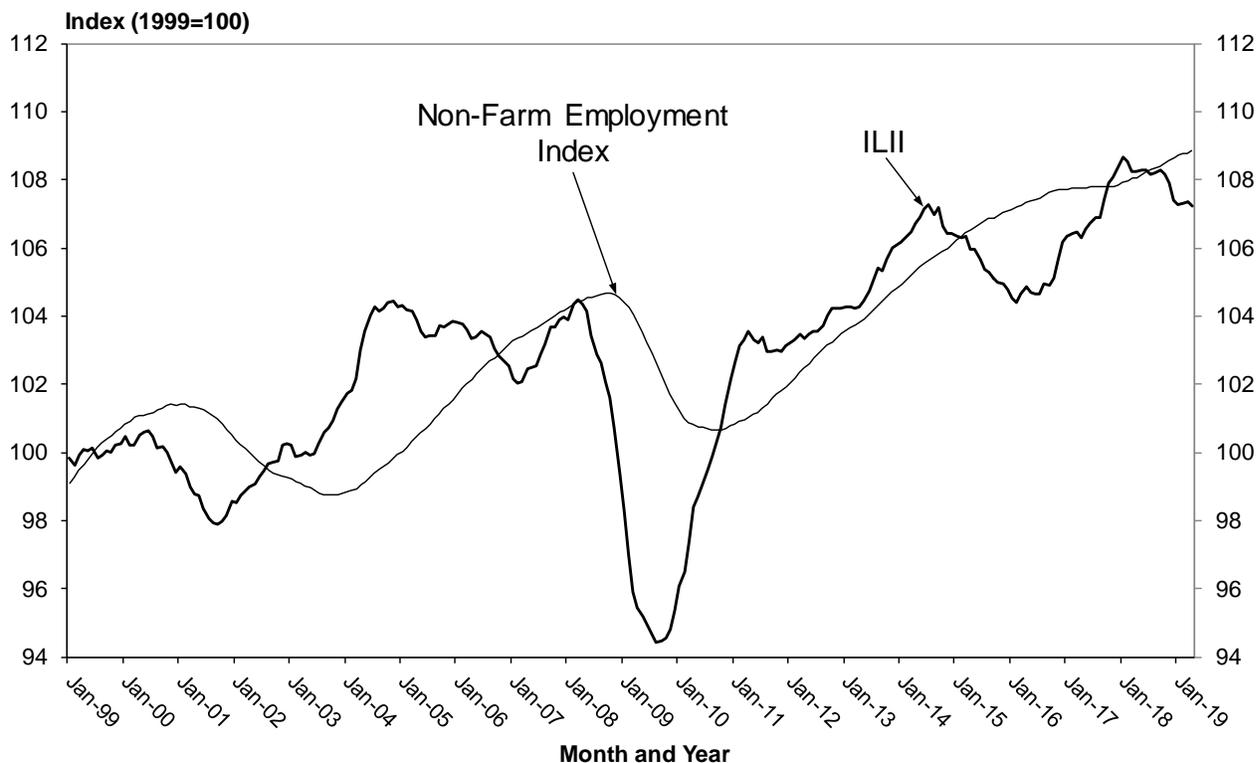


The Iowa Leading Indicators Index (ILII) decreased to 107.3 in April 2019 from 107.5 (100=1999) in March, a decrease of 0.1 percent. This is a return to negative change after a 0.1 percent increase in March, breaking the previous five month streak of observed unchanged values or declines. The Iowa non-farm employment coincident index recorded a 0.05 percent rise in April.

During the six-month span through April, the ILII decreased 0.9 percent (an annualized rate of -1.7 percent). The six-month diffusion index remained at 25.0 in April for the third month in a row. Only two of the eight indicators (diesel fuel consumption and the agricultural futures profits index) experienced an increase of greater than 0.05 percent over the last half-year.

Six of the eight components were negative contributors to the ILII in April. These include, in the order from largest negative contributor to smallest, residential building permits, the new orders index, average weekly unemployment claims (inverted), average manufacturing hours, the Iowa stock market index, and the national yield spread. The agricultural futures profits index and diesel fuel consumption were the two components that contributed positively to the index.

**Figure 1. Iowa Leading Indicators Index and Iowa Non-Farm Employment Coincident Index: January 1999-April 2019**



**Table 1. Iowa Leading Indicators Index: Six Month Overview**

Monthly Values	2018		2019			
	Nov	Dec	Jan	Feb	Mar	Apr
ILII	108.0	107.5	107.4	107.4	107.5	107.3
Percentage Change <sup>a</sup>	-0.2%	-0.5%	-0.1%	0.0%	0.1%	-0.1%
Diffusion Index <sup>b</sup>	25.0	12.5	37.5	43.8	43.8	25.0
Six-Month Values	May to Nov	Jun to Dec	Jul to Jan	Aug to Feb	Sep to Mar	Oct to Apr
ILII						
Percentage Change	-0.3%	-0.7%	-0.8%	-0.8%	-0.9%	-0.9%
Annualized Percentage Change	-0.5%	-1.4%	-1.7%	-1.7%	-1.7%	-1.7%
Diffusion Index	25.0	37.5	25.0	25.0	25.0	25.0

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced May 30, 2019.

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 <sup>a</sup>	2018		2019				
	Nov	Dec	Jan	Feb	Mar	Apr	
AFPI <sup>b</sup>							
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)	↓	112.10	101.94	103.76	104.24	104.71	104.17
Yield Spread (10-year less 3-month)	↓	0.75	0.42	0.29	0.24	0.12	0.10
Residential Building Permits	↓	1,000	951	949	935	901	877
Average Weekly Unemployment Claims <sup>d</sup>	↓	2,601	2,530	2,591	2,606	2,608	2,644
Average Weekly Manufacturing Hours	↓	41.71	41.65	41.68	41.64	41.63	41.58
New Orders Index (percent)	↓	62.7	61.8	61.0	60.5	59.8	58.7
Diesel Fuel Consumption (mil gallons)	↑	61.55	61.48	61.55	61.78	62.26	62.28

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced May 30, 2019.

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 April, this component contributed 0.13 to the ILII with gains in expected profits for hogs outweighing losses in expected profits for the two crop commodities and cattle. Compared to last year, new crop soybean prices were 11.9 percent lower while corn prices were 5.9 percent lower. The April crush margin for hogs was up 25.4 percent from March while the crush margin for cattle was down 5.7 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 0.2 percent between April 2018 and 2019. The 12-month moving average increased to 62.28 million gallons from 62.26 million in March, contributing 0.00 to the ILII value.
- **Yield spread:** Difference between the yield on 10-year Treasury bonds and 3-month Treasury bills. During April, the yield spread decreased to 0.10 percent as the long-term rate decreased 4 basis points and the short-term rate decreased 2 basis points. For the month, the yield spread contributed -0.01 to the ILII.
- **Iowa stock market index:** Capitalization-weighted index of 33 Iowa-based or Iowa-concentrated publicly-traded companies. During April 2019, 19 of the 33 companies gained value, including 5 of the 12 financial-sector companies. Despite over half of the stocks experiencing gains, the index decreased to 104.17 in April from 104.71 in March, contributing -0.01 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 April, this component contributed -0.04 to the ILII with the 12-month moving average decreasing to 41.58 from a revised 41.63 in March. April 2019 average hours were 41.3, below the 41.9 hours in April 2018, but slightly above the historical monthly average of 41.0 (1996-2018).
- **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 -0.05 to the ILII value with the 12-month moving average of claims increasing from 2,608 to 2,644. Unemployment claims for the month were 25.8 percent above April 2018 claims, yet 25.0 percent below average historical claims for April (1987-2018).
- **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 56.4 compared to 69.7 seen one year ago. The index remained at or above 50.0 for the twenty-ninth month, suggesting continued growth in manufacturing. The 12-month moving average of the new orders index decreased to 58.7 from 59.8 in March, contributing -0.07 to the ILII.
- **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 April, permits were 1,000, weaker than 1,294 seen in the prior year. This component contributed -0.09 to the April ILII with the 12-month moving average decreasing to 877 from 901 in March. April 2019 permits were 22.7 percent below 2018 and 17.9 percent below the monthly historical average (1998-2018).

**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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