

The Iowa Leading Indicators Index (ILII) decreased to 107.6 (100=1999) in March (-0.7 percent) from 108.3 in February. The monthly diffusion index decreased to 6.3 in March from 43.8 in February. The Iowa nonfarm employment coincident index recorded a 0.12 percent increase in March, the twenty-fourth month of growth. Long term trends in the ILII suggests that nonfarm employment will decrease over the next three to six months.

During the six-month span through March, the ILII decreased 1.6 percent (an annualized rate of -3.2 percent). The six-month diffusion index decreased to 25.0 in March from 37.5 February. The ILII was constructed to signal economic turning points with two key metrics that when seen together are considered a signal of a coming contraction: a six-month annualized change in the index below -2.0 percent and a six-month diffusion index below 50.0. The six-month diffusion index remained in contractionary signals for the third month in a row whereas the six-month annualized change remained below the contractionary threshold for the fifth month in a row. Six of the eight component indicators decreased more than 0.05 percent over the last half-year: Agricultural futures profits index (AFPI), diesel fuel consumption, the Iowa stock market index, national yield spread, new orders index, and residential building permits. The decrease in the six-month diffusion index was due to the Iowa stock market index decreasing more than 0.05 percent.

Only one of the eight components increased month over month in March: Average manufacturing hours. Diesel fuel consumption, the AFPI, the new orders index, the national yield spread, the Iowa Stock Market Index, residential building permits, and average weekly unemployment claims (inverted) detracted from the index.

Figure 1. Iowa Leading Indicators Index and Iowa Nonfarm Employment Coincident Index: January 1999-March 2023

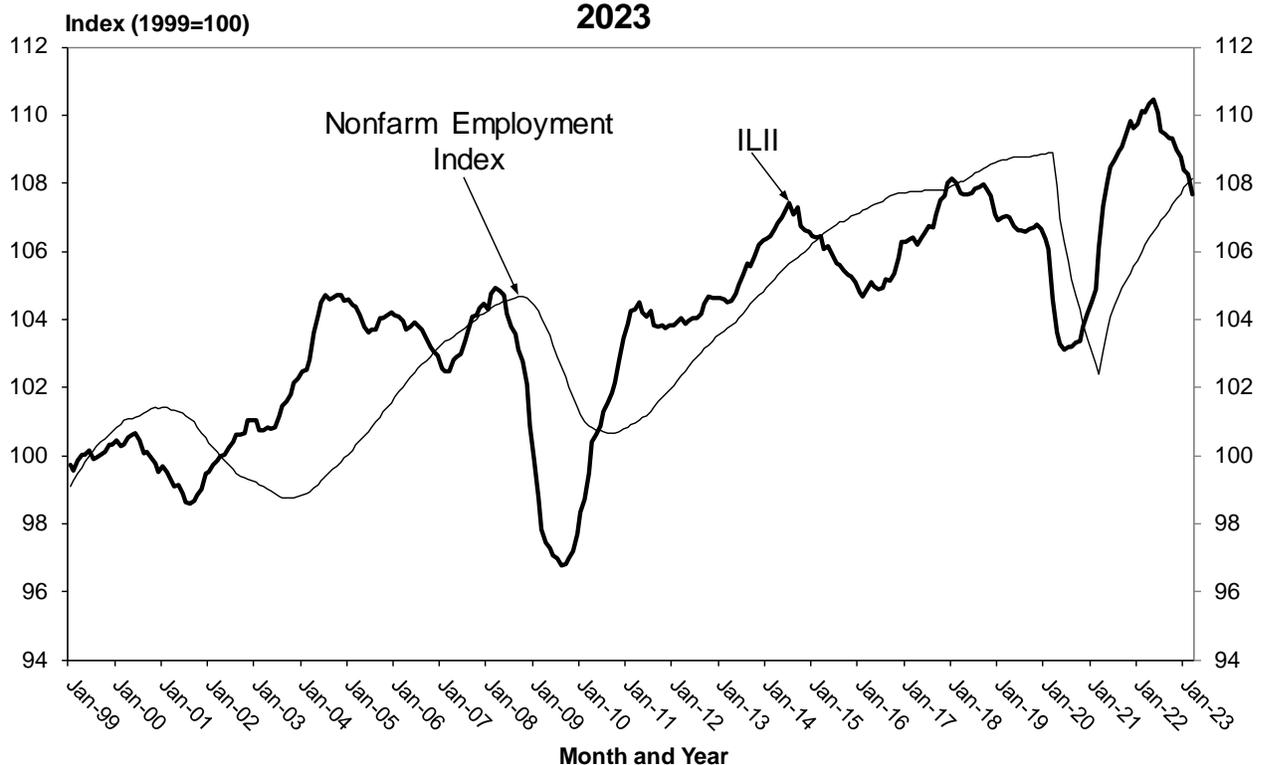


Table 1. Iowa Leading Indicators Index: Six Month Overview

| Monthly Values | 2022 | | | 2023 | | |
|--------------------------------|------------|------------|------------|------------|------------|------------|
| | Oct | Nov | Dec | Jan | Feb | Mar |
| ILII | 109.3 | 109.0 | 108.8 | 108.4 | 108.3 | 107.6 |
| Percentage Change ^a | 0.0% | -0.3% | -0.2% | -0.4% | -0.1% | -0.7% |
| Diffusion Index ^b | 62.5 | 37.5 | 25.0 | 37.5 | 43.8 | 6.3 |
| Six-Month Values | Apr to Oct | May to Nov | Jun to Dec | Jul to Jan | Aug to Feb | Sep to Mar |
| ILII | | | | | | |
| Percentage Change | -0.9% | -1.3% | -1.2% | -1.0% | -1.1% | -1.6% |
| Annualized Percentage Change | -1.9% | -2.6% | -2.3% | -2.0% | -2.2% | -3.2% |
| Diffusion Index | 37.5 | 37.5 | 62.5 | 37.5 | 37.5 | 25.0 |

Source: Tax Research Bureau, Iowa Department of Revenue, produced April 27, 2023.

a. Percentage changes in the ILII do not always equal changes in the level of the ILII due to rounding.

b. A diffusion index measures the proportion of components that are rising based on the actual changes (not the standardized contributions to the ILII). Components experiencing increases greater than 0.05 percent are assigned a value of 1.0, components that experience changes less than an absolute value of 0.05 percent are assigned a value of 0.5, and components experiencing decreases greater than 0.05 percent are assigned a value of 0.0.

Table 2. Iowa Leading Indicators Index Components: Six Month Overview

| Component Series Monthly Values ^a | 2022 | | | 2023 | | |
|---|--------|--------|--------|--------|--------|--------|
| | Oct | Nov | Dec | Jan | Feb | Mar |
| AFPI ^b | | | | | | |
| Corn Profits (cents per bushel) | 286.9 | 287.0 | 283.6 | 278.2 | 270.3 | 255.2 |
| Soybean Profits (cents per bushel) | 459.1 | 449.5 | 440.2 | 424.1 | 398.2 | 364.9 |
| Hog Profits (cents per pound) | 18.4 | 21.7 | 21.0 | 20.5 | 19.9 | 19.3 |
| Cattle Profits (cents per pound) | 17.6 | 18.4 | 18.6 | 17.9 | 17.9 | 15.6 |
| Iowa Stock Market Index (10=1984-86) | 132.97 | 135.01 | 130.16 | 130.45 | 132.98 | 121.28 |
| Yield Spread (10-year less 3-month) | 0.11 | -0.43 | -0.74 | -1.16 | -1.04 | -1.20 |
| Residential Building Permits | 1,084 | 1,060 | 1,060 | 1,043 | 1,046 | 1,043 |
| Average Weekly Unemployment Claims ^d | 1,810 | 1,830 | 1,862 | 1,797 | 1,812 | 1,823 |
| Average Weekly Manufacturing Hours | 39.16 | 39.29 | 39.28 | 39.34 | 39.34 | 39.35 |
| New Orders Index (percent) | 59.2 | 58.4 | 56.0 | 55.6 | 54.8 | 53.3 |
| Diesel Fuel Consumption (mil gallons) | 68.17 | 67.52 | 68.24 | 67.63 | 67.37 | 66.54 |

Source: Tax Research Bureau, Iowa Department of Revenue, produced April 27, 2023.

a. For all component series except for the yield spread and the Iowa stock market index, the values represent 12-month backward moving averages.

b. The agricultural futures profits index is computed as the sum of the standardized symmetric percent changes in the four series, each weighted by the commodity's annual share of Iowa cash farm income (updated September 12, 2022).

c. Arrows indicate the direction of the series' contribution to the ILII for the latest month.

d. Changes in average weekly initial unemployment insurance claims are inverted when added to the ILII, thus a negative change in the series contributes positively to the index.

ILII Components

- **Average weekly manufacturing hours:** Weekly average of hours worked in the manufacturing sector in Iowa. Changes are calculated based on a 12-month moving average. For March, this component contributed 0.01 to the ILII with the 12-month moving average increasing to 39.35 in March from a revised 39.34 in February. In March, average hours were 39.2, above the 39.1 hours in March 2022, yet just over an hour and a half below the historical monthly average (1996-2022).
- **Average weekly unemployment claims:** Weekly average of initial claims for unemployment insurance in Iowa. Changes are calculated based on a 12-month moving average and are inverted when added to the ILII. This component detracted 0.01 from the ILII value, with the 12-month moving average of claims increasing from 1,812 to 1,823. Unemployment claims were 8.78 percent above March 2022 claims, yet 60.0 percent below average historical claims for March (1988-2022).
- **Residential building permits:** Number of total permits issued in Iowa for the construction of residential housing units. Changes are calculated based on a 12-month moving average. In March, permits were 1,048, down from 1,083 last year. This component detracted 0.01 from the March ILII with the 12-month moving average decreasing to 1,043 in March from 1,046 in February. March permits were 0.3 percent below March 2022, and 1.0 percent below the monthly historical average (1998-2022).
- **Yield spread:** Difference between the yield on 10-year Treasury bonds and 3-month Treasury bills. During March, the yield spread decreased and remained in inversion territory (below 0) at -1.20 percent from -1.04 percent in February. March is the fifth month in a row that the yield spread has been in inversion. The long-term rate decreased 9 basis points while the short-term rate increased 7 basis points. For the month, the yield spread detracted 0.06 from the ILII value.
- **New orders index:** Diffusion index measuring the share of purchasing managers in Iowa reporting increases in orders received for manufacturing output. Changes are calculated based on a 12-month moving average. The new orders index in March increased to 56.6 compared to 55.7 in February. However, the 12-month moving average of the new orders index has decreased to 53.26 from 69.13 in March 2022, and detracted 0.1 from the ILII.
- **Iowa stock market index:** Capitalization-weighted index of 28 Iowa-based or Iowa-concentrated publicly-traded companies. During March, only 3 of the 28 companies gained value, and none of the 10 financial-sector companies increased. With approximately nearly all of the stocks experiencing losses, the index increased to 132.98 in March from 130.45 in February, detracting 0.14 of the ILII value.
- **Agricultural futures profits index:** Composite measure of corn and soybean expected profits, measured as the 12-month moving average of the futures price less estimated breakeven costs, and cattle and hog expected profits, measured as the average of the crush margin for the next 12 months, weighted by the respective share of Iowa annual cash receipts averaged over the prior ten calendar years. During March, this component detracted 0.14 from the ILII with expected profits decreases in both crop commodities and livestock commodities. Compared to last year, new crop corn prices were 13.2 percent higher while soybean prices were 9.9 percent lower. The March crush margin for cattle decreased 13.0 percent from February while the crush margin for hogs decreased 3.0 percent.
- **Diesel fuel consumption:** Number of taxable gallons of diesel fuel sold in Iowa. Changes are calculated based on a 12-month moving average. Diesel fuel consumption decreased 18.1 percent between March 2022 and March 2023. The 12-month moving average decreased to 66.54 million gallons in March from 67.37 million in February, detracting 0.22 from the ILII value.

Table 3. ILII Components and Standardization Factors for FY 2023

| Iowa Leading Indicator Index Components | Standardization Factor |
|---|------------------------|
| Agricultural Futures Profits Index | 0.034 |
| Iowa Stock Market Index | 0.015 |
| Yield Spread | 0.356 |
| Residential Building Permits | 0.031 |
| Average Weekly Unemployment Claims | 0.013 |
| Average Weekly Manufacturing Hours | 0.312 |
| New Orders Index | 0.061 |
| Diesel Fuel Consumption | 0.177 |

Source: Tax Research Bureau, Iowa Department of Revenue, produced September 8, 2022

The standardization factors are the inverse of the standard deviation of the month-to-month changes in each component over the January 1999 to June 2022 period. These factors equalize the volatility of the contribution from each component and are normalized to one. The month-to-month changes are based on 12-month backward moving averages for all components except the agricultural futures profits index, the Iowa stock market index, and yield spread. The yield spread and new orders index changes are simple arithmetic changes; month-to-month changes for the rest of the components are computed as symmetric percentage changes.

- The factors are updated annually during August.

Comments

The Iowa Leading Indicators Index (ILII) is designed to forecast the future direction of economic activity in the state of Iowa. The techniques used to build the ILII follow those used by The Conference Board to construct the national Leading Economics Index (LEI) prior to the 2001 revisions. A one-month movement in such an index does not produce a clear signal, rather it is necessary to consider the direction of the index over several consecutive months. A contraction signal in the ILII is considered reliable when two conditions are met: 1. The index declines by at least two percent over a six-month period (using an annualized rate); and, 2. A majority of the individual components decline over those six months (the six-month diffusion index less than 50.0).

The Iowa nonfarm employment coincident index measures the change in non-seasonally adjusted, total nonfarm employment in the state of Iowa. Changes are based on a 12-month moving average of employment and are computed as symmetric percentage changes. The index is a representation of overall economic activity in Iowa.

The employment index and the ILII are constructed to have a value of 100 in the year 1999.