Iowa Leading Indicators Index: Nineteenth Annual Assessment and Update

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The following paper is an annual review of the Iowa Leading Indicators Index. This paper presents the trends in the Index over the last twelve months and provides an update for the following fiscal year. In 2006, the Iowa Department of Revenue (IDR) created the Iowa Leading Indicators Index (ILII) as a tool to predict turning points in Iowa employment, and, in turn, changes in the Iowa business cycle. This matters since changes in employment are closely linked to individual income tax and sales tax receipts. Hence, the ILII also provides a signal of changes in these major revenue sources for the State.

IDR has issued monthly ILII reports since the start of fiscal year (FY) 2007 and posts the reports on the IDR website. Annually, IDR assesses how well the ILII has met the goals underlying its development, gauges the validity of the existing components, considers any additional components that may have been suggested in the past year, and carries out the necessary annual updates. This paper documents the nineteenth annual assessment and update to the index. A step-by-step presentation of how the ILII is computed can be found in Appendix A. The calculation of the diffusion index is discussed in Appendix B.

During FY 2025, the ILII increased ten out of the 12 months, ending up 2.8 percent from the end of FY 2024. Conversely, the non-farm employment index decreased eight months during the fiscal year. The main goal for the creation of the Iowa Leading Indicators Index in 2006 was to serve as a tool for predicting the turning points in the State economy. The ILII identifies when the Iowa economy is in contraction and when it is in an expansion. Following the Conference

Board, which publishes the national Leading Economic Indicators, a contraction signal is the point when the annualized six-month percentage change declines by over two percent and the six-month diffusion index falls below 50.0.[1]

Recent Trends in the ILII and Iowa Employment

Contraction signals from the ILII generally align with trends in Iowa employment. Indeed, the ILII began to decline in April 2008 and showed a contraction signal in August 2008. Three months later, the Iowa nonfarm employment index began to decline, following the slowing national economy. The index bottomed in September 2009, and then moved out of recession signal territory in November 2009, suggesting that the Iowa economy would see employment gains by mid to late summer. Those gains did not materialize until fall 2010, but employment continued to rise in all but two months from October 2010 through June 2019.

The ILII moved close to a recession signal at the start of FY 2019, amidst sluggish employment growth in the state. However, the ILII moved away from the recession signal the last month of FY 2019 as employment growth in Iowa remained positive.

The ILII continued to indicate weakness in Iowa's economy through the first eight months of FY 2020, even before COVID. This means that employment was likely going to continue to

[1] The -2.0 percent annualized decline was the threshold for a recession signal prior to the 2001 revisions to the National Leading Indicators Index. At that time, The Conference Board moved to forecasting several of the components in the index, those not available until more than three weeks after the close of a month. With those revisions, the threshold for a recession signal was lowered to -3.5 percent. However, because the ILII relies on actual data series, the -2.0 percent threshold is still used.

weaken even *without* the pandemic. Iowa nonfarm employment declined from December 2019 through March 2020 reflecting the leading signals in the ILII from FY 2019. Then, COVID hit. The unprecedented economic and nonfarm employment declines beginning in March 2020 exacerbated the already weakening conditions experienced statewide. March 2020 through June 2020 also met the metrics of a contraction signal in the ILII. However, this was not a leading signal, but a *coincident signal* due to the exogenous nature of COVID's impact on the economy. FY 2021 and FY 2022 for Iowa can be described as an economic recovery from the COVID-induced recession in FY 2020.

During every month of FY 2024, the ILII experienced declines. However, the nonfarm employment index increased each month during FY 2024 in contrast to the continuous declines in the ILII. The nonfarm employment index experienced an increase of 1.1 percent in FY 2024 with an average monthly increase of 0.07 percent, while the ILII experienced a decrease of 1.5 percent in FY 2024 with an average monthly decrease of 0.12 percent. For 10 of the 12 months of FY 2025 the ILII experienced positive growth with an average monthly change of 0.23 percent and the largest month over month change of 0.58 percent from August 2024 to September 2024. Inversely, the Iowa nonfarm employment index experienced a decrease of 0.3 percent in FY 2024 with an average monthly decrease of 0.03 percent. Overall, results over the past 19 years demonstrate that the ILII is a helpful tool in predicting the direction and turning points in Iowa nonfarm employment.

Assessment of the Iowa Leading Indicators Index for Fiscal Year 2025

The ILII has historically aligned with Iowa's economy, and that was true in the first half of FY 2023 before diverging through June 2024. In general, the ILII showed the Iowa economy continued to expand from the COVID-induced recession in the first half of FY 2023 before a long period of continuous contraction. The nonfarm employment coincident index, the 12-month moving average of non-seasonally adjusted, nonfarm employment, experienced twelve consecutive months of positive change throughout FY 2024. It was not until September 2024, nine months following the last contractionary signal in the ILII, that the Iowa nonfarm employment index began to experience declines.

The COVID pandemic caused the ILII to drop as low as 102.5 in June 2020 before sharply recovering to the most recent high of 109.8 in May 2022. During FY 2025, the ILII increased 2.8 percent from 104.6 in June 2024 to 107.5 in June 2025 (see Figure 1). The ILII experienced fairly consistent growth in FY 2025. The annualized six-month percentage change began the fiscal year at 0.49 percent in July 2024, decreasing to a low of 0.24 percent in August 2024 before improving to 4.12 percent in March 2025. Strength in the index seen throughout the year was fairly widespread, with the monthly diffusion index remaining above 50.0 for every month of the fiscal year except August 2024 and December 2024.

Traditionally, the ILII lines up with contractions in nonfarm employment as intended. Between 1999 and 2022, the index has signaled a contraction three times, from December 2000 through September 2001, from August 2008 through September 2009, and from March 2020 through September 2020. The initial contraction signals were followed by declines in employment stretching from February 2001 through September 2003, November 2008 through September

2010, and April 2020 through March 2021.[2] The ILII showed contractionary signals from January 2023 through February 2024. These contractionary signals were not followed by declines in the nonfarm index until September 2024. The nonfarm Employment Index experienced ten months of declines in FY 2025.

Iowa gross domestic product (GDP) trends somewhat coincide with downwards trends in the ILII. During the first quarter of calendar year 2025, the most recent quarterly data available, Iowa GDP was 0.74 percent lower than first quarter 2024 (see Figure 2) and yet only 0.29 percent lower than first quarter 2023. The BEA released revisions to Iowa's quarterly GDP by an average of 9.4 percent per quarter going back to first quarter 2005. Conversely, real personal income in Iowa was 1.29 percent higher in the first quarter of 2025 than in the first quarter of 2024 (see Figure 2) and 0.21 percent higher than first quarter 2023.

Another test of the usefulness of the ILII is to compare movements in the index to the level of State General Fund revenues (see Figure 3). A general fund is the primary fund used by a government entity. This fund is used to record all resource inflows and outflows that are not associated with special-purpose funds. The activities being paid for through the General Fund constitute the core administrative and operational tasks of the state government. Iowa real receipts which are used in the General Fund are measured using the 12-month moving average of individual, sales and use, corporation, inheritance, insurance premium, and franchise receipts, all adjusted using the Consumer Price Index (CPI) to 2018 dollars.

[2] January 2007 through March 2007 also meet the metrics of a contraction signal, but only in retrospect after seven years of data revisions. At the time of those reports, the index changes did not meet the metrics.

Trends in real receipts have varied in recent years. Weakness in the agriculture economy in late FY 2015 into FY 2016 was partially responsible for the drop in individual final returns for tax year 2016 realized in FY 2017. The other significant drags on FY 2017 revenues were weak sales and use tax revenues. FY 2018 revenue gains were the strongest of those four fiscal years with strength in individual income and sales and use tax. Those gains were partly in response to federal tax reform in late 2017. Federal tax law changes led to decreases in federal withholding in early 2018, but boosted Iowa withholding. Despite reductions in Iowa withholding beginning in January 2019, implementing income tax cuts as a result of Senate File 2417, revenues increased in FY 2019. The gains were partly due to lingering impacts of federal tax reform including higher corporate receipts and individual income final payments.

Revenues for FY 2020 were moving in a healthy direction prior to April 2020. However, in response to federal delays for 2019 taxes, the Governor allowed a 90-day delay in the annual tax deadline for Iowa taxes. In turn, real receipts declined in FY 2020, down 3.8 percent. FY 2021 receipts increased $1.48 billion (16.8%) compared to FY 2020 following the COVID Pandemic shutdowns. FY 2025 real receipts on a cash basis decreased $572.4 million (-5.1%) compared to FY 2024.

Although IDR forecasts all sources of revenue for the State, the ILII is best suited to signal the future direction of taxes on employment and, in turn, wages. Wages drive the withholding portion of individual income taxes. Individual income taxes comprise over 50 percent of State General Fund receipts. Net individual income tax revenues are measured as the 12-month moving average of withholding plus estimate payments plus final return payments minus refunds, all adjusted to 2018 dollars using the CPI (see Figure 4).

Net individual income tax revenues vary over time. Net individual income tax revenues fell in 1999 reflecting the individual income tax cut implemented during the 1998 tax year. Net individual income tax revenues were strong in the spring of 2000, but fell in 2001 and 2002 with the U.S. recession. Revenues began to rise again in 2004 and remained relatively strong through 2008, with a slight dip in 2005 and 2006.

Net individual income tax revenues turned down in February 2009, following the ILII drop in April 2008 associated with the recession at that time. Revenues began to rise in FY 2012 with a sharp jump in April resulting from Federal tax law effective in tax year 2013. That law pushed some tax payers to pull income into tax year 2012. As expected, revenues reversed one year later, but the weakness continued through the end of FY 2014, pulled down by estimate payments.

Revenues were stronger in FY 2018 as estimate payments moved up sharply in December 2017. Taxpayers reacted to federal tax law changes effective in January 2018. In addition, FY 2018 withholding gains were solid in part reflecting the drop in federal withholding in 2018.

Like overall revenues, income tax revenues for FY 2020 were moving in a healthy direction prior to April 2020 until the governor allowed a 90-day delay in the annual tax deadline. Fiscal Year 2021 saw substantial improvement to the State of Iowa's real net individual income tax revenue stream compared to the weakness in FY 2020, increasing 17.1 percent over FY 2020 and 10.0 percent over FY 2019. Fiscal Year 2025 saw decreases to the State of Iowa's real

net individual income tax revenue stream compared to FY 2024 revenues, decreasing 0.9 percent from FY 2024.

The final comparison is between the ILII and the National Leading Economic Indicators (LEI) produced by The Conference Board (see Figure 5). The Iowa economy and the national economy do not always move on the same path. Often times the Iowa economy is slower to react to recessions due to the differences in the composition of the Iowa economy compared to the U.S. as a whole. The trajectory of the ILII compared to the LEI also differs because components of each index differs[3].

Both series dived prior to the Great Recession (2008 to 2009 recession), although the LEI started its drop in April 2007 (with the U.S. recession starting in December 2007) while the ILII started to drop in February 2008 (with Iowa employment first dropping in late 2008). The two series signaled a recovery in 2009, with the LEI logging strong positive gains beginning in April 2009 and the ILII in October 2009.

During the expansion that followed the 2008 to 2009 recession, trends in the series varied. While the ILII continued to post strong increases through April 2011, the LEI had more muted changes in April 2010. Both series showed parallel growth from 2011 through 2014, except for a small dip in the LEI during the middle of 2012. During FY 2015 the respective series diverged

[3] The LEI includes two measures of goods orders to reflect manufacturing demand in the U.S. There is no monthly measure of goods orders in Iowa, so the ILII uses diesel fuel consumption as a proxy for manufacturing intermediate and final goods orders being shipped within and across Iowa. Another indicator that measures the future demand for output at manufacturers across Iowa included in the ILII is the Iowa new orders index from the Business Conditions Index produced by Dr. Ernest Goss at Creighton University. The LEI also included a component from the Institute of Supply Management's Purchasing Managers' Index (PMI), the national equivalent of the index produced by Dr. Goss. The final two components of the LEI were a measure of the money supply, which is not as relevant for a state index, and an index capturing national consumer expectations, for which no Iowa-specific equivalent exists.

dramatically due to weaknesses in Iowa's agricultural economy pulling down the ILII, while the LEI maintained its strength. The LEI demonstrated steady growth throughout the year and finished up 6.5 percent, with eleven positive changes and one month of no change; the ILII began the year with a mix of weak gains and losses, then had steady declines in the last six months and finished down 1.5 percent.

During FY 2016 and FY 2017 the two series returned to associated paths. The ILII decreased 1.0 percent and the LEI decreased 0.7 percent in FY 2016. In FY 2017, the ILII increased 2.0 percent and the LEI increased 4.9 percent. The ILII and LEI continued to trend together for much of FY 2018. The ILII did experience a three month stretch (February 2018-April 2018) where decreases in the ILII deviated from the continued increases experienced by the LEI.

In the first four months of FY 2019, the ILII and LEI diverged further with the LEI experiencing positive changes while the ILII remained relatively unchanged. Iowa's unemployment claims began to stagnate while US unemployment claims continued to decline (improve). The final eight months of the fiscal year returned to correlating paths as the two series experienced similar periods of negative change interrupted with a brief reprieve of gains.

During FY 2020, the LEI experienced more moderate change than the ILII leading up to March 2020. Both the LEI and ILII experienced significant declines in March and April of 2020, however, the LEI showed signs of recovery May and June of 2020, whereas the ILII continued to show declines until March 2021. During FY 2022, the LEI experienced a similar trajectory to the ILII until February 2022. Both the LEI and ILII experienced consistent growth from July 2021 through February 2022, however, the LEI has shown consistent decline through June 2024,

whereas, the ILII showed variability through the end of FY 2022 before going negative throughout FY 2024. The variability shown in the ILII was miniscule and inconsistent in FY 2024. The LEI and ILII were again in opposing trajectories in FY 2025, as the LEI experienced 10 months of decline while the ILII experienced 10 months of expansion throughout the fiscal year.

Validity of Existing Components

An index is an accumulation of scores from a variety of individual items. To create one, you must select possible items, examine their empirical relationships, score the index, and validate it. When the Iowa Leading Indicators Index was established in 2006, one method used to select components was to track the stance of monetary policy and its expected impact on economic activity with interest rate related indicators, like (1) **the national yield spread**, which provides an indirect view on the term structure of interest rate and therefore on investors' expectations. The second method was to identify series of Iowa data that were equivalent to those used as leading economic indicators by other states and regions. This method resulted in the selection of Iowa (2) **unemployment insurance claims**, (3) **average manufacturing hours in Iowa**, (4) **residential building permits,** and (5) **the new orders index for Iowa manufacturers**.

A second method used to select components was to identify series that predicted economic activity in the key sectors of the Iowa economy: agriculture, manufacturing, and finance and insurance. Agriculture comprised 3.2 percent of Iowa GDP in 2024, according to the Bureau of Economic Analysis. To capture the agriculture sector, (6) **an index of expected profits for producers of the four leading commodities in the state**, corn, hogs, soybeans, and cattle was created.

Manufacturing accounted for 17.3 percent of GDP and 16.9 percent of total non-farm employment in 2024, according to the Bureau of Economic Analysis and the Quarterly Census of Employment and Wages conducted by the Bureau of Labor Statistics. Along with average manufacturing hours and the new orders index, (7) **diesel fuel consumption** was added to the index to measure demand for the transport of manufacturing inputs and final products within and throughout the State. Diesel fuel consumption also indicates demand for the production and transport of agricultural commodities.

The finance and insurance sector accounted for 14.5 percent of GDP and 7.0 percent of nonfarm employment in 2024. The finance & insurance sector is heavily represented in the (8) **Iowa stock market index**, created as the eighth component for the index.

During the development of the ILII, all potential indicators were weighed against six desired attributes of leading indicators that are known as the Moore-Shiskin criteria:

1. conformity – series must conform well to the business cycle
2. consistent timing – series must exhibit a consistent timing pattern over time as a leading indicator
3. currency – series must be published on a reasonably prompt schedule and not be subject to major revisions
4. economic significance – cyclical timing of the series must be economically logical
5. statistical adequacy – data must be collected and processed in a statistically reliable way
6. smoothness – month-to-month movements in the series must not be too erratic.

The ILII shows significant association with the current state of economic activity. Five of the eight components of the ILII and the overall ILII demonstrated positive signals throughout FY 2025. Iowa nonfarm employment index saw declines over the first nine months of FY 2021 as a result of the COVID-induced recession before recovering in April 2021. The Iowa nonfarm employment index had experienced an astonishing 41 straight months of growth beginning in April 2021 and through the entirety of FY 2022, FY 2023, and FY 2024. However, beginning in September 2024, the Iowa nonfarm employment index has experienced contractions in eight of the last ten months.

Over the 12 months of FY 2025, residential building permits, average weekly manufacturing hours, national yield spread, the Iowa Stock Market Index, and diesel fuel consumption were the five of eight components of the ILII that increased (see Table 1). The largest positive contributor was residential building permits which contributed an increase of 0.93 points to the index over the year. The national yield spread went from -1.20 in June 2024 to -0.04 in June 2025. The ten-year constant maturity rate increased 0.07 points, the three-month constant maturity rate decreased 1.09 points, keeping the yield spread in inversion. However, the magnitude of the inversion declined in FY 2025 and contributed an increase of 0.40 points to the index over the year, followed by the Iowa Stock Market Index (0.36 percent) and diesel fuel consumption (0.26 percent). The largest drag was the average weekly unemployment claims, slashing -0.05 points off of the index in the year followed by new orders index (-0.03 percent) and the AFPI (-0.01).

Currency of the ILII's components proved to be reliable for almost all components during FY 2025. Seven of the eight components were available within four weeks after the close of the month. In January, labor force data including average manufacturing hours and nonfarm employment were delayed by several weeks because the Bureau of Labor Statistics (BLS) was undertaking its annual benchmarking. Along with the annual benchmarking, the prior month value for average weekly manufacturing hours was revised six times in FY 2025.

Nothing in the past twelve months has affected the economic significance of the eight components, as all continue to logically lead the economic cycle. Views about the statistical adequacy of the data are unchanged as sources for all the data series continue to collect and process the data in a reliable manner.

Assessments of the components' smoothness did not change with the additional 12 months of data. The standard deviation of month-to-month changes in the components (measured using 12-month moving averages for all but the yield spread and Stock Market index) decreased for four of the components including: Average weekly unemployment claims (inverted), the new orders index, the AFPI, and the Iowa stock market index. All but one changes were two percent or less (see Table 2), diesel fuel consumption increased 3.4 percent. The four components whose standard deviation of month to month changes increased were diesel fuel consumption, residential building permits, the national yield spread, and average weekly manufacturing hours.

The ILII is computed by weighting changes in the individual series by the standardization factors, calculated as the inverse of the standard deviation, normalized across all the

components to one (see Appendix A). Updates to the standardization factors accounting for the observed volatility during FY 2025 suggest the factors for all components but diesel fuel consumption will not change much. Two components experienced increases of two percent or more in standardization factors (see Table 2). Average unemployment insurance claims (inverted) increased 2.5 percent and the new orders index increased 2.4 percent for the two highest increases in standardization. One component declined, diesel fuel consumption at -2.7 percent. The ranking of the standardization factors among the components experienced no change from FY 2024 to FY 2025. The final standardization factors will be computed after any individual component updates are completed.

An additional way to consider sensitivity of the ILII to each component is to focus on six-month percentage changes in the index and six-month diffusion index values under various modified versions of the index where, in each case, one of the eight components is excluded (see Table 3). The six-month changes to the ILII remained in positive territory for all of FY 2025 independent of the signal from seven of the eight components, with the exception of average manufacturing hours during the first quarter of FY 2025. The exclusion of average weekly manufacturing hours would have led to the percentage change (annualized) to be -0.9, -1.2, and -0.7 during the months of July through September 2024. Strength in the index was fairly well distributed amongst most components in FY 2025 with the exceptions of average unemployment insurance claims (inverted) and the new orders index which detracted from the index in nine and eight of the 12 months of FY 2025, respectively.

Updates for the Nineteenth Year

Given that the original eight components continue to meet the Moore-Shiskin criteria, no new components were added. Only one step was taken to prepare the ILII for FY 2026, the annual update to the agricultural futures profits index incorporating 2024 cash farm income was completed. As always, the standardization factors for the ILII were updated, incorporating the variability of the last year and causing a revision to the entire history of the ILII.

Updates to the Agricultural Futures Profits Index

The AFPI requires annual updates to the index to account for newly available data on the distribution of annual cash receipts among the four commodities in the index and to incorporate the last 12 months of data in the standardization factors used to weight the components in the index. Additionally, in some years, updated historical breakeven costs for corn and soybeans are incorporated. In September 2025, Iowa State University Extension and Outreach Office revised the historical breakeven costs for corn going back to June of 2020 and for soybeans going back to June 2018. These revisions resulted in an average decrease of breakeven costs for corn and soybeans of $0.02 per bushel per year up until June of 2024. From June 2024 to present, the breakeven costs for corn increased $0.30 per bushel while breakeven costs for soybeans decreased $0.24 per bushel.

Each fall annual cash receipts for various farm commodities in Iowa for the previous calendar year are released by the Economic Research Service of the U.S. Department of Agriculture. The distribution of cash receipts between the four commodities included in the AFPI is used to weight the four profits series in the index. With the release of the 2024 cash receipts and revised 2023 cash receipts, all AFPI values for January 2023 and later were updated to reflect the distribution of farm cash receipts for calendar years 2023 and 2024. In 2024, total farm cash

receipts for Iowa decreased 2.9 percent from 2023 with soybean receipts decreasing 8.5 percent and corn receipts decreasing 14.4 percent compared to revised numbers for 2023. Hog receipts decreased 3.4 percent, while cattle receipts increased 21.0 percent.

In response to the noted changes, the distribution of cash farm income between the four commodities shifted for 2024. The corn share of cash receipts decreased from a revised 37.3 to 33.6 percent and the soybeans share decreased from a revised 21.0 to 20.3 percent. The hog share increased from a revised share of 26.9 to 27.4 percent and the cattle share increased from a revised share of 14.8 to 18.8 percent. On the 10-year rolling annual agriculture shares average, the revisions to the annual agriculture shares resulted in an increase of the corn shares from 34.6 percent to 35.0 percent and an increase in soybean shares from 20.4 percent to 20.6 percent, while livestock shares decreased from 29.2 percent to 28.5 percent for hogs and increased from 15.8 percent to 16.0 percent for cattle. Incorporating the updated income shares into the AFPI created a very minimal change to the values of the component for the last six months (see Tables 6 and 7).

Assessment of Updated Impacts on the ILII

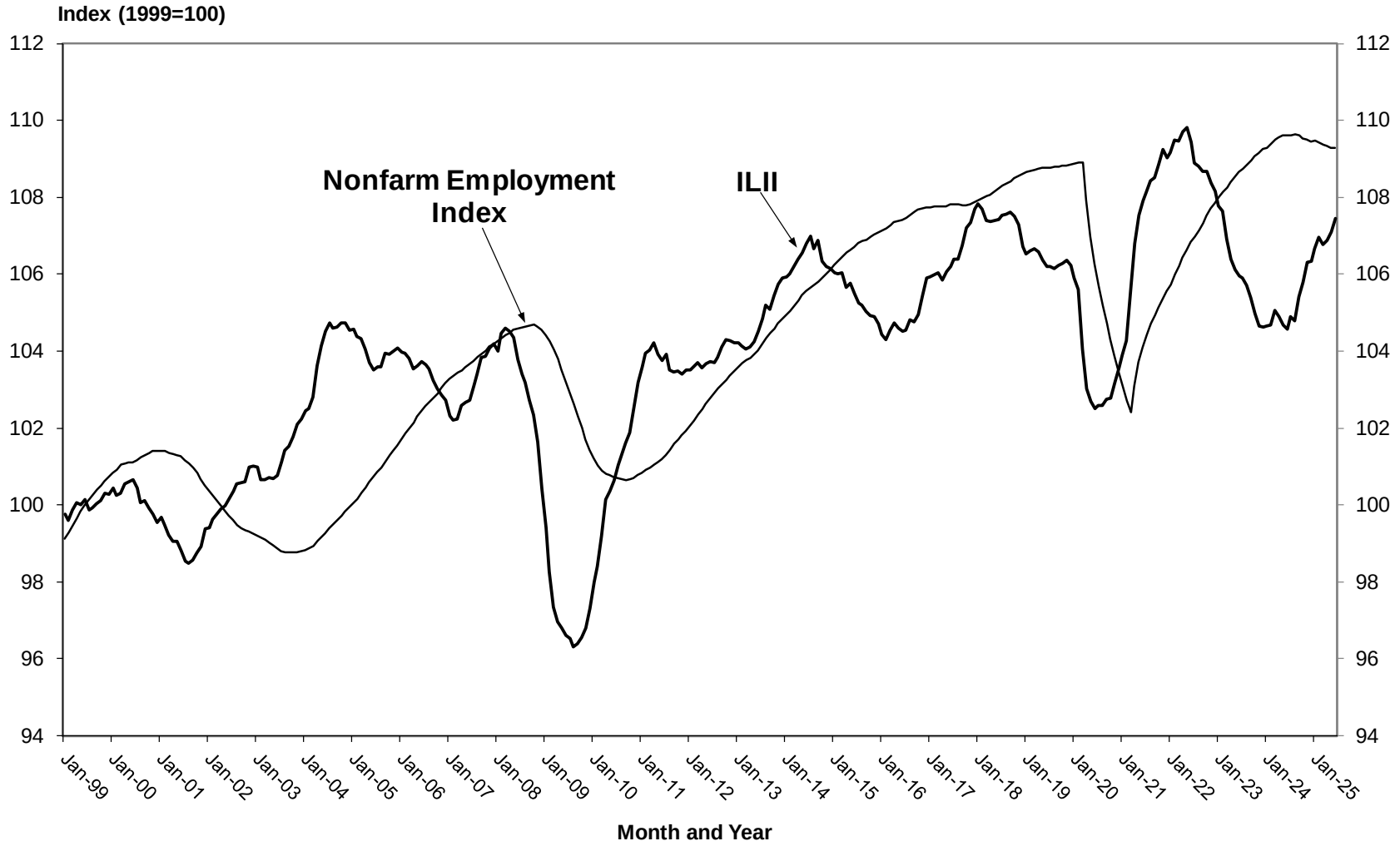
The updates to the AFPI and standardization factors had an immeasurable impact on the level of the index going back through the history (see Figure 6). The update did not result in enough change to be seen in the usual tables presented (see Tables 4 and 5). However, the level of the six-month annualized percentage change increased in FY 2025 by 0.1 percent in January, February, and March. The values of the AFPI improved by an average of 0.4 percent over the last six months, while the expected profits for corn improved by 26.9 cents per bushel and soybeans regressed by an average of 19.4 cents per bushel due to updates.

Conclusions

Historical and current data supports the ability of the ILII to signal the direction the economy will take in the following months. The Iowa Leading Indicators Index established a good record during the recession and recovery spanning 2008 through 2014. During FY 2015 and FY 2016, the index demonstrated negative signals in nineteen months, although never reaching a recession signal, while the nonfarm employment coincident index experienced growth each month during the two-year period. These negative signals to the index over this two-year period were driven by weakness to the agriculture sector. During FY 2017, the ILII grew in nine of twelve months with small declines in three months. Concurrently, the nonfarm employment coincident index experienced growth during FY 2017. During 2018, the ILII increased in seven months, fell in three months, and was unchanged for two months. The nonfarm employment coincident index, after revisions released in early 2018, recorded two negative months in early 2017 but steady growth in the final nine months of the fiscal year. During FY 2019, the ILII exhibited seven months with negative changes, and five months with positive changes, ending down 1.3 percent from the end of FY 2018. Employment increased every month but the last month of the fiscal year, with the gains ranging from 0.01 to 0.08 percent and averaging 0.04 percent per month. Employment growth slowed in four of the last five months of the fiscal year and went negative in June 2019. Fiscal Year 2020 experienced nine months of negative monthly change with three months of positive change. Employment showed no change in July 2019 followed by three months of slight positive employment change before beginning an eight consecutive month decline in employment. Employment decreased dramatically in April, May and June in 2020 related to the pandemic.

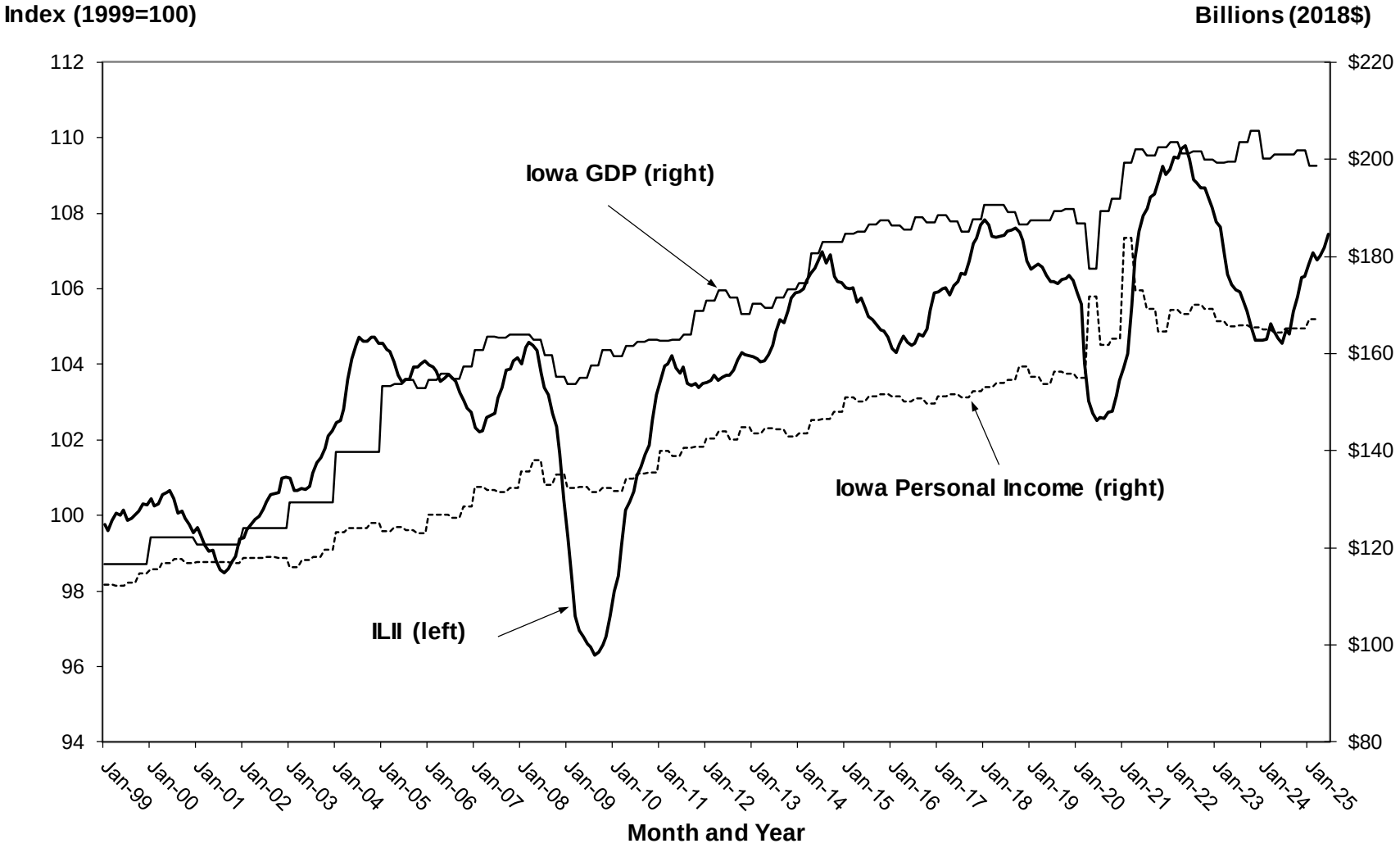
While the leading and coincidental economic signals were already displaying signs of a contraction before March 2020, the immediate nature of the COVID-induced recession impact on Iowa's economy was not foretold by the Index. The downturn experienced in the last quarter of FY 2020 was not a result of any underlying imbalances in the economy, but was a true exogenous shock. The Index began showing recovery signals in August 2020 and the nonfarm employment index began improving in March 2021. The index did its job in signaling that the nonfarm employment turnaround was near and it did occur. From January 2023 through January 2024, the index consistently gave contraction signals. With just over a year of contraction signals indicating that it was likely that the nonfarm employment index would begin to show declines around June to September 2023. However, declines in the Iowa nonfarm employment index were not experienced until September 2024. Since September 2024, Iowa nonfarm employment index has experienced eight months of declines in a 10-month span. This does represent a significant delay in the realized forecasted declines from the observed contraction signals in the ILII. This occurrence will be further analyzed to determine if there were exogenous factors that delayed the forecasted declines in Iowa employment that were not a part of the normal business cycle. With the past success of the ILII in providing leading signals, IDR will continue to closely monitor the ILII with the hope that it will continue to inform policy makers about the direction of future economic activity and revenues in the State.

Figure 1. Iowa Leading Indicators Index and Iowa Nonfarm Employment Coincident Index: January 1999-June 2025



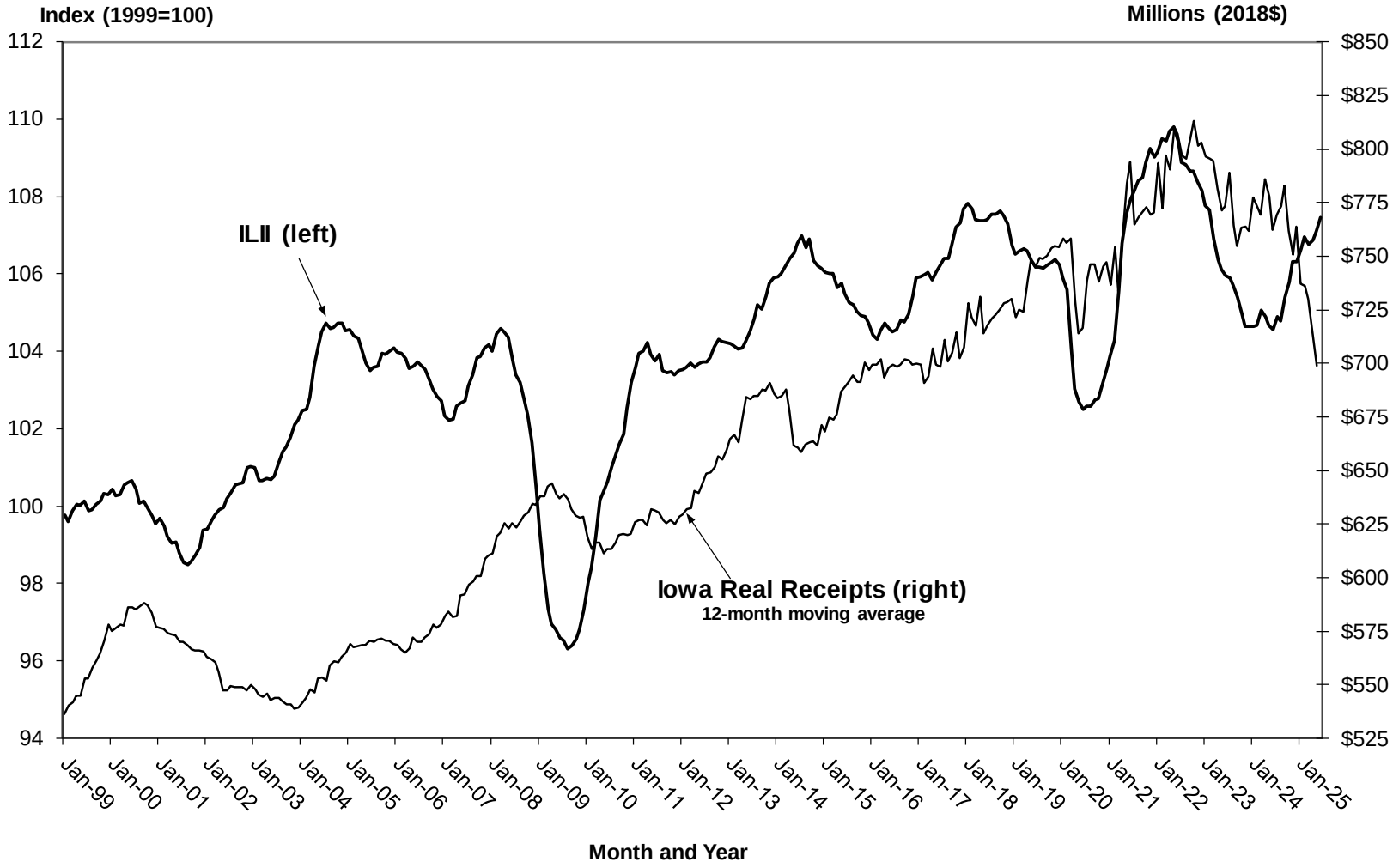
Sources: Iowa Department of Revenue and The U.S. Department of Labor, Bureau of Labor Statistics

Figure 2. Iowa Leading Indicators Index, Iowa Real GDP, and Iowa Real Personal Income: January 1999-June 2025



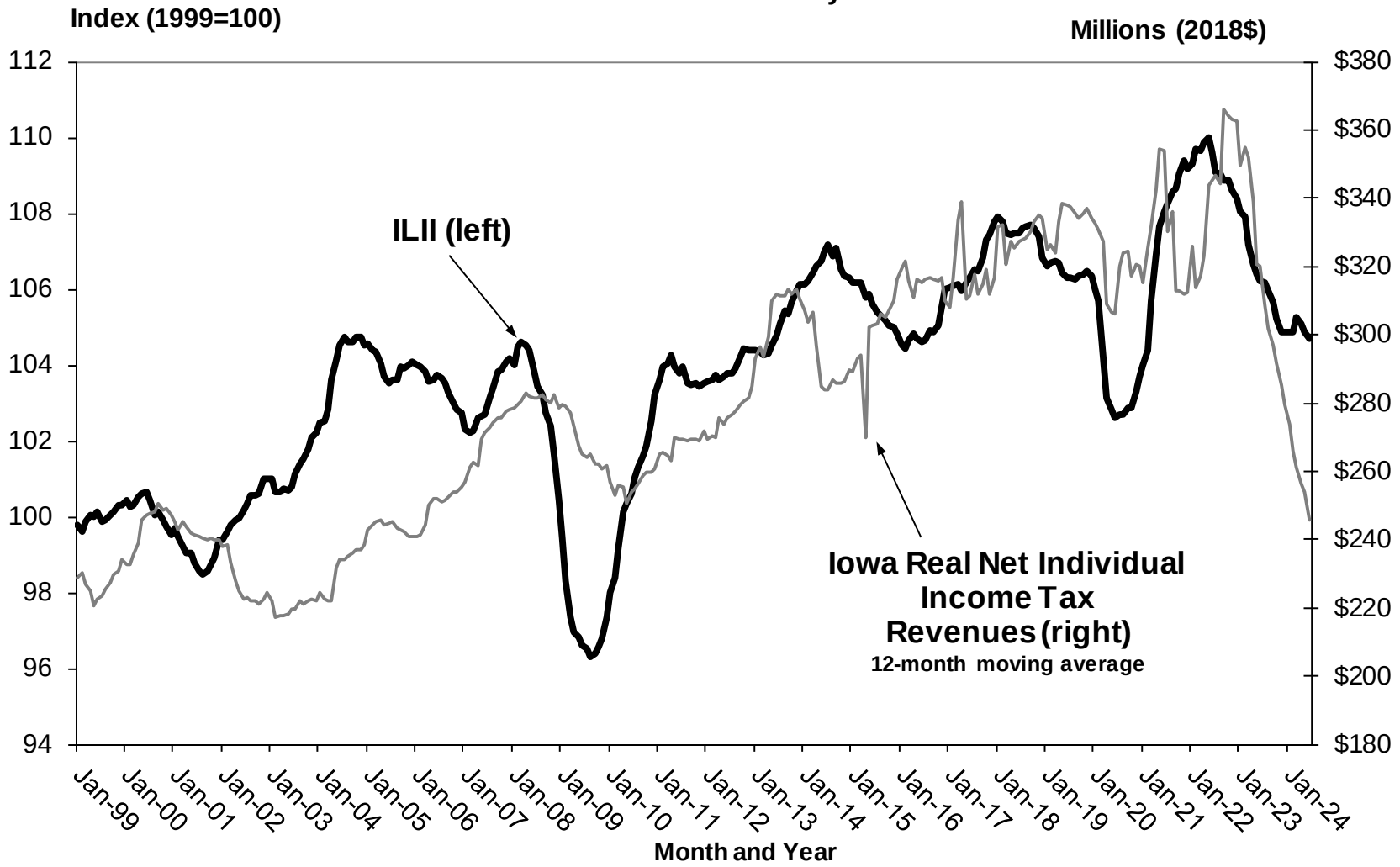
Sources: Iowa Department of Revenue and The U.S. Department of Commerce, Bureau of Economic Analysis

Figure 3. Iowa Leading Indicators Index and Iowa Real Tax Receipts: January 1999-June 2025



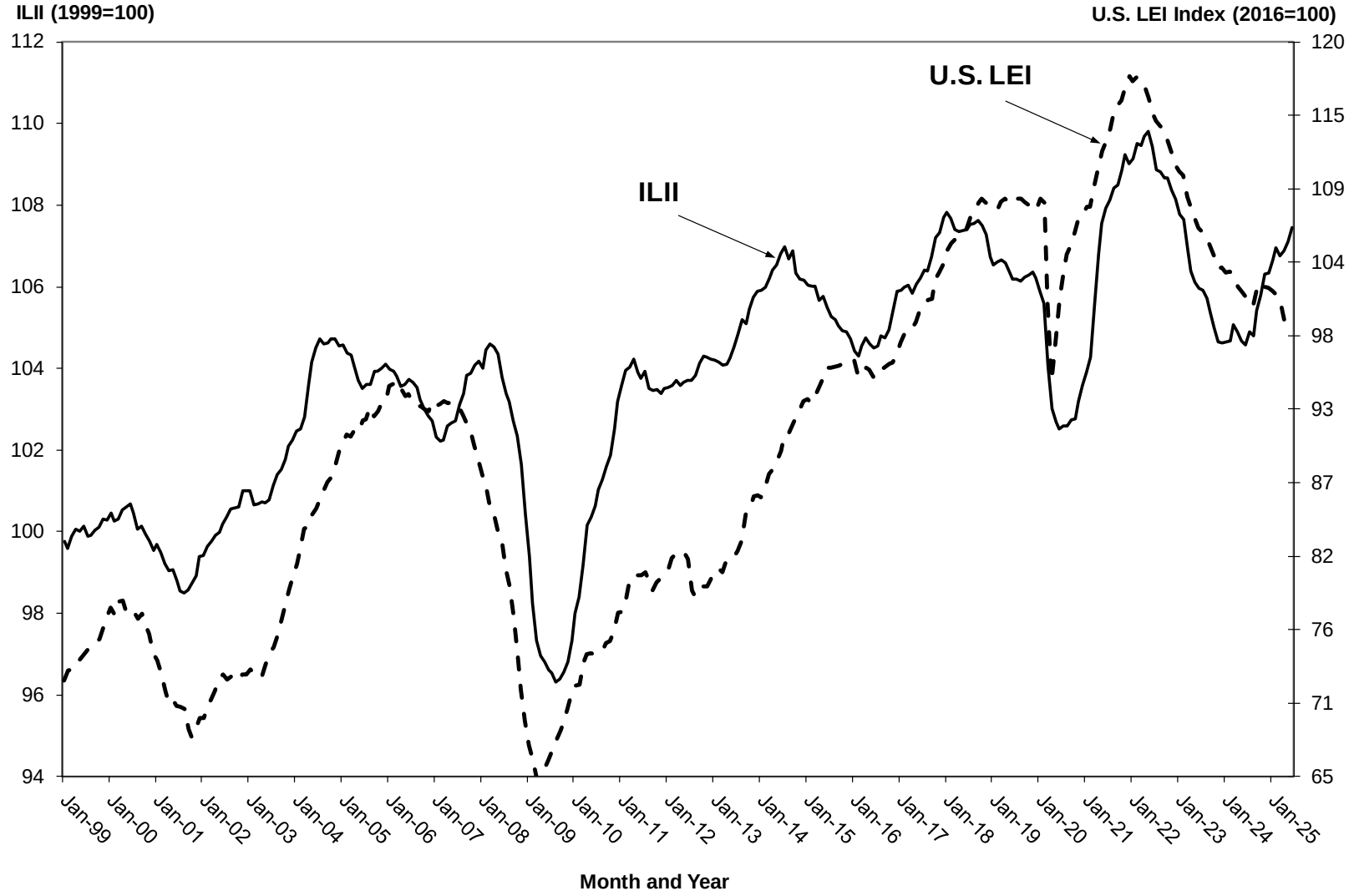
Sources: Iowa Department of Revenue

Figure 4. Iowa Leading Indicators Index and Iowa Real Net Individual Income Tax Revenues Index: January 1999-June 2025



Sources: Iowa Department of Revenue

Figure 5. Iowa Leading Indicators Index Compared to U.S. Leading Economic Indicators: January 1999-June 2025



Sources: Iowa Department of Revenue and The Conference Board

Table 1. Iowa Leading Indicators Index Components: Annual Overview

Component Series Monthly Values[a]		2024 June	2025 June	Contribution to ILII Change
AFPI[b]	↓c			-0.01
Corn Profits (cents per bushel)		3.1	-28.0	
Soybean Profits (cents per bushel)		-35.2	-119.0	
Hog Profits (cents per pound)		26.7	35.3	
Cattle Profits (cents per pound)		10.6	7.6	
Iowa Stock Market Index (10=1984-86)	↑	129.89	164.09	0.36
Yield Spread (10-year less 3-month)	↑	-1.20	-0.04	0.40
Residential Building Permits	↑	864	1,153	0.93
Average Weekly Unemployment Claims[d]	↓	2,485	2,579	-0.05
Average Weekly Manufacturing Hours	↑	40.1	41.2	0.87
New Orders Index (percent)	↓	48.8	48.4	-0.03
Diesel Fuel Consumption (mil gallons)	↑	64.70	65.71	0.26

Source: Tax Research and Program Analysis Section, Iowa Department of Revenue, produced August 18, 2025

a. For all component series except for the yield spread (the only national series) 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 over the last 12 months

d. Changes in unemployment claims are inverted when added to the ILII, thus a negative change in the series contributes positively to the index.

Table 2. Changes in ILII Standardization Factors Accounting for FY 2025 Data

Leading Indicator	Jul-2024 Standard Deviation	Jul-2025 Standard Deviation	Percent Change in Standard Deviation	Jul-2024 Standardization Factor	Rank	Jul-2025 Standardization Factor	Rank	Percent Change in Standardization Factor
Agricultural Futures Profits Index	2.434	2.499	2.7%	0.034	5	0.034	5	-1.8%
Iowa Stock Market Index	5.398	5.375	-0.4%	0.016	7	0.016	7	1.1%
Yield Spread	0.240	0.241	0.4%	0.349	1	0.350	1	0.3%
Building Permits	2.603	2.619	0.6%	0.032	6	0.032	6	0.1%
Average Weekly Unemployment Claims	5.867	5.758	-1.8%	0.014	8	0.015	8	2.5%
Average Weekly Manufacturing Hours	0.258	0.259	0.4%	0.325	2	0.325	2	0.2%
New Orders Index	1.318	1.295	-1.7%	0.064	4	0.065	4	2.4%
Diesel Fuel Consumption	0.504	0.521	3.4%	0.166	3	0.162	3	-2.7%

Each data series considers month-to-month changes over January 1999 to June 2024 for July 2024 values and January 1999 to June 2025 for July 2025 values. For all series except for the yield spread and the Iowa stock market index, the changes are based on 12-month backward moving averages. The yield spread and new orders index changes are simple arithmetic changes; changes for the other six components are computed as symmetric percentage changes.

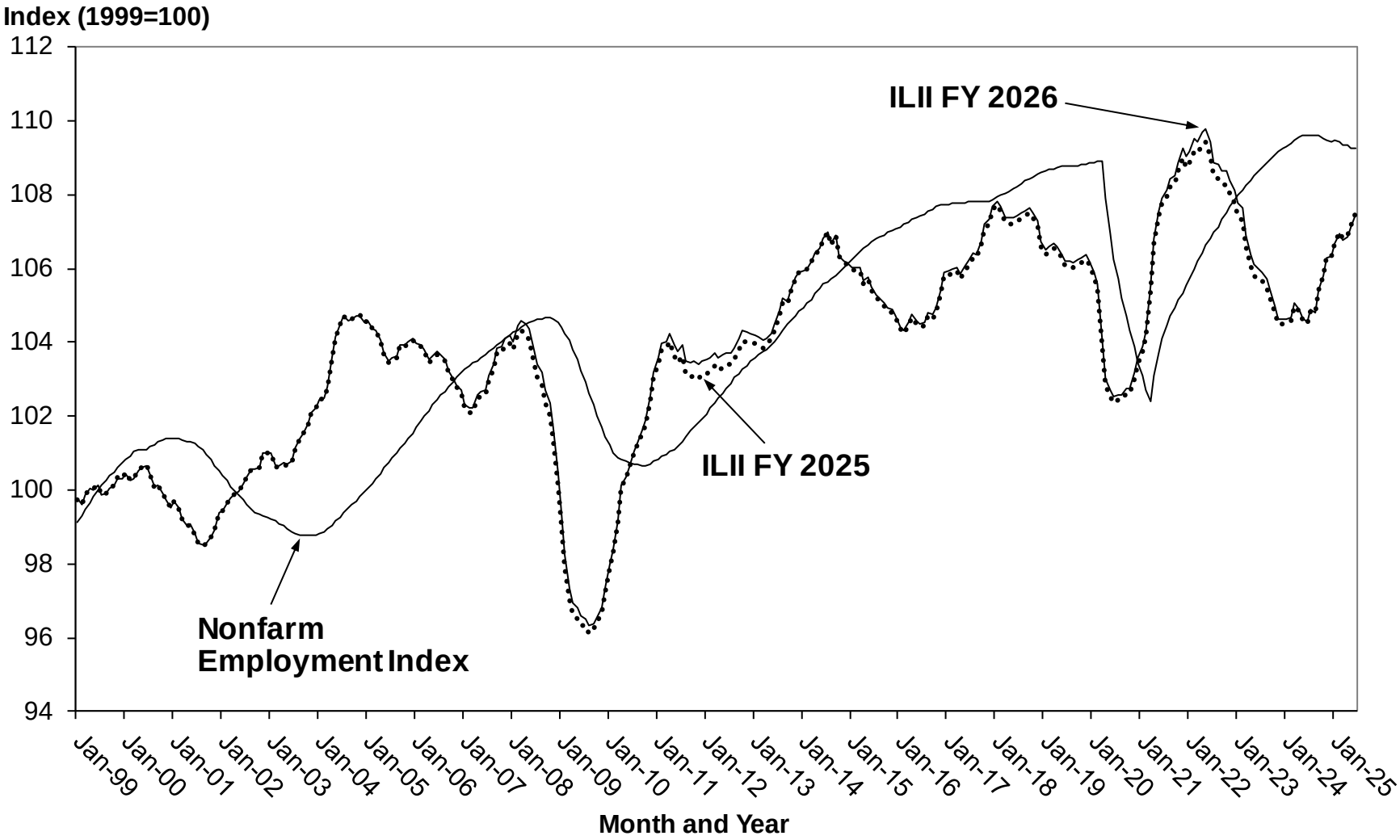
Table 3. Iowa Leading Indicators Index Component Sensitivity

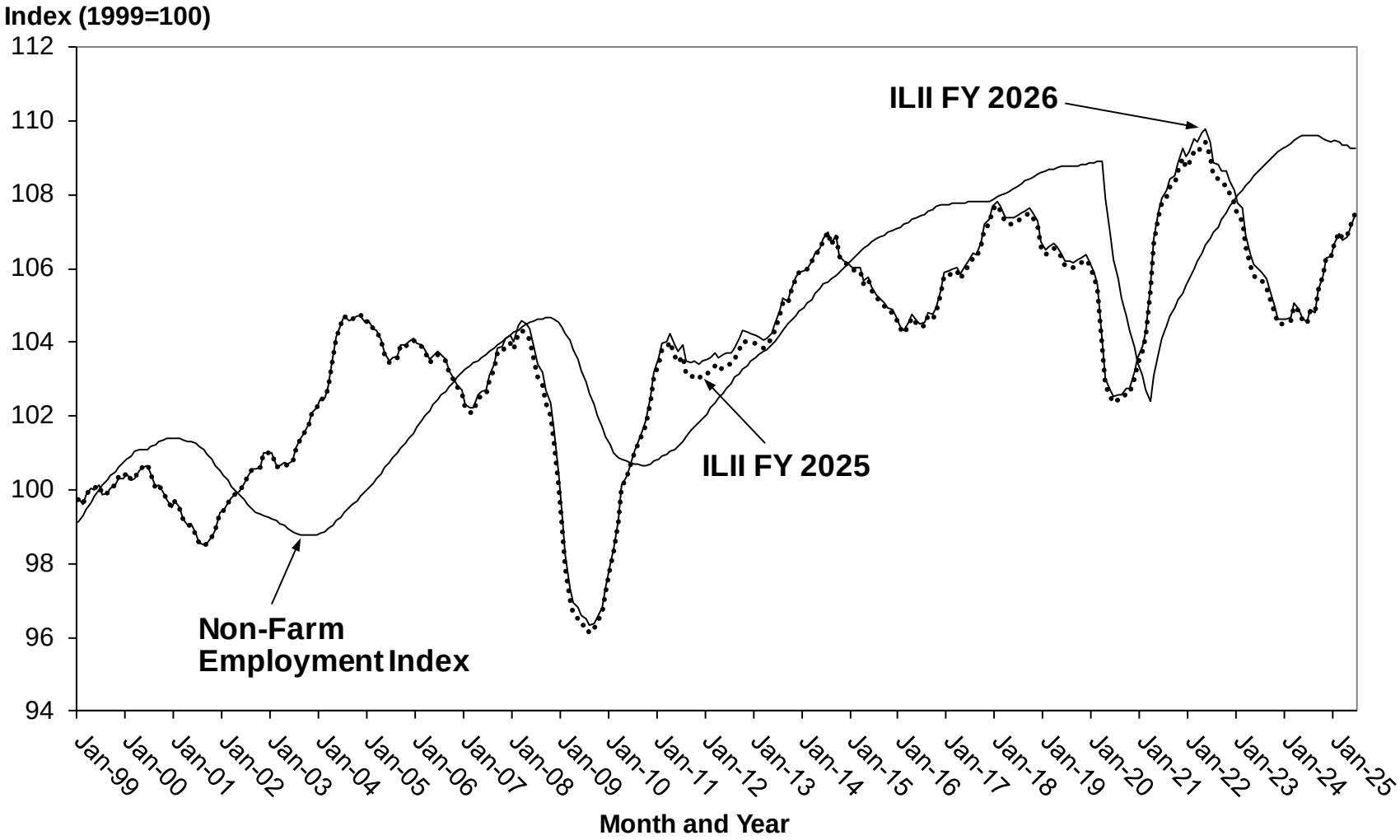
Six-Month Values	Jan to July	Feb to August	Mar to September	Apr to October	May to November	June to December	July to January	Aug to February	Sept to March	Oct to April	Nov to May	Dec to June
ILII												
Percentage Change (Annualized)	0.5%	0.2%	0.7%	1.7%	3.1%	3.4%	3.4%	4.1%	2.6%	2.0%	1.5%	2.1%
Diffusion Index	37.5	37.5	50.0	68.8	75.0	62.5	62.5	62.5	62.5	62.5	62.5	81.3
ILII without AFPI												
Percentage Change (Annualized)	1.1%	0.9%	1.2%	2.1%	3.3%	3.6%	3.8%	4.6%	3.0%	2.5%	1.7%	2.1%
Diffusion Index	42.9	42.9	57.1	78.6	85.7	71.4	71.4	71.4	71.4	71.4	71.4	78.6
ILII without Iowa Stock Market												
Percentage Change (Annualized)	0.2%	0.1%	0.6%	1.6%	2.7%	2.9%	2.9%	3.4%	2.1%	2.0%	1.4%	1.9%
Diffusion Index	28.6	28.6	42.9	64.3	71.4	57.1	57.1	57.1	57.1	57.1	57.1	78.6
ILII without Average Manufacturing Hours												
Percentage Change (Annualized)	-0.9%	-1.2%	-0.7%	0.7%	2.9%	3.5%	3.1%	4.5%	2.4%	1.5%	1.0%	2.1%
Diffusion Index	28.6	28.6	42.9	64.3	71.4	57.1	57.1	57.1	57.1	57.1	57.1	78.6
ILII without Yield Spread												
Percentage Change (Annualized)	0.5%	0.6%	0.9%	2.3%	4.0%	3.9%	3.6%	4.7%	2.7%	2.5%	2.0%	3.3%
Diffusion Index	28.6	42.9	42.9	64.3	71.4	57.1	57.1	57.1	57.1	57.1	57.1	85.7
ILII without Diesel Fuel												
Percentage Change (Annualized)	0.7%	0.2%	0.9%	1.9%	3.4%	3.7%	3.7%	3.9%	3.3%	2.1%	1.7%	2.3%
Diffusion Index	42.9	28.6	57.1	64.3	71.4	57.1	57.1	57.1	71.4	57.1	57.1	78.6
ILII without New Orders Index												
Percentage Change (Annualized)	0.6%	0.4%	0.8%	1.8%	3.3%	3.6%	3.7%	4.5%	2.7%	2.2%	1.6%	2.3%
Diffusion Index	42.9	42.9	57.1	71.4	71.4	71.4	71.4	71.4	57.1	71.4	71.4	92.9
ILII without Unemployment Claims												
Percentage Change (Annualized)	0.7%	0.4%	0.9%	1.9%	3.3%	3.6%	3.5%	4.3%	2.7%	2.1%	1.6%	2.1%
Diffusion Index	42.9	42.9	57.1	78.6	85.7	71.4	71.4	71.4	71.4	71.4	71.4	78.6
ILII without Building Permits												
Percentage Change (Annualized)	0.6%	0.3%	0.4%	1.3%	2.2%	2.5%	2.7%	3.4%	1.8%	1.3%	1.0%	1.2%
Diffusion Index	42.9	42.9	42.9	64.3	71.4	57.1	57.1	57.1	57.1	57.1	57.1	78.6

Source: Tax Research Bureau, Iowa Department of Revenue, produced August 18, 2025 using updated standardization factors through June 2025.

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. The Conference Board considers a contraction signal reliable when the index declines by at least two percent over a six-month period (using an annualized rate) and a majority of the individual components also decline over those six months measured as a six-month diffusion index value below 50.

Figure 6. Comparison of Iowa Leading Indicators Index in FY 2024 and Update for FY 2025: January 1999-June 2025





Sources: Iowa Department of Revenue and The U.S. Department of Labor, Bureau of Labor Statistics

Table 4. Iowa Leading Indicators Index: Six Month Overview for June 2025 Prior to the FY 2026 Annual Update

Monthly Values	2025 Jan	Feb	Mar	Apr	May	Jun
ILII	106.7	107.0	106.8	106.9	107.1	107.5
Percentage Change[a]	0.3%	0.3%	-0.2%	0.1%	0.2%	0.3%
Diffusion Index[b]	62.5	62.5	50.0	56.3	62.5	75.0

Six-Month Values	Jul to Jan	Aug to Feb	Sep to Mar	Oct to Apr	Nov to May	Dec to Jun
ILII						
Percentage Change	1.7%	2.1%	1.3%	1.0%	0.7%	1.1%
Annualized Percentage Change	3.4%	4.1%	2.6%	2.0%	1.5%	2.1%
Diffusion Index	62.5	62.5	62.5	62.5	62.5	81.3

Source: Tax Research Bureau, Iowa Department of Revenue, produced August 5, 2025.
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 5. Iowa Leading Indicators Index: Six Month Overview for June 2025 After the FY 2026 Annual Update

Monthly Values	2025 January	February	March	April	May	June
ILII	106.7	107.0	106.8	106.9	107.2	107.5
Percentage Change[a]	0.3%	0.3%	-0.2%	0.1%	0.2%	0.3%
Diffusion Index[b]	62.5	62.5	50.0	56.3	62.5	75.0

Six-Month Values	July to January	August to February	Sept to March	Oct to April	Nov to May	Dec to June
ILII						
Percentage Change	1.7%	2.1%	1.3%	1.0%	0.8%	1.1%
Annualized Percentage Change	3.5%	4.2%	2.7%	2.0%	1.5%	2.2%
Diffusion Index	62.5	62.5	62.5	62.5	62.5	81.3

Source: Tax Research Bureau, Iowa Department of Revenue, produced September 5, 2025.
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 6. Iowa Leading Indicators Index Components: Six Month Overview for June 2025 Prior to the FY 2026 Annual Update

Component Series Monthly Values[a]		2025 Jan	Feb	Mar	Apr	May	Jun
AFPI[b]	↑c	*-1.8*	*-2.3*	*-4.2*	*-5.8*	*-2.3*	*-2.5*
Corn Profits (cents per bushel)		-27.6	-25.8	-26.1	-26.0	-26.3	-28.0
Soybean Profits (cents per bushel)		-107.7	-104.6	-106.8	-108.0	-110.5	-119.0
Hog Profits (cents per pound)		29.6	30.2	31.0	29.1	33.2	35.3
Cattle Profits (cents per pound)		10.5	9.5	8.6	7.0	8.2	7.6
Iowa Stock Market Index (10=1984-86)	↑	156.8	163.2	155.2	146.4	159.8	164.1
Yield Spread (10-year less 3-month)	↓	0.3	0.1	-0.1	0.0	0.1	0.0
Building Permits	↑	1018.6	1039.2	1068.8	1092.3	1100.8	1153.1
Average Weekly Unemployment Claims[d]	↑	2553.5	2591.3	2599.7	2582.3	2592.0	2578.9
Average Weekly Manufacturing Hours	↓	41.0	41.0	41.1	41.2	41.2	41.2
New Orders Index (percent)	↑	48.5	48.4	49.0	48.4	48.6	48.4
Diesel Fuel Consumption (mil gallons)	↑	65.2	66.0	65.1	65.5	65.2	65.7

Source: Tax Research Bureau, Iowa Department of Revenue, produced August 5, 2025.

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 12, 2024).

c. Arrows indicate the direction of the series' contribution to the ILII for the latest month.

d. Changes in unemployment claims are inverted when added to the ILII, thus a negative change in the series contributes positively to the index.

Table 7. Iowa Leading Indicators Index Components: Six Month Overview for June 2025 After the FY 2026 Annual Update

Component Series Monthly Values[a]		2025 January	February	March	April	May	June
AFPI[b]	↑c	*-1.7*	*-2.2*	*-3.9*	*-5.5*	*-1.2*	*-2.0*
Corn Profits (cents per bushel)		-6.2	-2.2	-0.3	2.0	4.0	4.3
Soybean Profits (cents per bushel)		-123.5	-122.6	-126.9	-130.3	-135.0	-134.9
Hog Profits (cents per pound)		29.6	30.2	31.0	29.1	33.2	35.3
Cattle Profits (cents per pound)		10.5	9.5	8.6	7.0	8.2	7.7
Iowa Stock Market Index (10=1984-86)	↑	156.8	163.2	155.2	146.4	159.8	164.1
Yield Spread (10-year less 3-month)	↓	0.3	0.1	-0.1	0.0	0.1	0.0
Building Permits	↑	1,018.6	1,039.2	1,068.8	1,092.3	1,100.8	1,153.1
Average Weekly Unemployment Claims[d]	↑	2,553.5	2,591.3	2,599.7	2,582.3	2,592.0	2,578.9
Average Weekly Manufacturing Hours	↓	41.0	41.0	41.1	41.2	41.2	41.2
New Orders Index (percent)	↑	48.5	48.4	49.0	48.4	48.6	48.4
Diesel Fuel Consumption (mil gallons)	↑	65.2	66.0	65.1	65.5	65.2	65.7

Source: Tax Research Bureau, Iowa Department of Revenue, produced September 5, 2025.

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, 2025).

c. Arrows indicate the direction of the series' contribution to the ILII for the latest month.

d. Changes in unemployment claims are inverted when added to the ILII, thus a negative change in the series contributes positively to the index.

Appendix A: Computation of the Iowa Leading Indicators Index

The ILII was computed following the five step process presented in the *Business Cycle Indicators Handbook* by The Conference Board.

1. Calculate month-to-month changes for each component. For the components already in percent form (including the yield spread and the new orders index) simple arithmetic differences are calculated. For the other components, a symmetric percent change formula is used because this formula will return the original value if equal positive and negative changes occur in consecutive months.

   = 200*(current month value – last month value)/(current month value + last month value)

2. Multiply each component's month-to-month changes by the standardization factor. Standardization factors, the inverse of the standard deviation of the changes in the series normalized across all series to sum to one, equalize the volatility of each component in the index (see Table 4 for the standardization factors currently being used).

3. Add the standardized month-to-month changes across all eight indicators to compute each monthly ILII change.

4. Compute preliminary values of the index using a cumulative symmetric percent change formula. The initial month's value is set to 100, then to compute the cumulative change of the index, each of the index's value is multiplied by the following monthly change:

   $ILII_0$=100

$ILII_1 = ILII_0 * (200 + \text{month one ILII change}) / (200 - \text{month one ILII change})$

5. Rebase the index to average 100 in the base year (1999). The preliminary levels are multiplied by 100 and divided by the average preliminary value over the 12 months in 1999.

Because many of the series are subject to a lot of seasonal variation, before calculating month-to-month changes all series except the yield spread and the Iowa stock market index are smoothed by taking 12-month backward moving averages.

The standardization factors are recalculated and any revisions to historical data (beyond the previous two months) are incorporated annually during the summer.

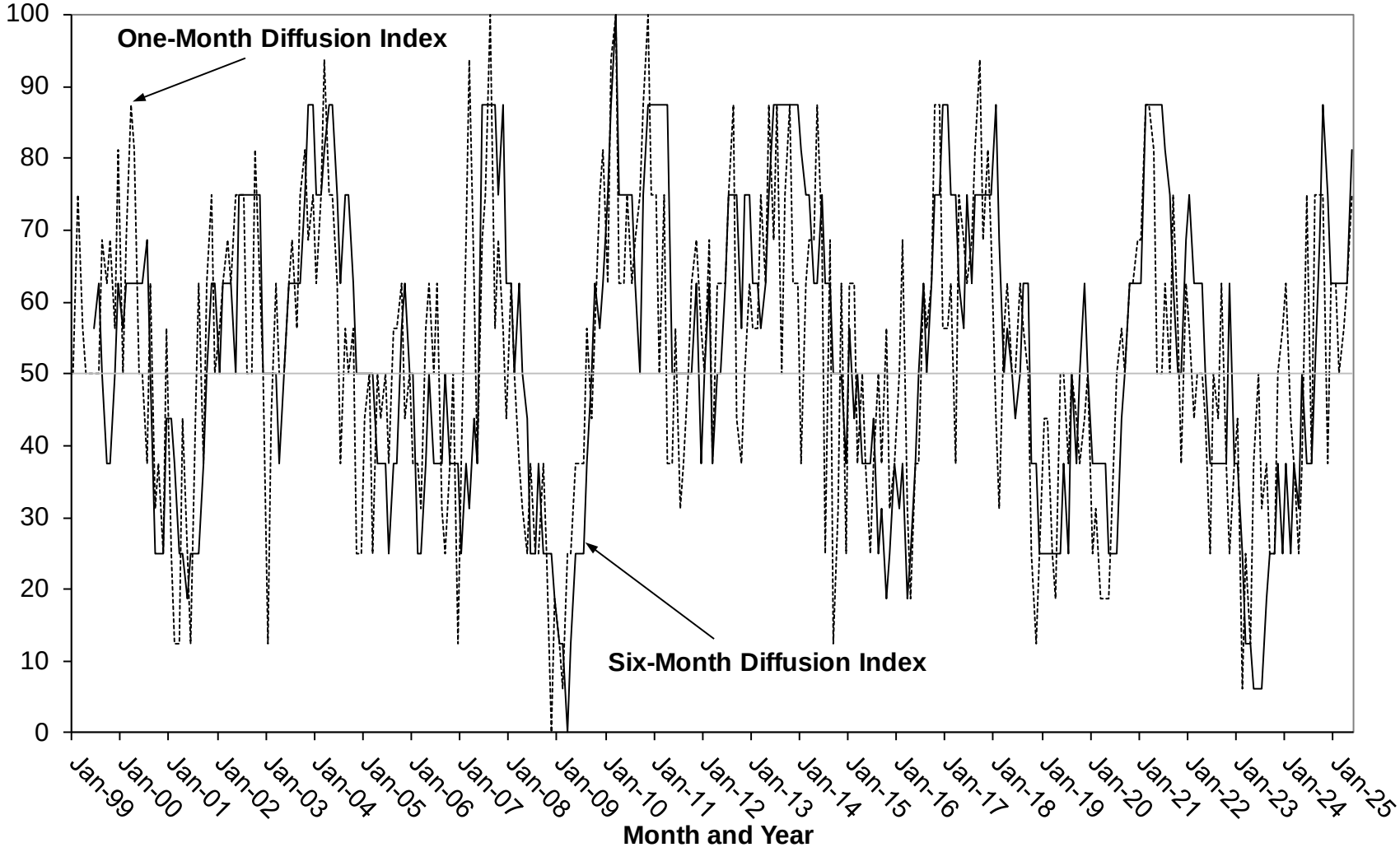
The Non-Farm Employment Coincident Index is computed following this same method; however, with only one component, steps 2 and 3 are unnecessary.

Appendix B: Computation of the Diffusion Index

A diffusion index measures the proportion of components rising in a given time period. Components experiencing an increase of more than 0.05 percent are assigned a value of 1.0; components experiencing a change in absolute value of 0.05 percent or less are assigned a value of 0.5; components experiencing a decrease of more than 0.05 percent are assigned a value of 0.0. These assigned values are then summed over all of the components. The sum is multiplied by 100 and divided by the number of components. Thus a value below 50 indicates more than half of the components declined in value during the period of interest.

The diffusion index is based on the actual changes in the components, not the standardized contributions used to compute the ILII. A diffusion index is computed for one-month and six-month symmetric percent changes in the components (see Figure B1).

Figure B1. Iowa Leading Indicators Index One-Month and Six-Month Diffusion Indexes: Jan. 1999-June 2025



Sources: Iowa Department of Revenue