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# Nebraska Monthly Economic Indicators: March 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 2.08% during February of 2017. The indicator also rose rapidly in January. The two increases indicate that economic growth will be strong in Nebraska during the second half of 2017. Among the components of the indicator, business expectations were very strong during February. Further, initial claims for unemployment insurance declined during the month, a sign of a strengthening labor market. The value of the U.S. dollar also fell during February, which is a positive sign for Nebraska's export-oriented businesses.*

## Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) in February 2017 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 2.08% during February.

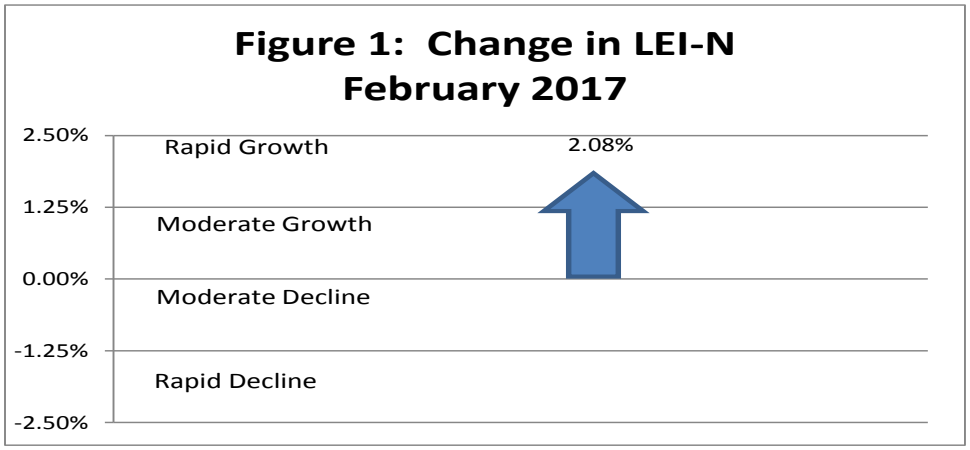



Figure 2 shows the change in the LEI-N over the last six months. The indicator declined at the end of 2016 but has been strong during the current year. It will be interesting to see if the rapid rise in the indicator continues over the next few months.

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

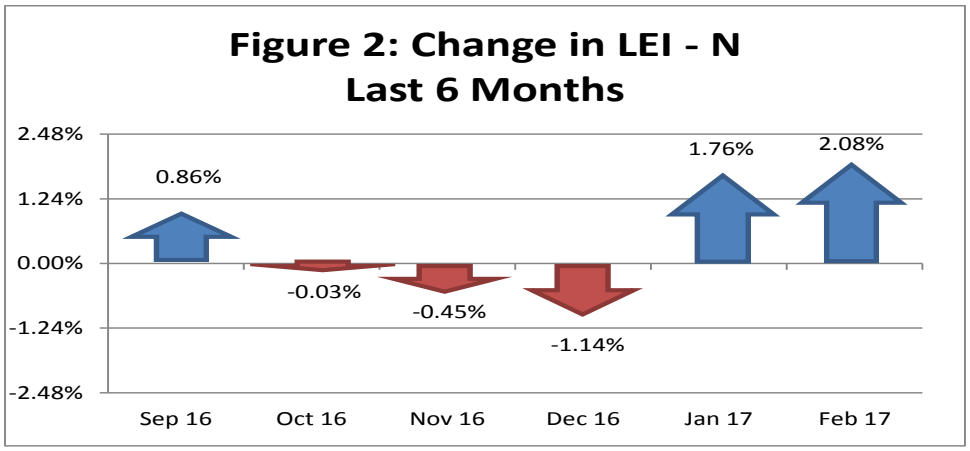
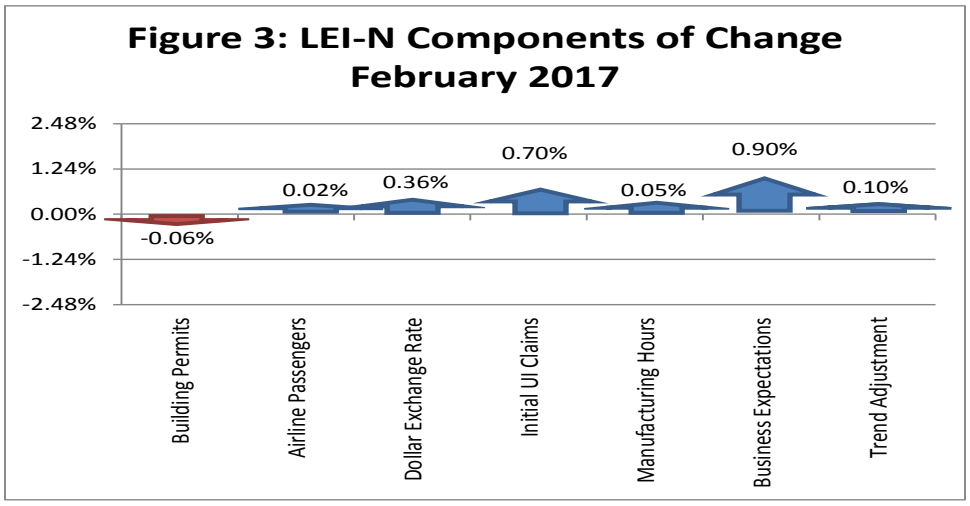
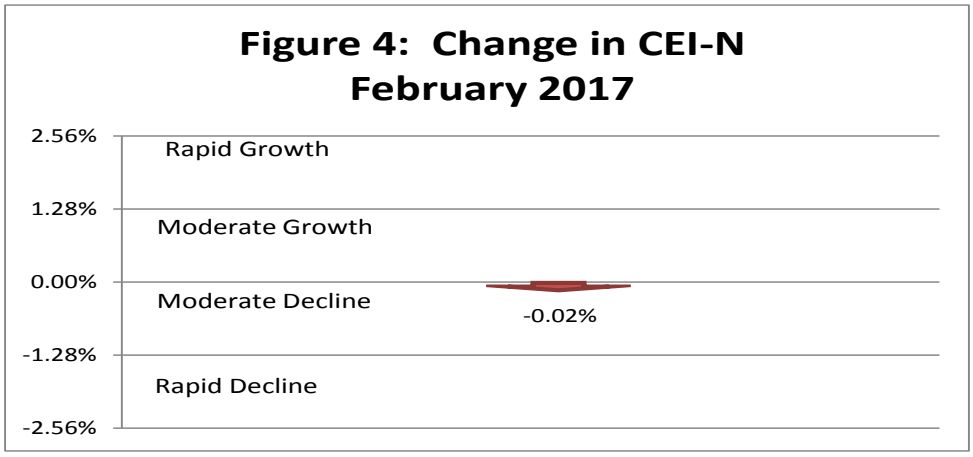



Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during February 2017. The change in the overall LEI–N is the weighted average of changes in each component (see page 5). Business expectations were strong during February. Respondents to the February *Survey of Nebraska Business* predicted growth in both sales and employment at their businesses over the next six months. At the same time, initial claims for unemployment insurance fell in February. Finally, the value of the U.S. dollar fell during February, a positive development for export-oriented businesses in Nebraska. Note that the trend adjustment component pictured in Figure 3 is discussed on page 5.

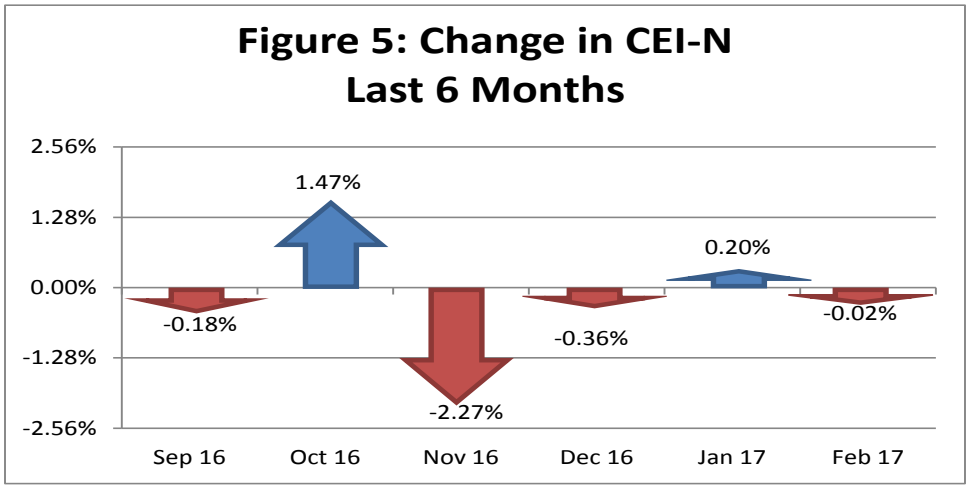


# Coincident Economic Indicator – Nebraska

The Coincident Economic Indicator - Nebraska (CEI-N) is a measure of the current size of the Nebraska economy. The CEI-N fell slightly, by 0.02%, during February 2017, as seen in Figure 4.




The nearly unchanged value for the CEI-N during February follows an increase during January. Taken together, the results indicate that the Nebraska economy has improved during the first few months of the year. The CEI-N, however, fell during the second half of 2016. There was a sharp drop in the CEI-N during November after the increase during October.




Only one component of the CEI-N rose during February (Figure 6). There was an increase in agricultural commodity prices during the month. This improvement followed a steady decline in commodity prices over the last year and may indicate that the situation has stabilized for agricultural commodities. Real private wages were stagnant for the month, indicating that employment increases were offset by a decline in weekly hours and real wages. Business conditions declined slightly during February. Respondents to the *Survey of Nebraska Business* indicated that sales and employment have declined modestly during recent

months. Electricity sales also declined during February after adjusting for weather and other seasonal factors. 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.*

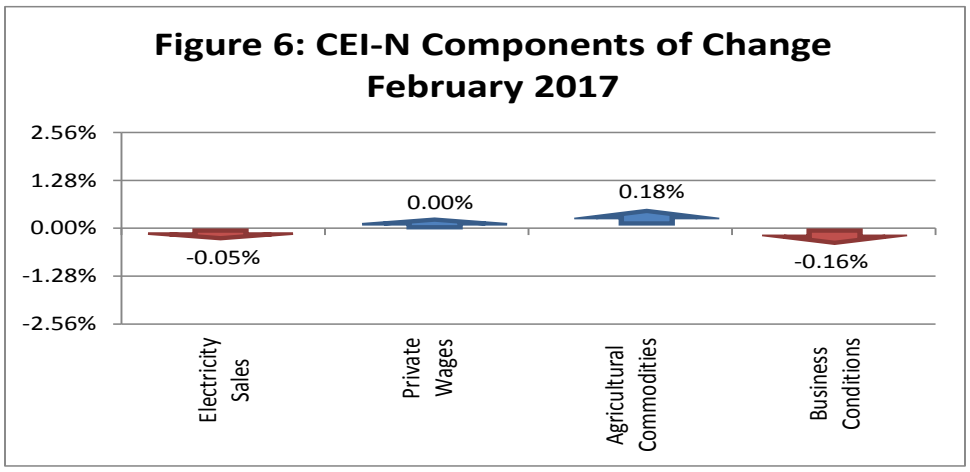
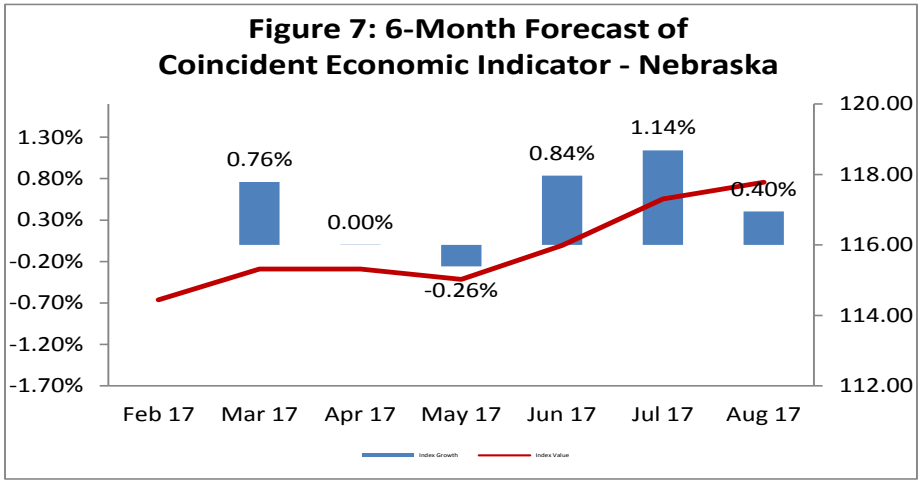



Figure 7 shows the forecast for the CEI-N over the next six months. Growth is expected to decelerate through May but turn stronger mid-year. In particular, the CEI-N is expected to grow more rapidly beginning in June 2017.



# 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 | 13.3483 | 0.0749 | 0.0351 | Electricity Sales | 4.7421 | 0.2109 | 0.1546 |
| Airline Passengers | 3.3473 | 0.2987 | 0.1400 | Private Wages | 1.7064 | 0.5860 | 0.4295 |
| Exchange Rate | 1.2097 | 0.8266 | 0.3873 | Agricultural Commodities | 3.2987 | 0.3032 | 0.2222 |
| Initial UI Claims | 10.5081 | 0.0952 | 0.0446 | Survey Business Conditions | 3.7830 | 0.2643 | 0.1937 |
| Manufacturing Hours | 1.6481 | 0.6068 | 0.2843 | | | | |
| Survey Business Expectations | 4.3062 | 0.2322 | 0.1088 | | | | |

Tables 2 and 3 show the calculation for the change in CEI-N and LEI-N between January and February 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 | 90.46 | 92.64 | -2.18 | 0.04 | -0.08 | -0.06% |
| Airline Passengers | 97.21 | 97.00 | 0.21 | 0.14 | 0.03 | 0.02% |
| U.S. Dollar Exchange Rate (Inverse) | 83.12 | 81.92 | 1.20 | 0.39 | 0.46 | 0.36% |
| Initial Unemployment Insurance Claims (Inverse) | 141.18 | 121.19 | 19.99 | 0.04 | 0.89 | 0.70% |
| Manufacturing Hours | 98.72 | 98.49 | 0.23 | 0.28 | 0.06 | 0.05% |
| Survey Business Expectations[1] | 60.61 | | 10.61 | 0.11 | 1.15 | 0.90% |
| Trend Adjustment | | | | | 0.13 | 0.10% |
| Total (weighted average) | 130.44 | 127.78 | | | 2.66 | 2.08% |

[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 | 156.36 | 156.69 | -0.34 | 0.15 | -0.05 | -0.05% |
| Private Wage | 106.30 | 106.30 | 0.00 | 0.43 | 0.00 | 0.00% |
| Agricultural Commodities | 112.98 | 112.06 | 0.92 | 0.22 | 0.20 | 0.18% |
| Survey Business Conditions[1] | 49.08 | | -0.92 | 0.19 | -0.18 | -0.16% |
| Total (weighted average) | 114.44 | 114.47 | | | -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.

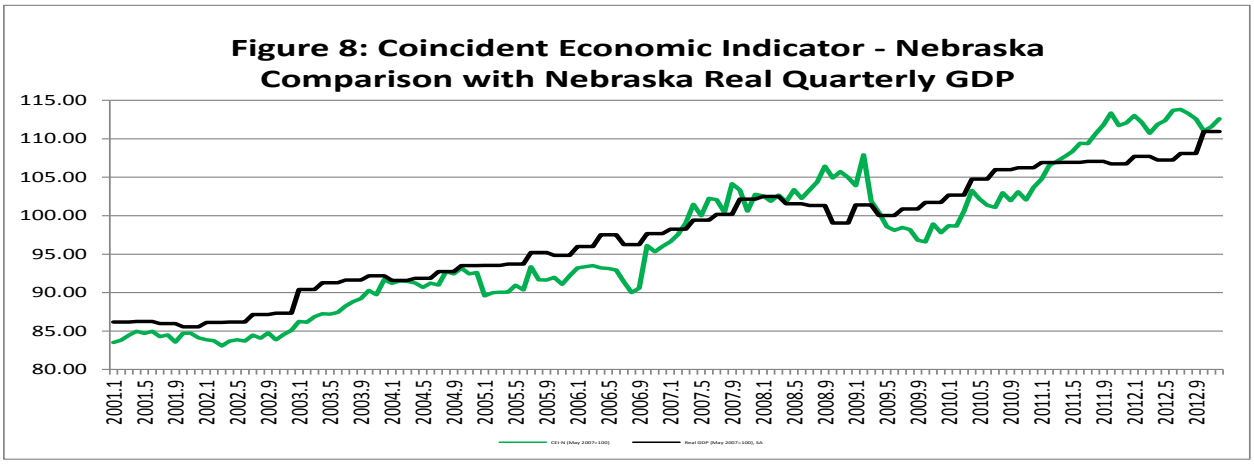



Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months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