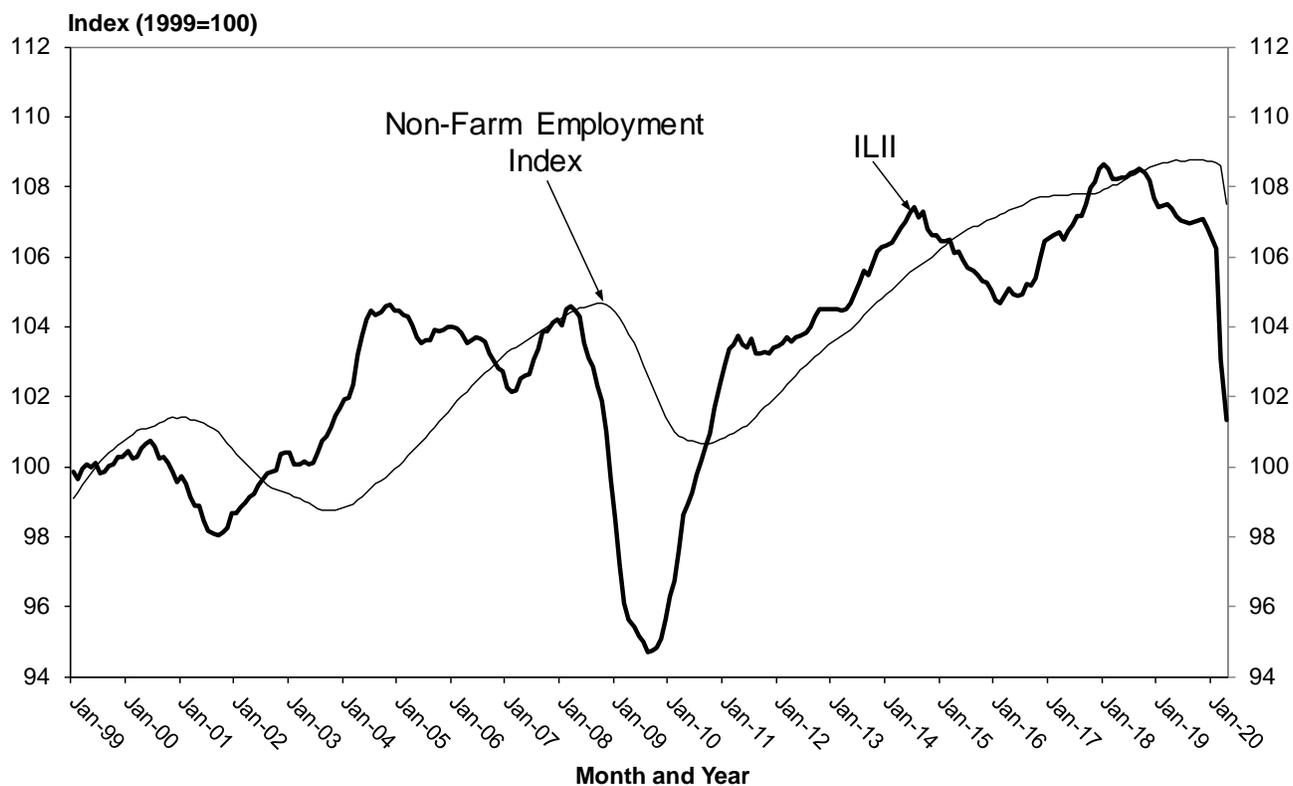


The Iowa Leading Indicators Index (ILII) decreased 1.7 percent to 101.3 in April 2020 (100=1999) from 103.1 in March. This is the second largest one month decrease in the history of the ILII, behind March's 3.0 percent decrease. The Iowa non-farm employment coincident index recorded a 1.02 percent decline in April, the fifth month in a row of decline and the largest one month decline in the history of the Iowa non-farm employment coincident index. April marked the first month that COVID-19 fully impacted non-farm employment.

During the six-month span through April, the ILII decreased 5.3 percent (an annualized rate of -10.7 percent). The six-month diffusion index remained unchanged at 37.5 in April from March. Three of the eight component indicators (diesel fuel consumption, national yield spread, and residential building permits) experienced an increase of greater than 0.05 percent over the last half-year.

Only one of the eight components added to the ILII in April, diesel fuel consumption. Average weekly unemployment claims (inverted), the new orders index, average manufacturing hours, the agricultural futures profits index, the Iowa stock market index, residential building permits, and the national yield spread dragged down the index.

**Figure 1. Iowa Leading Indicators Index and Iowa Non-Farm Employment Coincident Index: January 1999-April 2020**



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

Monthly Values	2019		2020			
	Nov	Dec	Jan	Feb	Mar	Apr
ILII	107.1	106.8	106.6	106.3	103.1	101.3
Percentage Change <sup>a</sup>	0.1%	-0.2%	-0.3%	-0.3%	-3.0%	-1.7%
Diffusion Index <sup>b</sup>	37.5	43.8	50.0	25.0	31.3	18.8
Six-Month Values	May to Nov	Jun to Dec	Jul to Jan	Aug to Feb	Sep to Mar	Oct to Apr
ILII						
Percentage Change	-0.1%	-0.2%	-0.4%	-0.6%	-3.7%	-5.3%
Annualized Percentage Change	-0.2%	-0.4%	-0.9%	-1.3%	-7.4%	-10.7%
Diffusion Index	50.0	62.5	50.0	43.8	37.5	37.5

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced May 29, 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 <sup>a</sup>	2019		2020				
	Nov	Dec	Jan	Feb	Mar	Apr	
AFPI <sup>b</sup>							
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)	↓	116.36	116.53	110.35	105.35	77.11	72.85
Yield Spread (10-year less 3-month)	↓	0.24	0.29	0.21	-0.04	0.57	0.52
Residential Building Permits	↓	926	933	940	956	986	974
Average Weekly Unemployment Claims <sup>d</sup>	↓	2,775	2,897	2,881	2,885	6,113	8,466
Average Weekly Manufacturing Hours	↓	41.39	41.25	41.02	40.93	40.83	40.66
New Orders Index (percent)	↓	53.6	53.5	53.7	54.1	52.2	49.5
Diesel Fuel Consumption (mil gallons)	↑	62.82	62.95	63.04	62.93	62.91	63.04

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced May 29, 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 April 2019 and 2020. The 12-month moving average increased to 63.04 million gallons from 62.91 million in March, contributing 0.03 to the ILII value.
- **Yield spread:** Difference between the yield on 10-year Treasury bonds and 3-month Treasury bills. During April, the yield spread contracted, decreasing from 0.57 percent to 0.52 percent as the long-term rate decreased 21 basis points while the short-term rate decreased 16 basis points. For the month, the yield spread detracted 0.02 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. In April, permits were 858, lower than the 1,000 seen in the prior year. This component contributed -0.04 to the April ILII with the 12-month moving average decreasing to 974 from 986 in March. April 2020 permits were 14.2 percent below April 2019, and 29.0 percent below the monthly historical average (1998-2019).
- **Iowa stock market index:** Capitalization-weighted index of 31 Iowa-based or Iowa-concentrated publicly-traded companies. During April 2020, 11 of the 31 companies gained value, including one of the 11 financial-sector companies. With nearly two-thirds of the stocks experiencing losses, the index decreased to 72.85 in April from 77.11 in March, contributing -0.09 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 detracted 0.12 to the ILII with expected profit losses in all four commodities. Compared to last year, new crop corn prices were 11.4 percent lower and soybean prices were 6.5 percent lower. The April crush margin for hogs dropped 14.7 percent from March while the crush margin for cattle declined 2.2 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 April, this component contributed -0.13 to the ILII with the 12-month moving average decreasing to 40.66 from 40.83 in March. April 2020 average hours were 39.3, below the 41.4 hours in April 2019, nearly two hours below the historical monthly average (1996-2019).
- **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 dropped sharply, at 23.7 compared to 56.4 seen one year ago. The 12-month moving average of the new orders index decreased to 49.5 from 52.2 in March, contributing -0.17 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 -1.16 to the ILII value with the 12-month moving average of claims increasing from 6,113 to 7,815. Unemployment claims for the month were 1,356 percent above April 2019 claims and 991 percent above average historical claims for April (1988-2019). The 30,313 average weekly unemployment claims for the month of April were 25.8 percent lower than that of March's 40,835 average weekly unemployment claims.

**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.