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 May employment rebound after the initial COVID-19 disruptions continue throughout 2020 in a similar magnitude, total employment is predicted to increase at an annual rate of 16.28 percent for the next six months in Ohio. The following MSAs are also predicted to grow: the Columbus MSA at 6.61 percent; the Cincinnati MSA at 8.31 percent; the Cleveland-Elyria MSA at 11.27 percent; the Youngstown-Warren-Boardman MSA at 11.82 percent; the Akron MSA at 25.33 percent; the Canton-Massillon MSA at 34.76 percent; and the Toledo MSA at 109.03 percent. The Dayton MSA has a negative annual growth rate at -2.82 percent.
The U.S. Composite of Leading Indicators increased 2.8 percent from April but decreased 10.6 percent from May 2019. The U.S. industrial production in manufacturing increased 3.9 percent over the month but decreased 16.5 percent over the year.

Ohio’s seasonally adjusted total nonfarm employment was 4,823,600 in May 2020, up 2.6 percent over the month but down 13.7 percent over the year. Initial unemployment claims decreased 68.1 percent from April but increased 504.3 percent from May 2019. Ohio’s average weekly manufacturing hours increased to 40.3 in May. Housing permit valuations increased 3.0 percent from the previous month and 17.8 percent from the previous year.
# Leading Indicators and Components

## United States

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Composite Index of Leading Indicators (2016 = 100) (Seasonally Adjusted)</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>112.0</td>
<td>111.8</td>
<td>103.4</td>
<td>97.1</td>
<td>99.8</td>
<td>2.8%</td>
<td>-10.6%</td>
</tr>
<tr>
<td>U.S. Industrial Production: Manufacturing (2012 = 100) (Seasonally Adjusted)</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>106.4</td>
<td>106.2</td>
<td>106.2</td>
<td>100.6</td>
<td>84.8</td>
<td>88.1</td>
<td>3.9%</td>
<td>-16.5%</td>
</tr>
</tbody>
</table>

## Ohio

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonagricultural Wage and Salary Employment (Seasonally Adjusted in Thousands)</td>
<td>5,586.2</td>
<td>5,585.3</td>
<td>5,594.1</td>
<td>5,593.5</td>
<td>5,587.4</td>
<td>5,578.4</td>
<td>5,576.7</td>
<td>5,585.8</td>
<td>5,594.5</td>
<td>5,601.5</td>
<td>5,539.4</td>
<td>4,701.8</td>
<td>4,823.6</td>
<td>2.6%</td>
<td>-13.7%</td>
</tr>
<tr>
<td>Initial Claims for Unemployment Insurance (Seasonally Adjusted)</td>
<td>32,556</td>
<td>28,806</td>
<td>27,611</td>
<td>27,769</td>
<td>30,699</td>
<td>31,384</td>
<td>29,373</td>
<td>30,205</td>
<td>26,933</td>
<td>32,016</td>
<td>649,456</td>
<td>617,661</td>
<td>196,728</td>
<td>-68.1%</td>
<td>504.3%</td>
</tr>
<tr>
<td>Average Weekly Hours for Manufacturing (Seasonally Adjusted)</td>
<td>41.4</td>
<td>41.5</td>
<td>41.7</td>
<td>41.5</td>
<td>41.2</td>
<td>41.4</td>
<td>41.8</td>
<td>41.7</td>
<td>41.0</td>
<td>40.7</td>
<td>39.2</td>
<td>40.3</td>
<td>2.8%</td>
<td>-2.7%</td>
<td></td>
</tr>
<tr>
<td>Valuation of Housing Permits (Seasonally Adjusted in Millions)</td>
<td>$349.5</td>
<td>$388.2</td>
<td>$375.2</td>
<td>$394.8</td>
<td>$487.2</td>
<td>$440.3</td>
<td>$522.9</td>
<td>$464.8</td>
<td>$933.4</td>
<td>$562.3</td>
<td>$384.6</td>
<td>$399.7</td>
<td>$411.8</td>
<td>3.0%</td>
<td>17.8%</td>
</tr>
</tbody>
</table>
The leading indicator for the Akron metropolitan area for May 2020 forecasts employment growth at an annual rate of 25.33 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 291,400 in May, up 2.4 percent from April.

The number of initial claims for unemployment insurance in May was 13,098 claims, 65.9 percent less than the number of claims filed last month but 673.2 percent more than last year. The valuation of permits for new housing construction in May was $17.6 million, a 10.7 percent decrease from April and a 25.4 percent decrease from May 2019.
CANTON-MASSillon MEmorAl STAtistICAL AreA
Carroll and Stark Counties

The leading indicator for the Canton-Massillon metropolitan area for May 2020 forecasts employment growth at an annual rate of 34.76 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 150,800 in May, up 2.3 percent from April.

The number of initial claims for unemployment insurance in May was 8,601 claims, down 59.1 percent from the number of claims filed last month but 443.2 percent more than last year. The valuation of permits for new housing construction in May was $11.1 million, an 18.1 percent increase from one month ago and a 46.1 percent increase from one year ago.

---

### Canton

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nonagricultural Wage and Salary Employment (Seasonally Adjusted in Thousands)</td>
<td>173.5</td>
<td>173.0</td>
<td>173.5</td>
<td>173.3</td>
<td>172.7</td>
<td>172.3</td>
<td>171.8</td>
<td>172.3</td>
<td>172.4</td>
<td>170.8</td>
<td>147.4</td>
<td>150.8</td>
<td>2.3%</td>
<td>-13.1%</td>
</tr>
<tr>
<td>Initial Claims for Unemployment Insurance (Seasonally Adjusted)</td>
<td>1,583</td>
<td>1,657</td>
<td>1,266</td>
<td>1,334</td>
<td>1,572</td>
<td>2,689</td>
<td>1,937</td>
<td>1,598</td>
<td>1,897</td>
<td>1,598</td>
<td>21,013</td>
<td>21,010</td>
<td>8,601</td>
<td>-59.1%</td>
</tr>
<tr>
<td>Valuation of Housing Permits (Seasonally Adjusted in Millions)</td>
<td>$7.6</td>
<td>$8.7</td>
<td>$9.7</td>
<td>$8.4</td>
<td>$8.1</td>
<td>$7.7</td>
<td>$14.5</td>
<td>$12.9</td>
<td>$14.1</td>
<td>$14.7</td>
<td>$9.4</td>
<td>$11.1</td>
<td>18.1%</td>
<td>46.1%</td>
</tr>
<tr>
<td>Average Weekly Hours for Manufacturing* (Seasonally Adjusted)</td>
<td>41.4</td>
<td>41.5</td>
<td>41.7</td>
<td>41.5</td>
<td>41.7</td>
<td>41.2</td>
<td>41.4</td>
<td>41.8</td>
<td>41.7</td>
<td>41.0</td>
<td>40.7</td>
<td>39.2</td>
<td>40.3</td>
<td>2.8%</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 Cincinnati metropolitan area for May 2020 forecasts employment growth at an annual rate of 8.31 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 977,400 in May, up 2.9 percent from April.

The number of initial claims for unemployment insurance in May was 23,869 claims, 68.3 percent less than last month but 602.9 percent more than last year. The valuation of permits for new housing construction in May was $103.8 million, a 24.0 percent increase from April and a 28.9 percent increase from May 2019.
The leading indicator for the Cleveland-Elyria metropolitan area for May 2020 forecasts employment growth at an annual rate of 11.27 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 904,500 in May, a 0.9 percent increase from April.

The number of initial claims for unemployment insurance in May was 41,263 claims, 60.6 percent less than the number of claims filed last month but 668.2 percent more than last year. The valuation of permits for new housing construction in May was $49.0 million, a 24.6 percent decrease from April and a 17.9 percent decrease from May 2019.
The leading indicator for the Columbus metropolitan area for May 2020 forecasts employment growth at an annual rate of 6.61 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 981,700 in May, up 1.8 percent from April.

The number of initial claims for unemployment insurance in May was 33,416 claims, 66.5 percent less than the number of claims filed last month but 953.4 percent more than last year. The valuation of permits for new housing construction in May was $155.3 million, 7.3 percent more than April and 36.8 percent more than May 2019.
The leading indicator for the Dayton metropolitan area for May 2020 forecasts negative employment growth at an annual rate of -2.82 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 347,300 in May, up 0.8 percent from April.

The number of initial claims for unemployment insurance in May was 13,018 claims, 71.5 percent less than the number of claims filed last month but 648.1 percent more than last year. The valuation of permits for new housing construction in May was $21.8 million, a 3.1 percent decrease from April and an 18.7 percent decrease from May 2019.
The leading indicator for the Toledo metropolitan area for May 2020 forecasts employment growth at an annual rate of 109.03 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 265,400 in May, a 5.2 percent increase from April.

The number of initial claims for unemployment insurance in May was 11,705 claims, 67.7 percent less than the number of claims filed last month but 129.8 percent more than last year. The valuation of permits for new housing construction in May was $16.8 million, a 15.1 percent increase from April but an 11.1 percent decrease from May 2019.
The leading indicator for the Youngstown-Warren-Boardman metropolitan area for May 2020 forecasts employment growth at an annual rate of 11.82 percent for the next six months. Seasonally adjusted nonfarm payroll employment was 181,800 in May, a 2.2 percent increase from April.

The number of initial claims for unemployment insurance in May was 9,755 claims, 58.9 percent less than the number of claims filed last month but 458.4 percent more than last year. The valuation of permits for new housing construction in May was $3.7 million, a 15.6 percent increase from April and no change from May 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)
- Unemployment Insurance Claims (Source: Ohio Department of Job and Family Services, https://ohiolmi.com/home/UIclaims)
- Housing Valuations (Source: U.S. Census Bureau, 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 or call the Ohio Bureau of Labor Market Information at 1-888-296-7541 option 6, or (614) 752-9494.

If you would like to receive email notification when this publication is posted on our website, call (614) 752-9494 or email ContactLMI@jfs.ohio.gov to be placed on the email notification list.

Mike DeWine, Governor
State of Ohio
http://Ohio.gov

Kimberly Hall, Director
Ohio Department of Job and Family Services
http://jfs.ohio.gov

Office of Workforce Development
http://jfs.ohio.gov/owd/

Bureau of Labor Market Information
http://OhioLMI.com

Production of this report was funded by a grant awarded by the U.S. Department of Labor’s Employment and Training Administration. See http://ohiolmi.com/grant_product_attribution.htm for full details. This institution is an equal opportunity provider and employer. A proud partner of the American Job Center network.