



The Iowa Leading Indicators Index (ILII) decreased to 106.7 (100=1999) in April 2017 down from 106.9 in March, the first negative change in the index since September 2016. The Iowa non-farm employment coincident index recorded a 0.04 percent rise in April, which extends the streak of employment gains further into the sixth consecutive year. During the six-month span through April, the ILII increased 1.1 percent (an annualized rate of 2.1 percent). The six-month diffusion index remained unchanged at 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.

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

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

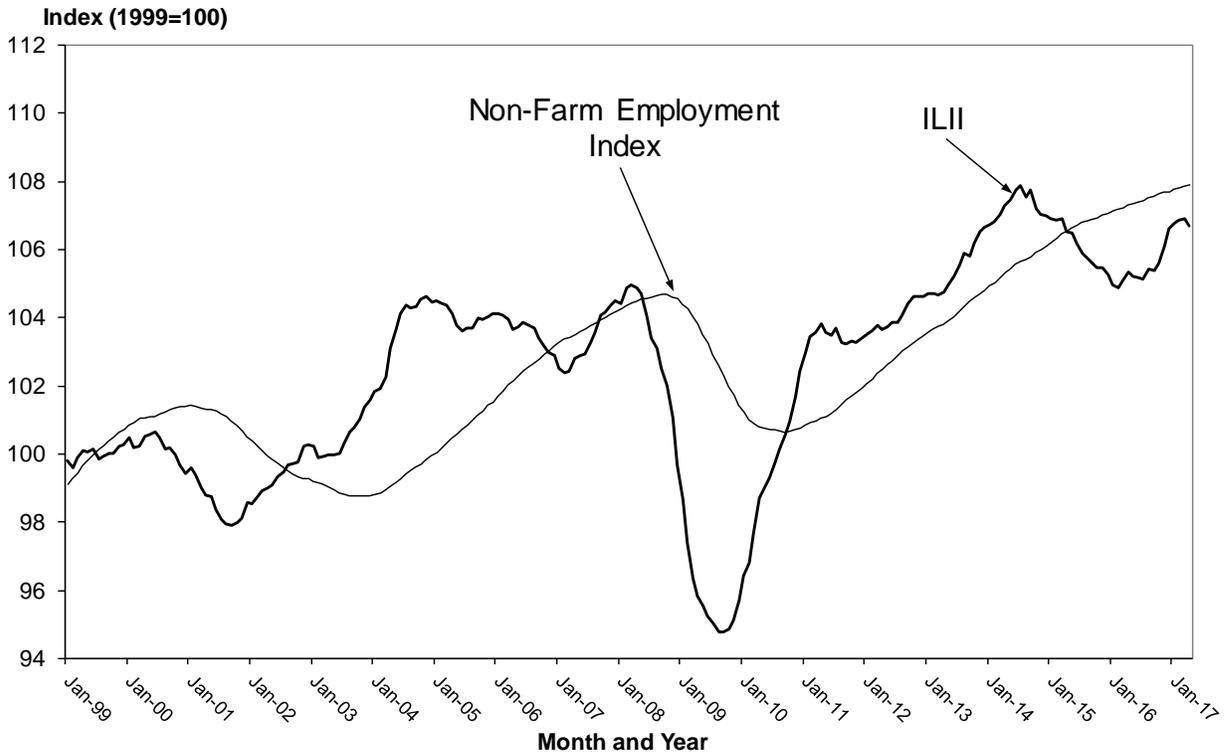


Table 1. Iowa Leading Indicators Index: Six Month Overview

Monthly Values	2016		2017			
	Nov	Dec	Jan	Feb	Mar	Apr
ILII	106.1	106.6	106.8	106.9	106.9	106.7
Percentage Change ^a	0.5%	0.5%	0.1%	0.1%	0.1%	-0.2%
Diffusion Index ^b	87.5	87.5	68.8	56.3	75.0	37.5
Six-Month Values	May to Nov	Jun to Dec	Jul to Jan	Aug to Feb	Sept to Mar	Oct to Apr
ILII						
Percentage Change	0.9%	1.4%	1.6%	1.4%	1.5%	1.1%
Annualized Percentage Change	1.7%	2.8%	3.1%	2.7%	2.9%	2.1%
Diffusion Index	75.0	75.0	87.5	87.5	75.0	75.0

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced May 31, 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 ^a	2016		2017				
	Nov	Dec	Jan	Feb	Mar	Apr	
AFPI ^b							
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)	↓	86.70	93.58	93.74	96.55	97.23	93.69
Yield Spread (10-year less 3-month)	↓	1.69	1.98	1.91	1.89	1.73	1.49
Residential Building Permits	↓	1,102	1,120	1,097	1,124	1,142	1,119
Average Weekly Unemployment Claims ^d	↑	2,924	2,910	2,820	2,801	2,779	2,765
Average Weekly Manufacturing Hours	↓	41.71	41.63	41.62	41.59	41.63	41.53
New Orders Index (percent)	↑	45.5	46.9	47.7	49.0	50.0	51.2
Diesel Fuel Consumption (mil gallons)	↑	58.94	59.30	59.46	59.01	58.63	58.68

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced May 31, 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 65.8 from 51.1 seen one year ago. The index remained above 50.0 for the fifth month in a row, suggesting growth in manufacturing. The 12-month moving average of the new orders index increased to 51.2 in April from 50.0 in March, contributing 0.08 to the ILII.
- **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 2,765 with unemployment claims for the month 7.4 percent below April 2016 claims and 25.3 percent below average historical claims for April (1987-2016).
- **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 0.9 percent between April 2016 and 2017, causing the 12-month moving average to increase to 58.68 million gallons from 58.63 in March, and contributing 0.01 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 April, this component contributed -0.02 to the index with expected profit increases experienced by two of the four commodities included in the index. April crush margins for cattle were 10.0 percent below March and hogs crush margins were down 5.4 percent from March. Compared to last year, new crop soybean prices were 1.2 percent lower although expected profits are higher. Corn prices increased 1.0 percent in April pushing up expected profits.
- **Iowa stock market index:** Capitalization-weighted index of 35 Iowa-based or Iowa-concentrated publicly-traded companies. During April 2017, 18 of the 35 companies gained value, including five of the 12 financial-sector companies. Despite just over half of the stocks experiencing gains, the index decreased to 93.69 in April from 97.23 in March and contributed -0.07 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. For April, this component contributed -0.07 to the ILII with the 12-month moving average decreasing from 1,142 in March to 1,119. April 2017 permits were 21.1 percent below April 2016, and 12.8 percent below the historical average for April (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 April 2017, this component contributed -0.07 to the ILII value with a decrease in the 12-month moving average to 41.53 from 41.63. April 2017 hours were 40.5, below the 41.7 hours in April 2016, and 0.4 hours below the historical monthly average (1996-2016).
- **Yield spread:** Difference between the yield on 10-year Treasury bonds and 3-month Treasury bills. During April, the yield spread contracted to 1.49 percent as the long-term rate decreased 18 basis points while the short-term rate increased 6 basis points. For the month, the yield spread contributed -0.08 to the ILII.

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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