

## 2007-2012 Hunger Factors Index

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Feeding America’s 2009, 2010, and 2011 “Map the Meal Gap” studies provide county-by-county data on the extent of food insecurity and the cost of filling the “meal gap” for individuals who lack the resources to provide nutritious balanced meals for their families. While this information is an important expansion of the food insecurity data provided annually by the USDA, the fact that the Meal Gap studies began in 2009 means that there is no pre-2008 recession baseline to which the Meal Gap information can be compared.

The simple “Hunger Factors Index” shown below provides a way to evaluate how the underlying economic factors that influence hunger and food insecurity have changed in Ohio since 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 Map the Meal Gap studies identifies three economic variables as being linked to food insecurity. These variables are:

- Median household income
- Poverty rate
- Unemployment rate

The Map the Meal Gap study also utilizes Ohio’s rate of Food Insecurity as annually computed by the US Department of Agriculture.

The table below provides a summary of these 3 economic indicators in Ohio in 2000 and from 2007 through 2012 along with Ohio’s percentage of food insecurity over the same time frame.

**Table 1: Economic Indicators Influencing Hunger in Ohio, 2000 & 2007-2012**

|  | 2000     | 2007     | 2008     | 2009     | 2010     | 2011     | 2012     |
|--|----------|----------|----------|----------|----------|----------|----------|
| <b>Ohio Median Income (Current \$)</b> | \$39,584 | \$46,597 | \$47,988 | \$45,395 | \$45,090 | \$45,749 | \$46,829 |
| <b>Ohio Median Income (2012 \$)</b>    | \$52,777 | \$51,598 | \$51,173 | \$48,581 | \$47,476 | \$46,696 | \$46,829 |
| <b>% Poverty</b>                       | 11.1%    | 13.1%    | 13.4%    | 15.2%    | 15.8%    | 16.4%    | 16.3%    |
| <b>% Unemployment</b>                  | 4.0%     | 5.6%     | 6.6%     | 10.2%    | 10.0%    | 8.6%     | 7.2%     |
| <b>Food Insecurity*</b>                | 9.8%     | 12.2%    | 13.3%    | 14.8%    | 16.4%    | 15.5%    | 16.1%    |

\* Note that the 9.8% Food insecurity figure shown for 2000 is actually from 2002.

The effects of the 2008-2009 recession in Ohio are clearly evident from examining the data in Table 1. Median income in current \$ (i.e. unadjusted for inflation) has fluctuated

from 2007 through 2012. However once median income is expressed in 2012 dollars each year (by using the CPI to adjust for inflation) a clear pattern is revealed showing median income falling each year through 2011 before recovering slightly in 2012. Over the same time frame, poverty and unemployment both increased in the aftermath of the recession, with the poverty rate showing little improvement by 2012. Finally, Ohio’s rate of Food Insecurity increased dramatically in 2010 and is still far above the pre-recession level of 2007. Combining these 4 measures into a single “Hunger Factors Index” allows for a simple comparison of how these underlying economic conditions have changed since the recession.

In addition, comparison of data from the 2007-2012 period with data from 2000, shows that even in 2007 underlying economic conditions in Ohio had not recovered to pre-2001 recession levels. The 2001 recession ended the longest expansionary period in U.S. history (10 years) and thus might represent a “high water” mark for American prosperity.

In order to combine these 4 disparate measures in to a single index, it is necessary to first adjust the inflation-adjusted median income measure so that it is both in similar units of measurement to the other factors and also goes in the same direction as the other three measures (higher median income is “good” while higher poverty, unemployment and food insecurity are “bad”). Ohio Median Income is transformed by comparing it to the inflation-adjusted national average Median Income in 2007 (\$56,185). Ohio’s 2007 median income of \$51,598 is 8.17% below the national average, while Ohio’s 2012 median income of \$46,829 is 16.65% below the 2007 national average (the 2007 national average is used as the consistent point of comparison because it is an absolute change in income levels not a relative one that influences food insecurity). The increase in this gap from 8.7% to 16.65% indicates the extent to which the purchasing power of the typical Ohioan has been eroded since the recession. By way of comparison, Ohio’s inflation-adjusted median income in 2000 was only 6.07% 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>2000</b> | <b>2007</b> | <b>2008</b> | <b>2009</b>  | <b>2010</b>  | <b>2011</b>  | <b>2012</b>  |
|--|-------------|-------------|-------------|--------------|--------------|--------------|--------------|
| <b>Ohio Median Income vs. 2007 U.S. Median</b> | 6.07% below | 8.17% below | 8.92% below | 13.53% below | 15.50% below | 16.89% below | 16.65% below |

Once the ratio of Ohio’s median income to the 2007 national median income is computed, the 4 measures are all in comparable terms and can be averaged into an index. Two versions of the resulting index values are shown in Table 3. The first row shows the index if median income, poverty and unemployment are used as factors, with each factor given equal weight in the index. The lower the index value, the better are economic conditions, while the higher the index the worse they 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 bottom row of Table 3. Again, the higher the index value, the worse are the economic conditions impacting hunger.

**Table 3: “Hunger Factors Index” With and Without Food Insecurity Rate**

|  | <b>2000</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Unweighted Hunger Factors Index</b>           | 7.06        | 8.96        | 9.64        | 12.98       | 13.77       | 13.96       | 13.38       |
| <b>Hunger Factors Index with Food Insecurity</b> | 7.74        | 9.77        | 10.56       | 13.43       | 14.43       | 14.35       | 14.06       |

Both 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. While Ohio’s unemployment rate has fallen in 2011 and 2012, it still remains above pre-recession levels and increased again in 2013. At the same time, poverty, food insecurity and inflation-adjusted median income all remain far below pre-recession levels. This means that the needs of those individuals who suffer from the effects of food insecurity and hunger continue to be severe despite recent economic improvements. Inclusion of the Ohio Food Insecurity rate in the second index shows the same general pattern as in the index without food insecurity.

In addition, Table 3 also shows 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.

Final 2013 poverty and unemployment data should be available soon. Ohio’s November 2013 unemployment rate was 7.4%, 0.6 percentage points higher than the November 2012 figure of 6.8%. This tied Ohio with Louisiana for the largest increase in unemployment in the country over that time span. The December unemployment rate fell to 7.2%.

In addition, urban food prices in the Midwest were relatively stable from 2007-2011 increasing by an average of 3.2% per year, thus providing no basis for including them in the index. Midwest urban food prices increased by 1.4% in the first half of 2013 compared to the first half of 2012, again suggesting that no adjustment to the index is indicated at this point in time.