

# 2007-2018 Hunger Factors Index

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Every four years the Ohio Association of Foodbanks, in conjunction with Feeding America, prepares a study of Hunger in Ohio that provides a profile of the persons and families seeking food assistance in the state. The most recent study, “Hunger in Ohio 2014”, released in fall 2014 shows that Ohio’s network of foodbanks provides emergency food assistance to an estimated 2 million Ohioans annually, more than 1 out of every 6 of the state’s residents.

While the Hunger in Ohio study provides invaluable information regarding the need for food assistance in Ohio, the study is only conducted every four years. The “Hunger Factors Index” shown below provides a simple way to evaluate how the underlying economic factors that influence hunger and food insecurity have changed in Ohio *on an annual basis* since the onset of the recession of 2008 and 2009. The inclusion of data from the year 2000 also provides a benchmark prior to the recession of 2001.

The methodology used in the Hunger Factors Index utilizes three key economic variables identified by Feeding America’s “Map the Meal Gap” analyses as being linked to food insecurity. These variables are:

- Median household income
- Poverty rate
- Unemployment rate

Table 1 on the following page provides a summary of these 3 economic indicators in Ohio in 2000 and from 2007 through 2018, and also adds 2 additional measures which provide additional insight relating to Ohio’s need for food assistance programs:

- Ohio’s rate of food insecurity as annually computed by the US Department of Agriculture
- Ohio’s Supplemental Assistance Nutrition Program (SNAP) participation rate

The effects of the 2008-2009 recession in Ohio are clearly evident from examining the data in Table 1. Median income in Ohio in *current dollars* (i.e. unadjusted for inflation) fluctuated up and down from 2007 through 2011 but has increased each year since then. However, expressing median income in *constant 2007 dollars* each year (by using the CPI to adjust for inflation), reveals a clear pattern showing median income falling each year through 2011 before increasing from 2012 onward. The 2012 increase in inflation-adjusted median income was very small, while the increases in both 2013 and 2014 were roughly 1%. In 2015 Ohio median income in constant 2007 dollars increased by nearly 3.5% from 2014, while both 2016 and 2017 inflation adjusted median income again showed an increase of roughly 1% from the prior year. The 2018 increase in inflation adjusted median income was 1.4%.

**Table 1: Economic Indicators Influencing Hunger in Ohio, 2000 & 2007-2018**

Year	Ohio Median Income (Current \$)	Ohio Median Income (2007 \$)	% Poverty	% Unemployment	Food Insecurity	SNAP Participation %
2000	\$39,584	\$47,854	11.1%	4.0%	9.8%*	6.7%*
2007	\$46,597	\$46,597	13.1%	5.6%	12.2%	9.5%
2008	\$47,988	\$46,214	13.4%	6.6%	13.3%	10.3%
2009	\$45,395	\$43,873	15.2%	10.2%	14.8%	12.5%
2010	\$46,275	\$42,875	15.8%	10.0%	16.4%	14.5%
2011	\$45,090	\$42,170	16.4%	8.7%	15.5%	15.5%
2012	\$46,289	\$42,290	16.3%	7.4%	16.1%	15.7%
2013	\$48,081	\$42,794	16.0%	7.4%	16.0%	15.75%
2014	\$49,283	\$43,162	15.8%	5.8%	16.9%	15.0%
2015	\$51,075	\$44,860	14.8%	4.9%	16.1%	14.3%
2016	\$52,334	\$45,210	14.6%	5.0%	14.8%	13.65%
2017	\$54,021	\$45,581	14.0%	5.0%	13.7%	12.7%
2018	\$56,111	\$46,218	13.9%	4.6%	13.2%	11.7%**

\* Note that the 2000 Food Insecurity & SNAP Participation data is actually from 2002.

\*\* Also note that the 2018 SNAP Participation rate was computed by the author based on a combination of the old Public Assistance Monthly Statistics (aka “PAMS”) report and the new Caseload Summary Statistics Report that was created in the aftermath of the August 2018 transition to a new statewide benefits eligibility system in Ohio.

Table 1 also shows that over the same time frame, poverty and unemployment both increased in the aftermath of the recession, however their pattern of recovery has differed markedly. The unemployment rate has fallen sharply since 2010, with the current rate at 4.6% - less than half of the recession era levels of 10.3% in 2009 and 2010. In contrast, the poverty rate showed little improvement through 2014 (the 15.8% rate in 2014 was the same as in 2010), while finally showing a significant decline in 2015 to 14.8% and further declines from 2016 through 2018 with the 2018 rate at 13.9%. Note however, that the 2018 poverty rate is still nearly a full percentage point higher than the pre-recession poverty rate of 13.1% in 2007. Finally, Ohio’s rate of Food Insecurity and SNAP participation both increased dramatically in 2010 and each remains well above the pre-recession level of 2007, with food insecurity 1.0 percentage points higher in 2018 than in 2007 and SNAP participation 2.2 percentage points higher in 2018 than it was in 2007.

In addition, comparison of Table 1 data from the 2007-2018 period with data from 2000 shows that even in 2007 (the year prior to the most recession) underlying economic conditions in Ohio had not recovered to pre-2001 recession levels. The 2001 recession ended what was at the time the longest expansionary period in U.S. history (10 years) and thus might represent a “high water” mark for American prosperity. (Note that the current recovery from the 2008-09 recession is also at roughly 10 years although this recovery has been marked by slower economic growth than was the case in the 1990s.)

Combining the 5 indicators shown in Table 1 into a single “Hunger Factors Index” allows for a simple comparison of how these underlying economic conditions have changed

since the recession.

In order to combine these 5 disparate measures into a single index, it is necessary to first transform the inflation-adjusted median income measure so that it is both in similar units of measurement to the other factors and also moves in the same direction as the other four measures (higher median income is “good” while higher poverty, unemployment, food insecurity and SNAP participation are “bad”). Ohio Median Income is transformed by comparing it to the inflation-adjusted national average Median Income in 2007 (\$50,740). In 2007 Ohio’s inflation-adjusted median income of \$46,597 was 8.17% below the national average. This differential increased steadily through 2011 when Ohio’s inflation adjusted median income of \$42,170 was 16.89% below the 2007 national average. The differential has narrowed each year since 2011 as Ohio’s inflation adjusted median income has crept upward. Ohio’s 2018 inflation-adjusted median income of \$46,218 is now 8.91% below the 2007 national average. These figures are shown in Table 2.

**Table 2: Ohio Inflation-Adjusted Median Income vs. 2007 U.S. Median Income**

<b>Year</b>	<b>Ohio Median Income (2007 \$)</b>	<b>Ohio Median Income vs. 2007 U.S. Median</b>
<b>2000</b>	\$47,854	5.69% below
<b>2007</b>	\$46,597	8.17% below
<b>2008</b>	\$46,214	8.92% below
<b>2009</b>	\$43,873	13.53% below
<b>2010</b>	\$42,875	15.50% below
<b>2011</b>	\$42,170	16.89% below
<b>2012</b>	\$42,290	16.65% below
<b>2013</b>	\$42,794	15.66% below
<b>2014</b>	\$43,162	14.94% below
<b>2015</b>	\$44,860	11.94% below
<b>2016</b>	\$45,210	10.90% below
<b>2017</b>	\$45,581	10.17% below
<b>2018</b>	\$46,218	8.91% below

The 2007 national average is used as the consistent point of comparison **because it is an absolute change in inflation adjusted income levels - not a relative one - that influences food insecurity** (for example, a family whose income decreases 20% will still have a harder time putting food on the table even if the national average income also falls 20%). The increase in this income gap from 8.17% to 16.89% in 2011 indicates the extent to which the purchasing power of the typical Ohioan was eroded due to the recession. The subsequent narrowing of this gap from 2012 to 2018 similarly shows the extent to which purchasing power has increased in Ohio as the state has recovered from the effects of the recession. However, by way of comparison, Ohio’s inflation-adjusted median income in 2000 was only 5.69% below the 2007 national average indicating that despite the improvement in median income Ohio still lags behind where it was at the turn

of the century.

Once the ratio of Ohio’s median income to the 2007 national median income is computed, the 5 measures are all in comparable terms and can be averaged into an index. Three versions of the resulting index values are shown in Table 3. The first row shows the index if only median income, poverty and unemployment are used as factors, with each factor given equal weight in the index<sup>1</sup>. *The lower the index value, the better are economic conditions, while the higher the index the worse economic conditions have become.* An index value of zero would represent, no poverty, no unemployment, and an Ohio median income equal to that of the 2007 national average.

A second way to compute the index is to include the USDA food insecurity measure along with the 3 economic factors. The results of the 4-factor index are shown in the middle row of Table 3. Again, the higher the index value, the worse are the economic conditions impacting hunger.

A third way to compute the index is to include both the USDA food insecurity measure and Ohio’s SNAP participation rate along with the 3 economic factors. The results of the 5-factor index are shown in the bottom row of Table 3.

**Table 3: “Hunger Factors Index” With and Without Food Insecurity Rate and SNAP Participation Rate, 2000 & 2007-2018**

<b>Year</b>	<b>Hunger Factors Index</b>	<b>Hunger Factors Index with Food Insecurity</b>	<b>Hunger Factors Index with Food Insecurity &amp; SNAP %</b>
<b>2000</b>	7.06	7.74	7.46
<b>2007</b>	<b>8.96</b>	<b>9.77</b>	<b>9.71</b>
<b>2008</b>	9.64	10.56	10.46
<b>2009</b>	12.98	13.43	13.25
<b>2010</b>	13.77	14.43	14.43
<b>2011</b>	14.03	14.37	14.62
<b>2012</b>	13.45	14.11	14.43
<b>2013</b>	13.05	13.79	14.18
<b>2014</b>	12.18	13.36	13.68
<b>2015</b>	10.55	11.94	12.42
<b>2016</b>	10.17	11.32	11.79
<b>2017</b>	9.72	10.72	11.11
<b>2018</b>	9.14	10.15	10.46

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<sup>1</sup> Note that a version of the Hunger Factors Index where the different factors were given weights based on the role each factor played in the Map the Meal Gap analysis was also considered, however the results of the weighted vs. unweighted versions were not appreciably different.

All three versions of the Hunger Factors Index show the same fundamental result: ***Economic conditions which influence hunger and food insecurity worsened significantly in the aftermath of the 2008-09 recession, with conditions continuing to worsen even after the recession's official end in 2009.*** Ohio's unemployment rate is the only measure that has returned to pre-recession levels, beginning to decrease in 2011 and reaching 4.9% in 2015 before ticking upward slightly to 5.0% in 2016 and 2017 and then falling to a new post-recession low of 4.6% in 2018. This trend has continued in 2019 as the unemployment rate in October 2019 was 4.2% after reaching a low of 4.0% in June and July. These levels are actually below the 5.6% unemployment rate in 2007, although part of the reason for this decrease is a decline in the number of people actively looking for work. At the same time, poverty, food insecurity, SNAP participation and inflation-adjusted median income all remain below pre-recession levels, despite noticeable improvement in each of these measures since 2015. ***The Hunger Factors Index trends shown above indicate that the needs of those individuals who suffer from the effects of food insecurity and hunger in Ohio continue to be severe despite recent economic improvements.*** Inclusion of the Ohio Food Insecurity rate in the second index and SNAP participation in the third version of the index shows the same general pattern as in the index without each of those measures.

In addition, comparison of the 2000 and 2007 figures in Table 3 show that underlying economic conditions in Ohio prior to the 2008 recession had deteriorated compared to economic conditions in 2000. This suggests that by the onset of the 2008 recession Ohio was still recovering from the 2001 recession.

Finally, urban food prices in the Midwest were relatively stable from 2007-2011 increasing by an average of 3.2% per year and have increased by an average of only 1.6% per year from 2011 through 2018, with a 2.1% increase in 2019 (through October) compared to 2018. The recent modest increase in food prices suggests that no adjustment in the index is indicated at the present time.