

Nebraska Monthly Economic Indicators: September 22, 2023

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

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Summary: *The Leading Economic Indicator-Nebraska fell by 0.93% in August 2023. The decrease in the leading indicator, which is designed to predict economic growth six months into the future, suggests that growth will slow in the Nebraska economy during the first quarter of 2024. Four components of the leading economic indicator worsened during August. There was a drop in manufacturing hours worked and passenger enplanements during the month, each suggesting a weakening in business activity. There also was an increase in initial claims for unemployment insurance, suggesting some softening in the strong Nebraska labor market. Finally, there was an increase in the value of the U.S. dollar in August, which creates challenges for businesses in agriculture, manufacturing, and other sectors that compete in international markets. Business expectations were one positive component of the leading indicator. Respondents to the August Survey of Nebraska Business reported plans to increase employment over the next six months.*

Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) during August 2023 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N fell by 0.93%.

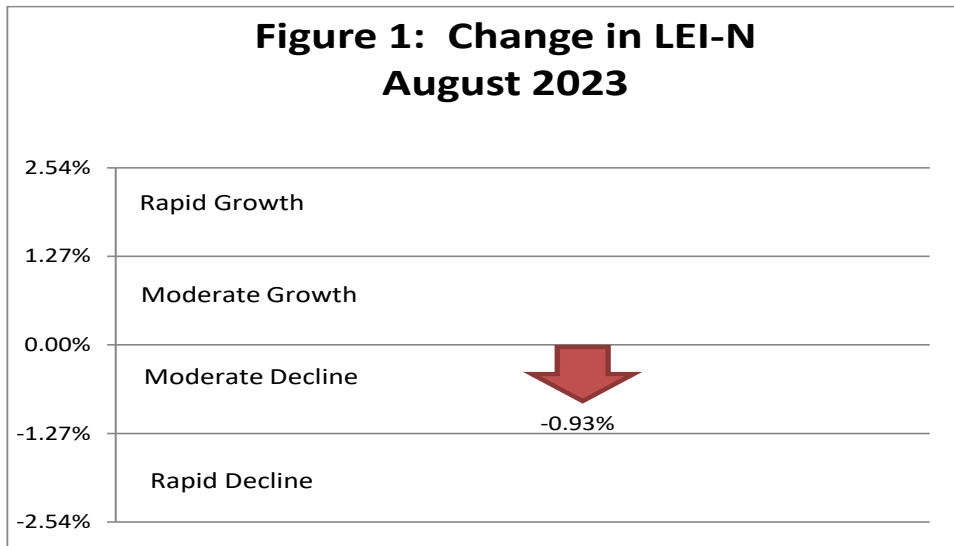


Figure 2 shows the change in the leading indicator over the last six months. The August decline after 5 months of improvement is consistent with continued but slowing economic growth in early 2024.

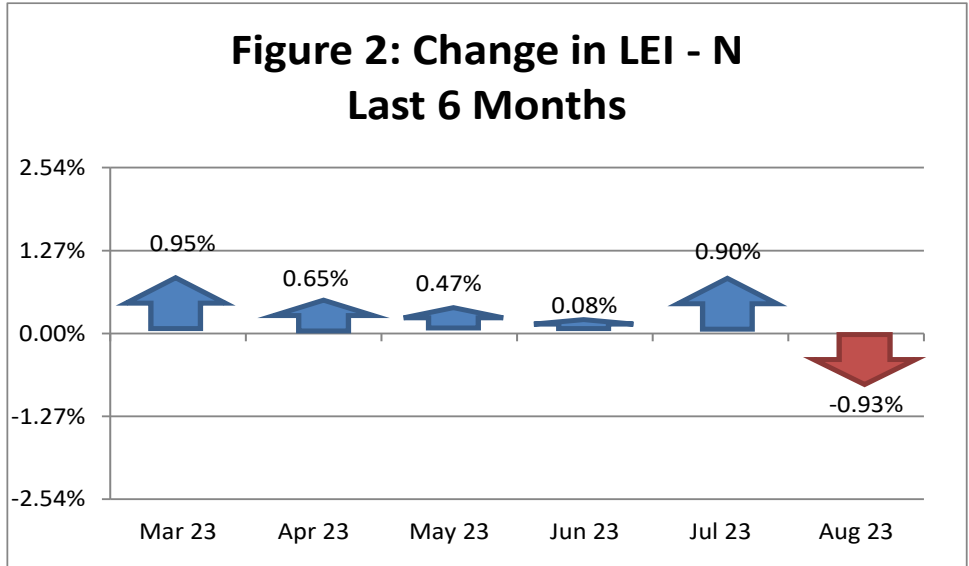
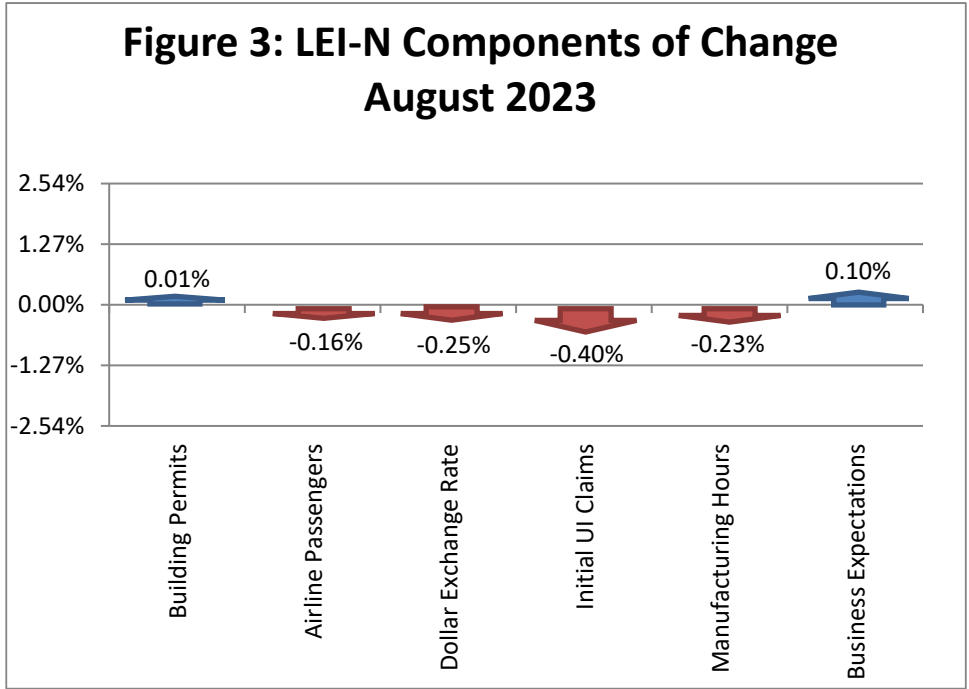


Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during August. The change in the LEI-N is the weighted average of changes in each component (see page 5). Four leading indicator components worsened. There was a drop in manufacturing hours worked and airline passenger enplanements during August. There also was an increase in initial claims for unemployment insurance, which is a sign of softening in the Nebraska labor market. Finally, the value of the U.S. dollar rose in August, creating challenges for businesses that compete in international markets. Business expectations, however, were one positive component. Respondents to the August *Survey of Nebraska Business* reported plans to increase employment over the next six months.



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 by 0.97% during August 2023, as seen in Figure 4.

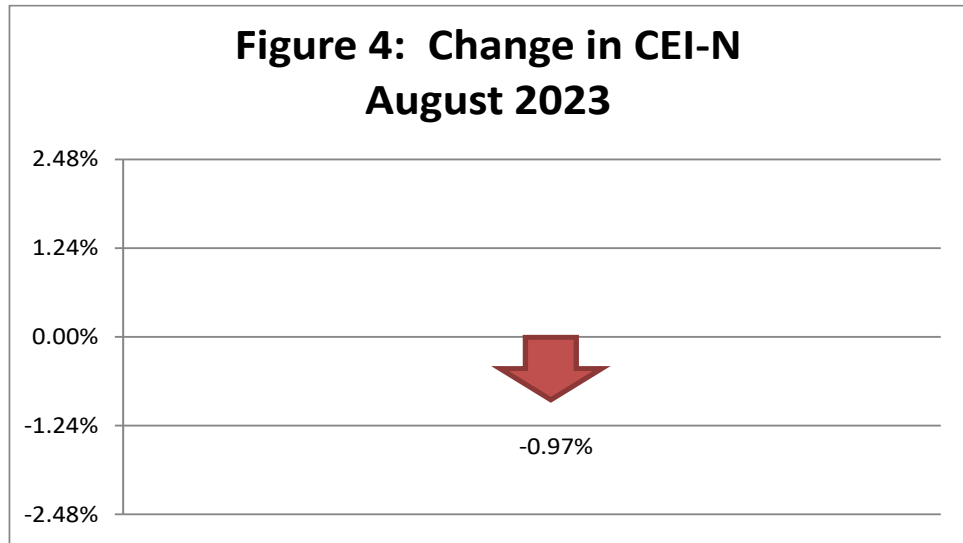
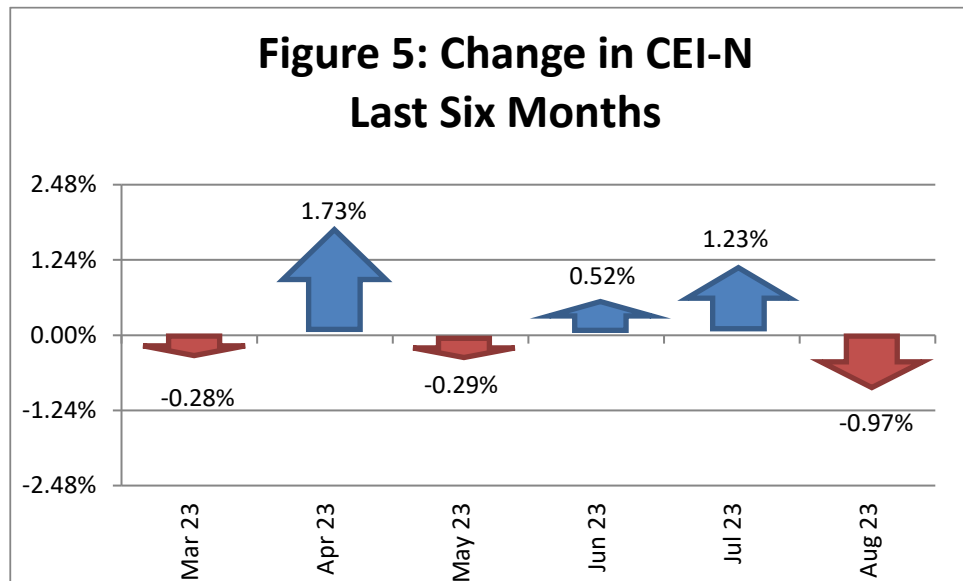


Figure 5 shows the change in the CEI-N over the last 6 months. The Nebraska economy has grown during the period, but growth has been uneven. Increases in the CEI-N during April, June, and July are larger than declines in March, May, and August.



Three components of the CEI-N declined during August. Real private wages fell due to a drop in employment, real hourly wages, and average hours worked per week. Business conditions also were a negative component. Respondents to the August *Survey of Nebraska Business* reported a decrease in both sales and employment in recent months. Electricity sales dropped modestly on a seasonally adjusted basis, while agricultural commodity prices were the only rising component. A detailed discussion of the components of the CEI-N and LEI-N can be found at <https://business.unl.edu/research/bureau-of-business-research/> in *Technical Report: Coincident and Leading Economic Indicators-Nebraska*.

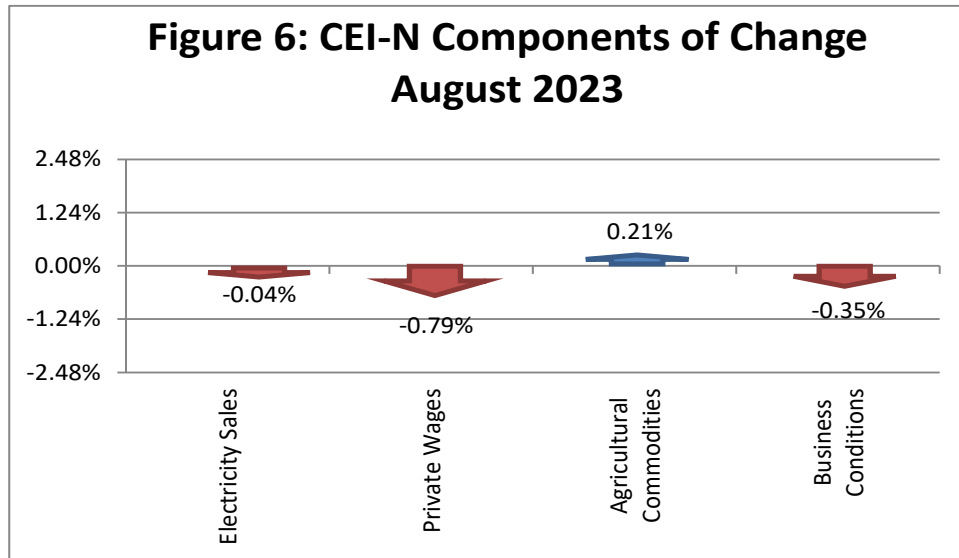
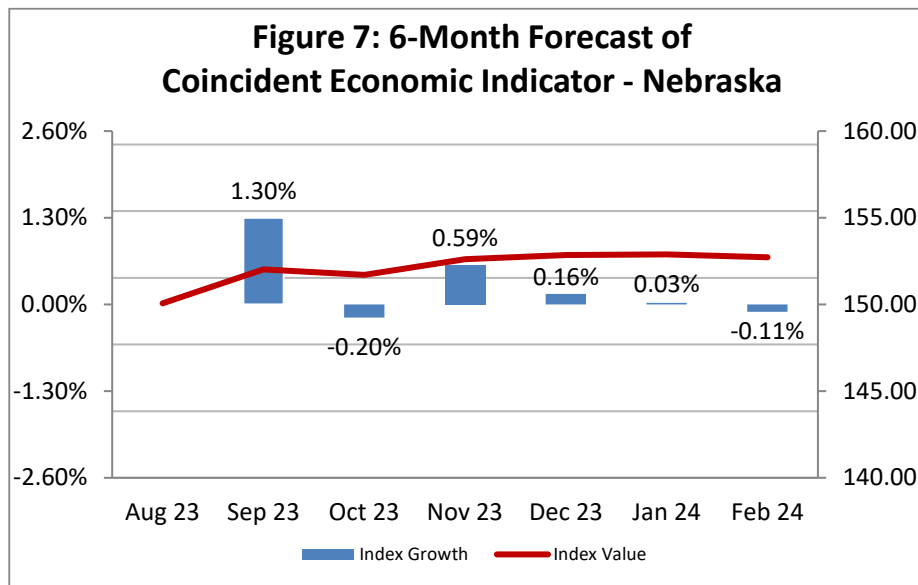


Figure 7 shows a forecast for the CEI-N over the next six months. The forecast calls for economic growth in Nebraska in the second half of 2023 with the pace of growth slowing in the first quarter of 2024. This expectation is consistent with the changes in the LEI-N reported in Figure 2.



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 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.

| 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 | 13.8109 | 0.0724 | 0.0368 | Electricity Sales | 4.5075 | 0.2219 | 0.1767 |
| Airline Passengers | 6.1810 | 0.1618 | 0.0822 | Private Wages | 2.0354 | 0.4913 | 0.3912 |
| Exchange Rate | 1.1389 | 0.8780 | 0.4460 | Agricultural Commodities | 3.5154 | 0.2845 | 0.2265 |
| Initial UI Claims | 20.0239 | 0.0499 | 0.0254 | Survey Business Conditions | 3.8736 | 0.2582 | 0.2056 |
| Manufacturing Hours | 1.7637 | 0.5670 | 0.2880 | | | | |
| Survey Business Expectations | 4.1790 | 0.2393 | 0.1216 | | | | |

Tables 2 and 3 show the calculation for the change in LEI-N and CEI-N between July and August of 2023. Weights (from Table 1) are multiplied by the change to calculate the contribution of each component. Contributions are converted to percentage terms and summed.

| 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 | 74.32 | 73.96 | 0.36 | 0.04 | 0.01 | 0.01% |
| Airline Passengers | 108.41 | 111.98 | -3.57 | 0.08 | -0.29 | -0.16% |
| U.S. Dollar Exchange Rate (Inverse) | 78.12 | 79.18 | -1.06 | 0.45 | -0.47 | -0.25% |
| Initial Unemployment Insurance Claims (Inverse) | 170.68 | 200.64 | -29.96 | 0.03 | -0.76 | -0.40% |
| Manufacturing Hours | 93.42 | 94.90 | -1.49 | 0.29 | -0.43 | -0.23% |
| Survey Business Expectations ¹ | 51.57 | | 1.57 | 0.12 | 0.19 | 0.10% |
| Total (weighted average) | 187.27 | 189.02 | | | -1.75 | -0.93% |

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 | 176.92 | 177.25 | -0.32 | 0.18 | -0.06 | -0.04% |
| Private Wage | 115.31 | 118.36 | -3.05 | 0.39 | -1.19 | -0.79% |
| Agricultural Commodities | 191.73 | 190.35 | 1.38 | 0.23 | 0.31 | 0.21% |
| Survey Business Conditions ¹ | 47.44 | | -2.56 | 0.21 | -0.53 | -0.35% |
| Total (weighted average) | 150.06 | 151.53 | | | -1.46 | -0.97% |

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 from 2001 through the second quarter of 2022, using data provided by the Bureau of Economic Analysis, U.S. Department of Commerce. CEI-N closely tracks Nebraska's real GDP for the full two-decade period, although it sometimes exceeds state GDP for a period, typically when agricultural commodity prices are higher. The correlation coefficient between the two-pictured series is 0.96.

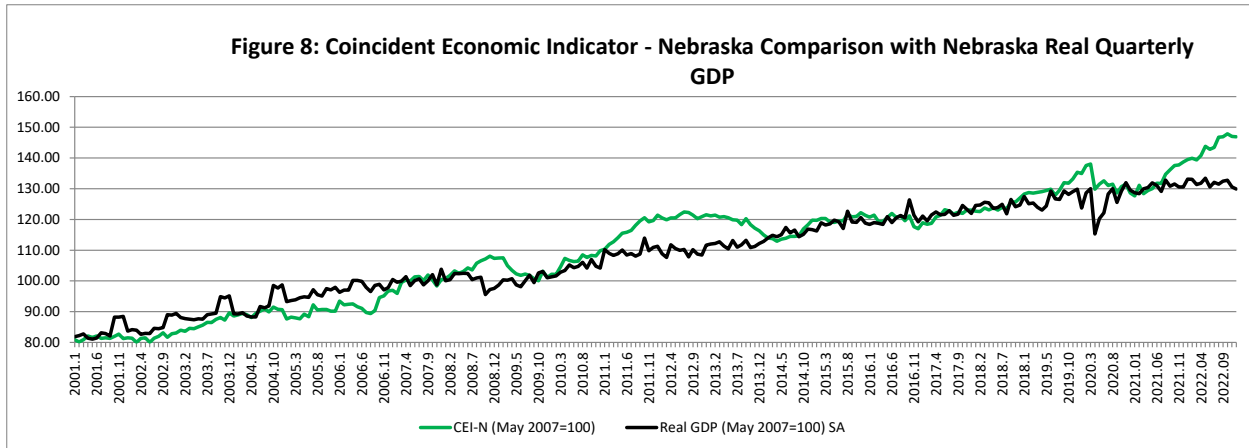


Figure 9 again shows the values for the CEI-N. It also graphs six-month forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months 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 long-run correlation coefficient between CEI-N and six-month forward values of LEI-N is 0.91.

