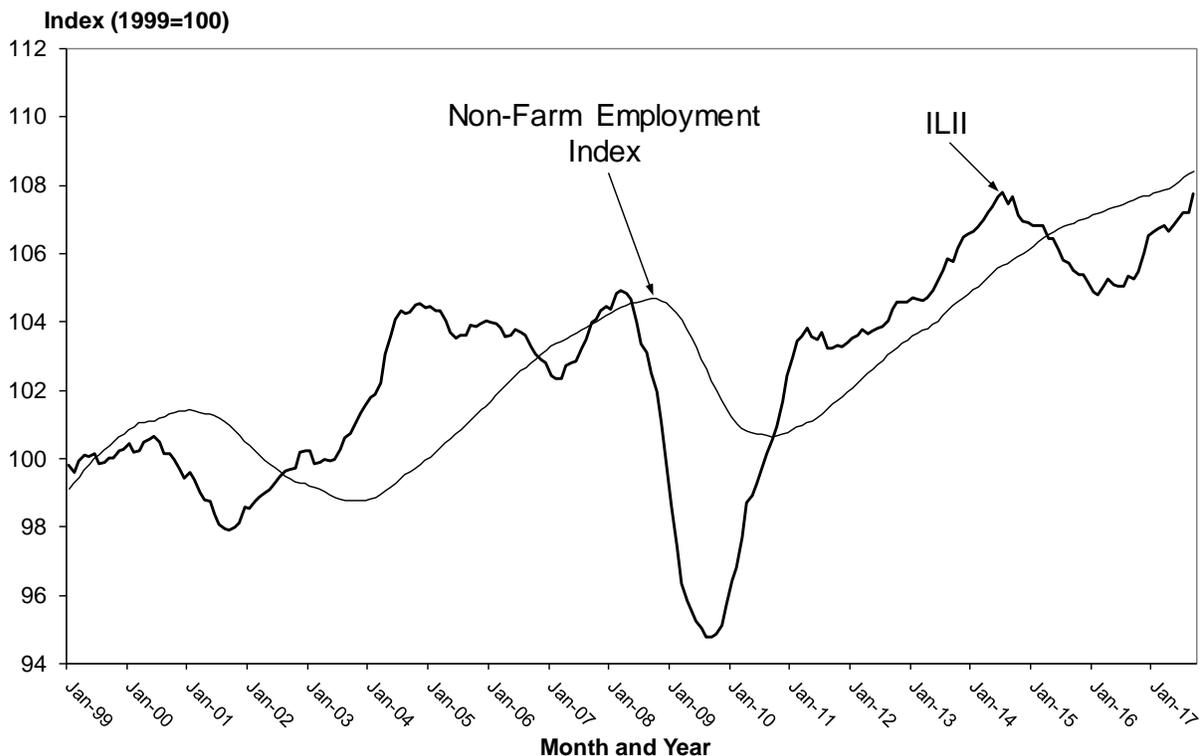


The Iowa Leading Indicators Index (ILII) increased 0.5 percentage points to 107.8 in September 2017 from 107.2 (100=1999) in August. The Iowa non-farm employment coincident index recorded a 0.07 percent rise in September, which extends the streak of employment gains into a seventh consecutive year.

During the six-month span through September, the ILII increased 0.9 percent (an annualized rate of 1.8 percent). The six-month diffusion index remained unchanged at 62.5 from the August index with five of the eight indicators (average manufacturing hours, average weekly unemployment claims (inverted), diesel fuel consumption, the Iowa stock market index, and new orders index) experiencing an increase of greater than 0.05 percent over the last half a year. For the six-months ending in September, agricultural futures profits index (AFPI) no longer met that threshold, but was replaced by the Iowa stock market index.

In September, five of the eight Iowa Leading Indicators Index components contributed positively. The positive contributors were the Iowa stock market index, the new orders index, diesel fuel consumption, average manufacturing hours, and average weekly unemployment claims (inverted). Residential building permits, the national yield spread, and the AFPI were the three components that contributed to the index negatively.

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



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

Monthly Values	2017					
	Apr	May	Jun	Jul	Aug	Sep
ILII	106.6	106.9	107.0	107.2	107.2	107.8
Percentage Change <sup>a</sup>	-0.2%	0.2%	0.1%	0.2%	0.0%	0.5%
Diffusion Index <sup>b</sup>	37.5	75.0	75.0	62.5	68.8	75.0
<b>Six-Month Values</b>	Oct to Apr	Nov to May	Dec to Jun	Jan to Jul	Feb to Aug	Mar to Sep
ILII						
Percentage Change	1.1%	0.8%	0.5%	0.5%	0.4%	0.9%
Annualized Percentage Change	2.2%	1.6%	1.0%	1.0%	0.9%	1.8%
Diffusion Index	75.0	62.5	68.8	62.5	62.5	62.5

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

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					
		Apr	May	Jun	Jul	Aug	Sep
AFPI <sup>b</sup>	↓ <sup>c</sup>						
Corn Profits (cents per bushel)		62.5	63.8	61.6	65.2	68.2	69.9
Soybean Profits (cents per bushel)		215.0	211.6	188.7	179.3	169.1	162.4
Hog Profits (cents per pound)		17.2	19.3	19.1	17.8	19.4	19.5
Cattle Profits (cents per pound)		7.3	7.3	6.7	6.7	6.2	6.1
Iowa Stock Market Index (10=1984-86)	↑	93.69	93.21	94.36	96.73	94.38	109.57
Yield Spread (10-year less 3-month)	↓	1.49	1.40	1.19	1.23	1.18	1.15
Residential Building Permits	↓	1,119	1,134	1,135	1,153	1,108	1,085
Average Weekly Unemployment Claims <sup>d</sup>	↑	2,765	2,724	2,703	2,675	2,659	2,655
Average Weekly Manufacturing Hours	↑	41.58	41.61	41.63	41.65	41.68	41.79
New Orders Index (percent)	↑	51.2	51.8	53.6	55.2	56.0	57.8
Diesel Fuel Consumption (mil gallons)	↑	58.68	58.88	59.13	58.90	59.08	59.43

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

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

- **Iowa stock market index:** Capitalization-weighted index of 35 Iowa-based or Iowa-concentrated publicly-traded companies. During September 2017, 26 of the 35 companies gained value, including 9 of the 12 financial-sector companies. With over two-thirds of the stocks experiencing gains, the index increased to 109.57 in September from 94.38 in August and contributed 0.28 to the ILII value. The increase largely reflects a jump in the capitalization value of Dow-DuPont, a result of the merger finalizing effective September 1.
- **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 increased to 63.2 from 41.6 seen one year ago. The index remained above 50.0 for the tenth month in a row, suggesting continued growth in manufacturing. The 12-month moving average of the new orders index increased to 57.8 from 56.0 in August, contributing 0.12 to the ILII.
- **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 6.8 percent between September 2016 and 2017, which caused the 12-month moving average to increase to 59.43 million gallons from 59.08 in August and contributed 0.10 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 2017, this component contributed 0.08 to the ILII with the 12-month moving average increasing to 41.79 from 41.68 in August. September 2017 average hours were 42.6, above the 41.3 hours in September 2016, and an hour above the historical monthly average (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 0.01 to the ILII value. The 12-month moving average of claims decreased to 2,655 with unemployment claims for the month 2.4 percent below September 2016 claims and 22.2 percent below average historical claims for September (1987-2016).
- **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 -0.00 to the index with the expected profit decrease experienced by two commodities offsetting the increases experienced by the other two commodities included in the index. Compared to last year, new crop corn prices were 6.0 percent higher; soybean prices were 0.6 percent higher, but could not compensate for the higher breakeven costs. September crush margins for hogs were up 0.3 percent from August while crush margins for cattle were down 1.2 percent.
- **Yield spread:** Difference between the yield on 10-year Treasury bonds and 3-month Treasury bills. During September, the yield spread contracted to 1.15 percent as the long-term rate decreased 1 basis point while the short-term rate increased 2 basis points. For the month, the yield spread contributed -0.01 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 September, this component contributed -0.07 to the ILII with the 12-month moving average decreasing from 1,108 in August to 1,085. September 2017 permits were 20.3 percent below 2016, and 6.0 percent below the historical average for September (1998-2016).

**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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