

The Iowa Leading Indicators Index (ILII) decreased 0.1 percentage points to 108.8 in February 2018 from 108.9 (100=1999) in January. The Iowa non-farm employment coincident index recorded a 0.06 percent rise in February.

During the six-month span through February, the ILII increased 1.5 percent (an annualized rate of 2.9 percent). The six-month diffusion index remained unchanged at 75.0 in February. Six of the eight indicators (average manufacturing hours, average weekly unemployment claims (inverted), diesel fuel consumption, the Iowa stock market index, the national yield spread, and new orders index) experienced an increase of greater than 0.05 percent over the last half-year. The national yield spread joined the components experiencing increases of greater than 0.05 percent change while gains in the agricultural futures profit index (AFPI) dropped below that threshold.

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

Figure 1. Iowa Leading Indicators Index and Iowa Non-Farm Employment Coincident Index: January 1999-February 2018

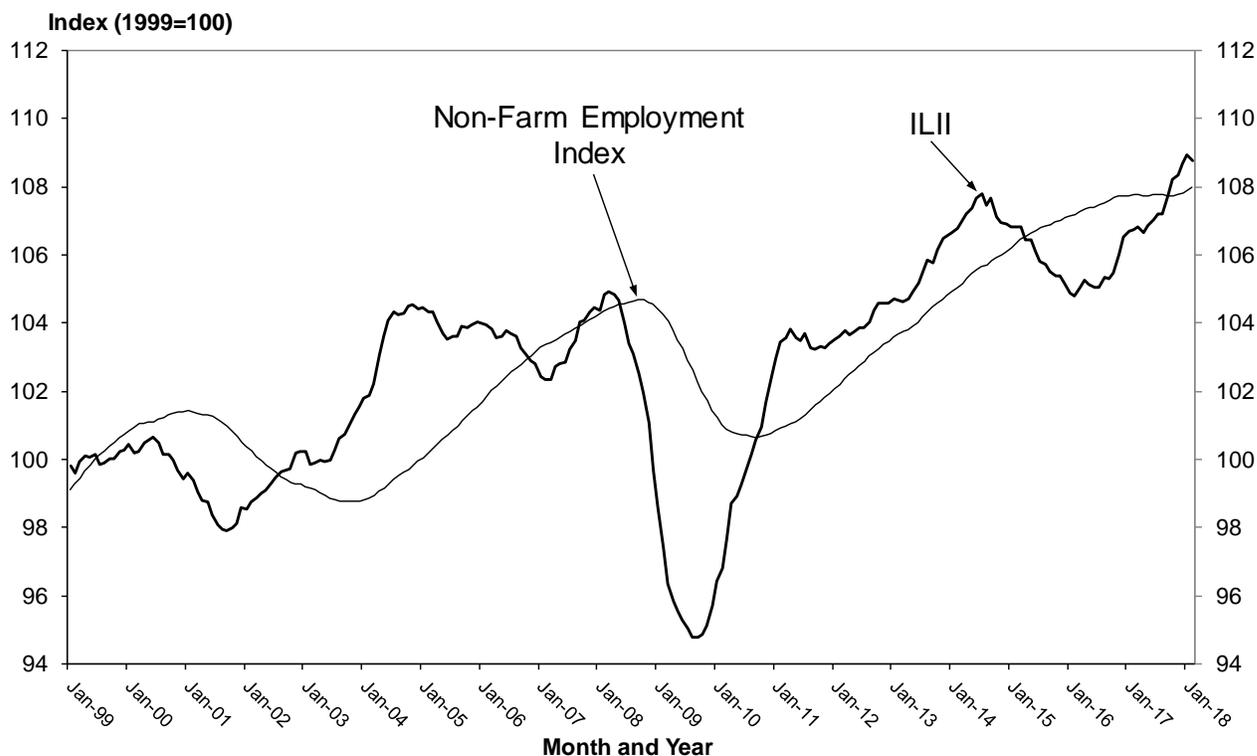


Table 1. Iowa Leading Indicators Index: Six Month Overview

| Monthly Values | 2017 | | | | 2018 | |
|--------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | Sep | Oct | Nov | Dec | Jan | Feb |
| ILII | 107.7 | 108.2 | 108.3 | 108.7 | 108.9 | 108.8 |
| Percentage Change ^a | 0.5% | 0.4% | 0.1% | 0.3% | 0.2% | -0.1% |
| Diffusion Index ^b | 75.0 | 93.8 | 68.8 | 81.3 | 75.0 | 50.0 |
| Six-Month Values | Mar to Sep | Apr to Oct | May to Nov | Jun to Dec | Jul to Jan | Aug to Feb |
| ILII | | | | | | |
| Percentage Change | 0.9% | 1.5% | 1.4% | 1.5% | 1.6% | 1.5% |
| Annualized Percentage Change | 1.7% | 2.9% | 2.7% | 3.1% | 3.2% | 2.9% |
| Diffusion Index | 62.5 | 75.0 | 75.0 | 75.0 | 75.0 | 75.0 |

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced March 27, 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 ^a | 2017 | | | | 2018 | |
|---|--------|--------|--------|--------|--------|--------|
| | Sep | Oct | Nov | Dec | Jan | Feb |
| AFPI ^b | | | | | | |
| Corn Profits (cents per bushel) | 69.9 | 70.0 | 69.8 | 70.1 | 69.9 | 70.0 |
| Soybean Profits (cents per bushel) | 162.4 | 155.1 | 147.1 | 138.3 | 129.5 | 121.9 |
| Hog Profits (cents per pound) | 19.5 | 20.7 | 21.4 | 20.6 | 21.1 | 17.9 |
| Cattle Profits (cents per pound) | 6.1 | 6.8 | 8.6 | 8.2 | 8.3 | 8.2 |
| Iowa Stock Market Index (10=1984-86) | 109.57 | 114.45 | 116.08 | 122.30 | 128.22 | 121.16 |
| Yield Spread (10-year less 3-month) | 1.15 | 1.27 | 1.10 | 1.06 | 1.15 | 1.27 |
| Residential Building Permits | 1,085 | 1,106 | 1,089 | 1,102 | 1,105 | 1,074 |
| Average Weekly Unemployment Claims ^d | 2,655 | 2,638 | 2,612 | 2,600 | 2,613 | 2,610 |
| Average Weekly Manufacturing Hours | 41.77 | 41.89 | 41.89 | 41.95 | 41.99 | 42.02 |
| New Orders Index (percent) | 57.8 | 59.4 | 60.4 | 61.3 | 62.4 | 61.9 |
| Diesel Fuel Consumption (mil gallons) | 59.43 | 59.44 | 59.70 | 60.12 | 60.13 | 60.56 |

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced March 27, 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 March 8, 2018).

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 9.9 percent between February 2017 and 2018. The 12-month moving average increased to 60.56 million gallons from 60.13 in January, contributing 0.13 to the ILII value.
- **Yield spread:** Difference between the yield on 10-year Treasury bonds and 3-month Treasury bills. During February, the yield spread expanded to 1.27 percent as the long-term rate increased 28 basis points while the short-term rate increased 16 basis points. For the month, the yield spread contributed 0.04 to the ILII.
- **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 February, this component contributed 0.02 to the ILII with the 12-month moving average increasing to 42.02 from a revised 41.99 in January. February 2018 average hours were 41.9, above the 41.6 hours in February 2017, and slightly over an hour above the historical monthly average of 40.8 (1996-2017).
- **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 0.00 to the ILII value. The 12-month moving average of claims decreased from 2,613 to 2,610 with unemployment claims for the month 1.7 percent below February 2017 claims, and 29.6 percent below average historical claims for February (1987-2017).
- **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 61.5 compared to 67.4 seen one year ago. The index remained above 50.0 for the fifteenth month, suggesting continued growth in manufacturing. The 12-month moving average of the new orders index decreased to 61.9 from 62.4 in January, contributing -0.03 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 February, this component contributed -0.09 to the index with a decrease in expected profits experienced by one of the two crop commodities and the two livestock commodities. Compared to last year, new crop corn prices were 0.01 percent less, although a lower breakeven still resulted in an expected profit gain, and soybean prices were 3.7 percent lower. February crush margins for hogs were down 15.1 percent from January while crush margins for cattle were down 0.8 percent.
- **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 February, this component contributed -0.09 to the ILII with the 12-month moving average decreasing to 1,074 from 1,105 in January. February 2018 permits were 47.8 percent below 2017 and 27.7 percent below the historical average for February (1998-2017).
- **Iowa stock market index:** Capitalization-weighted index of 35 Iowa-based or Iowa-concentrated publicly-traded companies. During February 2018, only 5 of the 35 companies gained value, including one of the 12 financial-sector companies. With the majority of the stocks experiencing losses, the index decreased to 121.16 in February from 128.22 in January, contributing -0.11 to the ILII value.

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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