Iowa Leading Indicators Index

December 2019 Report

Released February 3, 2020

The Iowa Leading Indicators Index (ILII) decreased 0.2 percent to 106.9 in December 2019 (100=1999) from 107.1 in November. This is the largest one-month decrease in the index since May 2019. The Iowa non-farm employment coincident index recorded a 0.01 percent decline in December, the first month of decline since September 2017.

During the six-month span through December, the ILII decreased 0.1 percent (an annualized rate of -0.3 percent). The six-month diffusion index increased to 62.5 in December from 50.0 in November. Five of the eight component indicators (agricultural futures profits index, diesel fuel consumption, Iowa stock market index, national yield spread, and residential building permits) experienced an increase of greater than 0.05 percent over the last half-year. The increase in the six-month diffusion index is largely due to the agricultural futures profits index experiencing an increase of greater than 0.05 percent over the last half-year for the first time since August 2019.

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

Figure 1. Iowa Leading Indicators Index and Iowa Non-Farm Employment Coincident Index: January 1999-December 2019

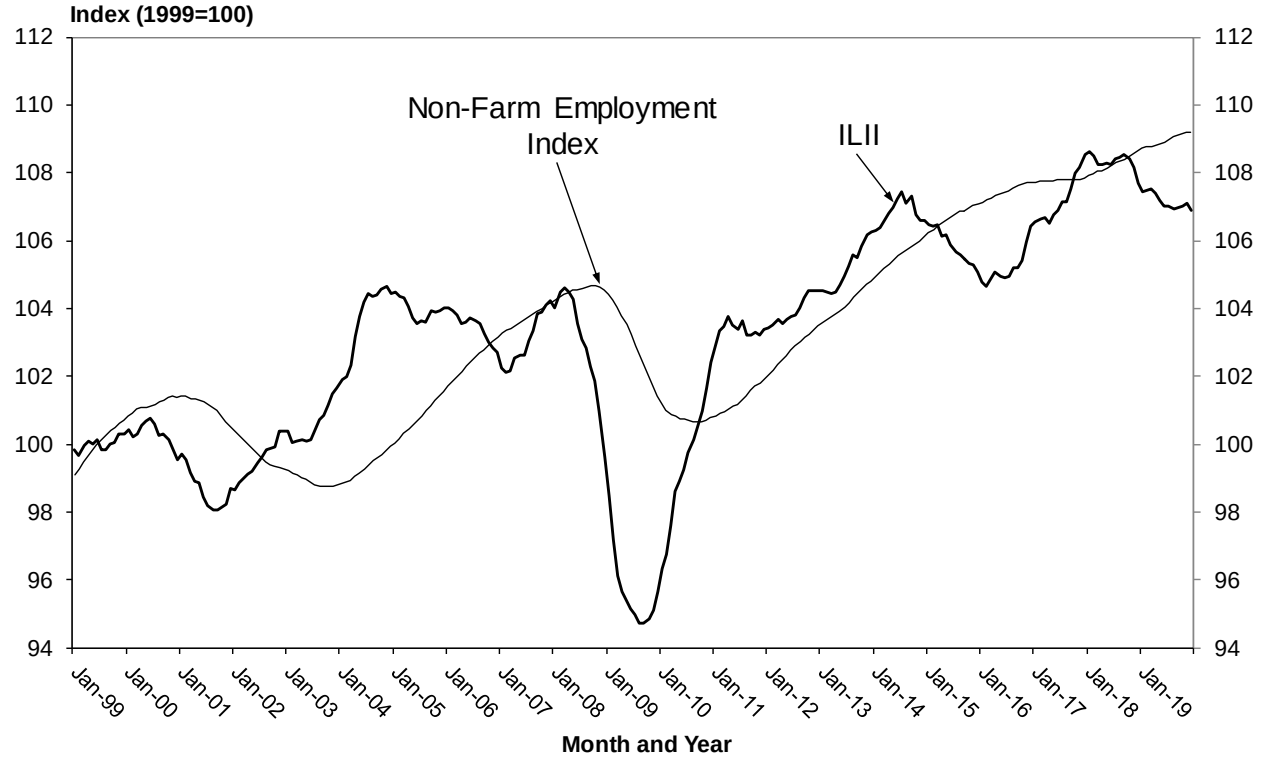

Table 1. Iowa Leading Indicators Index: Six Month Overview

Monthly Values	2019 Jul	Aug	Sep	Oct	Nov	Dec
ILII	107.0	106.9	107.0	107.0	107.1	106.9
Percentage Change[a]	0.0%	-0.1%	0.0%	0.0%	0.1%	-0.2%
Diffusion Index[b]	50.0	37.5	50.0	43.8	37.5	43.8

Six-Month Values	Jan to Jul	Feb to Aug	Mar to Sep	Apr to Oct	May to Nov	Jun to Dec
ILII						
Percentage Change	-0.4%	-0.5%	-0.5%	-0.4%	-0.1%	-0.1%
Annualized Percentage Change	-0.8%	-1.0%	-1.0%	-0.7%	-0.2%	-0.3%
Diffusion Index	37.5	25.0	37.5	37.5	50.0	62.5

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced January 28, 2020.
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]		2019 Jul	Aug	Sep	Oct	Nov	Dec
AFPI[b]	↓[c]						
Corn Profits (cents per bushel)		94.7	94.1	92.9	92.8	91.5	89.7
Soybean Profits (cents per bushel)		97.7	91.9	90.1	90.1	85.5	80.4
Hog Profits (cents per pound)		28.2	27.3	30.4	30.0	29.1	28.4
Cattle Profits (cents per pound)		12.9	13.2	13.2	12.7	14.2	14.2
Iowa Stock Market Index (10=1984-86)	↑	108.39	105.35	110.22	109.90	116.36	116.53
Yield Spread (10-year less 3-month)	↑	-0.09	-0.36	-0.23	0.03	0.24	0.29
Residential Building Permits	↑	854	887	912	933	926	933
Average Weekly Unemployment Claims[d]	↓	2,651	2,680	2,696	2,734	2,775	2,897
Average Weekly Manufacturing Hours	↓	41.56	41.58	41.54	41.45	41.40	41.28
New Orders Index (percent)	↓	56.8	55.5	53.7	53.9	53.6	53.5
Diesel Fuel Consumption (mil gallons)	↑	62.58	62.87	62.66	62.66	62.82	62.95

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced January 28, 2020.
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, 2019).
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 2.4 percent between December 2018 and 2019. The 12-month moving average increased to 62.95 million gallons from 62.82 million in November, contributing 0.04 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. In December, permits were 506, higher than the 417 seen in the prior year. This component contributed 0.02 to the December ILII with the 12-month moving average increasing to 933 from 926 in November. December 2019 permits were 21.3 percent above 2018, yet 25.8 percent below the monthly historical average (1998-2018).
- **Yield spread:** Difference between the yield on 10-year Treasury bonds and 3-month Treasury bills. During December, the yield spread experienced an expansion, improving from 0.24 percent to 0.29 percent as the long-term rate increased 5 basis points while the short-term rate decreased remained unchanged. For the month, the yield spread contributed 0.02 to the ILII.
- **Iowa stock market index:** Capitalization-weighted index of 31 Iowa-based or Iowa-concentrated publicly-traded companies. During December 2019, 18 of the 31 companies gained value, including 8 of the 11 financial-sector companies. With over half of the stocks experiencing gains, the index increased to 116.53 in December from 116.36 in November, contributing 0.00 to the ILII value.
- **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 50.8 compared to 52.4 seen one year ago. The 12-month moving average of the new orders index decreased to 53.5 from 53.6 in November, contributing -0.01 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 December, this component contributed -0.03 to the ILII with expected profit losses in three of the four commodities with only cattle experiencing a slight gain. Compared to last year, new crop corn prices were 0.4 percent lower, and soybean prices were 0.6 percent higher, however soybean commodities had higher breakeven costs than prices pushing down the expected profits. The December crush margin for hogs was down 2.5 percent from November while the crush margin for cattle was up only 0.1 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 December, this component contributed -0.08 to the ILII with the 12-month moving average decreasing to 41.28 from a revised 41.40 in November. December 2019 average hours were 40.5, below the 41.9 hours in December 2018, and over an hour below the historical monthly average (1996-2018).
- **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 -0.15 to the ILII value with the 12-month moving average of claims increasing from 2,775 to 2,897. Unemployment claims for the month were 27.3 percent above December 2018 claims and 3.6 percent above average historical claims for December (1987-2018).

Table 3. ILII Components and Standardization Factors for FY 2020

Iowa Leading Indicator Index Components	Standardization Factor
Agricultural Futures Profits Index	0.034
Iowa Stock Market Index	0.016
Yield Spread	0.342
Residential Building Permits	0.031
Average Weekly Unemployment Claims	0.036
Average Weekly Manufacturing Hours	0.300
New Orders Index	0.064
Diesel Fuel Consumption	0.177

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced August 30, 2019

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 2019 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.