

# Nebraska Monthly Economic Indicators: June 24, 2020

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

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|   |   |
|---|---|
| Leading Economic Indicator.....         | 1 |
| Coincident Economic Indicator.....      | 3 |
| Weights and Component Shares.....       | 5 |
| Performance of the LEI-N and CEI-N..... | 6 |

**Summary:** The LEI-N rose by 2.45% during May of 2020. The May increase followed sharp declines in March and April. The May results indicate that the Nebraska economy will grow over the next 6 months, allowing the state to begin to recover from economic losses in March and April. Four of the five components of the leading indicator improved during May. There was a significant decline in initial claims for unemployment insurance. The slow rebound in airline passenger enplanements also began. In addition, building permits for single-family homes rebounded in May after an April drop. The value of the U.S. dollar also decreased modestly, providing relief for agriculture, manufacturing, and other businesses which export. However, manufacturing hours-worked dropped during May on a seasonally-adjusted basis. Note that the Survey of Nebraska Business was not conducted in May.

## Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) during May of 2020 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 2.45% during May.

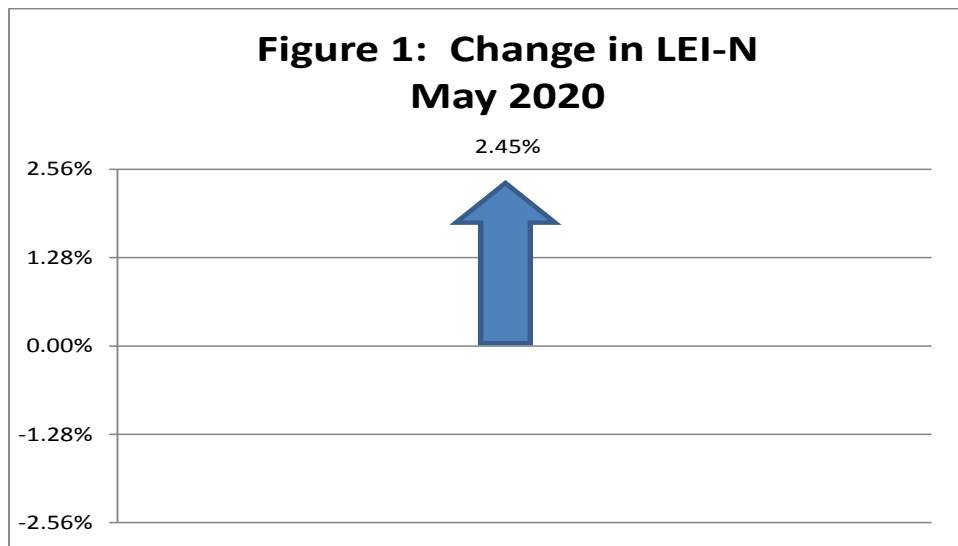


Figure 2 shows the value of the leading indicator over the last six months. The leading indicator slowed through February of 2020. The LEI-N then dropped sharply in March and April, before rising in May.

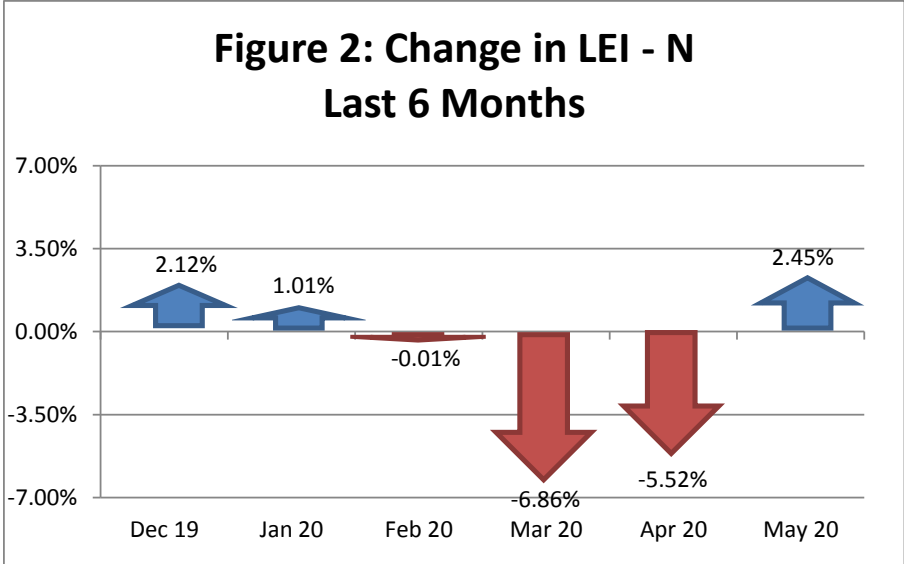
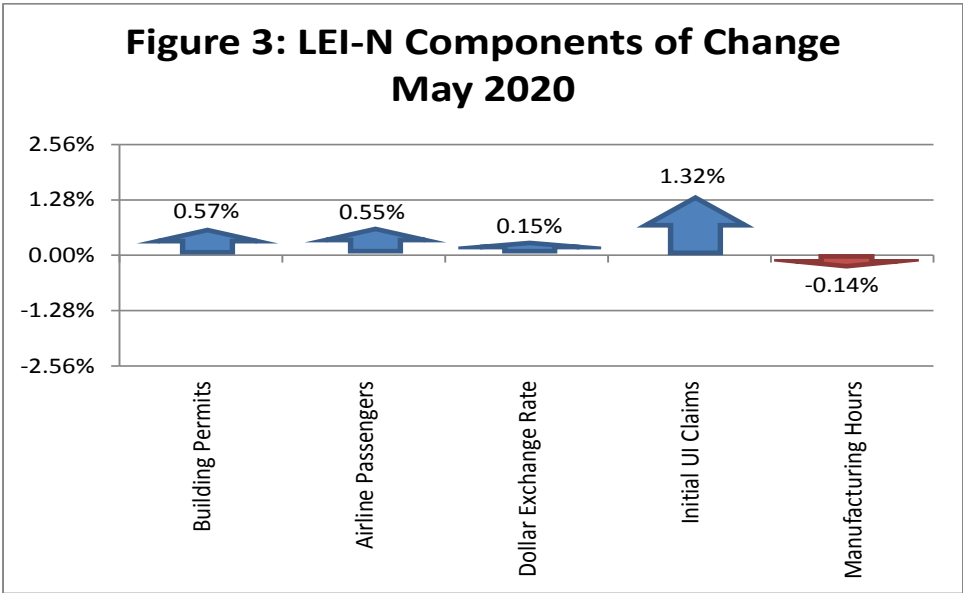


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during May 2020. The change in the overall LEI–N is the weighted average of changes in each component (see page 5). The improvement in the Nebraska leading indicator resulted in large part from a sharp decline in initial claims for unemployment insurance during May. Airline passenger enplanements also began to recover from very low levels. There also was an improvement in two other components of the leading indicator. There was a rebound in building permits for single-family homes in Nebraska. Further, after several months of increase, the value of the U.S. dollar fell in May, providing relief for agriculture, manufacturers, and other businesses, which export. There was, however, a drop in manufacturing hours worked during the month. Note that the Survey of Nebraska Business was not conducted in April.



## 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 0.79% during May of 2020, as seen in Figure 4.

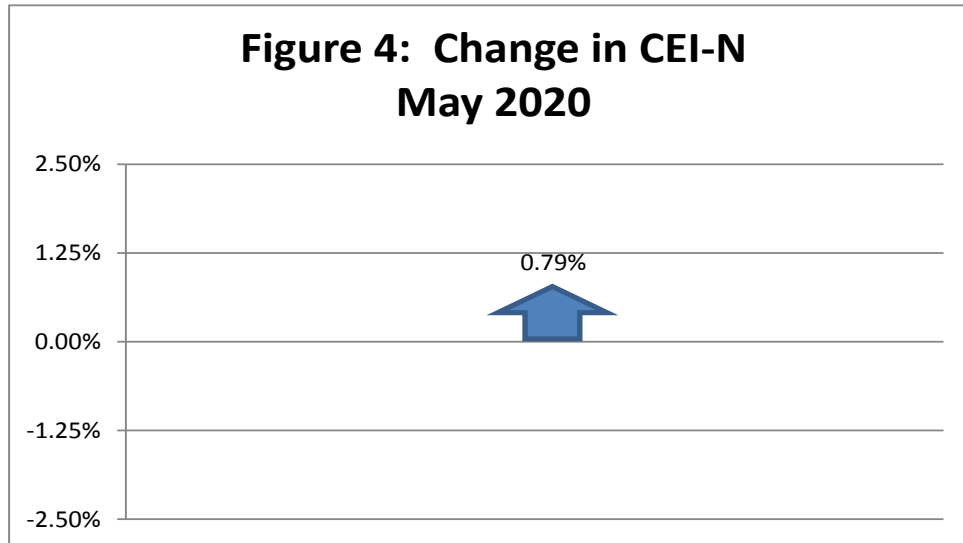
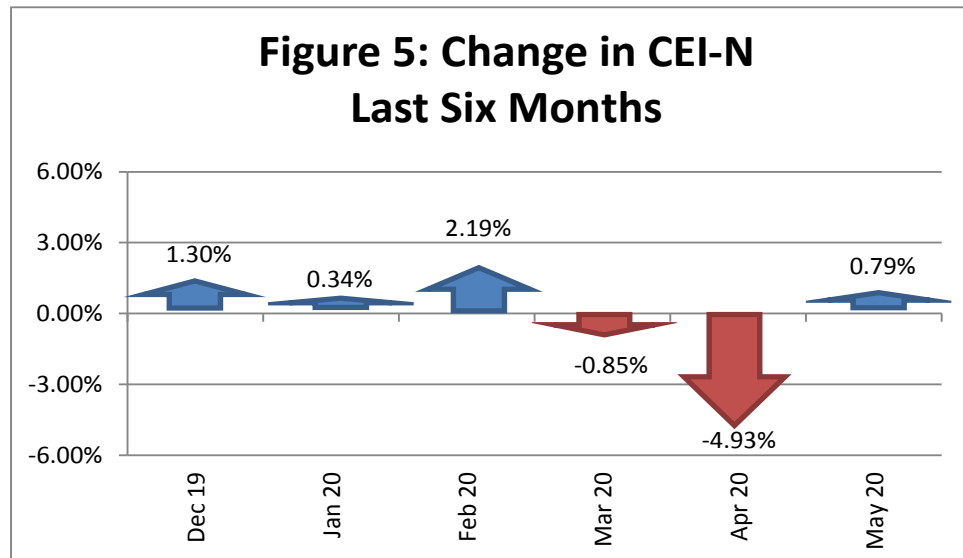
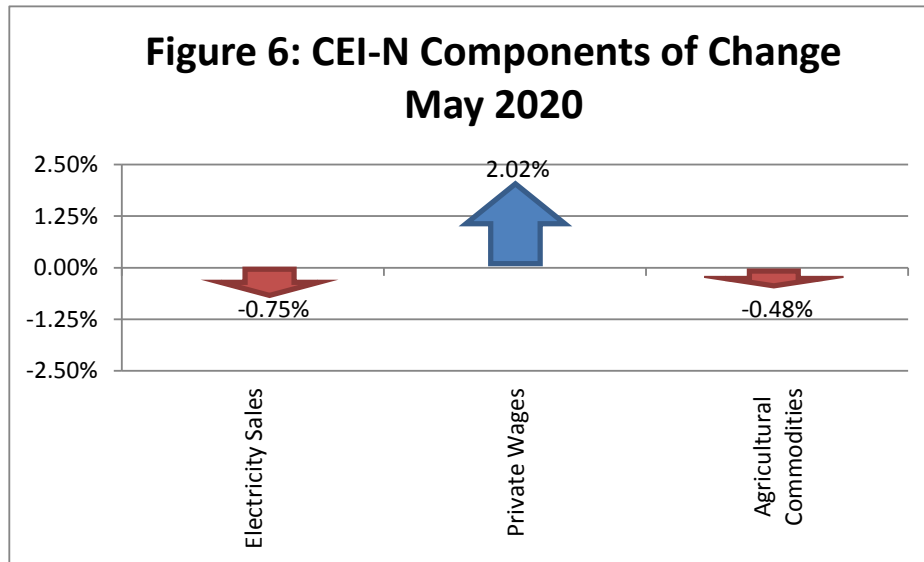


Figure 5 shows the change in the CEI-N over the last 6 months. The Nebraska economy grew solidly through February of 2020, before dropping in March and falling sharply in April. The economy began to recover in May.



One component of the CEI-N rose during May. There was an increase in private wages due to rising employment and hours worked in May. However, prices for the agricultural commodities of corn and beef fell, as did revenue from electricity sales. A detailed discussion of the components of the CEI-N and LEI-N can be found at <https://business.unl.edu/outreach/bureau-of-business-research/> in *Technical Report: Coincident and Leading Economic Indicators- Nebraska*. Note that the Survey of Nebraska Business was not conducted in May.



## 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 a smaller standard deviation, 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 with significant month-to-month fluctuations.

| 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                    | 13.6118            | 0.0735      | 0.0423                           | Electricity Sales                        | 4.1798             | 0.2392      | 0.2348                           |
| Airline Passengers                    | 6.2002             | 0.1613      | 0.0928                           | Private Wages                            | 2.0630             | 0.4847      | 0.4757                           |
| Exchange Rate                         | 1.1828             | 0.8454      | 0.4863                           | Agricultural Commodities                 | 3.3903             | 0.2950      | 0.2895                           |
| Initial UI Claims                     | 17.8239            | 0.0561      | 0.0323                           |  |                    |             |                                  |
| Manufacturing Hours                   | 1.6604             | 0.6023      | 0.3464                           |  |                    |             |                                  |

Tables 2 and 3 show the calculation for the change in LEI-N and CEI-N between April and May of 2020. 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 the CEI-N utilizes a new measure of electricity sales for Nebraska using data from the U.S. Department of Energy.

| <b>Table 2: Component Contributions to the Change in Leading Economic Indicator</b> |         |          |            |        |              |  |
|---|---------|----------|------------|--------|--------------|--|
| 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   | 68.28   | 48.80    | 19.48      | 0.04   | 0.82         | 0.57%  |
| Airline Passengers  | 13.72   | 5.12     | 8.61       | 0.09   | 0.80         | 0.55%  |
| U.S. Dollar Exchange Rate (Inverse)   | 76.12   | 75.68    | 0.43       | 0.49   | 0.21         | 0.15%  |
| Initial Unemployment Insurance Claims (Inverse)                                     | 68.12   | 9.10     | 59.03      | 0.03   | 1.90         | 1.32%  |
| Manufacturing Hours   | 94.47   | 95.07    | -0.59      | 0.35   | -0.21        | -0.14%   |
| Total (weighted average)  | 147.90  | 144.37   |            |        | 3.53         | 2.45%  |

| <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  | 154.46  | 158.62   | -4.16      | 0.23   | -0.98        | -0.75%   |
| Private Wage   | 113.81  | 108.26   | 5.55       | 0.48   | 2.64         | 2.02%  |
| Agricultural Commodities   | 112.02  | 114.18   | -2.16      | 0.29   | -0.63        | -0.48%   |
| Total (weighted average)   | 131.87  | 130.83   |            |        | 1.04         | 0.79%  |

## 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 2018, using data provided by the Bureau of Economic Analysis, U.S. Department of Commerce. CEI-N closely tracks Nebraska's real GDP for the period. The correlation coefficient between the two-pictured series is 0.95.

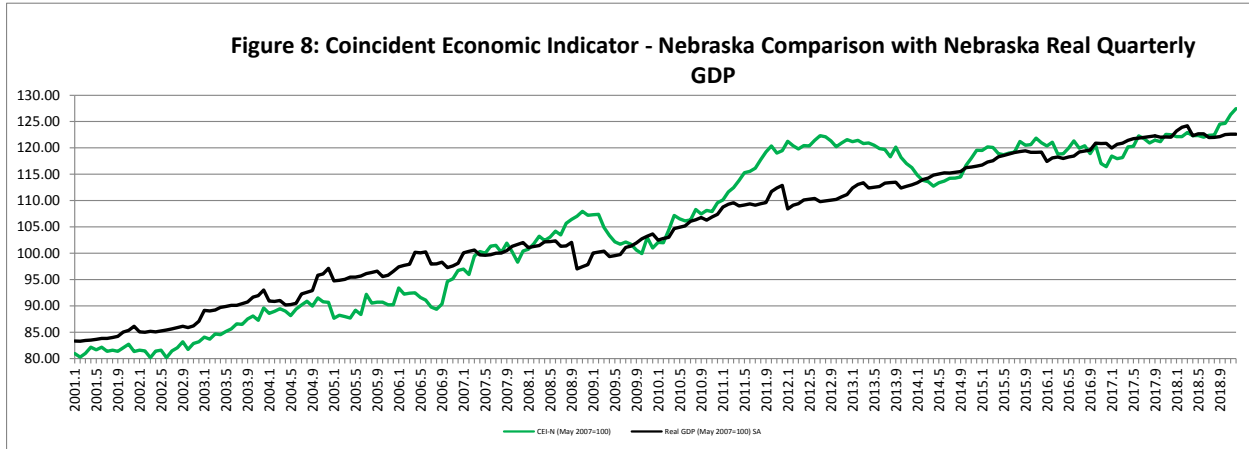


Figure 9 again shows the values for the CEI-N. It also graphs 6-months forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months earlier) with the actual movement in CEI-N. In Figure 9, predicted values using the LEI-N track trends and movement in the CEI-N. The correlation coefficient between CEI-N and six-month forward values of LEI-N is 0.84.

