

The Iowa Leading Indicators Index (ILII) decreased to 105.1 (100=1999) in December (-0.1 percent) from 105.2 in November. The monthly diffusion index increased to 50.0 in December from 12.5 in November. The Iowa nonfarm employment coincident index recorded a 0.05 percent increase in December. Long term trends in the ILII suggest that nonfarm employment will decrease over the next three to six months.

During the six-month span through December, the ILII decreased 1.4 percent (an annualized rate of -2.8 percent). The six-month diffusion index remained unchanged at 25.0 in December from November. 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 a contractionary signal for the twelfth month in a row and the six-month annualized change showed contraction for the fourteenth month in a row. Six of the eight component indicators decreased more than 0.05 percent over the last half-year: the agricultural futures profits index (AFPI), diesel fuel consumption, the Iowa stock market index, new orders index, residential building permits, and initial unemployment insurance claims. Average manufacturing hours and the national yield spread were the only components to increase by more than 0.05 percent over the last six months.

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

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

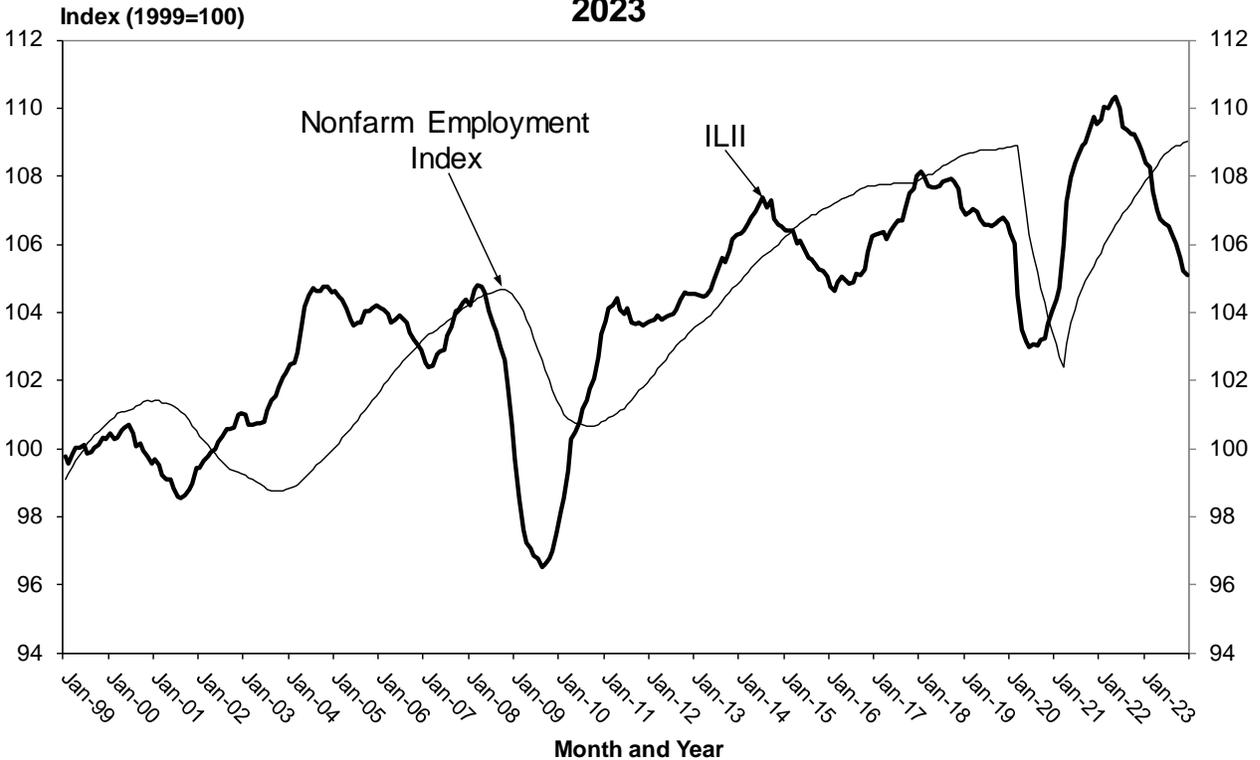


Table 1. Iowa Leading Indicators Index: Six Month Overview

Monthly Values	2023					
	Jul	Aug	Sep	Oct	Nov	Dec
ILII	106.5	106.3	106.0	105.6	105.2	105.1
Percentage Change ^a	-0.1%	-0.2%	-0.3%	-0.4%	-0.4%	-0.1%
Diffusion Index ^b	37.5	31.3	37.5	25.0	12.5	50.0
Six-Month Values	Feb to Jul	Mar to Aug	Apr to Sep	May to Oct	Jun to Nov	Jul to Dec
ILII						
Percentage Change	-1.7%	-1.8%	-1.4%	-1.3%	-1.4%	-1.4%
Annualized Percentage Change	-3.4%	-3.5%	-2.8%	-2.6%	-2.9%	-2.8%
Diffusion Index	6.3	6.3	18.8	25.0	25.0	25.0

Source: Tax Research Bureau, Iowa Department of Revenue, produced January 30, 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	2023						
	Jul	Aug	Sep	Oct	Nov	Dec	
AFPI ^b							
Corn Profits (cents per bushel)							
Soybean Profits (cents per bushel)							
Hog Profits (cents per pound)							
Cattle Profits (cents per pound)							
Iowa Stock Market Index (10=1984-86)	↑	125.68	122.06	118.79	111.51	112.93	118.86
Yield Spread (10-year less 3-month)	↓	-1.59	-1.39	-1.18	-0.80	-1.02	-1.42
Residential Building Permits	↑	961	937	917	892	885	898
Average Weekly Unemployment Claims ^d	↓	1,954	2,016	2,055	2,100	2,136	2,195
Average Weekly Manufacturing Hours	↑	39.34	39.36	39.40	39.44	39.41	39.52
New Orders Index (percent)	↑	51.0	50.1	50.3	49.4	49.3	49.9
Diesel Fuel Consumption (mil gallons)	↓	66.61	66.67	65.92	65.45	64.88	64.59

Source: Tax Research Bureau, Iowa Department of Revenue, produced January 30, 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, 2023).

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 December, this component contributed 0.09 to the ILII with the 12-month moving average increasing to 39.52 in December from a revised 39.41 in November. In December, average hours were 40.1, above the 38.8 hours in December 2022, and just an hour and a half below the historical monthly average (1996-2022).
- **Iowa stock market index:** Capitalization-weighted index of 28 Iowa-based or Iowa-concentrated publicly-traded companies. During December, 21 of the 28 companies gained value, and 10 of the 10 financial-sector companies increased. With over two-thirds of the stocks experiencing gains, the index increased to 118.86 in December from 112.93 in November, contributing 0.08 to the ILII value.
- **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 December, permits were 860, up from 711 last year. This component contributed 0.04 to the December ILII with the 12-month moving average increasing to 898 in December from 885 in November. December permits were 21.0 percent above December 2022, and 23.8 percent above the monthly historical average (1998-2022).
- **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 December decreased to 45.7 from 46.6 in November. The 12-month moving average of the new orders index has increased to 49.9 from 49.3 in November 2023, and contributed 0.04 to the ILII.
- **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 0.04 from the ILII value, with the 12-month moving average of claims increasing from 2,136 to 2,195. Unemployment claims were 16.6 percent above December 2022 claims, yet 24.6 percent below average historical claims for December (1988-2022).
- **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 5.0 percent between December 2022 and December 2023. The 12-month moving average decreased to 64.59 million gallons in December from 64.88 million in November, detracting 0.08 from 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 December, this component detracted 0.09 from the ILII with expected profits decreases in both crop commodities and both livestock commodities. Compared to last year, new crop corn prices were 21.7 percent lower while soybean prices were 8.8 percent lower. The December crush margin for hogs decreased 0.1 percent from November while the crush margin for cattle decreased 2.6 percent.
- **Yield spread:** Difference between the yield on 10-year Treasury bonds and 3-month Treasury bills. During December, the yield spread widened and remained in inversion territory (below 0) at -1.42 percent from -1.02 percent in November. December is the fourteenth month in a row that the yield spread has been in inversion. The long-term rate decreased 48 basis points while the short-term rate decreased by 8 basis points. For the month, the yield spread detracted 0.14 from the ILII value.

Table 3. ILII Components and Standardization Factors for FY 2024

Iowa Leading Indicator Index Components	Standardization Factor
Agricultural Futures Profits Index	0.034
Iowa Stock Market Index	0.015
Yield Spread	0.346
Residential Building Permits	0.032
Average Weekly Unemployment Claims	0.014
Average Weekly Manufacturing Hours	0.322
New Orders Index	0.062
Diesel Fuel Consumption	0.175

Source: Tax Research Bureau, Iowa Department of Revenue, produced September 12, 2023

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 2023 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.