Supplemental Poverty Measure: A Comparison of Geographic Adjustments with Regional Price Parities vs. Median Rents from the American Community Survey

United Nations Commission for Europe
Conference of European Statisticians
Expert Meeting on Measuring Poverty and Inequality
September 26, 2017

Trudi Renwick, U.S. Census Bureau
Eric Figueroa and Bettina Aten, Bureau of Economic Analysis

Contact:
Social, Economic and Housing Statistics Division
U.S. Bureau of the Census
trudi.j.renwick@census.gov
301-763-5133
The views expressed in this research, including those related to statistical, methodological, technical, or operational issues, are solely those of the authors and do not necessarily reflect the official positions or policies of the Census Bureau or the Bureau of Economic Analysis. The authors accept responsibility for all errors.

This presentation is released to inform interested parties of ongoing research and to encourage discussion of work in progress. This presentation reports the results of research and analysis undertaken by Census Bureau and Bureau of Economic Analysis staff. It has undergone more limited review than official publications.
Supplemental Poverty Measure (SPM)

**The Supplemental Poverty Measure: 2016**

By Lorrie E. Ruiz
Issued September 2017

**INTRODUCTION**

Since the publication of the first effort to adjust U.S. poverty estimates, researchers and policymakers have continued to discuss the best approach to measure income poverty and income in the United States. Beginning in 2011, the U.S. Census Bureau began publishing the Supplemental Poverty Measure (SPM), which extends the official poverty measure by taking account of more of the government assistance programs designed to assist low-income families and individuals that are not included in the official poverty measure. This report updates the SPM findings through 2016.

**HIGHLIGHTS**

- In 2016, the overall SPM rate was 12.5 percent. This was 0.5 percentage points lower than the 2015 SPM rate of 13.0 percent (Figure 1 and Figure 2).
- The SPM rates for families with one or more members aged 65 and older was 16.4 percent in 2015 and 16.9 percent in 2016.
- The SPM rate for families with one or more members aged 65 and older who did not live with a related individual in a house that was rented increased from 9.1 percent in 2015 to 9.5 percent in 2016 (Figure 8 and Appendix Table 6).
- There were 13 states in which the District of Columbia for which SPM rates were higher than official poverty rates, 20 states with lower rates, and 17 states for which the rates were not statistically different from zero.

**RESOURCES**

- Low-income home energy assistance (LIHEAP)
- National school lunch program
- WIC
- Child care expenses
- Housing subsidies
- Expenses related to work
- Child support paid
- Medical expenses
- Taxes

**Figure 1:** SPM Poverty Rates for Total Population and by Age Group: 2015 and 2016 (in percent)

- SPM rates for total populations aged 0 to 17 and 18 to 64 in 2015 and 2016.
- SPM rates for total populations aged 65 and older in 2015 and 2016.

How do we measure needs?

The **poverty threshold**, or **poverty line**, is the minimum level of resources that are adequate to meet basic needs.

The official measure uses three times the cost of a minimum food diet in 1963 in today’s prices.

The SPM uses information about what people **spend today** for basic needs—food, clothing, shelter, and **utilities**.
2016 Official Poverty Thresholds (Two Adults and Two Children)

$24,339


2016 SPM Poverty Thresholds for Renters (Two Adults and Two Children)

$30,000 and Over
$27,500-$29,999
$24,339-$27,499
Under $24,339


*Includes unrelated individuals under age 15.

Median Rent Index

\[ \text{Threshold}_{ijt} = [(\text{HousingShare}_t \times MRI_{ij}) + (1 - \text{HousingShare}_t)] \times \text{Threshold}_t \]

- \( i = \text{state} \)
- \( j = \text{specific metro area, other metro or nonmetro area} \)
- \( t = \text{tenure: owner with mortgage, owner without a mortgage, renter} \)

**HousingShare** = percent of threshold represented by housing and utilities which ranges from 40 to 50 percent of total expenditures, depending on tenure status

**MRI** = Median Rent Index

**Threshold** = national average dollar value for income below which consumer units are considered in poverty
## Silicon Valley vs Rural Alabama

<table>
<thead>
<tr>
<th>2015– Two Adults Two Children - Renter</th>
<th>San Jose- Sunnyvale-Santa Clara, CA</th>
<th>Alabama – outside metro area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Official Poverty Threshold</td>
<td>$24,036</td>
<td>$24,036</td>
</tr>
<tr>
<td>SPM Threshold: Renters (national average)</td>
<td>$25,583</td>
<td>$25,583</td>
</tr>
</tbody>
</table>
## Silicon Valley vs Rural Alabama

<table>
<thead>
<tr>
<th>2015– Two Adults Two Children - Renter</th>
<th>San Jose- Sunnyvale- Santa Clara, CA</th>
<th>Alabama – outside metro area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Official Poverty Threshold</td>
<td>$24,036</td>
<td>$24,036</td>
</tr>
<tr>
<td>SPM Threshold: Renters</td>
<td>$25,583</td>
<td>$25,583</td>
</tr>
<tr>
<td>Median Rent - National</td>
<td>$905</td>
<td>$905</td>
</tr>
<tr>
<td>Rent-based Index Using MRI</td>
<td>$1,638/$905 =1.81</td>
<td>$552/$905=0.61</td>
</tr>
<tr>
<td>Apply to Only Housing Portion of Thresholds</td>
<td>49.8%*1.81+50.2%*1.0</td>
<td>49.8%*.61+50.2%*1.0</td>
</tr>
<tr>
<td>MRI Adjustment</td>
<td>1.40</td>
<td>.80</td>
</tr>
</tbody>
</table>
## Silicon Valley vs Rural Alabama

<table>
<thead>
<tr>
<th></th>
<th>San Jose- Sunnyvale- Santa Clara, CA</th>
<th>Alabama – outside metro area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2015– Two Adults Two Children - Renter</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Official Poverty Threshold</td>
<td>$24,036</td>
<td>$24,036</td>
</tr>
<tr>
<td>SPM Threshold: Renters</td>
<td>$25,583</td>
<td>$25,583</td>
</tr>
<tr>
<td>Rent-based Index Using MRI</td>
<td>$1,638/$905 =1.81</td>
<td>$552/$905=0.61</td>
</tr>
<tr>
<td><strong>Apply to Only Housing Portion of Thresholds</strong></td>
<td>49.8%*1.81+50.2%*1.0</td>
<td>49.8%*.61+50.2%*1.0</td>
</tr>
<tr>
<td>MRI Adjustment</td>
<td>1.40</td>
<td>.80</td>
</tr>
<tr>
<td><strong>Adjusted SPM Threshold</strong></td>
<td>$35,944</td>
<td>$20,585</td>
</tr>
</tbody>
</table>
Regional Price Parities (RPPs)

- Spatial price indexes produced by the Bureau of Economic Analysis to measure price level differences across regions.
- Stage One – price and expenditures inputs collected by the BLS CPI program and the CE – 38 urban areas (weights available for 38 urban areas plus 4 rural regions).
- Stage Two – combined with data from the ACS on housing costs to calculate index values for all metro areas.
- Index values applied to the entire threshold.
## Silicon Valley vs Rural Alabama

<table>
<thead>
<tr>
<th>2015– Two Adults Two Children</th>
<th>San Jose- Sunnyvale-Santa Clara, CA</th>
<th>Alabama – outside metro area</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Official Poverty Threshold</strong></td>
<td>$24,036</td>
<td>$24,036</td>
</tr>
<tr>
<td><strong>SPM Threshold: Renters</strong></td>
<td>$25,583</td>
<td>$25,583</td>
</tr>
<tr>
<td><strong>RPP Index – Broad based</strong></td>
<td><strong>1.23</strong></td>
<td><strong>.83</strong></td>
</tr>
<tr>
<td><strong>Adjusted SPM Threshold – Broad Based</strong></td>
<td><strong>$31,466</strong></td>
<td><strong>$21,172</strong></td>
</tr>
</tbody>
</table>
Comparing SPM Thresholds – Renters with two adults, two children, 2015

San Jose-Sunnyvale-Santa Clara CA
- Official: $24,036
- Unadjusted SPM: $25,583
- MRI: $35,944
- RPP- Broad: $31,466

Alabama - Outside of metro area
- Official: $24,036
- Unadjusted SPM: $25,583
- MRI: $20,585
- RPP- Broad: $21,172
Regional Price Parities – Narrowly Defined or FAR

• 2014 analysis examined differences between the MRI adjustments and the RPP adjustments.
• Concern that this index includes many goods and services not in the SPM thresholds. Differences in poverty rates driven by differences in expenditure shares.
• BEA developed a special RPP – based solely on Food, Apparel and Rent (FAR).
• One advantage of the FAR RPP is that expenditure shares vary by geography. They do not vary by tenure type.
## Silicon Valley vs Rural Alabama

<table>
<thead>
<tr>
<th>2015– Two Adults Two Children</th>
<th>San Jose- Sunnyvale- Santa Clara, CA</th>
<th>Alabama – outside metro area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Official Poverty Threshold</td>
<td>$24,036</td>
<td>$24,036</td>
</tr>
<tr>
<td>SPM Threshold: Renters</td>
<td>$25,583</td>
<td>$25,583</td>
</tr>
<tr>
<td>RPP Index – Broad based</td>
<td>1.23</td>
<td>.83</td>
</tr>
<tr>
<td>Adjusted SPM Threshold – Broad Based</td>
<td>$31,466</td>
<td>$21,172</td>
</tr>
<tr>
<td>FAR RPP Index</td>
<td>1.47</td>
<td>.68</td>
</tr>
<tr>
<td>Adjusted SPM Threshold – FAR RPP</td>
<td>$37,487</td>
<td>$17,492</td>
</tr>
</tbody>
</table>
Comparing SPM Thresholds – Renters with two adults, two children, 2015

San Jose-Sunnyvale-Santa Clara CA
- Official: $24,036
- MRI: $35,944
- RPP- Broad: $31,466
- FAR RPP: $37,487

Alabama - Outside of metro area
- Official: $24,036
- MRI: $20,585
- RPP- Broad: $21,172
- FAR RPP: $17,492
Threshold Comparisons

• The 2015 MRI thresholds for SPM resource units who were renters with two adults and two children ranged from $20,585 for nonmetro Alabama to $35,944 for San Jose-Sunnyvale-Santa Clara CA MSA.

• For the FAR RPP adjusted thresholds, the values ranged from $17,492 for nonmetro Alabama to $37,487 for San Jose-Sunnyvale-Santa Clara CA MSA.

• The difference between the highest and lowest threshold for the MRI was $15,359 while the range for FAR RPP adjusted thresholds was $19,995.
Comparing Poverty Rates: National

Source: 2016 CPS ASEC
Comparing Poverty Rates: Silicon Valley vs Rural Alabama

San Jose-Sunnyvale-Santa Clara CA
- Official: 6.0%
- SPM Not Adjusted: 6.7%
- MRI: 12.0%
- Broad RPP: 13.0%

Alabama - Outside of metro area
- Official: 22.0%
- SPM Not Adjusted: 21.1%
- MRI: 15.0%
- Broad RPP: 15.1%

Source: 2015 and 2016 CPS ASEC
Place of Residence

Poverty Rates

Source: 2016 CPS ASEC
Poverty rates

Northeast: 12.0, 14.3, 14.9
Midwest: 12.4, 10.7, 9.6
South: 16.3, 15.5, 13.8
West: 13.4, 15.7, 16.3

Source: 2016 CPS ASEC
Tenure

Poverty Rates

Source: 2016 CPS ASEC
Analysis

• Differences driven by the different weights given to shelter costs in the two approaches.
  – In the SPM thresholds, shelter costs represent between 40 and 51 percent of the threshold.
  – In the FAR RPPs, rent costs represent between 28 and 65 percent of the index – for the broad RPPs this is a smaller share.
  – Sensitivity analysis, not shown today, replaced MRI rent index with the RPP rent index – very small differences.
Correlation between MRI index and FAR RPP index: 96.1
Should we change to the FAR RPP index?

**Pros**
- Takes into account price differences beyond housing
- Index developed by experts in the field
- Rent measure more sophisticated, hedonic method takes into account more factors, e.g. age of structure
- Expenditure shares not fixed across geographic boundaries
- Consistent with the methodology used for the national accounts

**Cons**
- Census Bureau must rely on BEA experts to continue to produce the narrow index
- Harder to explain than simple median of rents for 2-bedroom units
- Does not take into account differences in expenditure shares by housing tenure
- Strengthens the geographic adjustments that many have criticized historically as being “too” strong
Next Steps

• Investigate methods to evaluate the poverty rates that result from the two indices
  – Correlation to measures of hardship?
  – Other criteria?
• Consider the importance of these adjustments – what are our priorities for improvements?
  – Changes the poverty status for a relatively small percentage of the population (less than 2 percent)
• Using the American Community Survey to create SPM estimates for smaller geographies
Contact Information

Trudi Renwick
trudi.j.renwick@census.gov
301-763-5133