

The Iowa Leading Indicators Index (ILII) increased to 108.4 in September 2018 from a revised 108.3 (100=1999) in August. The ILII had experienced five consecutive months of no change before September's increase. Despite the increase in the level of the index, the monthly percentage change rounded to zero for the sixth consecutive month. The Iowa non-farm employment coincident index recorded a 0.08 percent rise in September.

During the six-month span through September, the ILII increased 0.1 percent (an annualized rate of 0.2 percent). The six-month diffusion index increased to 56.3 in September from 37.5 in August. Four of the eight indicators (average weekly unemployment claims (inverted), diesel fuel consumption, Iowa stock market index, and the new orders index) experienced an increase of greater than 0.05 percent over the last half-year while the agricultural futures profits index experienced an increase of less than 0.05 percent. The increase in the six-month diffusion index is due to the higher gains experienced by the Iowa stock market index and the agricultural futures profits index over the last six months.

Five of the eight components were positive contributors to the ILII in September. These include, in the order from largest contributor to smallest, the agricultural futures profits index, diesel fuel consumption, the new orders index, average weekly unemployment claims (inverted), and the national yield spread. Residential building permits, average manufacturing hours, and the Iowa stock market index were the three components that contributed negatively to the index.

Figure 1. Iowa Leading Indicators Index and Iowa Non-Farm Employment Coincident Index: January 1999-September 2018

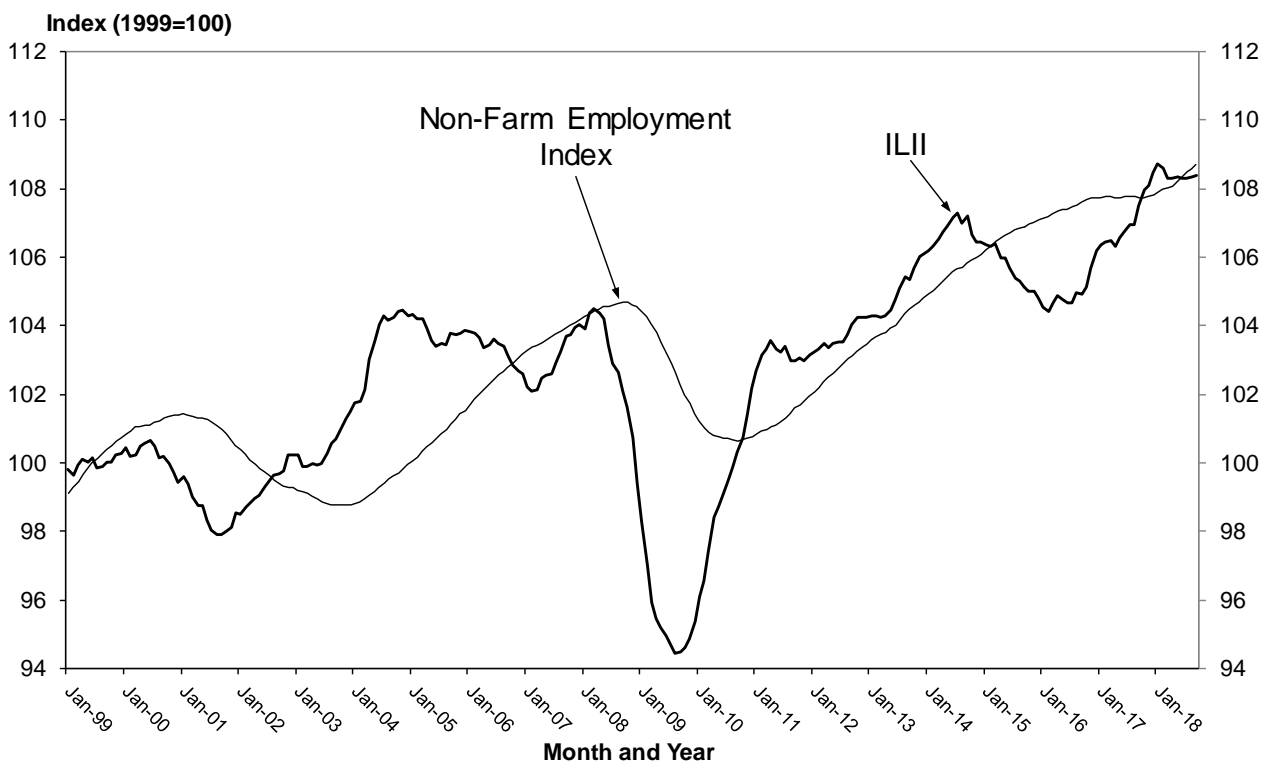


Table 1. Iowa Leading Indicators Index: Six Month Overview

Monthly Values	2018					
	Apr	May	Jun	Jul	Aug	Sep
ILII	108.3	108.3	108.3	108.3	108.3	108.4
Percentage Change ^a	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Diffusion Index ^b	56.3	62.5	50.0	50.0	62.5	56.3
Six-Month Values	Oct to Apr	Nov to May	Dec to Jun	Jan to Jul	Feb to Aug	Mar to Sep
ILII						
Percentage Change	0.3%	0.2%	-0.1%	-0.4%	-0.2%	0.1%
Annualized Percentage Change	0.6%	0.4%	-0.3%	-0.7%	-0.4%	0.2%
Diffusion Index	50.0	56.3	50.0	43.8	37.5	56.3

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced October 30, 2018.

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	2018						
	Apr	May	Jun	Jul	Aug	Sep	
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)	↓	113.78	116.12	117.89	118.45	121.47	119.81
Yield Spread (10-year less 3-month)	↑	1.08	1.08	0.97	0.90	0.82	0.83
Residential Building Permits	↓	1,064	1,075	1,074	1,112	1,065	1,039
Average Weekly Unemployment Claims ^d	↑	2,571	2,559	2,594	2,582	2,578	2,574
Average Weekly Manufacturing Hours	↓	42.08	42.07	42.05	42.01	41.92	41.83
New Orders Index (percent)	↑	62.5	62.9	62.5	62.0	63.1	63.5
Diesel Fuel Consumption (mil gallons)	↑	60.21	60.05	60.18	60.38	60.80	61.07

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced October 30, 2018.

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 August 30, 2018).

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

- **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 0.10 to the index with gains in expected profits for the two livestock commodities outweighing the drops in expected profits experienced by the two crop commodities. Compared to last year, new crop soybean prices were 13.1 percent lower and corn prices were 1.3 percent higher; however, corn breakeven prices were 13.6 percent higher. The September crush margin for cattle was up 6.2 percent from August and the crush margin for hogs was up 35.7 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 4.9 percent between September 2017 and 2018. The 12-month moving average increased to 61.07 million gallons from 60.80 in August, contributing 0.08 to 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 monthly value of the index was 67.2 compared to 63.2 seen one year ago. The index remained above 50.0 for the twenty-second month, suggesting continued growth in manufacturing. The 12-month moving average of the new orders index increased to 63.5 from 63.1 in August, contributing 0.02 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 contributed 0.01 to the ILII value with the 12-month moving average of claims decreasing from 2,578 to 2,574. Unemployment claims for the month were 2.6 percent below September 2017 claims and 24.2 percent below average historical claims for September (1987-2017).
- **Yield spread:** Difference between the yield on 10-year Treasury bonds and 3-month Treasury bills. During September, the yield spread increased to 0.83 percent as the long-term rate increased 11 basis points and the short-term rate increased 10 basis points. For the month, the yield spread contributed 0.00 to the ILII.
- **Iowa stock market index:** Capitalization-weighted index of 34 Iowa-based or Iowa-concentrated publicly-traded companies. During September 2018, 15 of the 34 companies gained value, including 4 of the 12 financial-sector companies. With less than half of the stocks experiencing gains, the index decreased to 119.81 in September from 121.47 in August, contributing -0.02 to 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 decreasing to 41.83 from a revised 41.92 in August. September 2018 average hours were 41.5, below the 42.5 hours in September 2017 and one-tenth below the historical monthly average of 41.7 (1996-2017).
- **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. For September, this component contributed -0.08 to the ILII with the 12-month moving average decreasing to 1,039 from 1,065 in August. September 2018 permits were 30.4 percent below 2017 and 34.4 percent below the historical average for September (1998-2017).

Table 3. ILII Components and Standardization Factors for FY 2019

Iowa Leading Indicator Index Components	Standardization Factor
Agricultural Futures Profits Index	0.034
Iowa Stock Market Index	0.017
Yield Spread	0.341
Residential Building Permits	0.032
Average Weekly Unemployment Claims	0.036
Average Weekly Manufacturing Hours	0.299
New Orders Index	0.064
Diesel Fuel Consumption	0.177

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced August 30, 2018
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 2018 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 non-farm employment coincident index measures the change in non-seasonally adjusted, total non-farm 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.

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