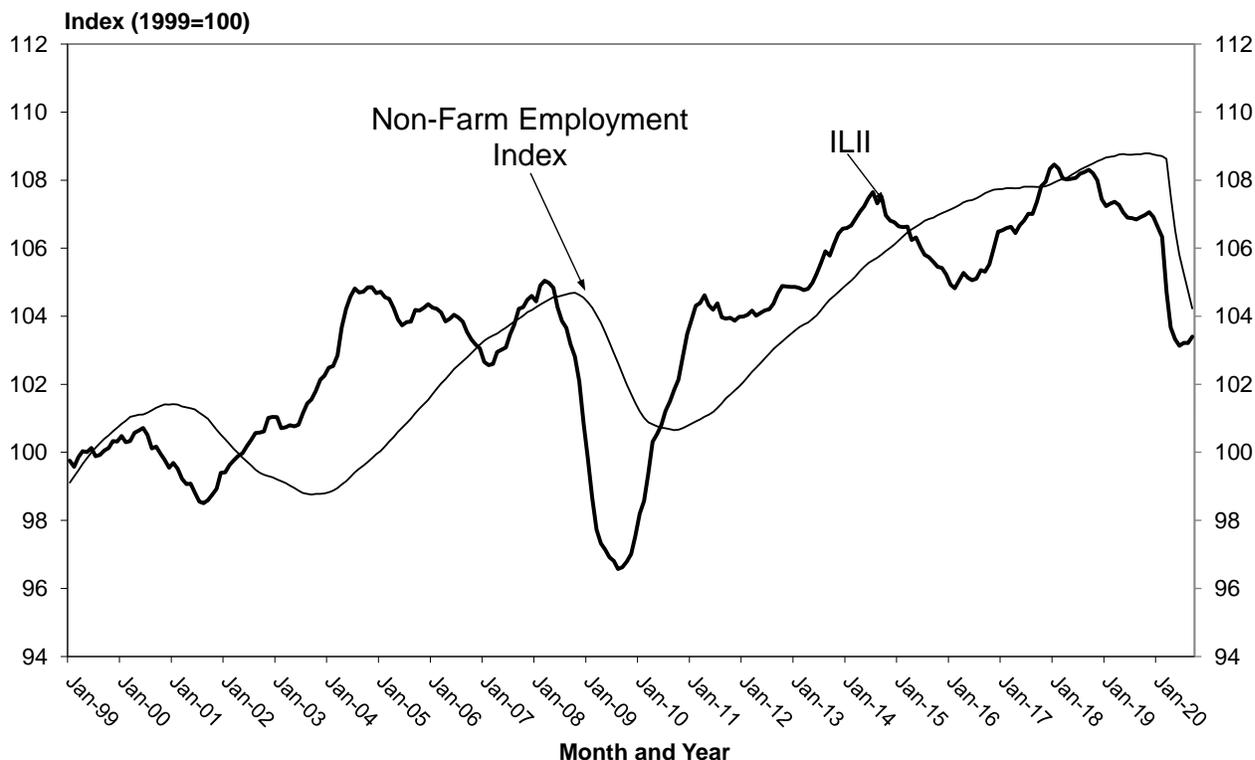


The Iowa Leading Indicators Index (ILII) increased to 103.4 in September 2020 (100=1999) from a revised 103.2 in August. After revisions, September is the second month that the index has increased since the COVID Crisis in Iowa began. The ILII has decreased 2.9 percent from February 2020, the last month before the COVID-19 quarantines began in Iowa, to September 2020. The Iowa non-farm employment coincident index recorded a 0.49 percent decline in September, the tenth month in a row of decline and the sixth largest one month decline in its history behind April 2020 through August 2020. September marked the sixth month that COVID-19 fully affected non-farm employment. The upward revisions of the August and July indexes reflects updates to grain breakeven prices.

During the six-month span through September, the ILII decreased 1.3 percent (an annualized rate of -2.5 percent). The six-month diffusion index improved to 43.8 in September from 25.0 in August. Three of the eight component indicators (the Iowa Stock Market Index, the new orders index, and residential building permits) experienced an increase of greater than 0.05 percent over the last half-year. The national yield spread experienced an increase less than 0.05 percent over the last half year.

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

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



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

Monthly Values	2020					
	Apr	May	Jun	Jul	Aug	Sep
ILII	103.7	103.3	103.1	103.2	103.2	103.4
Percentage Change <sup>a</sup>	-1.0%	-0.3%	-0.2%	0.1%	0.0%	0.2%
Diffusion Index <sup>b</sup>	18.8	18.8	18.8	37.5	50.0	56.3
Six-Month Values	Oct to Apr	Nov to May	Dec to June	Jan to July	Feb to Aug	Mar to Sep
ILII						
Percentage Change	-3.1%	-3.5%	-3.5%	-3.2%	-2.9%	-1.3%
Annualized Percentage Change	-6.2%	-7.0%	-7.1%	-6.4%	-5.9%	-2.5%
Diffusion Index	37.5	37.5	25.0	25.0	25.0	43.8

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced October 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>		2020					
		Apr	May	Jun	Jul	Aug	Sep
AFPI <sup>b</sup>	↓ <sup>c</sup>						
Corn Profits (cents per bushel)		80.8	73.9	64.1	55.5	50.8	50.0
Soybean Profits (cents per bushel)		54.2	47.7	44.2	43.2	45.9	55.3
Hog Profits (cents per pound)		19.2	23.0	22.5	22.6	23.3	22.6
Cattle Profits (cents per pound)		10.1	12.9	10.8	12.3	13.3	12.9
Iowa Stock Market Index (10=1984-86)	↑	72.85	70.28	77.51	76.55	79.74	79.94
Yield Spread (10-year less 3-month)	↑	0.52	0.54	0.57	0.49	0.55	0.57
Residential Building Permits	↑	974	961	960	997	981	1,007
Average Weekly Unemployment Claims <sup>d</sup>	↓	8,466	9,248	9,778	10,270	10,581	10,826
Average Weekly Manufacturing Hours	↓	40.69	40.59	40.51	40.48	40.35	40.26
New Orders Index (percent)	↑	49.5	48.0	47.7	48.8	50.6	53.4
Diesel Fuel Consumption (mil gallons)	↑	63.04	62.98	62.65	62.85	62.79	62.87

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced October 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 September 2, 2020).

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

- **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 increased to a remarkable reading of 80.1 compared to 45.9 seen one year ago. The 12-month moving average of the new orders index increased to 53.4 from 50.6 in August, contributing 0.19 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 September, permits were 1,344, higher than the 1,037 seen in the prior year. This component contributed 0.08 to the September ILII with the 12-month moving average increasing to 1,007 from 981 in August. September 2020 permits were 29.6 percent above September 2019 and 22.1 percent above the monthly historical average (1998-2019).
- **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 1.3 percent between September 2019 and September 2020. The 12-month moving average increased to 62.87 million gallons from 62.79 million in August, contributing 0.02 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 0.57 percent from 0.55 percent in August. The long-term rate increased 3 basis points while the short-term rate increased 1 basis point. For the month, the yield spread contributed 0.01 to the ILII.
- **Iowa stock market index:** Capitalization-weighted index of 31 Iowa-based or Iowa-concentrated publicly-traded companies. During September 2020, 7 of the 31 companies gained value, but only 1 of the 11 financial-sector companies increased. Despite over three-fourths of the stocks experiencing losses, the index increased to 79.94 in September from 79.74 in August, contributing 0.00 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 -0.01 to the ILII with expected profit losses in both livestock commodities and corn, while soybean commodities are expected to have gains. The September crush margin for hogs decreased 3.2 percent from August while the crush margin for cattle decreased 2.7 percent. Compared to last year, new crop corn prices were 0.4 percent lower while soybean prices were 12.8 percent higher.
- **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 -0.03 to the ILII value with the 12-month moving average of claims increasing from 9,767 to 9,993. Unemployment claims for the month were 149 percent above September 2019 claims and 109 percent above average historical claims for September (1988-2019). The 4,918 average weekly unemployment claims for September were 88.0 percent lower than that of March's 40,835 average weekly unemployment claims.
- **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, this component contributed -0.07 to the ILII with the 12-month moving average decreasing to 40.26 from a downwardly revised 40.35 in August. September 2020 average hours were 40.2, below the 41.3 hours in September 2019, and nearly an hour and

a half below the historical monthly average (1996-2019).

**Table 3. ILII Components and Standardization Factors for FY 2021**

Iowa Leading Indicator Index Components	Standardization Factor
Agricultural Futures Profits Index	0.035
Iowa Stock Market Index	0.015
Yield Spread	0.349
Residential Building Permits	0.032
Average Weekly Unemployment Claims	0.015
Average Weekly Manufacturing Hours	0.307
New Orders Index	0.065
Diesel Fuel Consumption	0.183

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced September 2, 2020  
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 2020 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.