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

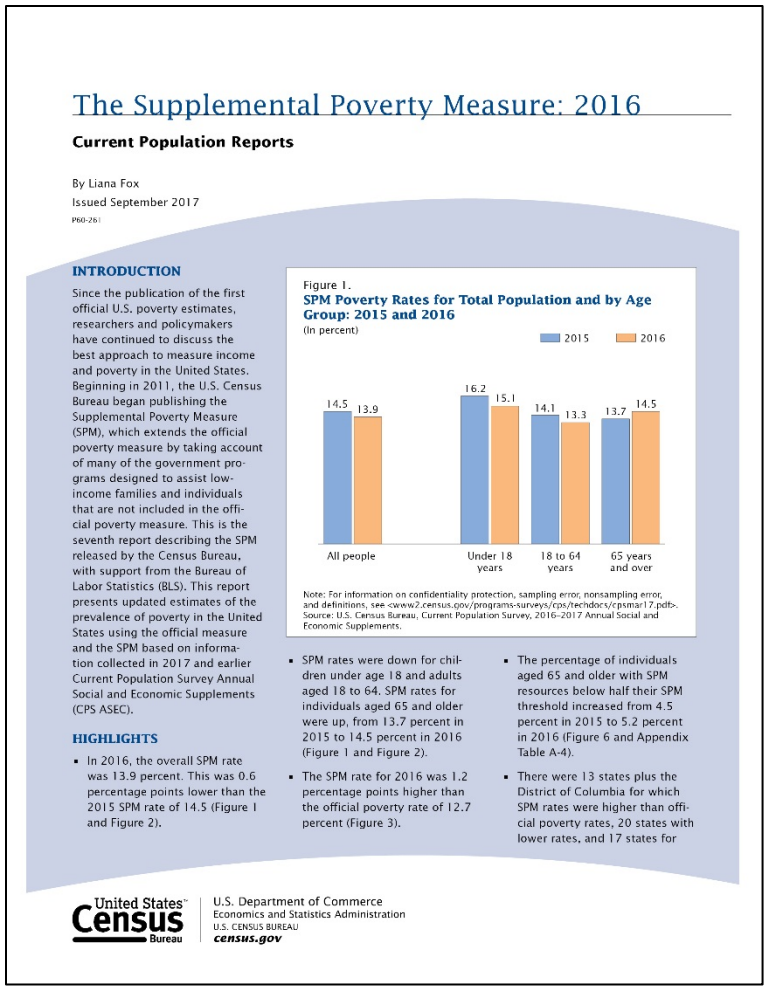
Contact:
Social, Economic and Housing Statistics Division
U.S. Bureau of the Census
trudi.j.renwick@census.gov
301-763-5133

United States™ Census Bureau
U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU
census.gov

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

Current Population Reports

By Liana Fox

Issued September 2017

P60-261

INTRODUCTION

Since the publication of the first official U.S. poverty estimates, researchers and policymakers have continued to discuss the best approach to measure income and poverty 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 many of the government programs designed to assist low-income families and individuals that are not included in the official poverty measure. This is the seventh report describing the SPM released by the Census Bureau, with support from the Bureau of Labor Statistics (BLS). This report presents updated estimates of the prevalence of poverty in the United States using the official measure and the SPM based on information collected in 2017 and earlier Current Population Survey Annual Social and Economic Supplements (CPS ASEC).

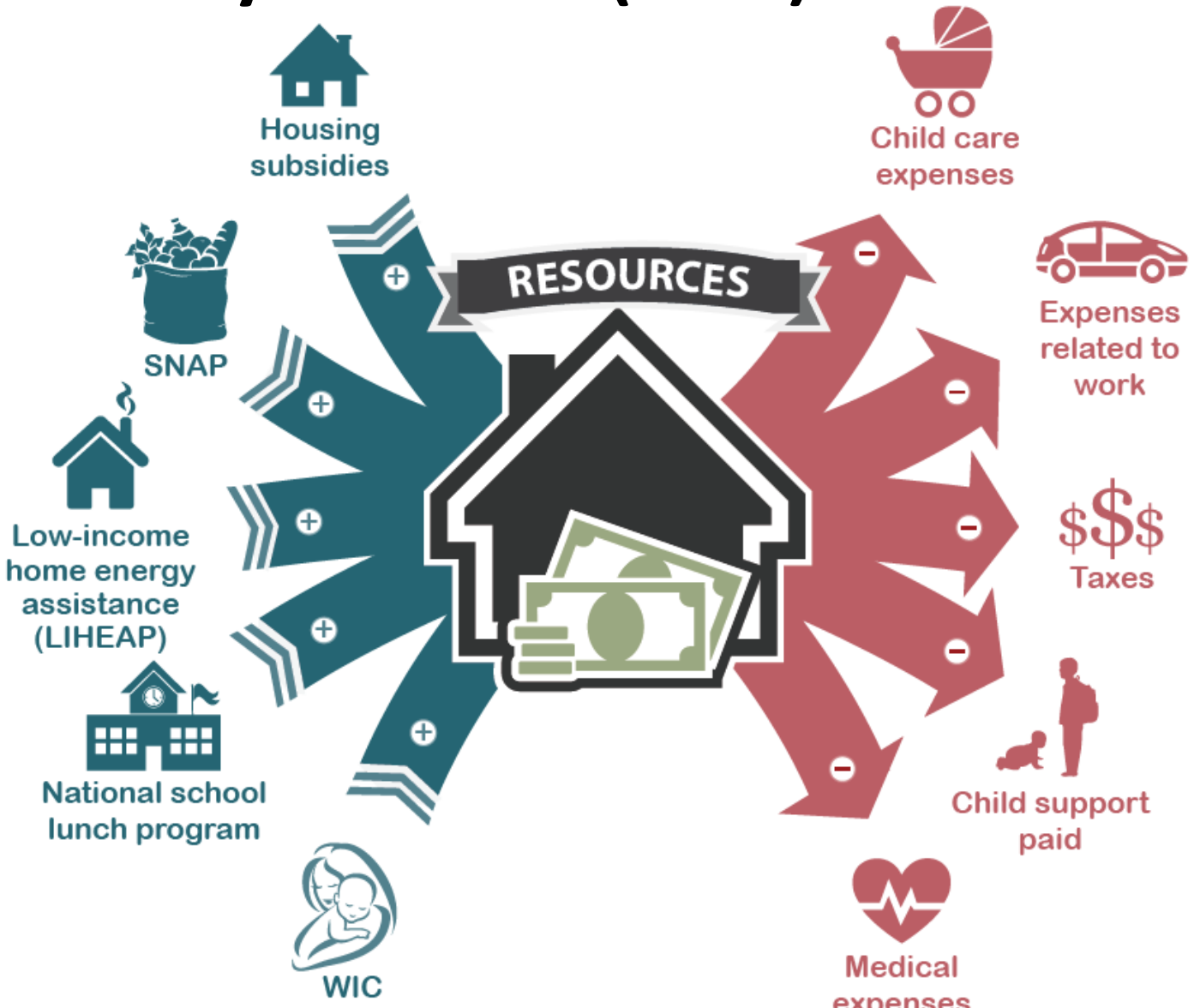
HIGHLIGHTS

- In 2016, the overall SPM rate was 13.9 percent. This was 0.6 percentage points lower than the 2015 SPM rate of 14.5 (Figure 1 and Figure 2).
- SPM rates were down for children under age 18 and adults aged 18 to 64. SPM rates for individuals aged 65 and older were up, from 13.7 percent in 2015 to 14.5 percent in 2016 (Figure 1 and Figure 2).
- The SPM rate for 2016 was 1.2 percentage points higher than the official poverty rate of 12.7 percent (Figure 3).
- The percentage of individuals aged 65 and older with SPM resources below half their SPM threshold increased from 4.5 percent in 2015 to 5.2 percent in 2016 (Figure 6 and Appendix Table A-4).
- There were 13 states plus the District of Columbia for which SPM rates were higher than official poverty rates, 20 states with lower rates, and 17 states for

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

Note: For information on confidentiality protection, sampling error, nonsampling error, and definitions, see <www2.census.gov/programs-surveys/cps/techdocs/cpsmar17.pdf>.
Source: U.S. Census Bureau, Current Population Survey, 2016–2017 Annual Social and Economic Supplements.

United States Census Bureau | U.S. Department of Commerce Economics and Statistics Administration U.S. CENSUS BUREAU census.gov

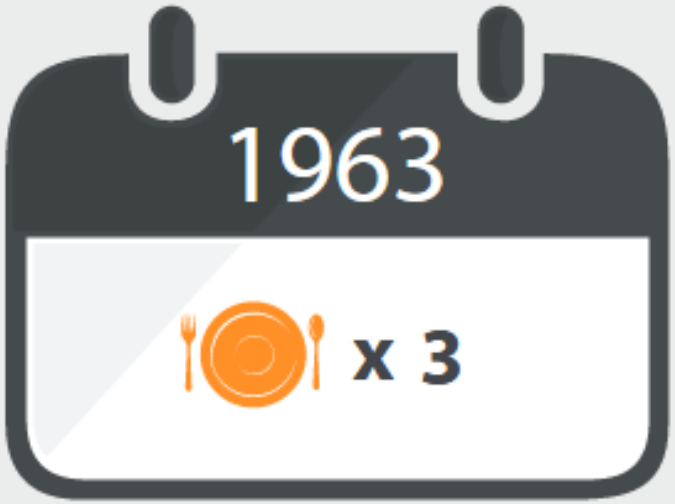


Source: U.S. Census Bureau, Current Population Survey, 2017 Annual Social and Economic Supplement. www2.census.gov/library/publications/2017/demo/p60-261.html.

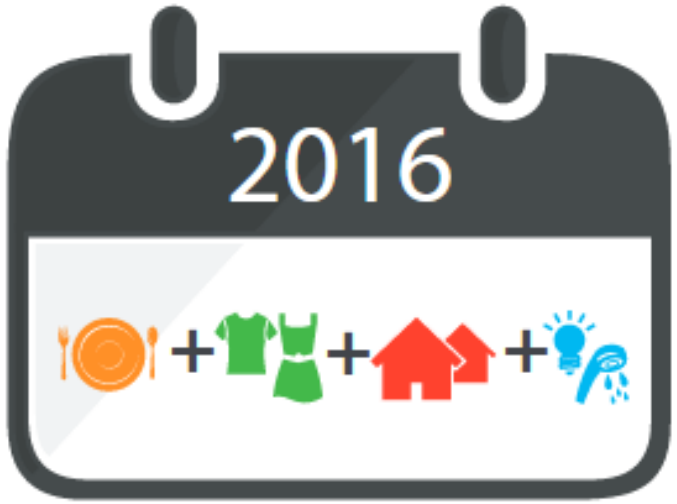
How do we measure needs?

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.



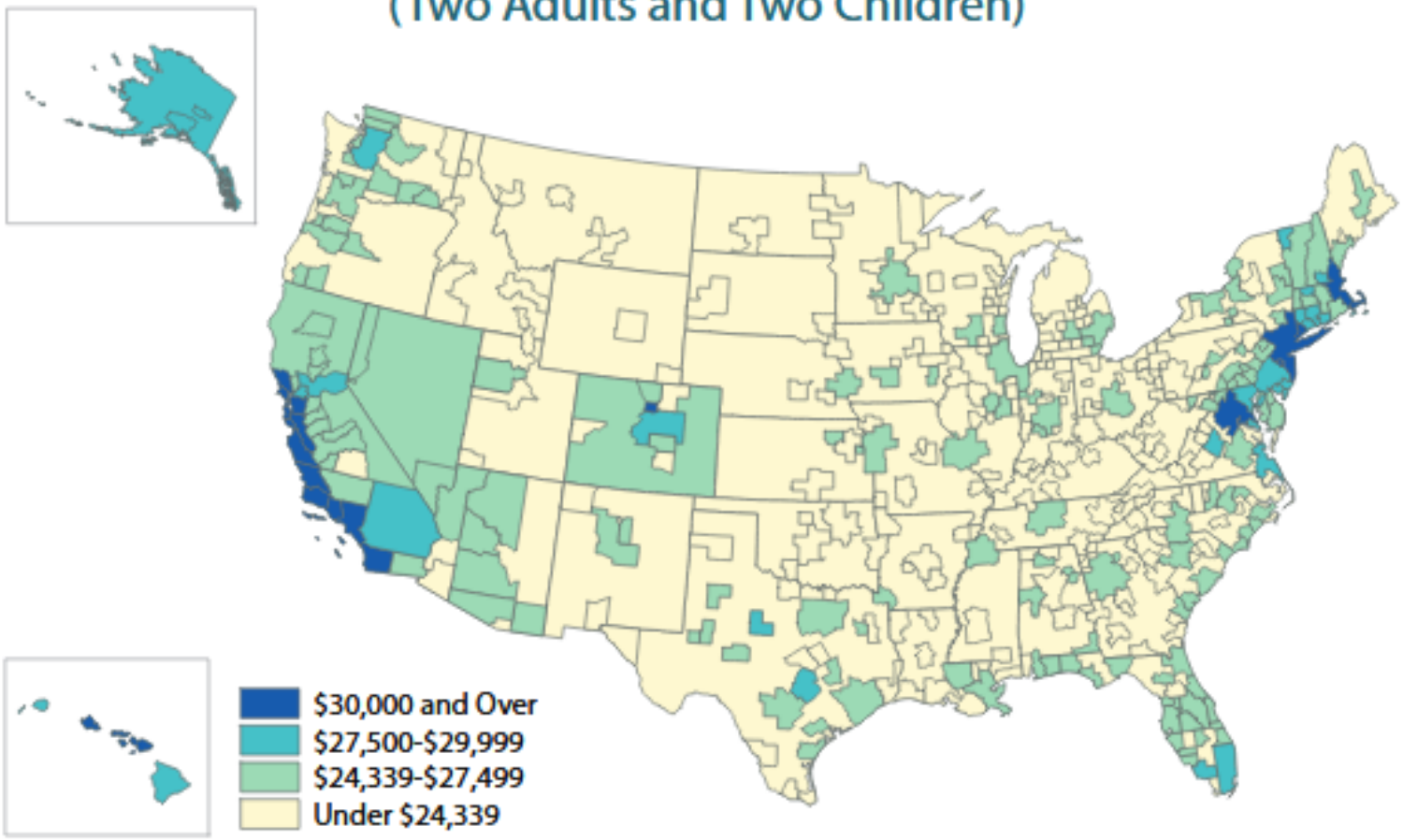
The SPM uses information about what people spend today for basic needs—food, clothing, shelter, and utilities.



2016 Official Poverty Thresholds
(Two Adults and Two Children)

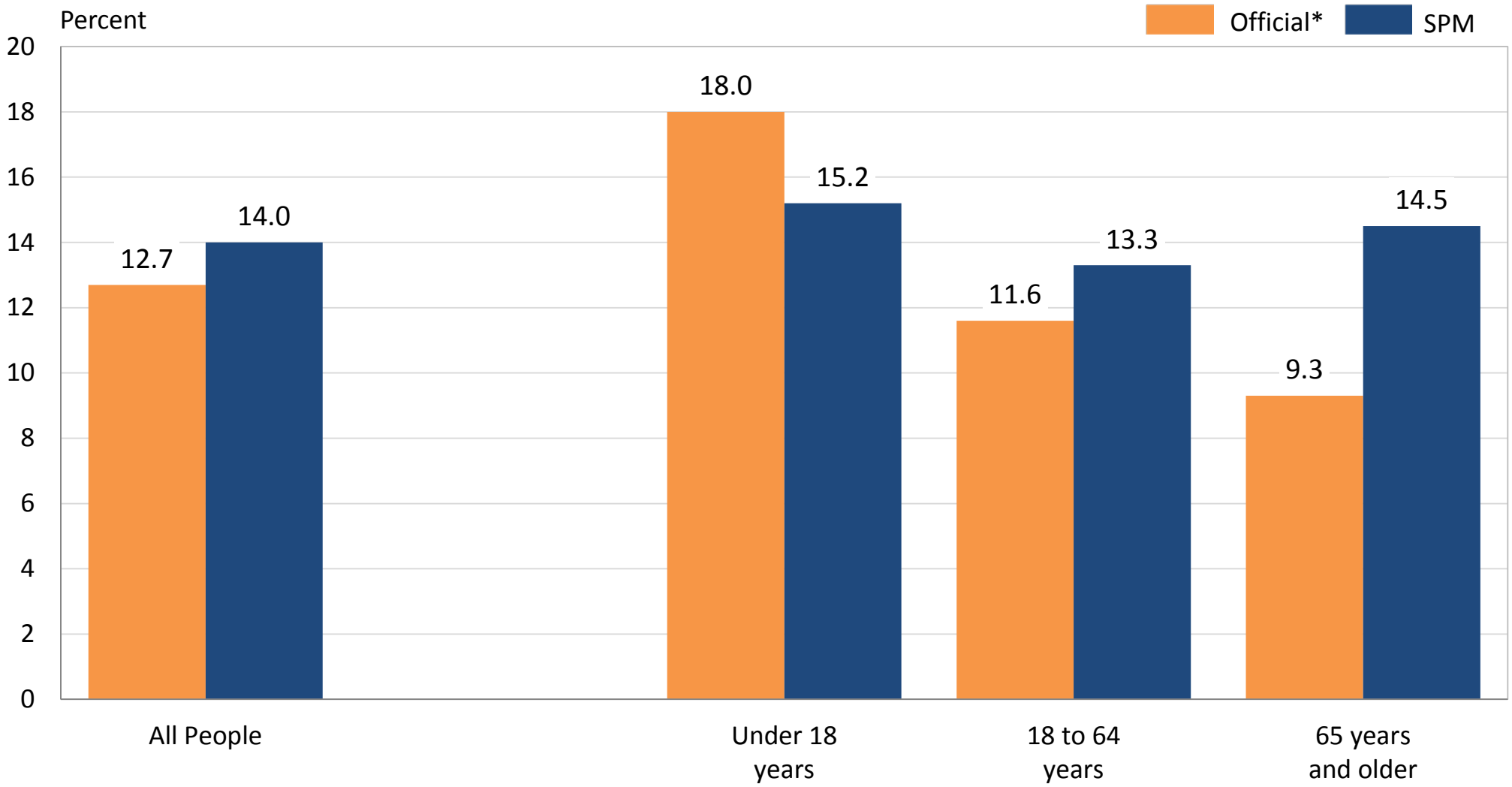
Source: U.S. Census Bureau, 2017 Current Population Reports, P60-259.

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



Sources: U.S. Census Bureau, Geographic adjustments based on housing costs from the American Community Survey 2011-2015. Unadjusted thresholds are from the Bureau of Labor Statistics at <https://stats.bls.gov/pir/spmhome.htm>.

Comparison of SPM and Official Poverty Estimates: 2016



United States Census Bureau

U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU
census.gov

*Includes unrelated individuals under age 15.
Source: U.S. Census Bureau, Current Population Survey, 2017 Annual Social and Economic Supplement.

Median Rent Index

$$Threshold_{ijt}=[(HousingShare_t \times MRI_{ij}) + (1-HousingShare_t)] \times Threshold_t$$

i = *state*

j = specific metro area, other metro or nonmetro area

t = 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

2015– Two Adults Two Children - Renter	San Jose- Sunnyvale-Santa Clara, CA	Alabama – outside metro area
Official Poverty Threshold	**$24,036**	**$24,036**
SPM Threshold: Renters (national average)	**$25,583**	**$25,583**

Silicon Valley vs Rural Alabama

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

Silicon Valley vs Rural Alabama

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

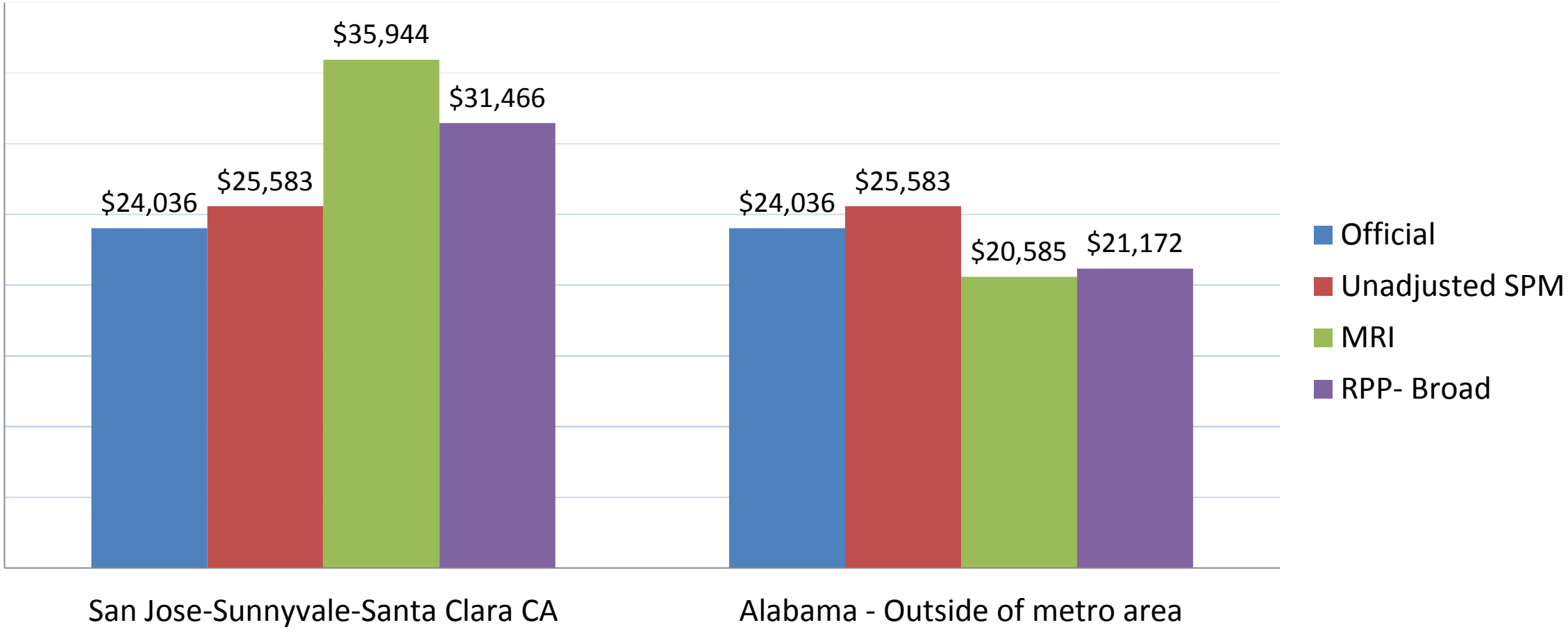
Regional Price Parities (RPPs)

- 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

2015– Two Adults Two Children	San Jose- Sunnyvale-Santa Clara, CA	Alabama – outside metro area
Official Poverty Threshold	$24,036	$24,036
SPM Threshold: Renters	$25,583	$25,583
RPP Index – Broad based	**1.23**	**.83**
Adjusted SPM Threshold – Broad Based	**$31,466**	**$21,172**

Comparing SPM Thresholds – Renters with two adults, two children, 2015



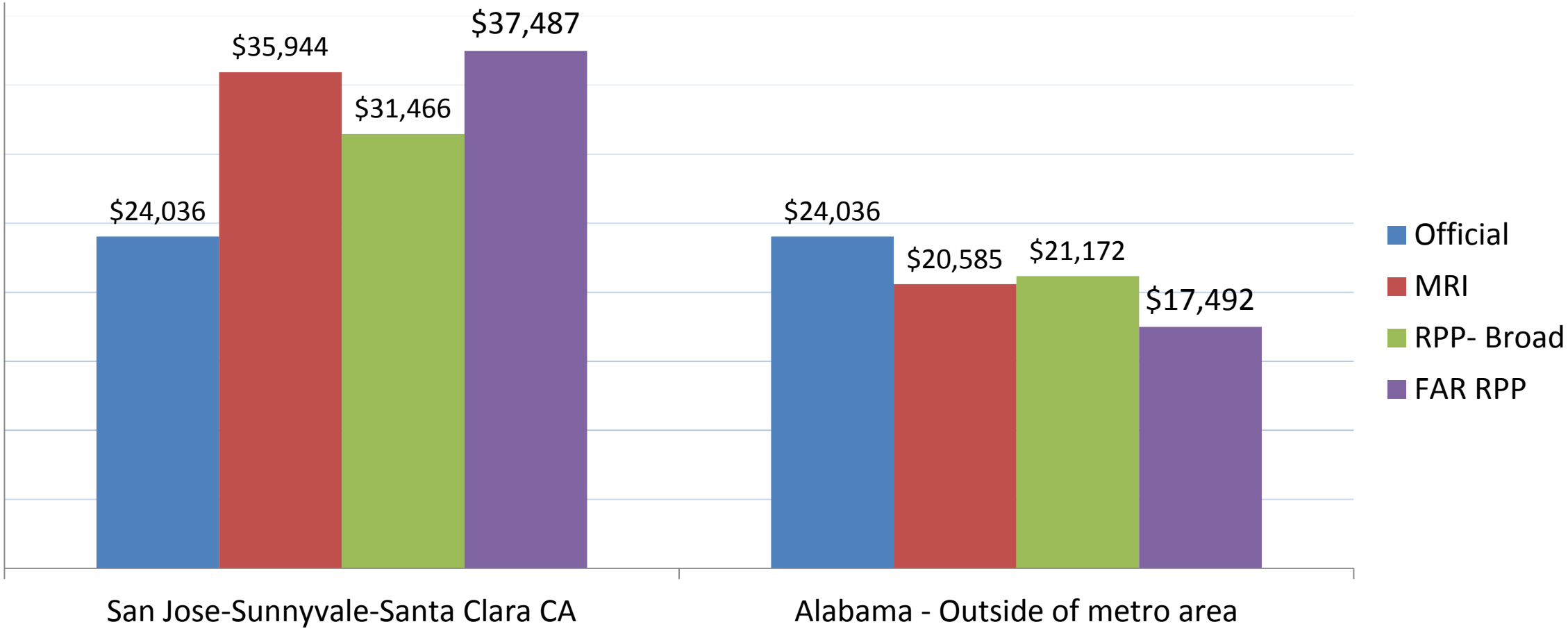
Regional Price Parities – Narrowly Defined or FAR

- 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

2015– Two Adults Two Children	San Jose- Sunnyvale-Santa Clara, CA	Alabama – outside metro area
Official Poverty Threshold	$24,036	$24,036
SPM Threshold: Renters	$25,583	$25,583
RPP Index – Broad based	1.23	.83
Adjusted SPM Threshold – Broad Based	$31,466	$21,172
FAR RPP Index	**1.47**	**.68**
Adjusted SPM Threshold – FAR RPP	**$37,487**	**$17,492**

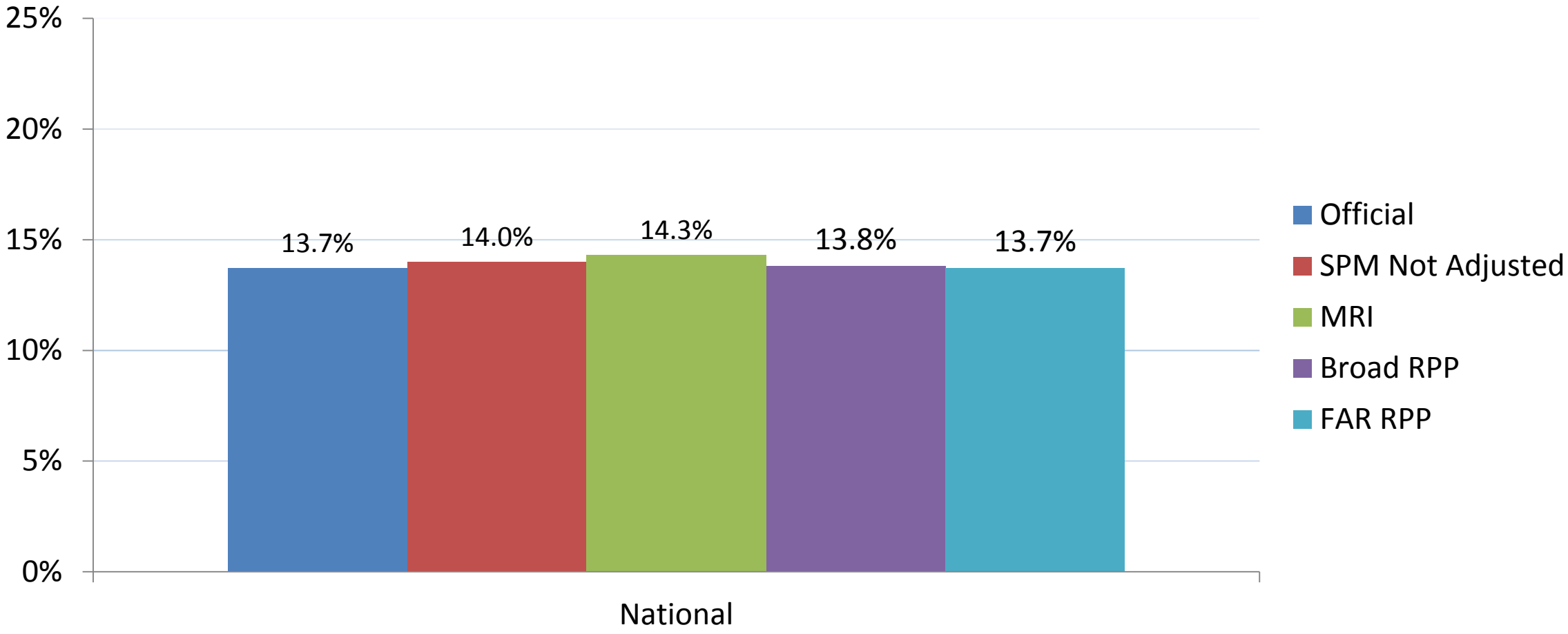
Comparing SPM Thresholds – Renters with two adults, two children, 2015



Threshold Comparisons

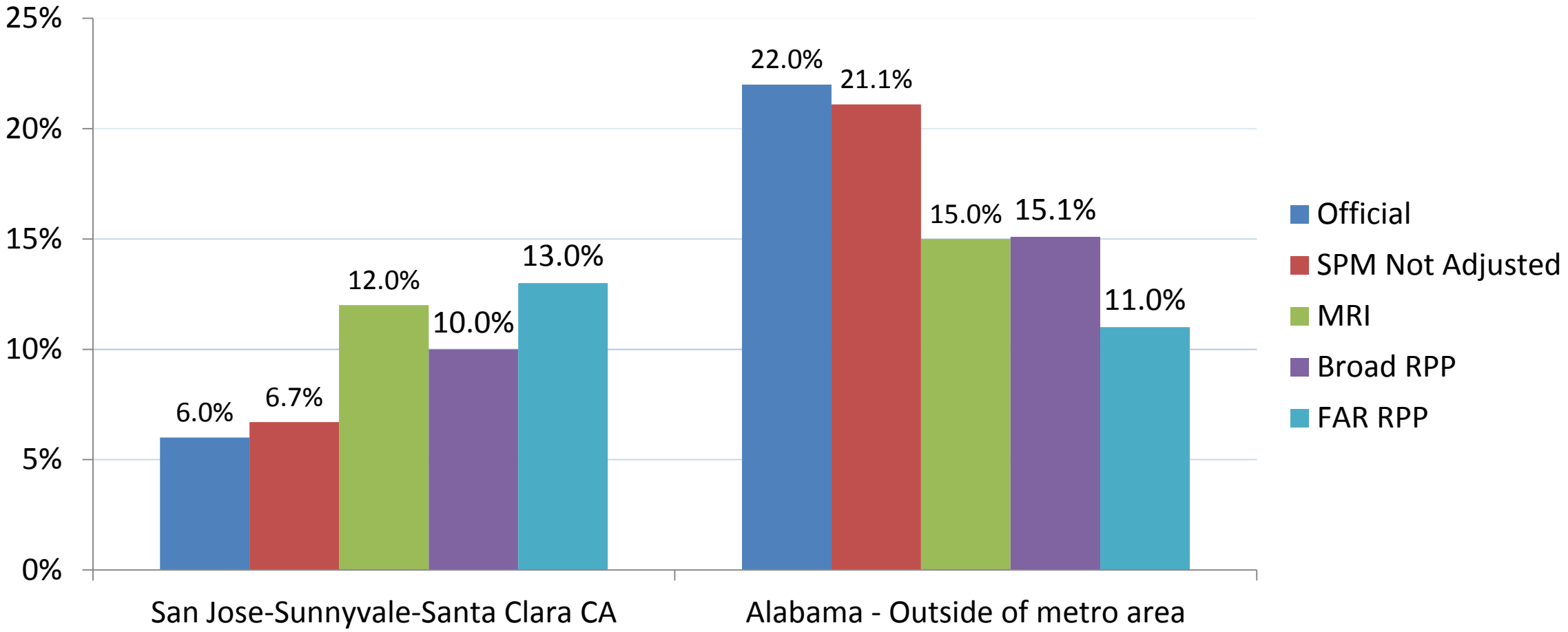
- The 2015 MRI thresholds for SPM resource units who were renters with two adults and two children ranged from $20,585 for nonmetro Alabama to $35,944 for San Jose-Sunnyvale-Santa Clara CA MSA.
- For the FAR RPP adjusted thresholds, the values ranged from $17,492 for nonmetro Alabama to $37,487 for San 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



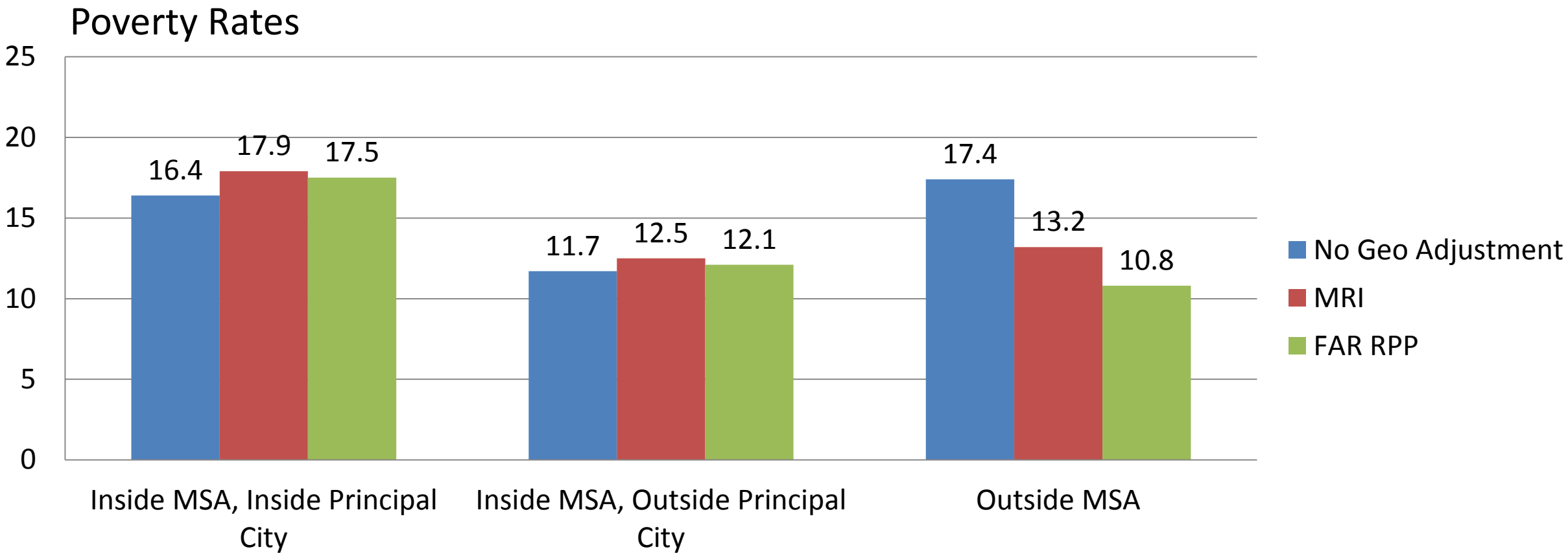
Source: 2016 CPS ASEC

Comparing Poverty Rates: Silicon Valley vs Rural Alabama



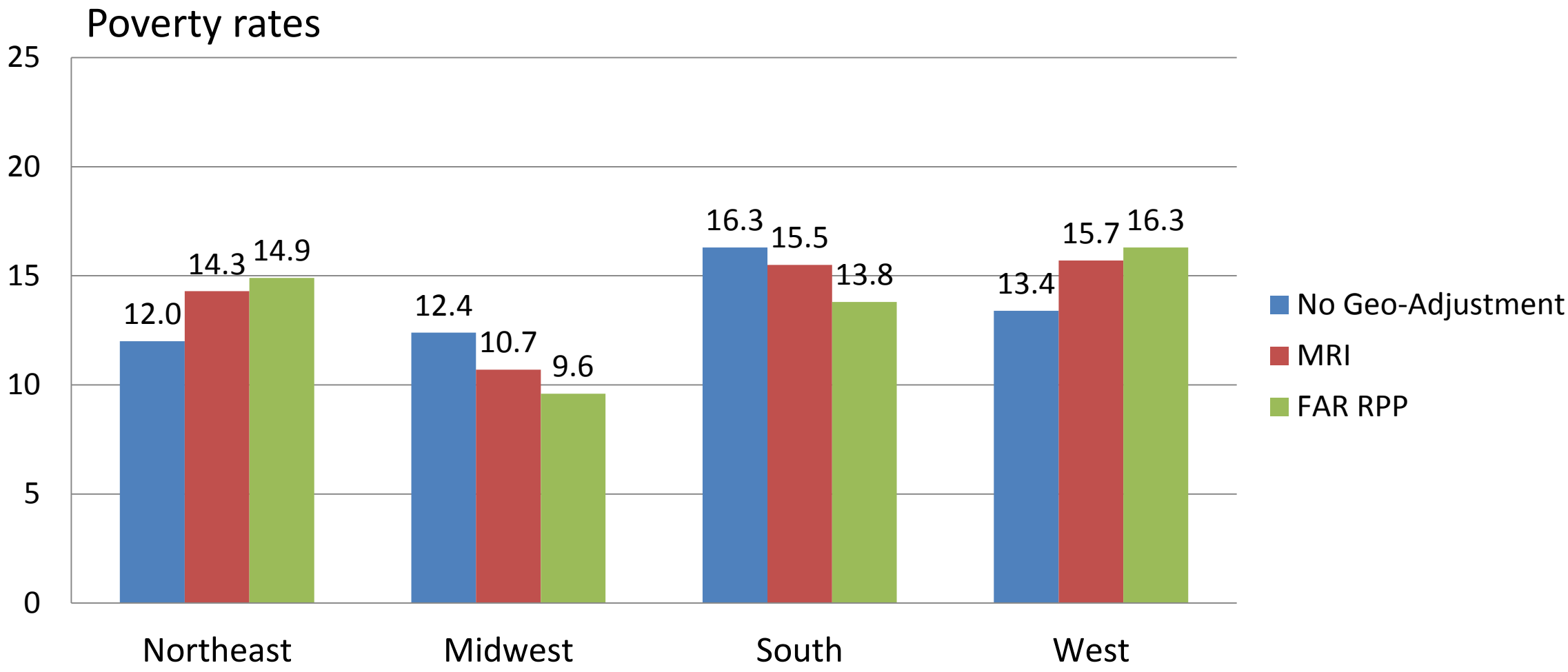
Source: 2015 and 2016 CPS ASEC

Place of Residence



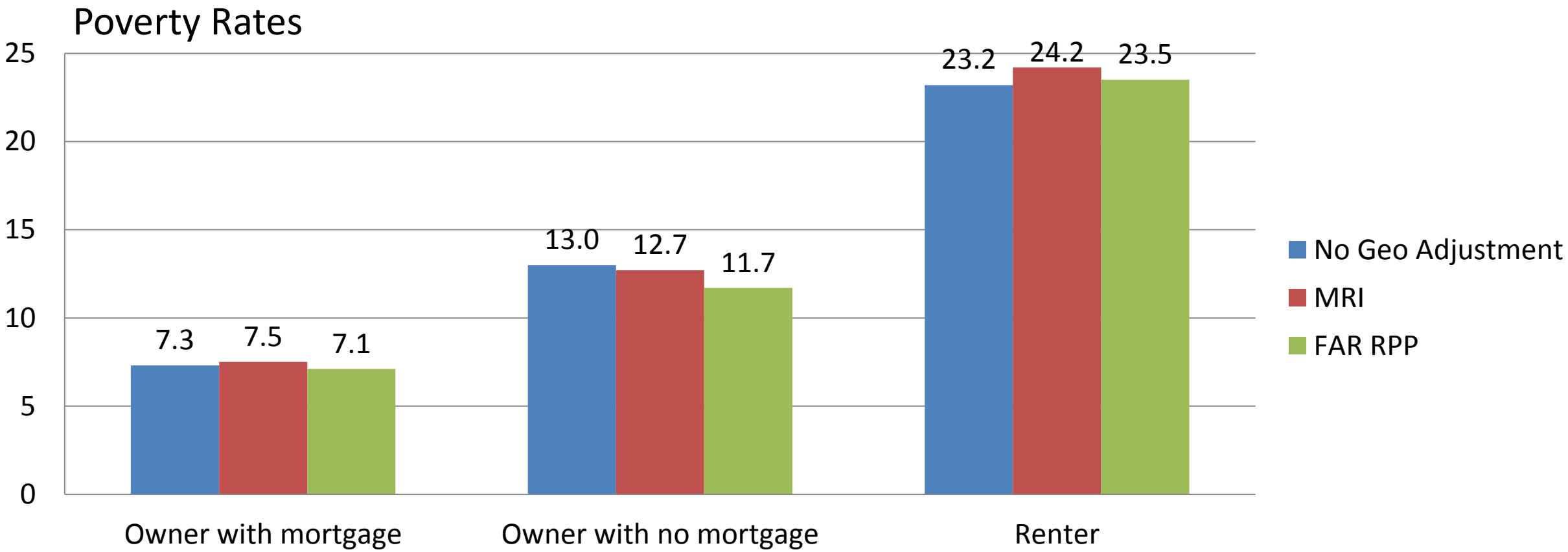
Source: 2016 CPS ASEC

Region

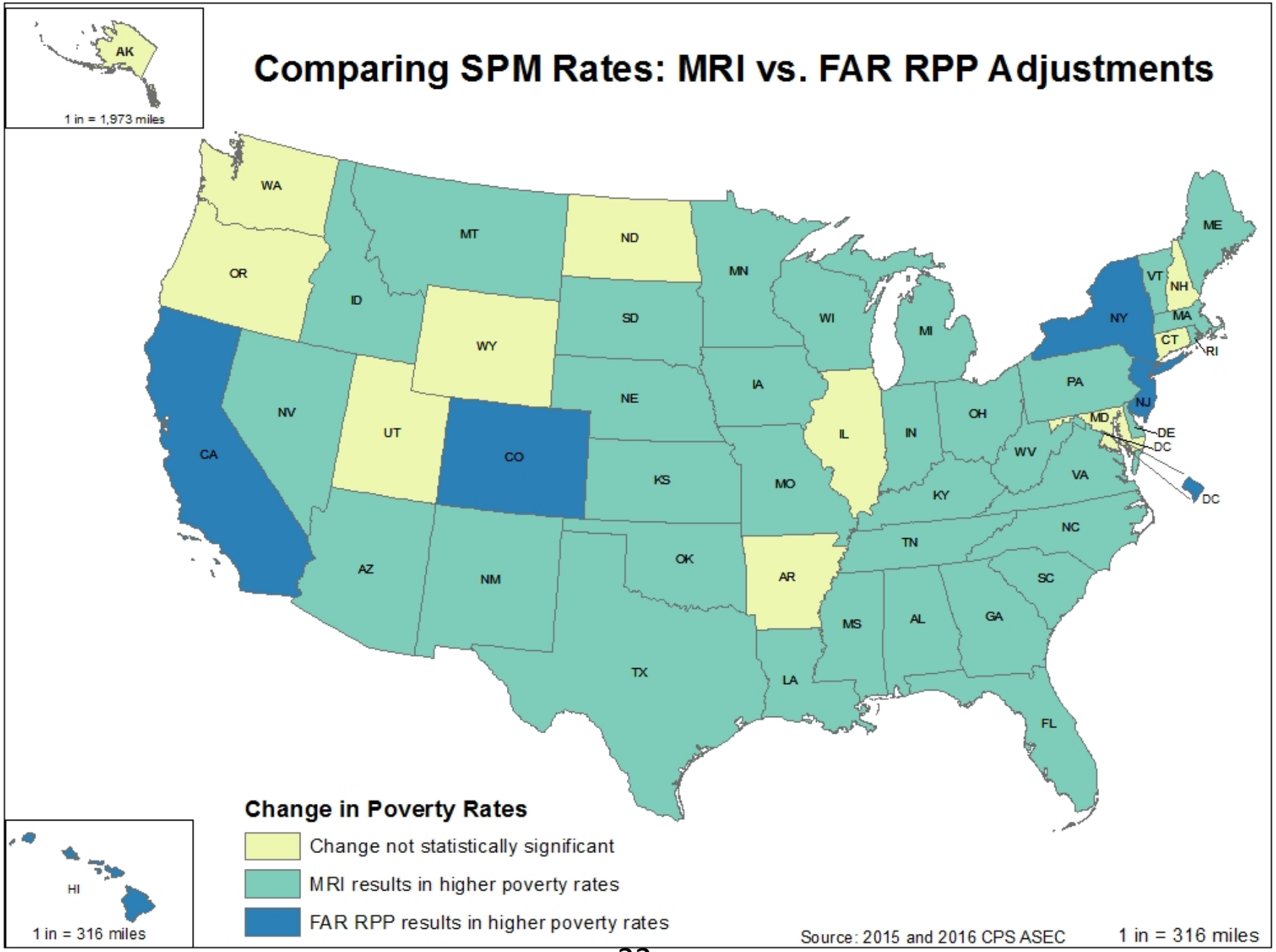


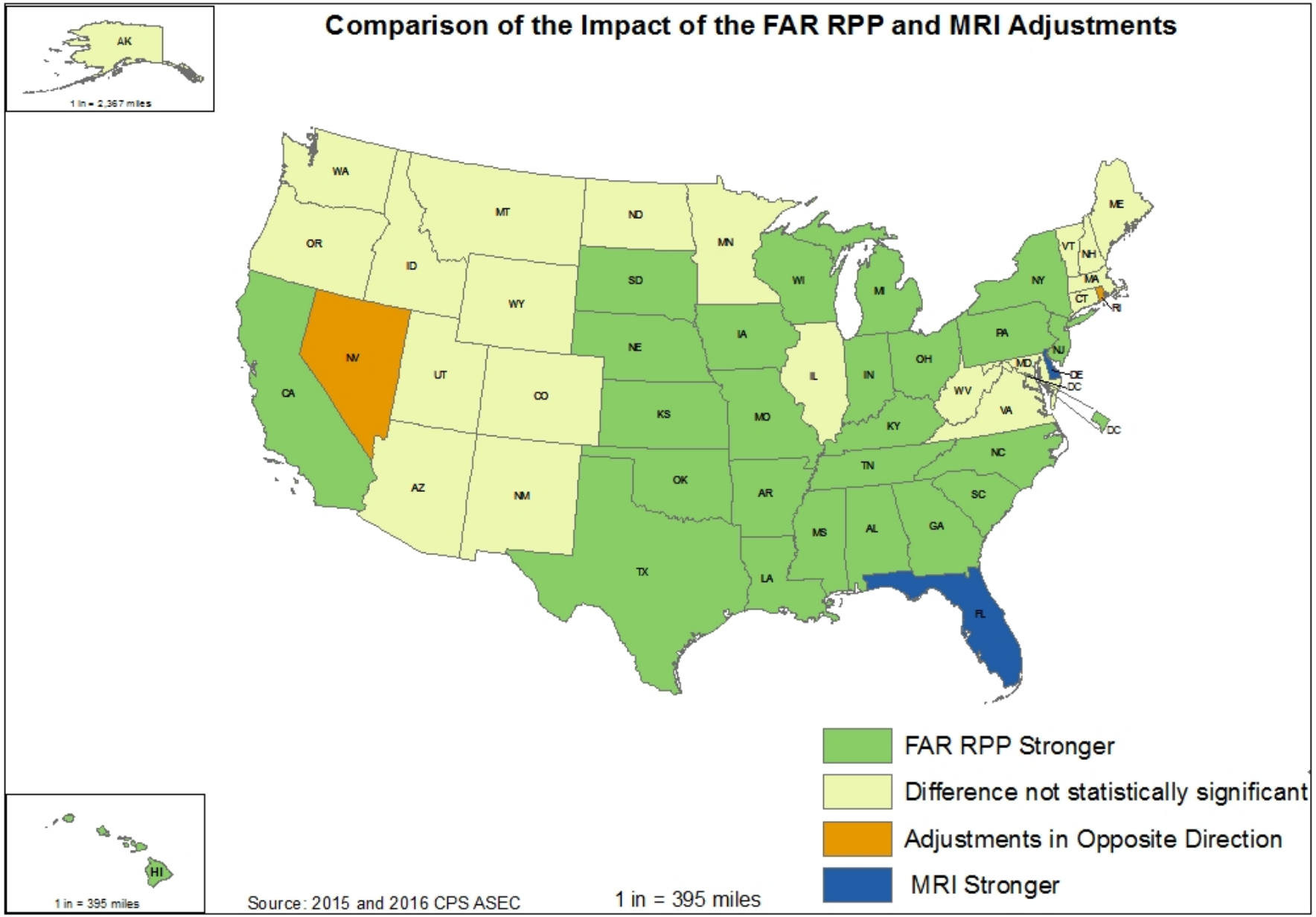
Source: 2016 CPS ASEC

Tenure



Source: 2016 CPS ASEC

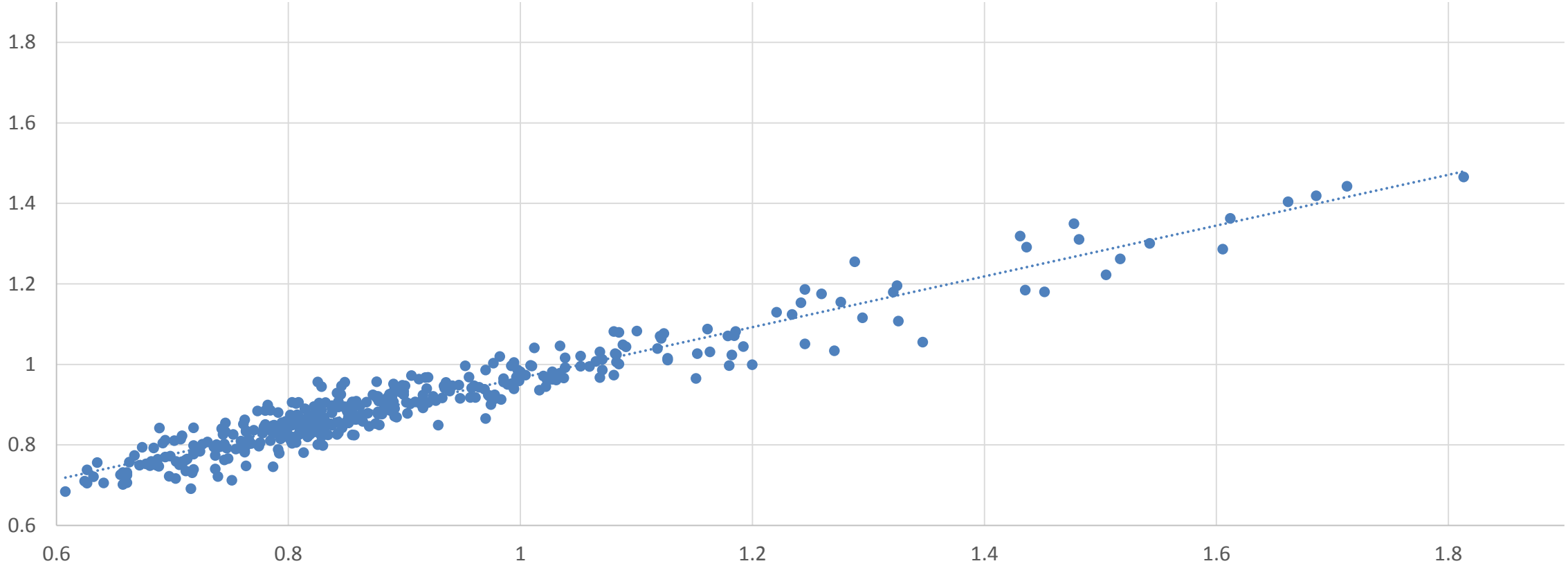

Comparing SPM Rates: MRI vs. FAR RPP Adjustments
AK
1 in = 1,973 miles
WA
OR
CA
NV
ID
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
IL
MS
MI
IN
KY
TN
AL
OH
WV
GA
FL
SC
NC
VA
PA
NY
MD
DE
DC
NJ
CT
RI
MA
VT
NH
ME
HI
1 in = 316 miles
Change in Poverty Rates
Change not statistically significant
MRI results in higher poverty rates
FAR RPP results in higher poverty rates
Source: 2015 and 2016 CPS ASEC
1 in = 316 miles


Comparison of the Impact of the FAR RPP and MRI Adjustments
AK
1 in = 2,367 miles
WA
OR
CA
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
IL
MS
MI
IN
KY
TN
AL
OH
WV
GA
FL
SC
NC
VA
PA
NY
MD
DE
NJ
CT
RI
MA
VT
NH
ME
DC
HI
1 in = 395 miles
Source: 2015 and 2016 CPS ASEC
1 in = 395 miles
FAR RPP Stronger
Difference not statistically significant
Adjustments in Opposite Direction
MRI Stronger

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