The Ohio Leading Indicators report uses an annualized growth rate to forecast employment growth for Ohio and its eight largest MSAs for the next six months. The model examines seasonally adjusted total nonfarm employment. These data are seasonally adjusted by the leading indicators model and should not be compared to other seasonally adjusted data.

If the April employment declines caused by the COVID-19 disruptions continue throughout 2020 in a similar magnitude, total employment is predicted to decrease at an annual rate of -61.62 percent for the next six months in Ohio. Given the gradual reopening of Ohio’s economy, we anticipate a smaller decrease in employment in Ohio and all MSAs. The following MSAs are also predicted to decline: the Toledo MSA at -99.31 percent; the Cleveland-Elyria MSA at -89.96 percent; the Akron MSA at -62.59 percent; the Canton-Massillon MSA at -49.78 percent; the Cincinnati MSA at -45.10 percent; the Youngstown-Warren-Boardman MSA at -40.10 percent; the Dayton MSA at -34.71 percent; and the Columbus MSA at -17.97 percent.
The U.S. Composite of Leading Indicators decreased 4.4 percent from March and 11.5 percent from April 2019. The U.S. industrial production in manufacturing decreased 13.8 percent over the month and 18.0 percent over the year.

Ohio’s seasonally adjusted total nonfarm employment was 4,717,600 in April 2020, down 14.9 percent over the month and 15.6 percent over the year. Initial unemployment claims decreased 4.9 percent from March but increased 1,984.0 percent from April 2019. Ohio’s average weekly manufacturing hours decreased to 38.7 in April. Housing permit valuations increased 3.9 percent from the previous month but decreased 3.3 percent from the previous year.
# Leading Indicators and Components

## United States

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<tr>
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</thead>
<tbody>
<tr>
<td>U.S. Composite Index of Leading Indicators (2016 = 100)</td>
<td>111.6</td>
<td>111.6</td>
<td>111.6</td>
<td>112.0</td>
<td>111.8</td>
<td>111.6</td>
<td>111.4</td>
<td>111.6</td>
<td>111.4</td>
<td>111.9</td>
<td>111.7</td>
<td>103.4</td>
<td>98.8</td>
<td>-4.4%</td>
</tr>
<tr>
<td>U.S. Industrial Production: Manufacturing (2012 = 100)</td>
<td>105.4</td>
<td>105.5</td>
<td>106.1</td>
<td>105.7</td>
<td>106.4</td>
<td>105.7</td>
<td>105.1</td>
<td>106.1</td>
<td>106.3</td>
<td>106.1</td>
<td>106.0</td>
<td>100.2</td>
<td>86.4</td>
<td>-13.8%</td>
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## Ohio

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Nonagricultural Wage and Salary Employment (Seasonally Adjusted in Thousands)</td>
<td>5,586.9</td>
<td>5,585.5</td>
<td>5,588.2</td>
<td>5,592.5</td>
<td>5,591.3</td>
<td>5,589.7</td>
<td>5,580.1</td>
<td>5,575.5</td>
<td>5,586.9</td>
<td>5,591.8</td>
<td>5,599.3</td>
<td>5,541.9</td>
<td>4,717.6</td>
<td>-14.9%</td>
</tr>
<tr>
<td>Initial Claims for Unemployment Insurance (Seasonally Adjusted)</td>
<td>29,639</td>
<td>32,553</td>
<td>28,807</td>
<td>27,612</td>
<td>27,771</td>
<td>30,700</td>
<td>31,384</td>
<td>29,373</td>
<td>30,204</td>
<td>26,933</td>
<td>32,015</td>
<td>649,448</td>
<td>617,673</td>
<td>-4.9%</td>
</tr>
<tr>
<td>Average Weekly Hours for Manufacturing (Seasonally Adjusted)</td>
<td>41.5</td>
<td>41.4</td>
<td>41.4</td>
<td>41.7</td>
<td>41.4</td>
<td>41.7</td>
<td>41.2</td>
<td>41.4</td>
<td>41.9</td>
<td>41.8</td>
<td>41.0</td>
<td>40.7</td>
<td>38.7</td>
<td>-4.9%</td>
</tr>
<tr>
<td>Valuation of Housing Permits (Seasonally Adjusted in Millions)</td>
<td>$413.8</td>
<td>$349.2</td>
<td>$388.2</td>
<td>$375.3</td>
<td>$394.8</td>
<td>$487.1</td>
<td>$440.4</td>
<td>$522.8</td>
<td>$464.9</td>
<td>$933.3</td>
<td>$562.1</td>
<td>$384.9</td>
<td>$400.1</td>
<td>3.9%</td>
</tr>
</tbody>
</table>

Percent Change: Month - Year
Akron Metropolitan Statistical Area
Portage and Summit Counties

The leading indicator for the Akron metropolitan area for April 2020 forecasts negative employment growth at an annual rate of -62.59 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 281,700 in April, down 15.6 percent from March.

The number of initial claims for unemployment insurance in April was 38,360 claims, 1.3 percent more than the number of claims filed last month and 2,239.1 percent more than last year. The valuation of permits for new housing construction in April was $19.3 million, a 21.5 percent decrease from March and a 4.9 percent decrease from April 2019.

Akron

<table>
<thead>
<tr>
<th>Month</th>
<th>Nonagricultural Wage and Salary Employment</th>
<th>Initial Claims for Unemployment Insurance</th>
<th>Valuation of Housing Permits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr 2019</td>
<td>341.2 (Seasonally Adjusted in Thousands)</td>
<td>1,640 (Seasonally Adjusted)</td>
<td>$20.3 (Seasonally Adjusted in Millions)</td>
</tr>
<tr>
<td>May 2019</td>
<td>340.3</td>
<td>1,694</td>
<td>$22.2</td>
</tr>
<tr>
<td>Jun 2019</td>
<td>341.3</td>
<td>1,754</td>
<td>$19.4</td>
</tr>
<tr>
<td>Jul 2019</td>
<td>341.3</td>
<td>1,635</td>
<td>$25.2</td>
</tr>
<tr>
<td>Aug 2019</td>
<td>341.0</td>
<td>1,551</td>
<td>$22.7</td>
</tr>
<tr>
<td>Sep 2019</td>
<td>339.7</td>
<td>1,542</td>
<td>$29.8</td>
</tr>
<tr>
<td>Oct 2019</td>
<td>338.9</td>
<td>1,646</td>
<td>$26.1</td>
</tr>
<tr>
<td>Nov 2019</td>
<td>338.1</td>
<td>1,645</td>
<td>$22.8</td>
</tr>
<tr>
<td>Dec 2019</td>
<td>336.9</td>
<td>1,666</td>
<td>$29.0</td>
</tr>
<tr>
<td>Jan 2020</td>
<td>336.8</td>
<td>1,521</td>
<td>$27.6</td>
</tr>
<tr>
<td>Feb 2020</td>
<td>336.3</td>
<td>1,674</td>
<td>$29.0</td>
</tr>
<tr>
<td>Mar 2020</td>
<td>333.9</td>
<td>37,880</td>
<td>$24.6</td>
</tr>
<tr>
<td>Apr 2020</td>
<td>281.7</td>
<td>38,360</td>
<td>$19.3</td>
</tr>
<tr>
<td>Percent Change</td>
<td>-15.6%</td>
<td>1.3%</td>
<td>-21.5%</td>
</tr>
</tbody>
</table>

*In 2005, the BLS stopped producing manufacturing hours for Akron, Canton, Dayton, Toledo, and Youngstown. Starting in February 2005, data for the manufacturing hours for those MSAs are the state values.
The leading indicator for the Canton-Massillon metropolitan area for April 2020 forecasts negative employment growth at an annual rate of -49.78 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 148,100 in April, down 13.3 percent from March.

The number of initial claims for unemployment insurance in April was 21,010 claims, unchanged from the number of claims filed last month but 1,177.4 percent more than last year. The valuation of permits for new housing construction in April was $9.3 million, a 24.0 percent increase from one month ago and a 5.7 percent increase from one year ago.
Cincinnati Metropolitan Statistical Area
Brown, Butler, Clermont, Hamilton, and Warren Counties
This MSA also includes counties in Indiana and Kentucky (see page 12)

The leading indicator for the Cincinnati metropolitan area for April 2020 forecasts negative employment growth at an annual rate of -45.10 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 949,200 in April, down 13.9 from March.

The number of initial claims for unemployment insurance in April was 75,213 claims, 8.8 percent more than last month and 2,309.4 percent more than last year. The valuation of permits for new housing construction in April was $83.5 million, a 9.6 percent decrease from March and a 29.1 percent decrease from April 2019.
The leading indicator for the Cleveland-Elyria metropolitan area for April 2020 forecasts negative employment growth at an annual rate of -89.96 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 901,300 in April, a 15.5 percent decrease from March.

The number of initial claims for unemployment insurance in April was 105,081 claims, 5.6 percent less than the number of claims filed last month but 1,904.6 percent more than last year. The valuation of permits for new housing construction in April was $65.6 million, a 2.7 percent decrease from March but a 12.5 percent increase from April 2019.
The leading indicator for the Columbus metropolitan area for April 2020 forecasts negative employment growth at an annual rate of -17.97 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 969,600 in April, down 13.0 percent from March.

The number of initial claims for unemployment insurance in April was 99,748 claims, 3.0 percent more than the number of claims filed last month and 2,694.6 percent more than last year. The valuation of permits for new housing construction in April was $144.4 million, 14.8 percent more than March and 47.0 percent more than April 2019.
**Dayton Metropolitan Statistical Area**  
Greene, Miami, and Montgomery Counties

The leading indicator for the Dayton metropolitan area for April 2020 forecasts negative employment growth at an annual rate of -34.71 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 344,800 in April, down 11.9 percent from March.

The number of initial claims for unemployment insurance in April was 45,618 claims, 0.5 percent more than the number of claims filed last month and 2,898.4 percent more than last year. The valuation of permits for new housing construction in April was $22.5 million, a 13.8 percent decrease from March and a 35.7 percent decrease from April 2019.
The leading indicator for the Toledo metropolitan area for April 2020 forecasts negative employment growth at an annual rate of -99.31 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 251,200 in April, an 18.5 percent decrease from March.

The number of initial claims for unemployment insurance in April was 36,278 claims, 24.9 percent less than the number of claims filed last month but 1,919.3 percent more than last year. The valuation of permits for new housing construction in April was $14.6 million, a 0.7 percent decrease from March and a 32.7 percent decrease from April 2019.
The leading indicator for the Youngstown-Warren-Boardman metropolitan area for April 2020 forecasts negative employment growth at an annual rate of -40.10 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 179,200 in April, a 15.3 percent decrease from March.

The number of initial claims for unemployment insurance in April was 24,199 claims, 2.1 percent more than the number of claims filed last month and 1,354.7 percent more than last year. The valuation of permits for new housing construction in April was $3.2 million, a 39.6 percent decrease from March and a 30.4 percent decrease from April 2019.

*In 2005, the BLS stopped producing manufacturing hours for Akron, Canton, Dayton, Toledo, and Youngstown. Starting in February 2005, data for the manufacturing hours for those MSAs are the state values.
Ohio Metropolitan Statistical Areas (MSAs)

Developed by the U.S. Office of Management and Budget, Metropolitan Statistical Areas are integrated geographic regions comprised of at least one city or urban area (with a population of at least 50,000) and adjacent communities. Metropolitan Statistical Areas make it possible for federal statistical agencies to utilize the same boundaries when publishing statistical data. These are definitions based on analysis of 2010 Census data.

A. Akron: Portage and Summit counties
B. Canton-Massillon: Carroll and Stark counties
C. Cincinnati: Brown, Butler, Clermont, Hamilton, and Warren counties in Ohio; Dearborn, Ohio, and Union counties in Indiana; Boone, Bracken, Campbell, Gallatin, Grant, Kenton, and Pendleton counties in Kentucky
D. Cleveland-Elyria: Cuyahoga, Geauga, Lake, Lorain, and Medina counties
E. Columbus: Delaware, Fairfield, Franklin, Hocking, Licking, Madison, Morrow, Perry, Pickaway, and Union counties
F. Dayton: Greene, Miami, and Montgomery counties
G. Huntington-Ashland: Lawrence County in Ohio; Boyd and Greenup counties in Kentucky; Cabell, Lincoln, Putnam, and Wayne counties in West Virginia
H. Lima: Allen County
I. Mansfield: Richland County
J. Springfield: Clark County
K. Toledo: Fulton, Lucas, and Wood counties
L. Weirton-Steubenville: Jefferson County in Ohio; Brooke and Hancock counties in West Virginia
M. Wheeling: Belmont County in Ohio; Marshall and Ohio counties in West Virginia
N. Youngstown-Warren-Boardman: Mahoning and Trumbull counties in Ohio; Mercer County in Pennsylvania
The leading economic indicators for Ohio and the eight largest Metropolitan Statistical Areas (MSAs) are designed to anticipate changes in area economies. The Gross National Product is the accepted measure of economic activity at the national level, but there are no monthly measures of the dollar value of goods and services at the state and metropolitan levels. Instead, the Ohio leading indicators forecast the growth rates of total nonfarm employment for each area.

The leading indicators are generated with vector auto regression models using five inputs. The inputs are statistically significant predictors of Ohio total nonfarm growth rates at the 90 percent confidence level.

The five inputs are:

- U.S. Industrial Production in the Manufacturing Sector (Source: Federal Reserve Bank of St. Louis, [https://fred.stlouisfed.org/series/IPMAN](https://fred.stlouisfed.org/series/IPMAN))
- Unemployment Insurance Claims (Source: Ohio Department of Job and Family Services, [https://ohiolmi.com/home/UIclaims](https://ohiolmi.com/home/UIclaims))
- Housing Valuations (Source: U.S. Census Bureau, [https://www.census.gov/construction/bps/](https://www.census.gov/construction/bps/))

The models forecast growth rates for six time-horizons (one to six months); the published forecast is an annualized average of those forecasts. The models use rolling 120-month windows of data. Each month, a new month of data is added (the most current available) and the oldest month is dropped. This approach allows for possible structural changes in the economy over time. All data series are converted monthly growth rates using the first difference of the natural logarithms multiplied by 100. Seasonal adjustments are made within the models using the U.S. Census’ X-13ARIMA-SEATS program; seasonally adjusted data from the leading indicator models will not match data from original sources.

The forecasting models for the Ohio leading indicators are ‘real time’ processes that do not build on previous forecasts. For this reason, the Ohio leading indicators should not be used as a time series. The models use data as they are available each month, including revisions to older data. For example, monthly data releases may be preliminary and later revised, other series are revised during annual ‘benchmarking,’ and occasionally a series may be reindexed to new time point. Some of these revisions could be substantial.
Business Principles for Workforce Development

- Partner with the workforce and economic development community.

- Develop and deploy new information solution tools and systems for the workforce and economic development community.

- Provide products and services that are customer- and demand-driven.

- Be known as an important and reliable source for information solutions that support workforce development goals and outcomes.

This periodical is published under the direction of Bureau Chief Coretta Pettway. For further information, visit [http://OhioLMI.com](http://OhioLMI.com) or call the Ohio Bureau of Labor Market Information at 1-888-296-7541 option 6, or (614) 752-9494.

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