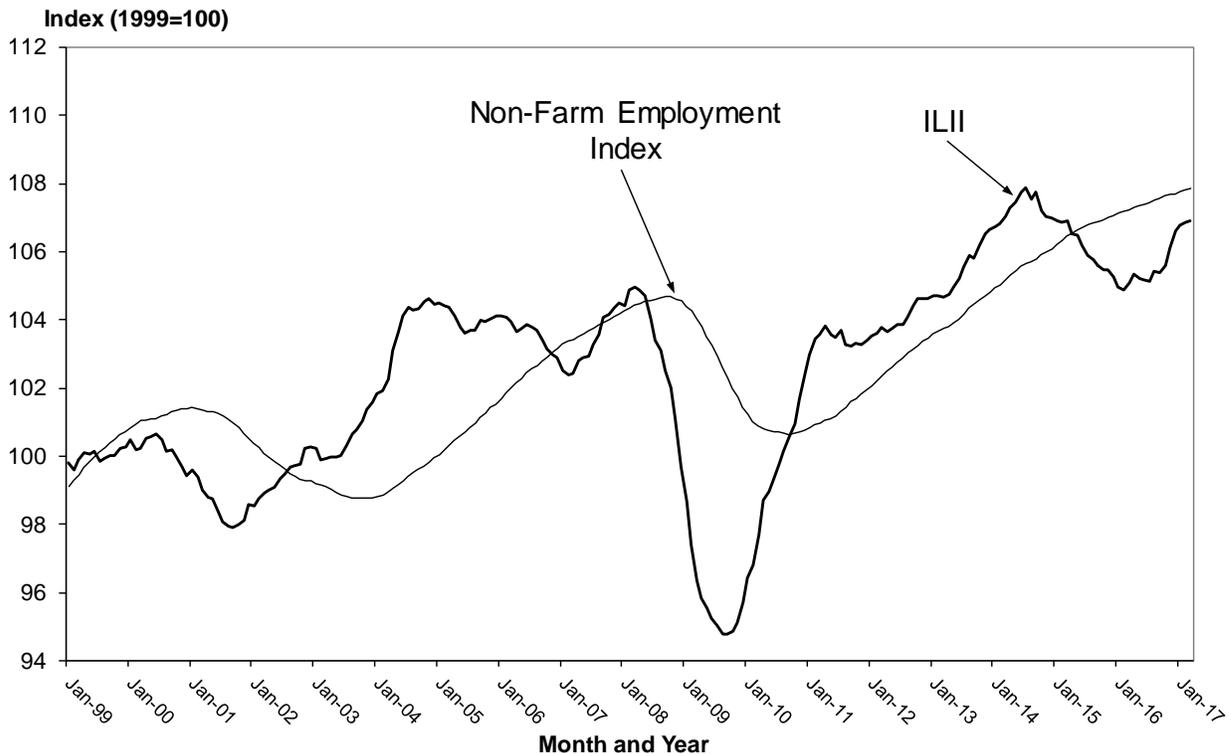




The Iowa Leading Indicators Index (ILII) remained unchanged at 106.9 (100=1999) in March 2017, due to rounding. The index did experience a 0.1 percent increase, the sixth consecutive monthly increase. The Iowa non-farm employment coincident index recorded a 0.04 percent rise in March, which extends the streak of employment gains further into the sixth consecutive year. During the six-month span through March, the ILII increased 1.5 percent (an annualized rate of 2.9 percent). The six-month diffusion index decreased to 75.0 with six of the eight indicators (agricultural futures profits index (AFPI), average weekly unemployment claims (inverted), Iowa stock market index, national yield spread, new orders index, and residential building permits) experiencing an increase of greater than 0.05 percent over the last half a year. The decrease in the diffusion index is due to diesel fuel consumption dropping out of this group.

In March, six of the eight Iowa Leading Indicators Index components contributed positively. The positive contributors were the new orders index, residential building permits, the agriculture futures profit index, average manufacturing hours, the average weekly unemployment claims (inverted), and the Iowa stock market index. Diesel fuel consumption, and the national yield spread were the two components that contributed to the index negatively.

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



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

Monthly Values	2016			2017		
	Oct	Nov	Dec	Jan	Feb	Mar
ILII	105.6	106.1	106.6	106.8	106.9	106.9
Percentage Change <sup>a</sup>	0.2%	0.5%	0.5%	0.1%	0.1%	0.1%
Diffusion Index <sup>b</sup>	62.5	87.5	87.5	68.8	56.3	75.0

Six-Month Values	Apr to	May to	Jun to	Jul to	Aug to	Sept to
	Oct	Nov	Dec	Jan	Feb	Mar
ILII						
Percentage Change	0.2%	0.9%	1.4%	1.6%	1.4%	1.5%
Annualized Percentage Change	0.5%	1.7%	2.8%	3.1%	2.7%	2.9%
Diffusion Index	50.0	75.0	75.0	87.5	87.5	75.0

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced April 28, 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>		2016			2017		
		Oct	Nov	Dec	Jan	Feb	Mar
AFPI <sup>b</sup>	↑ <sup>c</sup>						
Corn Profits (cents per bushel)		50.4	50.7	52.6	54.9	57.7	60.1
Soybean Profits (cents per bushel)		143.3	158.1	171.3	185.8	200.7	212.1
Hog Profits (cents per pound)		15.9	17.7	18.5	18.4	17.7	18.2
Cattle Profits (cents per pound)		10.2	11.2	8.7	9.5	7.4	8.1
Iowa Stock Market Index (10=1984-86)	↑	82.17	86.70	93.58	93.74	96.55	97.23
Yield Spread (10-year less 3-month)	↓	1.43	1.69	1.98	1.91	1.89	1.73
Residential Building Permits	↑	1,047	1,102	1,120	1,097	1,124	1,142
Average Weekly Unemployment Claims <sup>d</sup>	↑	3,009	2,924	2,910	2,820	2,801	2,779
Average Weekly Manufacturing Hours	↑	41.68	41.71	41.63	41.62	41.59	41.63
New Orders Index (percent)	↑	44.7	45.5	46.9	47.7	49.0	50.0
Diesel Fuel Consumption (mil gallons)	↓	59.28	58.94	59.30	59.46	59.01	58.63

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced April 28, 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 March 10, 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

- **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 65.7 from 54.2 seen one year ago. The index remained above 50.0 for the fourth month in a row, suggesting growth in manufacturing. The 12-month moving average of the new orders index increased to 50.0 in March from 49.0 in February, 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 March, this component contributed 0.05 to the ILII with the 12-month moving average increasing from 1,124 in February to 1,142. March 2017 permits were 19.3 percent above March 2016, and 34.0 percent above the historical average for March (1998-2016).
- **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 March this component contributed 0.04 to the index with expected profit increases in all four commodities included in the index. March crush margins for cattle are 8.7 percent above February and hogs crush margins are up 2.5 percent from February. March also saw expected profit increases for the two crop commodities. Compared to last year, new crop soybean prices are 10.5 percent higher, and corn prices are up 1.5 percent.
- **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 March 2017, this component contributed 0.03 to the ILII value with an increase in the 12-month moving average to 41.63 from 41.59. March 2017 hours were 41.8, above the 41.3 hours in March 2016, and 0.8 hours 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 0.03 to the ILII value. The 12-month moving average of claims decreased to 2,779 with unemployment claims for the month 11.1 percent below March 2016 claims and 24.3 percent below average historical claims for March (1987-2016).
- **Iowa stock market index:** Capitalization-weighted index of 35 Iowa-based or Iowa-concentrated publicly-traded companies. During March 2017, 14 of the 35 companies gained value, including three of the 12 financial-sector companies. Despite less than half of the stocks experiencing gains, the index increased to 97.23 in March from 96.55 in February and contributed 0.01 to the ILII value.
- **Yield spread:** Difference between the yield on 10-year Treasury bonds and 3-month Treasury bills. During March, the yield spread contracted to 1.73 percent as the long-term rate increased only 6 basis points while the short-term rate increased 22 basis points. For the month, the yield spread contributed -0.05 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 decreased 8.2 percent between March 2016 and 2017, causing the 12-month moving average to decrease to 58.63 million gallons from 59.01 in February, and contributing -0.12 to the ILII value.

**Table 3. ILII Components and Standardization Factors for FY 2017**

Iowa Leading Indicator Index Components	Standardization Factor
Agricultural Futures Profits Index	0.034
Iowa Stock Market Index	0.019
Yield Spread	0.338
Residential Building Permits	0.033
Average Weekly Unemployment Claims	0.035
Average Weekly Manufacturing Hours	0.294
New Orders Index	0.064
Diesel Fuel Consumption	0.183

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced August 30, 2016  
 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 2016 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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