

The Iowa Leading Indicators Index (ILII) increased 0.1 percent in September 2021. However, due to rounding, the index remained at 109.3 (100=1999) despite the slight increase from August. September marks the twelfth month in a row since the ILII has exited contraction. This suggests that the nonfarm employment will continue to improve over the next three to six months. The monthly diffusion index decreased as well, to 50.0 from 62.5. The ILII had decreased as much as 3.0 percent (June 2020) from March 2020 to a low of 103.4 before gradually improving for the past year. The Iowa nonfarm employment coincident index recorded a 0.20 percent increase in September, the sixth month of growth since February 2020.

During the six-month span through September, the ILII increased 2.8 percent (an annualized rate of 5.6 percent). The six-month diffusion index decreased to 75.0 in September from 81.3 in August. This is the second month in a row that the six-month diffusion index has declined. Six of the eight component indicators (agricultural futures profits index (AFPI), diesel fuel consumption, the Iowa Stock Market Index, the new orders index, residential building permits, and average weekly unemployment claims) increased more than 0.05 percent over the last half-year. The change in the six-month diffusion index was the national yield spread decreasing by more than 0.05 percent over the past six months.

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

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

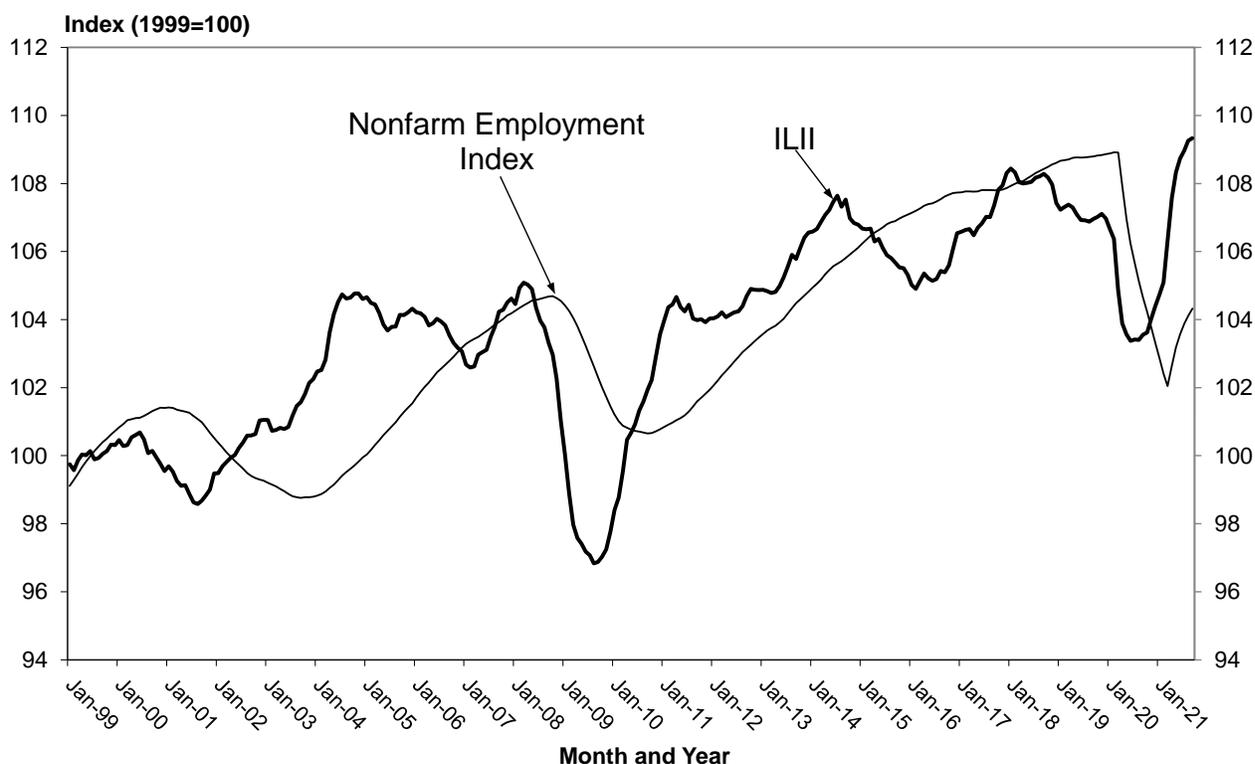


Table 1. Iowa Leading Indicators Index: Six Month Overview

Monthly Values	2021					
	Apr	May	Jun	Jul	Aug	Sep
ILII	107.6	108.3	108.7	109.0	109.3	109.3
Percentage Change ^a	1.1%	0.7%	0.4%	0.2%	0.3%	0.1%
Diffusion Index ^b	87.5	81.3	50.0	50.0	62.5	50.0
Six-Month Values	Oct to Apr	Nov to May	Dec to Jun	Jan to Jul	Feb to Aug	Mar to Sep
ILII						
Percentage Change	3.8%	4.2%	4.2%	4.0%	4.0%	2.8%
Annualized Percentage Change	7.6%	8.3%	8.3%	8.1%	7.9%	5.6%
Diffusion Index	87.5	87.5	87.5	87.5	81.3	75.0

Source: Tax Research Bureau, Iowa Department of Revenue, produced October 28, 2021.

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					
		Apr	May	Jun	Jul	Aug	Sep
AFPI ^b	↑ ^c						
Corn Profits (cents per bushel)		64.1	80.7	101.0	119.8	139.0	153.4
Soybean Profits (cents per bushel)		163.5	207.1	253.4	297.6	338.3	367.3
Hog Profits (cents per pound)		21.3	21.4	21.5	22.4	22.0	22.2
Cattle Profits (cents per pound)		12.9	13.9	14.2	14.8	15.2	14.4
Iowa Stock Market Index (10=1984-86)	↓	127.59	132.48	128.37	126.37	133.06	128.72
Yield Spread (10-year less 3-month)	↑	1.62	1.60	1.48	1.27	1.23	1.33
Residential Building Permits	↓	1,231	1,231	1,226	1,195	1,179	1,177
Average Weekly Unemployment Claims ^d	↑	6,654	5,970	5,413	4,886	4,554	4,280
Average Weekly Manufacturing Hours	↓	40.09	40.10	39.98	39.88	39.90	39.83
New Orders Index (percent)	↓	70.0	73.5	75.5	76.0	76.4	75.1
Diesel Fuel Consumption (mil gallons)	↑	64.17	64.68	65.27	65.68	65.62	65.83

Source: Tax Research Bureau, Iowa Department of Revenue, produced October 28, 2021.

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 0.09 to the ILII value with the 12-month moving average of claims decreasing from 4,554 to 4,280. Unemployment claims were 66.8 percent below September 2020 claims and 33.9 percent below average historical claims for September (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 September, this component contributed 0.08 to the ILII with both grain commodities and hogs expecting profit gains while live cattle expect profit losses. Compared to last year, new crop corn prices were 43.2 percent higher while soybean prices were 28.6 percent higher. The September crush margin for cattle decreased 5.3 percent from August while the crush margin for hogs increased 0.7 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 increased 3.7 percent between September 2020 and September 2021. The 12-month moving average increased to 65.83 million gallons in September from 65.62 million in August, contributing 0.06 to the ILII value.
- **Yield spread:** Difference between the yield on 10-year Treasury bonds and 3-month Treasury bills. During September, the yield spread increased to 1.33 percent from 1.23 percent in August. September is the ninth month in a row since September 2018 that the yield spread has been at or above 1.0 percent. The long-term rate increased 9 basis points while the short-term rate decreased 1 basis point. For the month, the yield spread contributed 0.04 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 September, permits were 1,023, down from 1,217 last year. This component detracted 0.01 from the September ILII with the 12-month moving average decreasing to 1,177 in September from 1,179 in August. September 2021 permits were 1.9 percent below September 2020, yet 18.7 percent above the monthly historical average (1998-2020).
- **Iowa stock market index:** Capitalization-weighted index of 30 Iowa-based or Iowa-concentrated publicly-traded companies. During September 2021, only 8 of the 30 companies gained value, and two of the 10 financial-sector companies increased. With over two-thirds of the stocks experiencing losses, the index decreased to 128.7 in September from 133.06 in August, contributing -0.05 of the ILII value.
- **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 September, this component contributed -0.06 to the ILII with the 12-month moving average decreased to 39.8 from 39.9 in August. In September 2021, average hours were 39.2, below the 40.1 hours in September 2020, and nearly two and a half hours below the historical monthly average (1996-2020).
- **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. September 2021 was the first month of decrease to the 12-month moving average down to 75.1 compared to 76.4 in August. However, the 12-month moving average of the new orders index has increased from 53.4 in September 2020, contributing -0.08 to the ILII.

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.