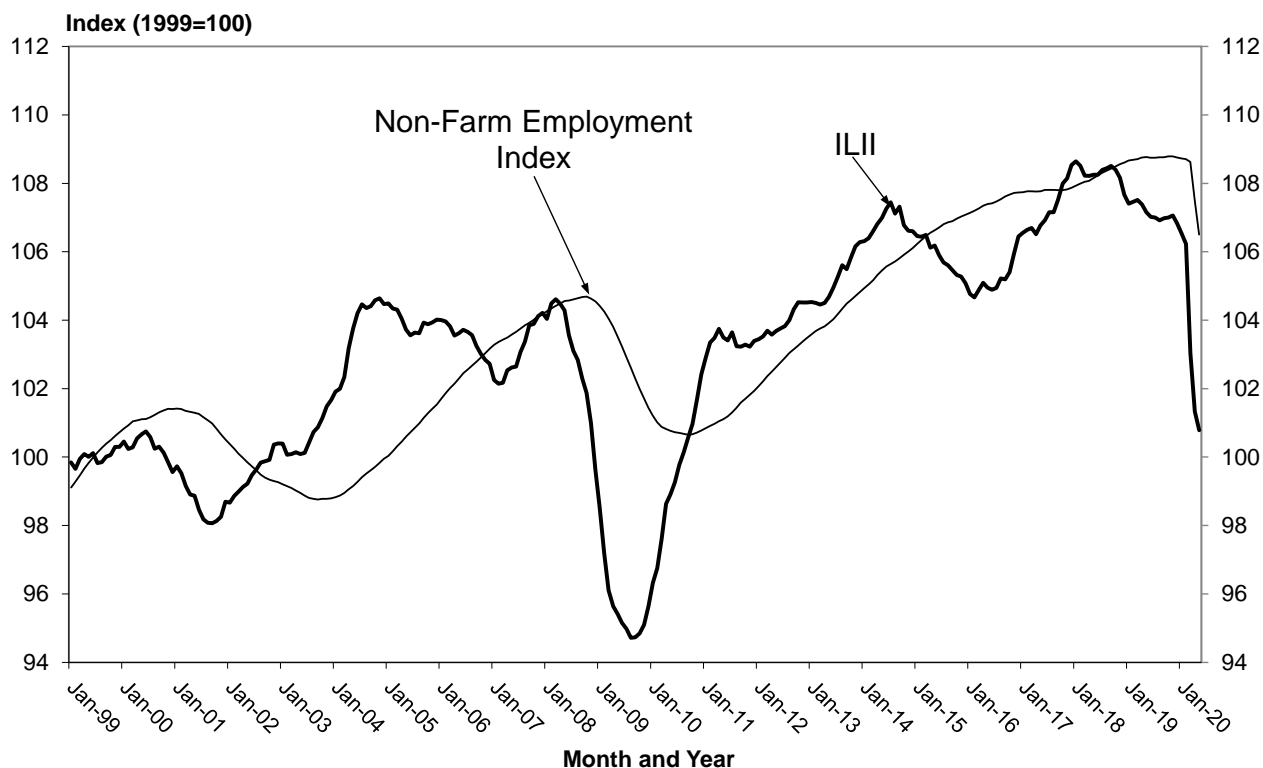


The Iowa Leading Indicators Index (ILII) decreased 0.5 percent to 100.8 in May 2020 (100=1999) from 103.1 in April. This is the sixth month in a row of decreases. The ILII has decreased 5.13 percent since February 2020 the last month before the COVID-19 quarantines began in Iowa. The Iowa non-farm employment coincident index recorded a 0.94 percent decline in May, the sixth month in a row of decline and the second largest one month decline in its history behind April. May marked the second month that COVID-19 fully impacted non-farm employment.

During the six-month span through May, the ILII decreased 5.9 percent (an annualized rate of -11.7 percent). The six-month diffusion index remained unchanged at 37.5 in May from April. 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 two of the eight components added to the ILII in May, the agricultural futures profits index and the national yield spread. Average weekly unemployment claims (inverted), the new orders index, average manufacturing hours, the Iowa stock market index, residential building permits, and diesel fuel consumption dragged down the index.

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



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

Monthly Values	2019	2020				
	Dec	Jan	Feb	Mar	Apr	May
ILII	106.8	106.5	106.2	103.0	101.3	100.8
Percentage Change <sup>a</sup>	-0.2%	-0.3%	-0.3%	-3.0%	-1.7%	-0.5%
Diffusion Index <sup>b</sup>	43.8	50.0	25.0	31.3	18.8	18.8
Six-Month Values	Jun to Dec	Jul to Jan	Aug to Feb	Sep to Mar	Oct to Apr	Nov to May
ILII						
Percentage Change	-0.2%	-0.4%	-0.6%	-3.7%	-5.3%	-5.9%
Annualized Percentage Change	-0.4%	-0.9%	-1.3%	-7.4%	-10.6%	-11.7%
Diffusion Index	62.5	50.0	43.8	37.5	37.5	37.5

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced June 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					
	Dec	Jan	Feb	Mar	Apr	May	
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)	↓	116.53	110.35	105.35	77.11	72.85	70.28
Yield Spread (10-year less 3-month)	↑	0.29	0.21	-0.04	0.57	0.53	0.54
Residential Building Permits	↓	933	940	956	986	974	961
Average Weekly Unemployment Claims <sup>d</sup>	↓	2,897	2,881	2,885	6,113	8,466	9,248
Average Weekly Manufacturing Hours	↓	41.25	41.02	40.93	40.83	40.69	40.58
New Orders Index (percent)	↓	53.5	53.7	54.1	52.2	49.5	48.0
Diesel Fuel Consumption (mil gallons)	↓	62.95	63.04	62.93	62.91	63.04	62.98

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced June 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

- **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 May, this component contributed 0.08 to the ILII with expected profit gains in livestock commodities and losses in crop commodities. The May crush margin for hogs increased 19.6 percent from April while the crush margin for cattle increased 27.6 percent. Compared to last year, new crop corn prices were 16.7 percent lower and soybean prices were 1.3 percent lower.
- **Yield spread:** Difference between the yield on 10-year Treasury bonds and 3-month Treasury bills. During May, the yield spread expanded slightly. However, when rounded, it was unchanged at 0.53 percent. The long-term rate increased 1 basis point while the short-term rate remained unchanged. For the month, the yield spread contributed 0.00 to the ILII.
- **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 decreased 1.0 percent between May 2019 and May 2020. The 12-month moving average decreased to 62.98 million gallons from 63.04 million in April, contributing -0.01 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 May, permits were 951, lower than the 1,113 seen in the prior year. This component contributed -0.04 to the May ILII with the 12-month moving average decreasing to 961 from 974 in April. May 2020 permits were 14.6 percent below May 2019, and 17.9 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 May 2020, 16 of the 31 companies gained value, including five of the 11 financial-sector companies. With nearly half of the stocks experiencing losses, the index decreased to 70.28 in May from 72.85 in April, contributing -0.06 to the ILII value.
- **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 May, this component contributed -0.09 to the ILII with the 12-month moving average decreasing to 40.58 from a revised 40.69 in April. May 2020 average hours were 39.7, below the 41.1 hours in May 2019, and an hour and a half 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 considerably decreased, at 31.1 compared to 49.9 seen one year ago. The 12-month moving average of the new orders index decreased to 48.0 from 49.5 in April, contributing -0.10 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 -0.32 to the ILII value with the 12-month moving average of claims increasing from 7,815 to 8,537. Unemployment claims for the month were 442 percent above May 2019 claims and 392 percent above average historical claims for May (1988-2019). The 11,507 average weekly unemployment claims for May were 71.8 percent lower than that of April'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.