second quarter of 2017. Business expectations were strong in December but other components of the LEI-N were negative. In particular, there was a sharp jump in initial claims for unemployment insurance during the month, suggesting a softening in labor market conditions. There also was another increase in the value of the U.S. dollar. A higher dollar reduces the competitiveness of export-oriented businesses in agriculture and manufacturing. As noted earlier, business expectations were one bright spot. December respondents to the Survey of Nebraska Business indicated plans to increase both sales and employment over the next six months.*

Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in December 2016 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N fell by 0.50% during December.



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

Figure 2 shows the change in the LEI-N over the last six months. The LEI-N was largely positive between July and October but turned negative during the last two months. Recent declines suggest that economic growth will weak in Nebraska during the second quarter of 2017.

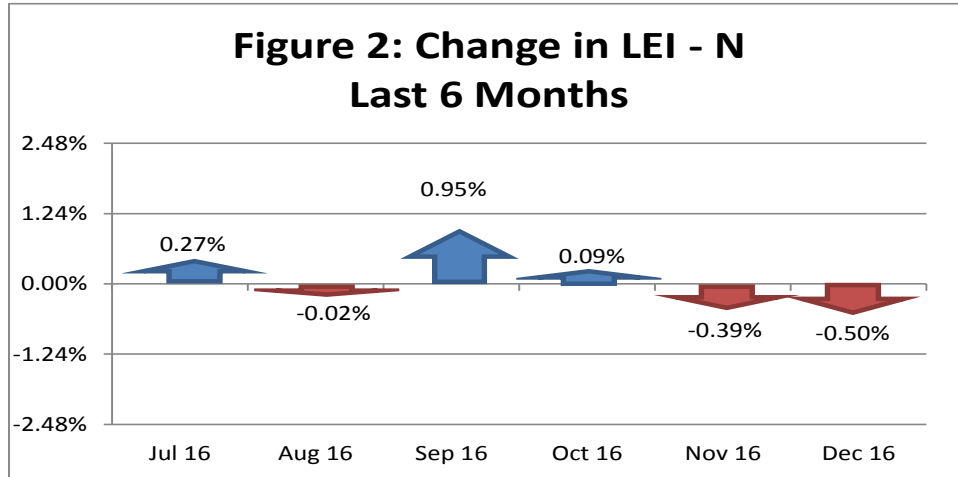
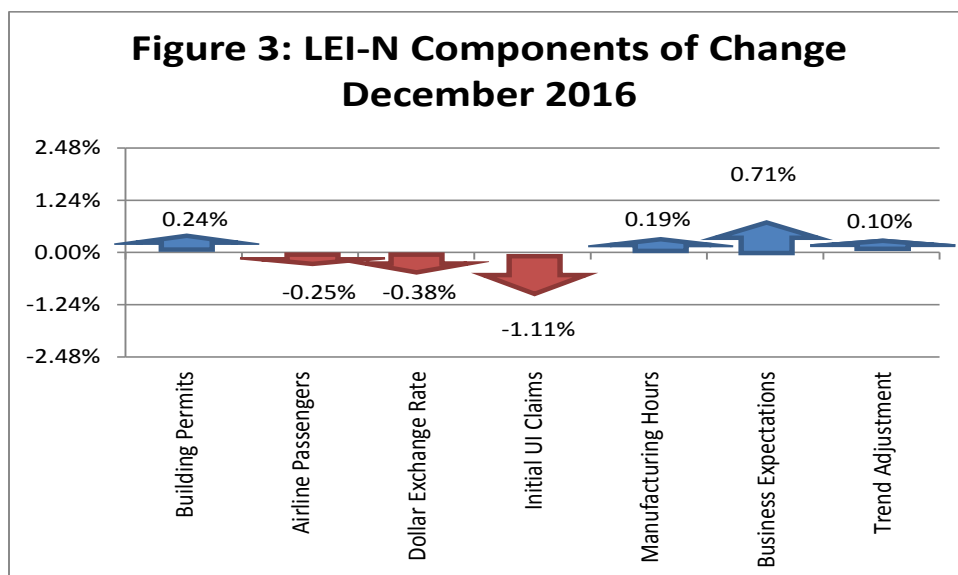
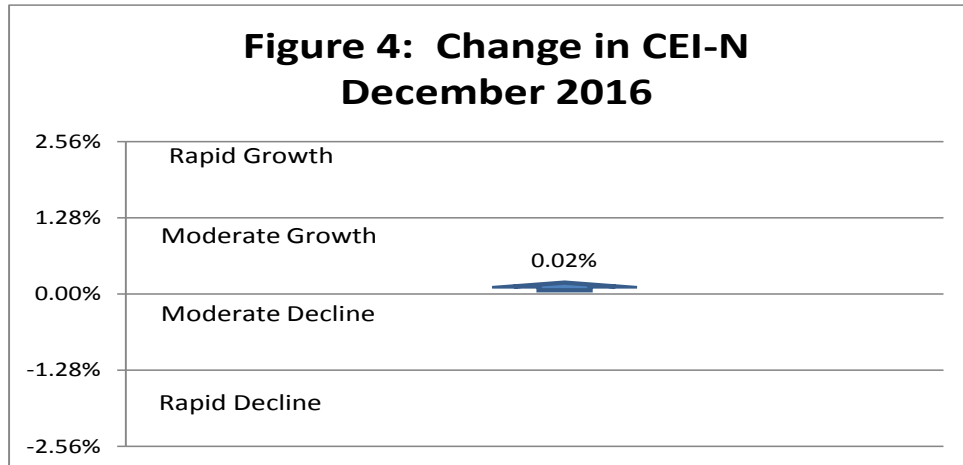


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during December 2016. The change in the overall LEI-N is the weighted average of changes in each component (see page 5). There was weakness in three of six components. Initial claims for unemployment insurance rose sharply during December, a sign of a softening labor market. The value of the U.S. dollar also rose again in December, increasing competitive pressure on Nebraska exporters. Business expectations were one positive component. Respondents to the December *Survey of Nebraska Business* predicted strong growth in both sales and employment at their businesses over the next six months. There also was an increase in manufacturing hours and building permits for single-family homes during December. Note that the trend adjustment component pictured in Figure 3 is discussed on page 5.

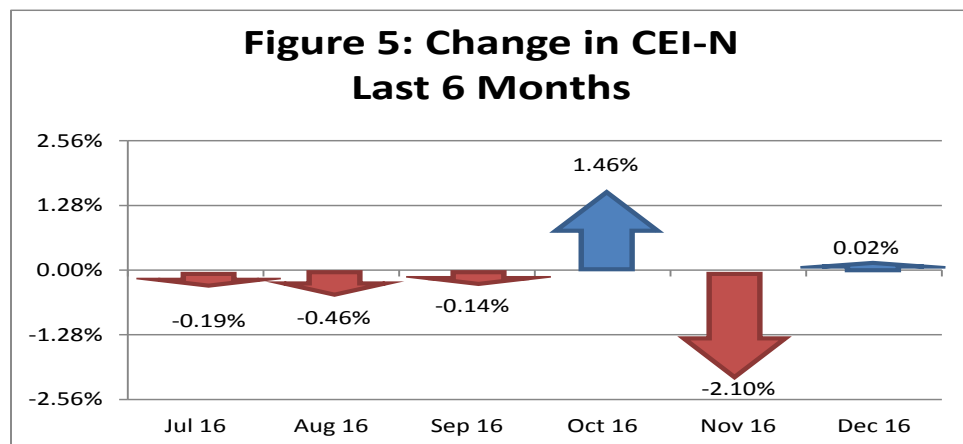


Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. The CEI-N rose by 0.02% during December 2016, as seen in Figure 4.



The very small increase in the CEI-N during December followed a sharp increase during October and a sharp decline during November (Figure 5). The CEI-N also declined modestly during the third quarter of 2016. These findings indicate that economic growth has been weak in Nebraska during the second half of 2016. This weakness corresponded with a drop in agricultural commodity prices during the period.



Two components of the CEI-N rose during December (Figure 6). There was an increase in private wages, reflecting a rise in employment, weekly hours and real hourly wages. There also was a small increase in electricity sales, after adjusting for weather and other seasonal factors. In terms of declining components, there was a decline in agricultural commodity prices in December, part of an ongoing downward trend. Business conditions also were down, but only slightly, according to respondents to the December *Survey of Nebraska Business*. 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*.

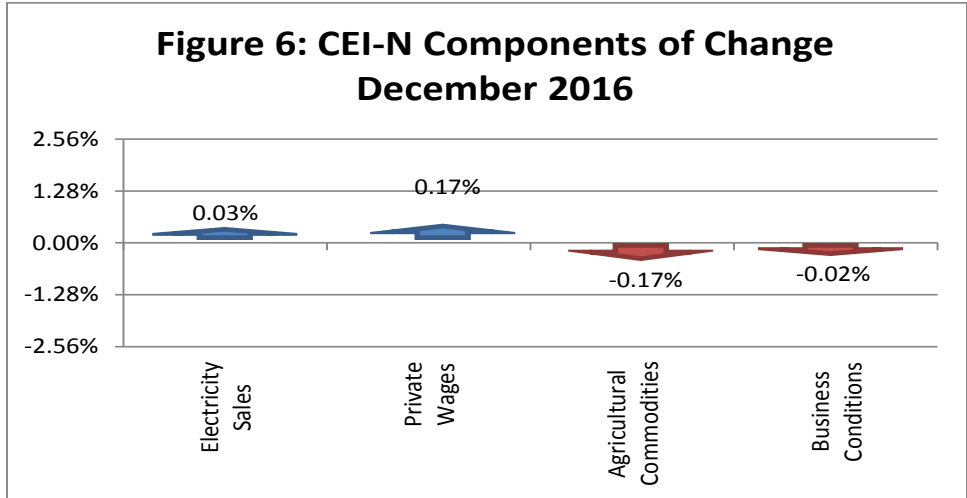
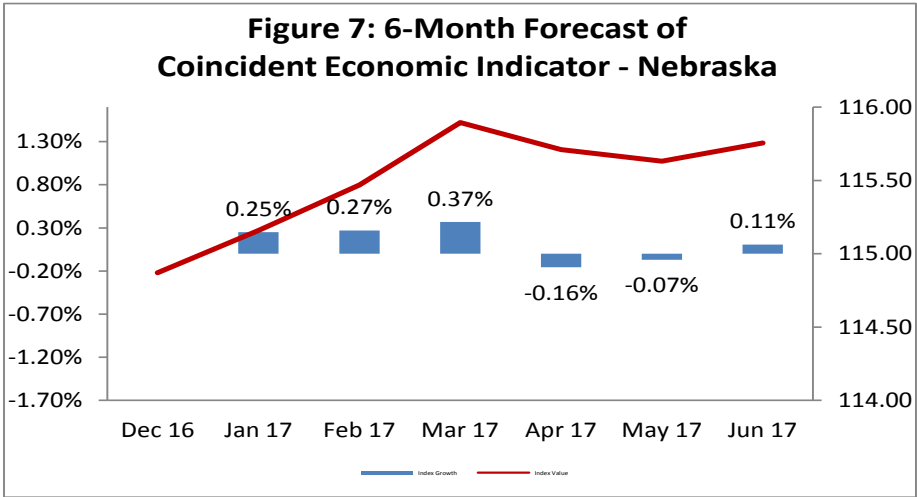


Figure 7 shows the forecast for the CEI-N over the next six months. The CEI-N is expected to grow at a solid rate during the first quarter of 2017, but to experience a slight decline during the second quarter. This outlook portends weak economic growth during the second quarter of 2017 and is consistent with values for the LEI-N over 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.

Variable	Standard Deviation	Inverse STD	Weight (Inverse STD Standardize)	Variable	Standard Deviation	Inverse STD	Weight (Inverse STD Standardize)
SF Housing Permits	13.3462	0.0749	0.0351	Electricity Sales	4.7654	0.2098	0.1546
Airline Passengers	3.3593	0.2977	0.1395	Private Wages	1.7134	0.5836	0.4301
Exchange Rate	1.2126	0.8247	0.3866	Agricultural Commodities	3.3298	0.3003	0.2213
Initial UI Claims	10.2571	0.0975	0.0457	Survey Business Conditions	3.8003	0.2631	0.1939
Manufacturing Hours	1.6505	0.6059	0.2840				
Survey Business Expectations	4.2974	0.2327	0.1091				

Tables 2 and 3 show the calculation for the change in CEI-N and LEI-N between November and December 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 0.10% 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	102.68	93.90	8.78	0.04	0.31	0.24%
Airline Passengers	99.54	101.79	-2.25	0.14	-0.31	-0.25%
U.S. Dollar Exchange Rate (Inverse)	81.84	83.10	-1.26	0.39	-0.49	-0.38%
Initial Unemployment Insurance Claims (Inverse)	92.80	123.95	-31.14	0.05	-1.42	-1.11%
Manufacturing Hours	100.99	100.15	0.84	0.28	0.24	0.19%
Survey Business Expectations ¹	58.27		8.27	0.11	0.90	0.71%
Trend Adjustment					0.13	0.10%
Total (weighted average)	127.16	127.80			-0.64	-0.50%

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	157.60	157.36	0.24	0.15	0.04	0.03%
Private Wage	107.07	106.61	0.46	0.43	0.20	0.17%
Agricultural Commodities	112.31	113.18	-0.86	0.22	-0.19	-0.17%
Survey Business Conditions ¹	49.91		-0.09	0.19	-0.02	-0.02%
Total (weighted average)	114.84	117.31			0.03	0.02%

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.

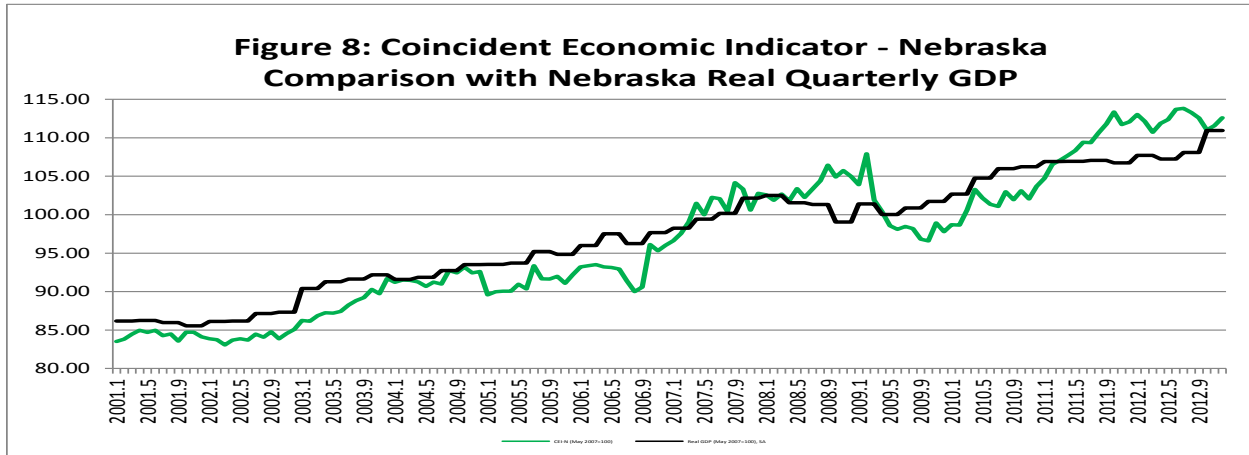


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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

