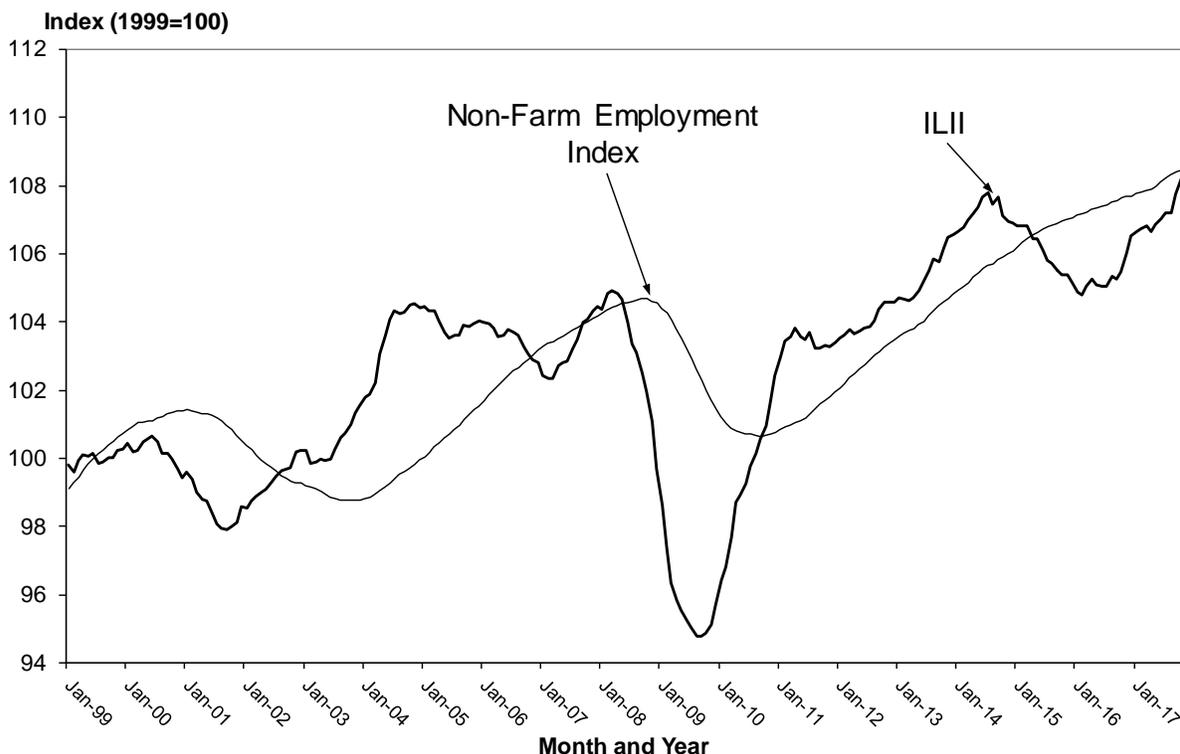


The Iowa Leading Indicators Index (ILII) increased 0.3 percentage points to 108.7 in December 2017 from 108.3 (100=1999) in November. The Iowa non-farm employment coincident index recorded a 0.14 percent rise in December, which extends the streak of employment gains into a seventh consecutive year.

During the six-month span through December, the ILII increased 1.5 percent (an annualized rate of 3.0 percent). The six-month diffusion index remained unchanged at 75.0 in December. Six of the eight indicators (agricultural futures profits index (AFPI), average manufacturing hours, average weekly unemployment claims (inverted), diesel fuel consumption, the Iowa stock market index, and new orders index) experienced an increase of greater than 0.05 percent over the last half-year.

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

**Figure 1. Iowa Leading Indicators Index and Iowa Non-Farm Employment Coincident Index: January 1999-December 2017**



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

Monthly Values	2017					
	Jul	Aug	Sep	Oct	Nov	Dec
ILII	107.2	107.2	107.8	108.2	108.3	108.7
Percentage Change <sup>a</sup>	0.2%	0.0%	0.5%	0.4%	0.1%	0.3%
Diffusion Index <sup>b</sup>	62.5	68.8	75.0	93.8	68.8	81.3
<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	0.5%	0.4%	0.9%	1.5%	1.3%	1.5%
Annualized Percentage Change	1.0%	0.9%	1.7%	2.9%	2.7%	3.0%
Diffusion Index	62.5	62.5	62.5	75.0	75.0	75.0

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced January 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 <sup>a</sup>	2017					
	Jul	Aug	Sep	Oct	Nov	Dec
AFPI <sup>b</sup>						
Corn Profits (cents per bushel)	65.2	68.2	69.9	70.0	69.8	70.1
Soybean Profits (cents per bushel)	179.3	169.1	162.4	155.1	147.1	138.3
Hog Profits (cents per pound)	17.8	19.4	19.5	20.7	21.4	20.6
Cattle Profits (cents per pound)	6.7	6.2	6.1	6.8	8.6	8.2
Iowa Stock Market Index (10=1984-86)	96.73	94.38	109.57	114.45	114.75	120.89
Yield Spread (10-year less 3-month)	1.23	1.18	1.15	1.27	1.10	1.06
Residential Building Permits	1,153	1,108	1,085	1,106	1,089	1,102
Average Weekly Unemployment Claims <sup>d</sup>	2,675	2,659	2,655	2,638	2,612	2,600
Average Weekly Manufacturing Hours	41.65	41.68	41.78	41.91	41.90	41.93
New Orders Index (percent)	55.2	56.0	57.8	59.4	60.4	61.3
Diesel Fuel Consumption (mil gallons)	58.90	59.08	59.43	59.44	59.70	60.12

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced January 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, 2017).

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

- **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 8.3 percent between December 2016 and 2017. The 12-month moving average increased to 60.12 million gallons from 59.70 in November, contributing 0.13 to the ILII value.
- **Iowa stock market index:** Capitalization-weighted index of 35 Iowa-based or Iowa-concentrated publicly-traded companies. During December 2017, 23 of the 35 companies gained value, including seven of the 12 financial-sector companies. With roughly two-thirds of the stocks experiencing gains, the index increased to 120.89 in December from 114.75 in November, contributing 0.10 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 63.4 compared to 52.5 seen one year ago. The index remained above 50.0 for the thirteenth month in a row, suggesting continued growth in manufacturing. The 12-month moving average of the new orders index increased to 61.3 from 60.4 in November, contributing 0.06 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. For December, this component contributed 0.04 to the ILII with the 12-month moving average increasing to 1,102 from 1,089 in November. December 2017 permits were 17.9 percent above 2016, and 47.3 percent above the historical average for December (1998-2016).
- **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 2017, this component contributed 0.02 to the ILII with the 12-month moving average increasing to 41.93 from a revised 41.90 in November. December 2017 average hours were 42.3, above the 41.9 hours in December 2016, and over half an hour above the historical monthly average of 41.7 (1996-2016).
- **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 0.02 to the ILII value. The 12-month moving average of claims decreased to 2,600 with unemployment claims for the month 2.1 percent below December 2016 claims and 5.6 percent below average historical claims for December (1987-2016).
- **Yield spread:** Difference between the yield on 10-year Treasury bonds and 3-month Treasury bills. During December, the yield spread contracted to 1.06 percent as the long-term rate increased 5 basis points while the short-term rate increased 9 basis points. For the month, the yield spread contributed -0.01 to the ILII.
- **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 -0.03 to the index with a decrease in expected profits experienced by the two livestock commodities included in the index as well as soybeans. December crush margins for hogs were down 3.8 percent from November while crush margins for cattle were down 4.6 percent. Compared to last year, new crop corn and soybean prices were each less than two percent lower, but with a drop in breakeven costs, corn still posted an expected profit increase.

**Table 3. ILII Components and Standardization Factors for FY 2018**

Iowa Leading Indicator Index Components	Standardization Factor
Agricultural Futures Profits Index	0.034
Iowa Stock Market Index	0.019
Yield Spread	0.339
Residential Building Permits	0.032
Average Weekly Unemployment Claims	0.036
Average Weekly Manufacturing Hours	0.298
New Orders Index	0.064
Diesel Fuel Consumption	0.179

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced August 30, 2017  
 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 2017 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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