

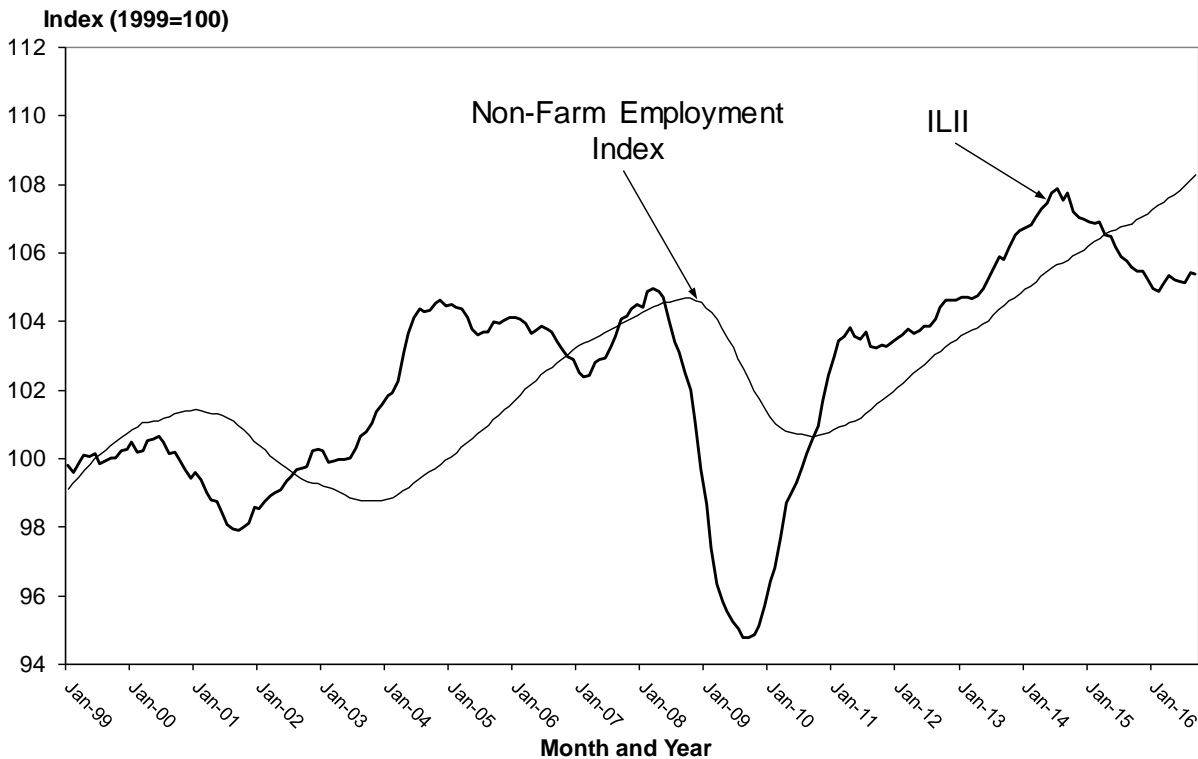


The Iowa Leading Indicators Index (ILII) remained unchanged at 105.4 (100=1999), due to rounding, in September 2016. However, the index did experience a 0.1% decrease for the month. The Iowa non-farm employment coincident index recorded a 0.12 percent rise in September, which extends the streak of employment gains to six consecutive years.

During the six-month span through September, the ILII increased 0.3 percent (an annualized rate of 0.5 percent). The six-month diffusion index decreased sharply to 37.5, caused by the agriculture futures profit index and the Iowa stock market index experiencing decreases of greater than 0.05 percent over the last half a year beginning this month.

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

**Figure 1. Iowa Leading Indicators Index and Iowa Non-Farm Employment Coincident Index: January 1999-September 2016**



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

Monthly Values	2016					
	Apr	May	Jun	Jul	Aug	Sep
ILII	105.3	105.2	105.2	105.1	105.4	105.4
Percentage Change <sup>a</sup>	0.2%	-0.1%	0.0%	0.0%	0.3%	-0.1%
Diffusion Index <sup>b</sup>	31.3	31.3	50.0	37.5	62.5	56.3
Six-Month Values	Oct to Apr	Nov to May	Dec to Jun	Jan to Jul	Feb to Aug	Mar to Sep
ILII						
Percentage Change	-0.1%	-0.2%	-0.1%	0.2%	0.5%	0.3%
Annualized Percentage Change	-0.3%	-0.5%	-0.2%	0.3%	1.1%	0.5%
Diffusion Index	18.8	25.0	43.8	50.0	62.5	37.5

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced October 28, 2016.

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					
		Apr	May	Jun	Jul	Aug	Sep
AFPI <sup>b</sup>	↓ <sup>c</sup>						
Corn Profits (cents per bushel)		48.8	53.5	58.6	54.9	53.1	51.3
Soybean Profits (cents per bushel)		72.2	85.9	104.9	112.4	121.7	132.5
Hog Profits (cents per pound)		19.5	18.3	16.6	17.6	19.3	16.2
Cattle Profits (cents per pound)		8.8	11.2	11.2	12.0	11.0	9.7
Iowa Stock Market Index (10=1984-86)	↓	83.71	84.25	83.82	84.17	85.80	83.75
Yield Spread (10-year less 3-month)	↑	1.58	1.53	1.37	1.20	1.26	1.34
Residential Building Permits	↑	950	929	935	926	1,028	1,034
Average Weekly Unemployment Claims <sup>d</sup>	↑	3,103	3,113	3,091	3,093	3,053	3,020
Average Weekly Manufacturing Hours	↓	41.99	41.93	41.88	41.85	41.78	41.76
New Orders Index (percent)	↓	47.7	47.6	46.9	46.2	45.3	44.7
Diesel Fuel Consumption (mil gallons)	↑	58.40	58.33	58.49	58.82	58.53	58.66

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced October 28, 2016.

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, 2016).

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 0.04 to the ILII value. The 12-month moving average of claims decreased to 3,020 with unemployment claims for the month 17.3 percent below September 2015 claims and 20.3 percent below average historical claims for September (1987-2015).
- **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 2.4 percent between September 2015 and 2016, causing the 12-month moving average to increase to 58.66 million gallons from 58.53 in August, and contributing 0.04 to the ILII value.
- **Yield spread:** Difference between the yield on 10-year Treasury bonds and 3-month Treasury bills. During September, the yield spread expanded to 1.34 percent as the long-term rate increased seven basis points while the short-term rate decreased one basis point. For the month, the yield spread contributed 0.03 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 0.02 to the ILII with the 12-month moving average increasing from 1,028 in August to 1,034. September 2016 permits were 5.3 percent above September 2015, and 19.2 percent above the historical average for September (1998-2015).
- **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 2016, this component contributed -0.01 to the ILII value with its decrease to 41.76 from 41.78. September 2016 hours were 41.2, below the 42.4 hours in September 2015 and 0.4 hours below the historical monthly average (1996-2015).
- **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 decreased to 41.6 in September from 43.5 in August; the index is down significantly from the 48.2 value seen one year ago and below 50.0 suggesting contraction in manufacturing. The 12-month moving average of the new orders index dropped to 44.7, contributing -0.04 to the ILII.
- **Iowa stock market index:** Capitalization-weighted index of 35 Iowa-based or Iowa-concentrated publicly-traded companies. During September 2016, 19 of the 35 companies gained value, including 9 of the 12 financial-sector companies. Despite over half of the stocks experiencing gains, the index decreased to 83.75 in September from 85.80 in August and contributed -0.05 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 September this component contributed -0.08 to the index with expected profit decreases for three of the four commodities. Compared to last year, new crop corn prices are down 12.0 percent, while soybean prices are 9.6 percent higher. September crush margins for hogs are down 16.0 percent from August and cattle crush margins are 11.4 percent below August.

**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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