Nebraska Monthly Economic Indicators: March 8, 2023

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

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Summary: The LEI-N rose by 1.29% in January 2023. The leading indicator, which is designed to predict economic growth six months in the future, suggests that the Nebraska economy will avoid recession during the first half of 2023. There was a broad-based improvement in leading indicator components in January. Building permits for single-family homes, airline passenger counts, and manufacturing hours worked all rose during January. Initial claims for unemployment insurance also declined for the first time in several months, a positive sign for the labor market. Finally, for the third consecutive month, there was a decline in the value of the U.S. dollar in January. This improves the competitive position of agricultural producers, manufacturers, and other Nebraska businesses that compete in international markets.

Leading Economic Indicator – Nebraska

Figure 1 shows the change in the Leading Economic Indicator – Nebraska (LEI-N) during January 2023 compared to the previous month. The LEI-N predicts economic growth six months into the future. The LEI-N rose by 1.29%.
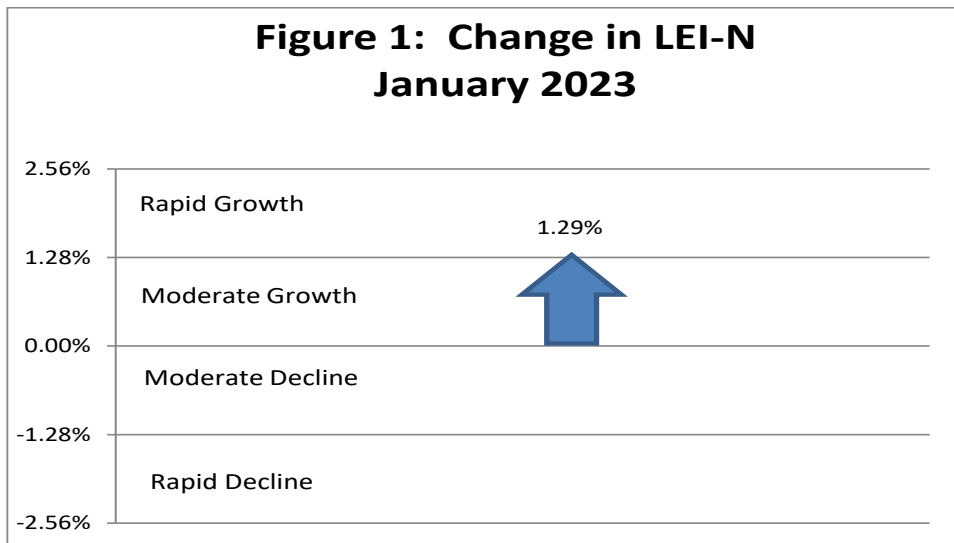

Figure 1: Change in LEI-N January 2023

Figure 2 shows the change in the leading indicator over the last six months. The leading indicator rose in January but exhibited an uneven pattern over the last six months. Monthly increases typically exceeded monthly declines, suggesting the state economy can achieve slow growth and avoid recession.

Figure 2: Change in LEI - N
Last 6 Months

Aug 22: -0.04%
Sep 22: 0.24%
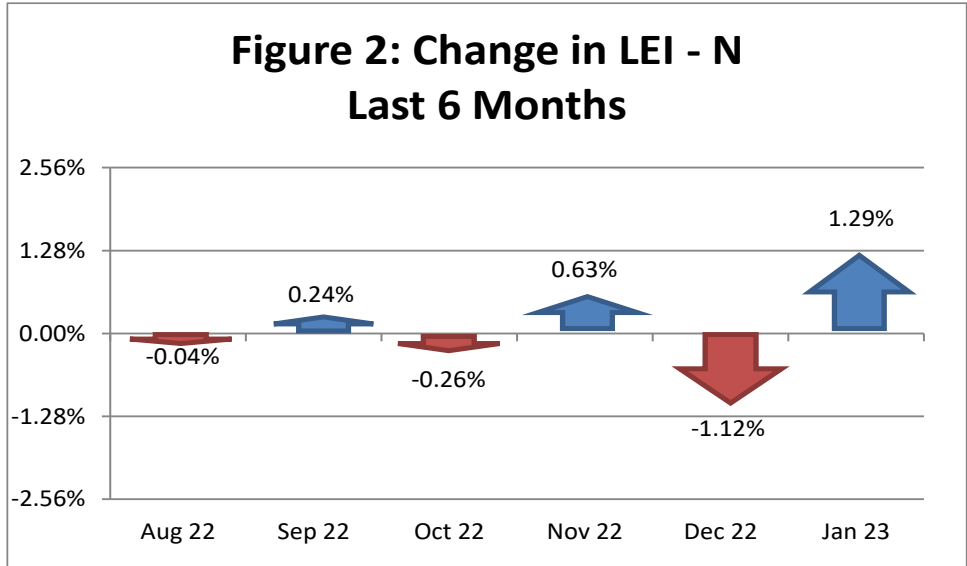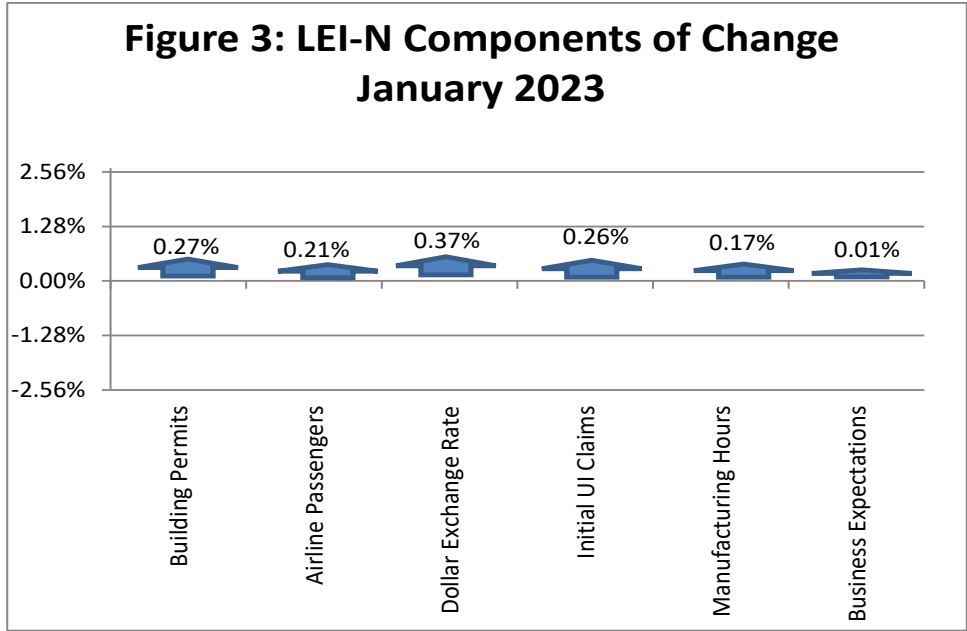Oct 22: -0.26%
Nov 22: 0.63%
Dec 22: -1.12%
Jan 23: 1.29%

Figure 3 shows the components of change in the Leading Economic Indicator – Nebraska during January. The change in the LEI–N is the weighted average of changes in each component (see page 5). There was a broad-based improvement in leading indicator components. Building permits for single-family homes, airline passenger counts, and manufacturing hours worked rose during January. There was also a decline in initial claims for unemployment insurance for the first time in several months, a positive sign for the Nebraska labor market. For the third consecutive month, there was a decline in the value of the U.S. dollar. A declining dollar improves competitive conditions for Nebraska businesses that compete in international markets.

Figure 3: LEI-N Components of Change
January 2023

Building Permits: 0.27%
Airline Passengers: 0.21%
Dollar Exchange Rate: 0.37%
Initial UI Claims: 0.26%
Manufacturing Hours: 0.17%
Business Expectations: 0.01%

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 0.72% during January 2023, as seen in Figure 4.

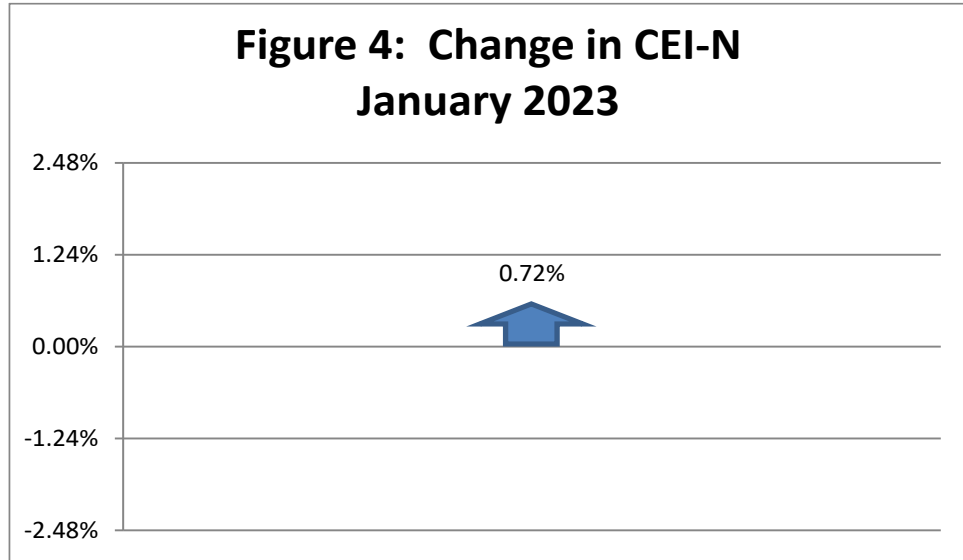## Figure 4: Change in CEI-N January 2023

0.72%
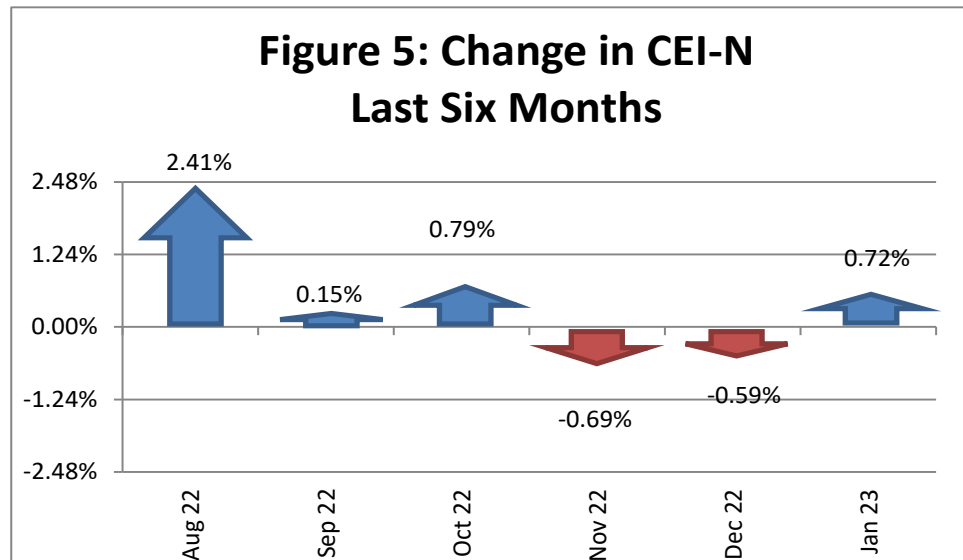
Figure 5 shows the change in the CEI-N over the last 6 months. The Nebraska economy expanded from August through October of 2022 but declined during two of the last three months.

Figure 5: Change in CEI-N Last Six Months

Aug 22	Sep 22	Oct 22	Nov 22	Dec 22	Jan 23
2.41%	0.15%	0.79%	-0.69%	-0.59%	0.72%

Three components of the CEI-N improved during January. Private wages rose with an increase in jobs and hours worked in the private sector. Electricity sales rose after accounting for weather and seasonality. There also was a modest increase in agricultural commodity prices. Business conditions, however, were negative according to respondents to the January *Survey of Nebraska Business*. 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 6: CEI-N Components of Change January 2023

- Electricity Sales: 0.69%
- Private Wages: 0.46%
- Agricultural Commodities: 0.03%
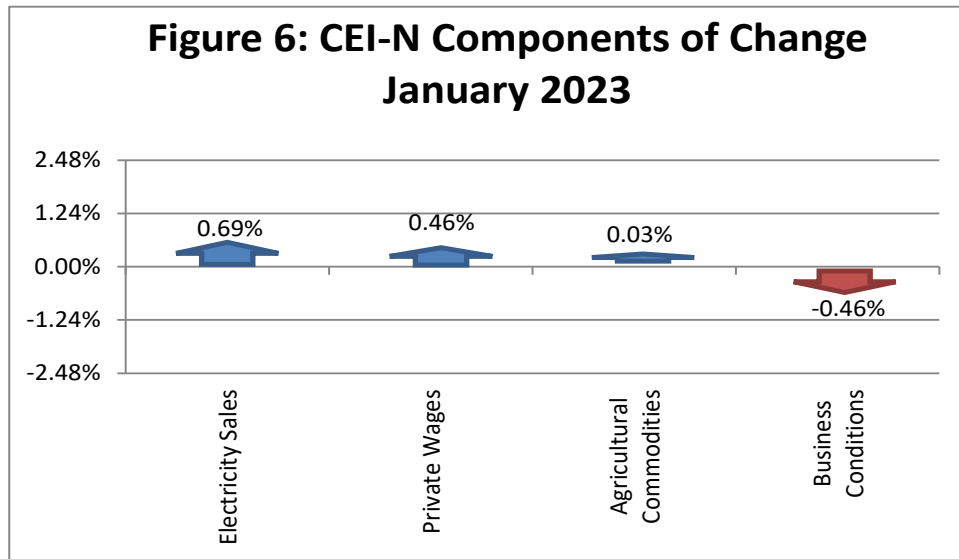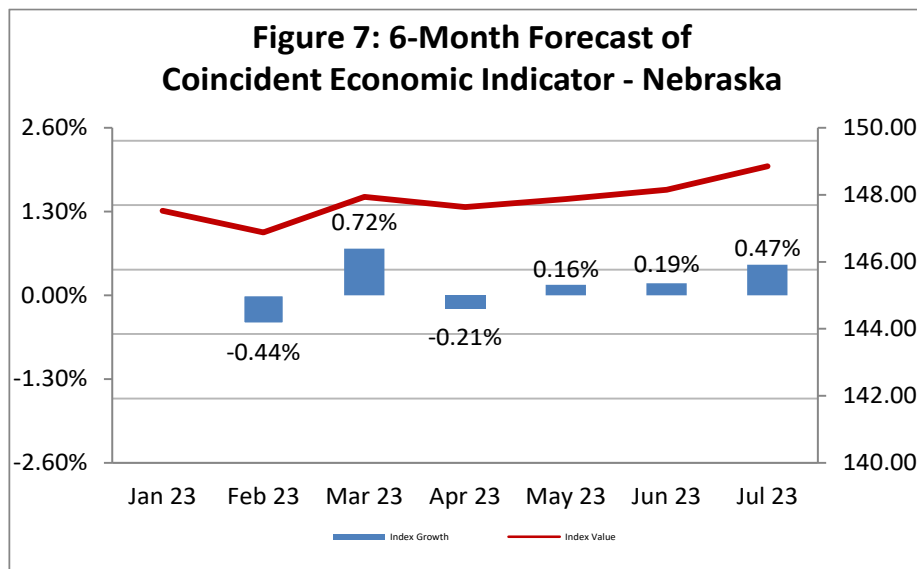- Business Conditions: -0.46%

Figure 7 shows a forecast for the CEI-N over the next six months. The forecast calls for slow growth in the size of the Nebraska economy during the first half of 2023. The state economy should avoid recession. This expectation is consistent with the recent changes in the LEI-N reported in Figure 2.

Figure 7: 6-Month Forecast of Coincident Economic Indicator - Nebraska

- Feb 23: -0.44%
- Mar 23: 0.72%
- Apr 23: -0.21%
- May 23: 0.16%
- Jun 23: 0.19%
- Jul 23: 0.47%

Legend: Index Growth, Index Value

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	13.7499	0.0727	0.0372		Electricity Sales	4.6161	0.2166	0.1742
Airline Passengers	6.2416	0.1602	0.0820		Private Wages	2.0443	0.4892	0.3933
Exchange Rate	1.1504	0.8693	0.4447		Agricultural Commodities	3.5578	0.2811	0.2260
Initial UI Claims	19.6904	0.0508	0.0260		Survey Business Conditions	3.8920	0.2569	0.2066
Manufacturing Hours	1.7708	0.5647	0.2889					
Survey Business Expectations	4.2189	0.2370	0.1213					

Tables 2 and 3 show the calculation for the change in LEI-N and CEI-N between December of 2022 and January 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	70.94	58.08	12.87	0.04	0.48	0.27%
Airline Passengers	98.00	93.42	4.58	0.08	0.38	0.21%
U.S. Dollar Exchange Rate (Inverse)	78.47	76.99	1.48	0.44	0.66	0.37%
Initial Unemployment Insurance Claims (Inverse)	144.91	126.91	18.00	0.03	0.47	0.26%
Manufacturing Hours	90.23	89.21	1.02	0.29	0.30	0.17%
Survey Business Expectations[1]	50.17		0.17	0.12	0.02	0.01%
Total (weighted average)	179.95	177.66			2.29	1.29%

[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	171.01	165.18	5.84	0.17	1.02	0.69%
Private Wage	114.19	112.48	1.71	0.39	0.67	0.46%
Agricultural Commodities	180.61	180.39	0.21	0.23	0.05	0.03%
Survey Business Conditions[1]	46.73		-3.27	0.21	-0.68	-0.46%
Total (weighted average)	147.52	146.46			1.06	0.72%

[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 8: Coincident Economic Indicator - Nebraska Comparison with Nebraska Real Quarterly GDP
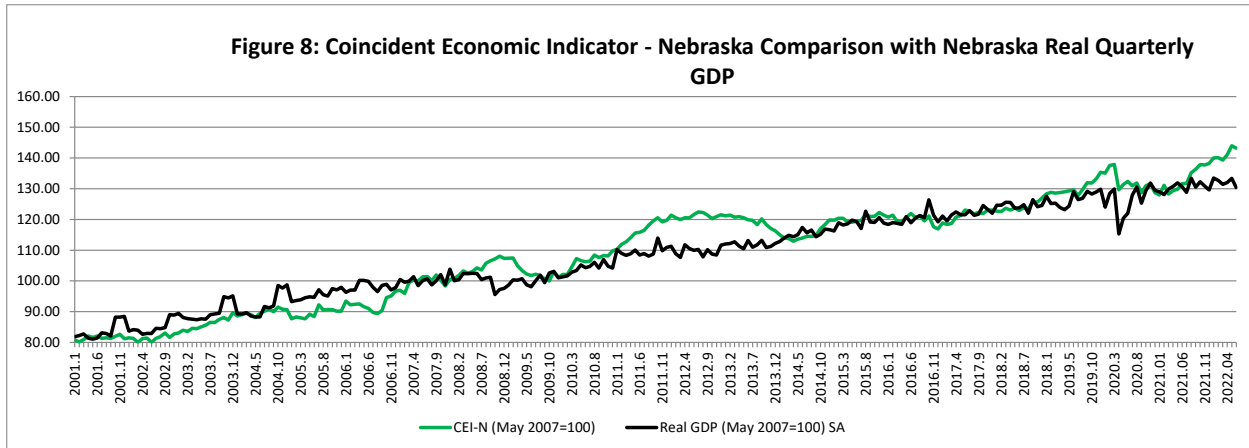
Figure 9 again shows the values for the CEI-N. It also graphs six-month forward values for the LEI-N. Recall that the LEI-N is intended to forecast the Nebraska economy six months into the future. This implies that Figure 9 is comparing the predicted movement in CEI-N (predicted by LEI-N values six months 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 0.90.

Figure 9: 6-Month Forward Value of Leading Economic Indicator - Nebraska Comparison with Coincident Economic Indicator - Nebraska