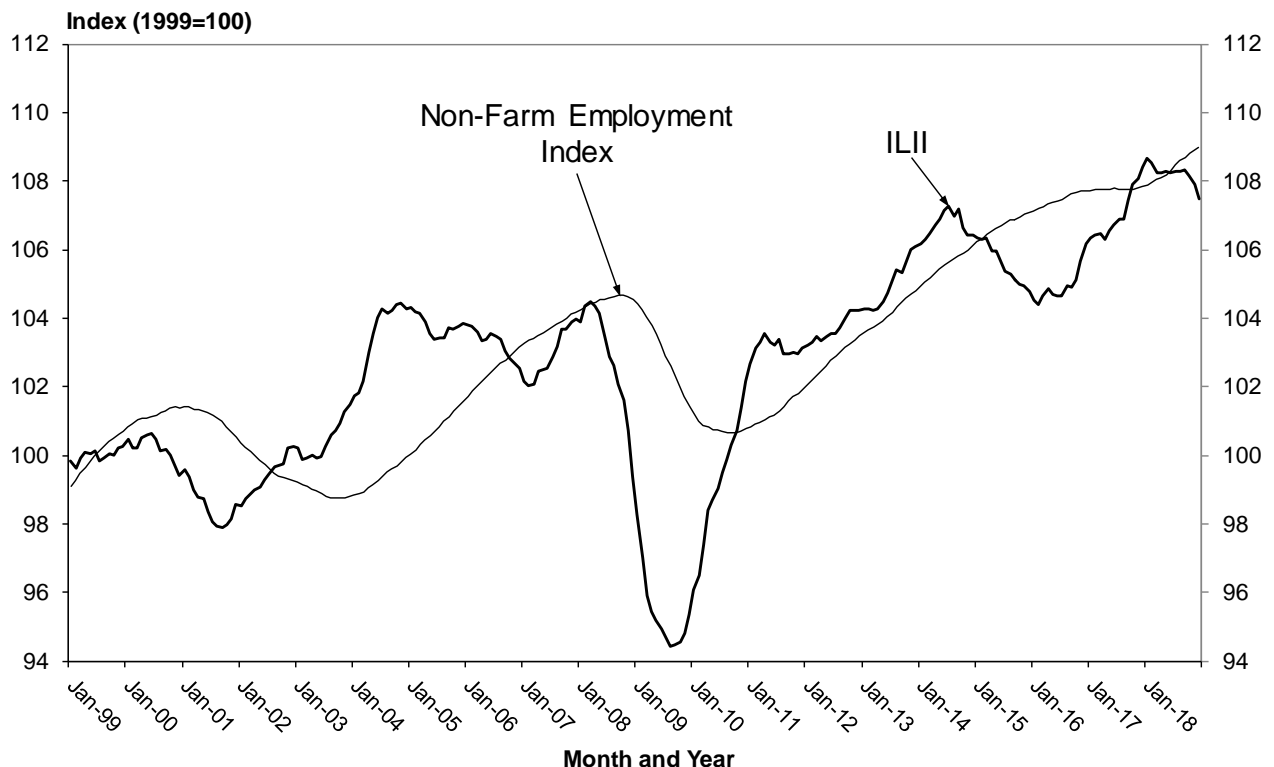


The Iowa Leading Indicators Index (ILII) decreased 0.4 percent to 107.5 in December 2018 from a revised 107.9 (100=1999) in November. The December ILII is now final, including housing permits that were delayed by the partial federal government shutdown earlier this year. This is the third consecutive monthly decline in the ILII. The Iowa non-farm employment coincident index recorded a 0.08 percent rise in December.

During the six-month span through December, the ILII decreased 0.7 percent (an annualized rate of -1.5 percent). The six-month diffusion index increased to 25.0 in December from 12.5 in November. Only two of the eight indicators (diesel fuel consumption and average weekly unemployment claims) experienced an increase of greater than 0.05 percent over the last half-year. The increase in the six-month diffusion index reflects average weekly unemployment claims moving from experiencing a decrease to experiencing an increase greater than 0.05 percent over the last six months.

Only two of the eight components were positive contributors to the ILII in December. These include, in the order from largest contributor to smallest, average weekly unemployment claims (inverted) and average manufacturing hours. The Iowa stock market index, the national yield spread, the new orders index, the agricultural futures profits index, diesel fuel consumption, and residential building permits were the six components that contributed negatively to the index. Revisions to the November ILII noted above are a result of a change to the stock market index effective in December that retroactively removed a large business from the index due to a merger.

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



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

Monthly Values	2018					
	Jul	Aug	Sep	Oct	Nov	Dec
ILII	108.3	108.3	108.3	108.2	107.9	107.5
Percentage Change <sup>a</sup>	0.0%	0.0%	0.1%	-0.2%	-0.2%	-0.4%
Diffusion Index <sup>b</sup>	50.0	62.5	56.3	50.0	25.0	25.0
<b>Six-Month Values</b>	Jan to Jul	Feb to Aug	Mar to Sep	Apr to Oct	May to Nov	Jun to Dec
ILII						
Percentage Change	-0.4%	-0.2%	0.1%	-0.1%	-0.3%	-0.7%
Annualized Percentage Change	-0.7%	-0.5%	0.2%	-0.1%	-0.7%	-1.5%
Diffusion Index	43.8	37.5	50.0	37.5	12.5	25.0

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced January 31, 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					
	Jul	Aug	Sep	Oct	Nov	Dec
AFPI <sup>b</sup>						
Corn Profits (cents per bushel)	90.5	87.7	84.9	83.3	82.1	80.2
Soybean Profits (cents per bushel)	172.7	158.3	139.3	121.2	106.8	94.7
Hog Profits (cents per pound)	13.8	14.9	20.2	19.3	19.9	19.6
Cattle Profits (cents per pound)	7.2	7.8	8.2	8.1	9.4	10.3
Iowa Stock Market Index (10=1984-86)	124.53	127.82	125.91	115.71	114.96	104.58
Yield Spread (10-year less 3-month)	0.90	0.82	0.83	0.86	0.75	0.42
Residential Building Permits	1,112	1,065	1,039	1,041	1,000	951
Average Weekly Unemployment Claims <sup>d</sup>	2,582	2,578	2,574	2,566	2,601	2,530
Average Weekly Manufacturing Hours	42.01	41.92	41.85	41.81	41.71	41.74
New Orders Index (percent)	62.0	63.1	63.5	63.4	62.7	61.8
Diesel Fuel Consumption (mil gallons)	60.38	60.80	61.07	61.24	61.55	61.48

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced January 31, 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

- **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 0.10 to the ILII value with the 12-month moving average of claims decreasing from 2,601 to 2,530. Unemployment claims for the month were 13.8 percent below December 2017 claims, and 18.6 percent below average historical claims for December (1987-2017).
- **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 0.02 to the ILII with the 12-month moving average increasing to 41.74 from a revised 41.71 in November. December 2018 average hours were 43.0, above the 42.6 hours in December 2017, and nearly one and a half hours above the historical monthly average of 41.7 (1996-2017).
- **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 1.2 percent between December 2017 and 2018. The 12-month moving average decreased to 61.48 million gallons from 61.55 million in November, contributing -0.02 to 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 contributed -0.02 to the index with losses in expected profits for the two crop commodities and hogs with gains only in expected profits for cattle. Compared to last year, new crop soybean prices were 4.3 percent lower while corn prices were 7.1 percent higher; however, corn breakeven prices were 13.6 percent higher, pushing down expected profits. The December crush margin for hogs was down 1.6 percent but the crush margin for cattle was up 8.9 percent from November.
- **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 52.4 compared to 63.4 seen one year ago. The index remained at or above 50.0 for the twenty-fifth month, suggesting continued growth in manufacturing. The 12-month moving average of the new orders index decreased to 61.8 from 62.7 in November, contributing -0.06 to the ILII.
- **Yield spread:** Difference between the yield on 10-year Treasury bonds and 3-month Treasury bills. During December, the yield spread decreased to 0.42 percent as the long-term rate decreased 29 basis points and the short-term rate increased 4 basis points. For the month, the yield spread contributed -0.11 to the ILII.
- **Iowa stock market index:** Capitalization-weighted index of 33 Iowa-based or Iowa-concentrated publicly-traded companies. During December 2018, four of the 33 companies gained value, including two of the 12 financial-sector companies. With only four of the stocks experiencing gains, the index decreased to 104.58 in December from a revised 114.96 in November, contributing -0.16 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 only 417, much weaker than 1,000 seen in the prior year. This component contributed -0.15 to the December ILII with the 12-month moving average decreasing to 951 from 1,000 in November. December 2018 permits were 58.3 percent below 2017 and 40.0 percent below the monthly historical average.

**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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