

The Iowa Leading Indicators Index (ILII) decreased 0.2 percent in December 2021 to 110.0 (100=1999) from 110.2 in November. The monthly diffusion index decreased to 37.5 from 68.8, the lowest the diffusion index has been since July 2020. The ILII had decreased as much as 3.0 percent (June 2020) from March 2020 to a low of 103.4 before bouncing back. The Iowa nonfarm employment coincident index recorded a 0.25 percent increase in December, the ninth month of growth in a row. December was the first month since August 2020 that the ILII experienced a decline. Despite this one-month decline, long term trends in the ILII suggests that the nonfarm employment will continue to improve over the next three to six months.

During the six-month span through December, the ILII increased 1.1 percent (an annualized rate of 2.3 percent). The six-month diffusion index remained unchanged at in December from 50.0 in November. This is the second month in a row that the 6-month diffusion index has been at 50.0. Four of the eight component indicators increased more than 0.05 percent over the last half-year: agricultural futures profits index (AFPI), diesel fuel consumption, the Iowa Stock Market Index, and average weekly unemployment claims.

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

Figure 1. Iowa Leading Indicators Index and Iowa Nonfarm Employment Coincident Index: January 1999-December 2021

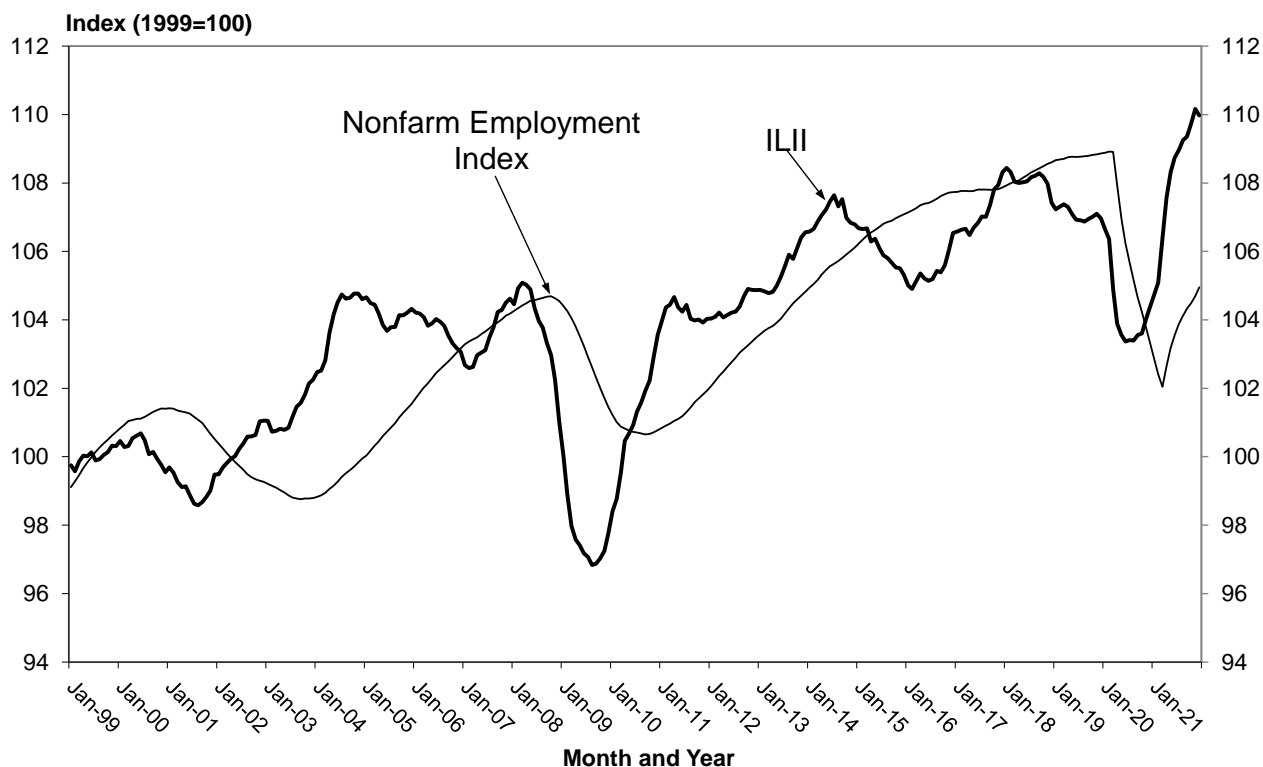


Table 1. Iowa Leading Indicators Index: Six Month Overview

Monthly Values	2021					
	Jul	Aug	Sep	Oct	Nov	Dec
ILII	109.0	109.3	109.4	109.7	110.2	110.0
Percentage Change ^a	0.2%	0.3%	0.1%	0.4%	0.4%	-0.2%
Diffusion Index ^b	50.0	62.5	50.0	75.0	68.8	37.5
Six-Month Values	Jan to Jul	Feb to Aug	Mar to Sep	Apr to Oct	May to Nov	Jun to Dec
ILII						
Percentage Change	4.0%	4.0%	2.8%	2.0%	1.7%	1.1%
Annualized Percentage Change	8.1%	7.9%	5.6%	4.0%	3.4%	2.3%
Diffusion Index	87.5	81.3	75.0	62.5	50.0	50.0

Source: Tax Research Bureau, Iowa Department of Revenue, produced January 28, 2022.

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		2021					
		Jul	Aug	Sep	Oct	Nov	Dec
AFPI ^b	↑ ^c						
Corn Profits (cents per bushel)		119.8	139.0	153.4	166.2	180.4	192.3
Soybean Profits (cents per bushel)		297.6	338.3	367.2	387.1	408.7	429.3
Hog Profits (cents per pound)		22.4	22.0	22.2	25.0	22.3	21.6
Cattle Profits (cents per pound)		14.8	15.2	14.4	15.1	15.8	14.4
Iowa Stock Market Index (10=1984-86)	↓	125.95	132.59	128.21	128.95	133.72	131.11
Yield Spread (10-year less 3-month)	↓	1.27	1.23	1.33	1.53	1.51	1.41
Residential Building Permits	↓	1,195	1,179	1,177	1,208	1,223	1,190
Average Weekly Unemployment Claims ^d	↑	4,886	4,554	4,280	4,065	3,643	3,364
Average Weekly Manufacturing Hours	↓	39.88	39.90	39.84	39.74	39.62	39.48
New Orders Index (percent)	↑	76.0	76.4	75.1	74.4	72.7	72.7
Diesel Fuel Consumption (mil gallons)	↓	65.68	65.62	65.83	66.11	67.33	67.05

Source: Tax Research Bureau, Iowa Department of Revenue, produced January 28, 2022.

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 2, 2021).

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 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 contributed 0.11 to the ILII value with the 12-month moving average of claims decreasing from 3,643 to 3,364. Unemployment claims were 46.5 percent below December 2020 claims and 42.6 percent below average historical claims for December (1988-2020).
- **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 contributed 0.04 to the ILII with both grain commodities expecting profit gains while both livestock commodities expected profit decreases. Compared to last year, new crop corn prices were 34.1 percent higher while soybean prices were 17.1 percent higher. The December crush margin for cattle decreased 8.6 percent from November while the crush margin for hogs decreased 3.3 percent.
- **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. December 2021 was the first month of increase to the 12-month moving average after three months in a row of decrease, up to 72.7 compared to 72.7 in November (unchanged due to rounding). However, the 12-month moving average of the new orders index has increased from 59.2 in December 2020, and contributed 0.00 to the ILII.
- **Iowa stock market index:** Capitalization-weighted index of 30 Iowa-based or Iowa-concentrated publicly-traded companies. During December 2021, 10 of the 30 companies gained value, and only three of the 10 financial-sector companies increased. With two-thirds of the stocks experiencing losses, the index decreased to 131.11 in December from 133.72 in November, contributing -0.03 of the ILII value.
- **Yield spread:** Difference between the yield on 10-year Treasury bonds and 3-month Treasury bills. During December, the yield spread decreased to 1.41 percent from 1.51 percent in November. December is the twelfth month in a row since December 2018 that the yield spread has been at or above 1.0 percent. The long-term rate decreased 9 basis points while the short-term rate increased 1 basis point. For the month, the yield spread detracted 0.04 from the ILII value.
- **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 5.2 percent between December 2020 and December 2021. The 12-month moving average decreased to 67.05 million gallons in December from 67.33 million 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 716, down from 1,115 last year. This component contributed -0.09 from the December ILII with the 12-month moving average increasing to 1,190 in December from 1,223 in November. December 2021 permits were 35.8 percent below December 2020, yet 3.3 percent above the monthly historical average (1998-2020).
- **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 -0.10 to the ILII with the 12-month moving average decreased to 39.5 from 39.6 in November. In December 2021, average hours were 39.3, below the 40.9 hours in December 2020, and nearly two and a half hours below the historical monthly average (1996-2020).

Table 3. ILII Components and Standardization Factors for FY 2022

Iowa Leading Indicator Index Components	Standardization Factor
Agricultural Futures Profits Index	0.035
Iowa Stock Market Index	0.015
Yield Spread	0.352
Residential Building Permits	0.031
Average Weekly Unemployment Claims	0.014
Average Weekly Manufacturing Hours	0.310
New Orders Index	0.061
Diesel Fuel Consumption	0.183

Source: Tax Research Bureau, Iowa Department of Revenue, produced September 8, 2021

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 2021 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.