

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

Society of Government Economists

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Supplemental Poverty Measure (SPM)

The Research SUPPLEMENTAL POVERTY MEASURE: 2012

Current Population Reports

By Kathleen Short
Issued November 2013
PGD-247

INTRODUCTION

This is the third report describing research on the Supplemental Poverty Measure (SPM) released by the U.S. Census Bureau, with support from the Bureau of Labor Statistics (BLS).¹ The SPM 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 current official poverty measure. The current official poverty measure was developed in the early 1960s, and only a few minor changes have been implemented since it was first adopted in 1969 (Orshansky, 1963, 1965a, 1965b; Fisher, 1992). The official measure consists of a set of thresholds for families of different sizes and compositions that are compared with before-tax cash income to determine a family's poverty status. At the time they were developed, the official poverty thresholds represented the cost of

a minimum diet multiplied by three (to allow for expenditures on other goods and services).

Concerns about the adequacy of the official measure have increased during the past decades (Ruggles, 1990), culminating in a Congressional appropriation in 1990 for an independent scientific study of the concepts, measurement methods, and information needed for a poverty measure. In response, the National Academy of Sciences (NAS) established the Panel on Poverty and Family Assistance, which released its report *Measuring Poverty: A New Approach* in the spring of 1995 (Citro and Michael, 1995). In March of 2010, the Interagency Technical Working Group on Developing a Supplemental Poverty Measure (ITWG) listed suggestions for research on the SPM. The ITWG was charged with developing a set of initial starting points to permit the Census Bureau, in cooperation with the BLS, to produce a report on the SPM that would be released along with the official measure each year. Their suggestions included:

- The *SPM thresholds* should represent a dollar amount spent on a basic set of goods that

includes food, clothing, shelter, and utilities (FCSU) and a small additional amount to allow for other needs (e.g., household supplies, personal care, non-work-related transportation). This threshold should be calculated with five years of expenditure data for families with exactly two children using Consumer Expenditure Survey data, and it should be adjusted (using a specified equivalence scale) to reflect the needs of different family types and geographic differences in housing costs. Adjustments to thresholds should be made over time to reflect real change in expenditures on this basic bundle of goods at the 33rd percentile of the expenditure distribution.

- *SPM family resources* should be defined as the value of cash income from all sources, plus the value of noncash benefits that are available to buy the basic bundle of goods (FCSU) minus necessary expenses for critical goods and services not included in the thresholds. Noncash benefits include nutrition assistance, subsidized housing, and home

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Source: U.S. Census Bureau, Current Population Survey, 2013 Annual Social and Economic Supplement.
http://www.census.gov/hhes/povmeas/methodology/supplemental/research/Short_ResearchSPM2012.pdf



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Observations from the Interagency Technical Working Group - March 2, 2010

- Will not replace the official poverty measure
- Will not be used for resource allocation or program eligibility
- Census Bureau and BLS responsible for improving and updating the measure
- Continued research and improvement
- Based on NAS panel 1995 recommendations

	Official Poverty Measure	Supplemental Poverty Measure
Thresholds	48 thresholds by age of head, size of family and number of children. Derived from USDA food budgets.	Derived from latest five years of CE data on spending on food, clothing, shelter and utilities; adjusted for tenure and geography
Resources	Cash income before taxes	Cash income before taxes PLUS noncash benefits and tax credits MINUS taxes and necessary expenditures
Unit of Analysis	Related by blood, marriage or adoption – universe excludes unrelated children < 15	Resource unit includes cohabiting partners, their relatives and unrelated children under age 15

Comparing the Official and SPM Thresholds

Official Measure

- Cost of a minimum food basket times three
- Updated each year with the CPI
- Same for all areas in the US

Supplemental Measure

- 33rd percentile of sum of expenditures for food, clothing, and shelter, and utilities (FCSU) plus “a little bit more”
- Updated each year with most recent 5 years of data
- Adjusted for differences in home ownership status and geography

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
- MRI = Median Rent Index
- HousingShare = percent of threshold represented by housing and utility expenditures
- Threshold = national average dollar value for income below which households are considered in poverty

San Francisco vs. Rural Mississippi

2011– Two Adults Two Children	San Francisco	Mississippi Nonmetro Areas
Official Poverty Threshold	\$22,811	\$22,811
SPM Threshold: Renters	\$25,222	\$25,222

San Francisco vs. Rural Mississippi

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Rent-based Index Using MRI	\$1,395/\$840 =1.661	\$536/\$840=0.638

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Apply to Only Housing Portion of Thresholds	49.7%*1.661+50.3%*1.0	49.7%*.638+50.3%*1.0
MRI Index	132.8	82.0
Adjusted SPM Threshold	\$33,504	\$20,685

Regional Price Parities

- 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

Two RPP Options

- Apply the overall RPP to the entire threshold
- Apply the item-specific RPP indices to each element of the threshold: food, clothing, shelter and utilities
 - No geographic variation assumed for “other” items in the threshold
 - Item-specific uses the weights of each element in the SPM thresholds

RPP Formulas

- Overall RPP

$$\text{Threshold}_{ijt} = RPP_{ij} \times \text{Threshold}_t$$

- Item-specific RPP

$$\text{Threshold}_{ijt}$$

$$= \left(\text{HousingShare}_t \times \text{rent_rpp}_{ij} \right.$$

$$+ \text{FoodShare}_t \times \text{food_rpp}_{ij}$$

$$\left. + \text{ApparelShare}_t \times \text{app_rpp}_{ij} + \text{OtherShare}_t \right)$$

$$\times \text{Threshold}_t$$

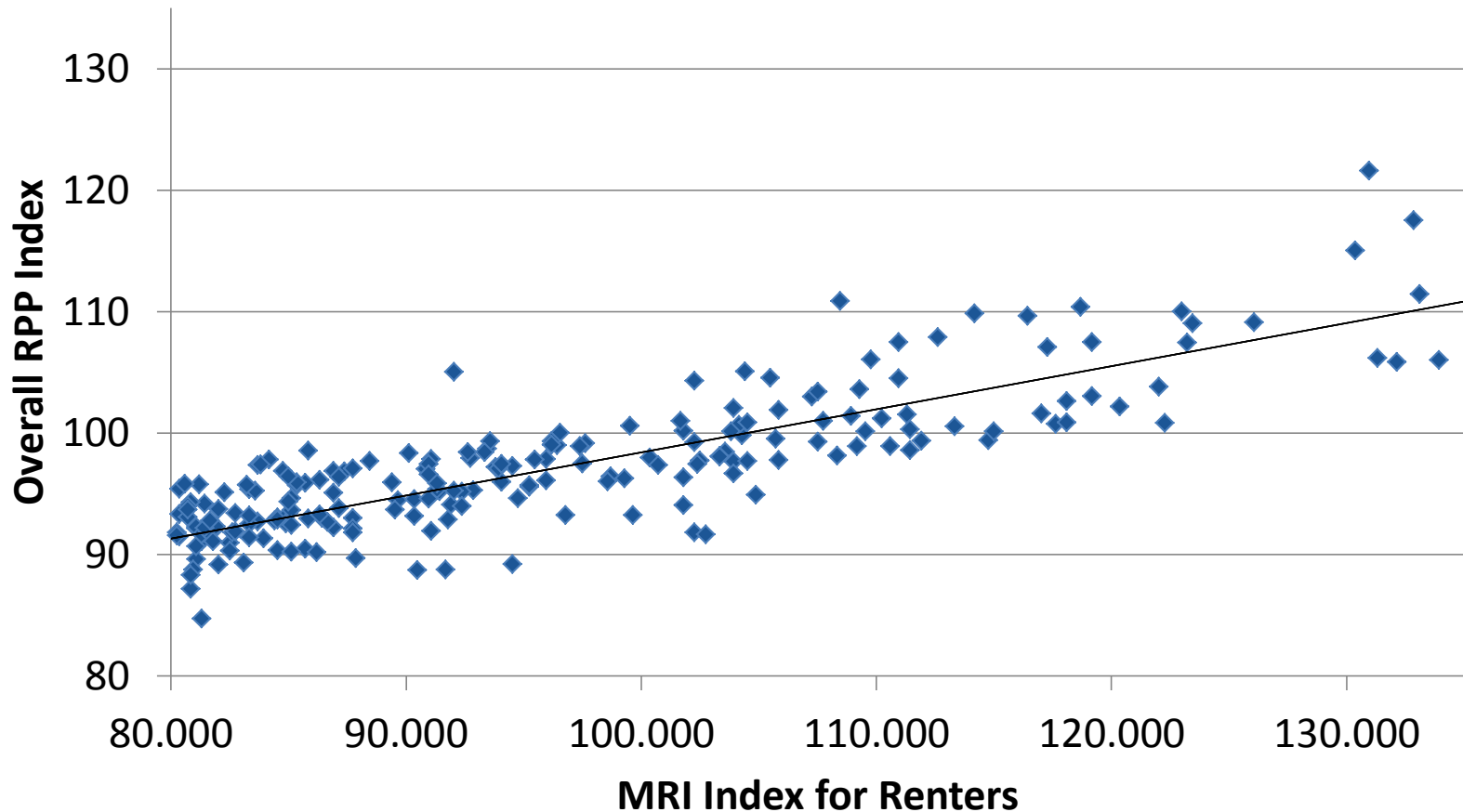
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RPP Index	121.5	.809
Adjusted SPM Threshold	\$30,643	\$20,410

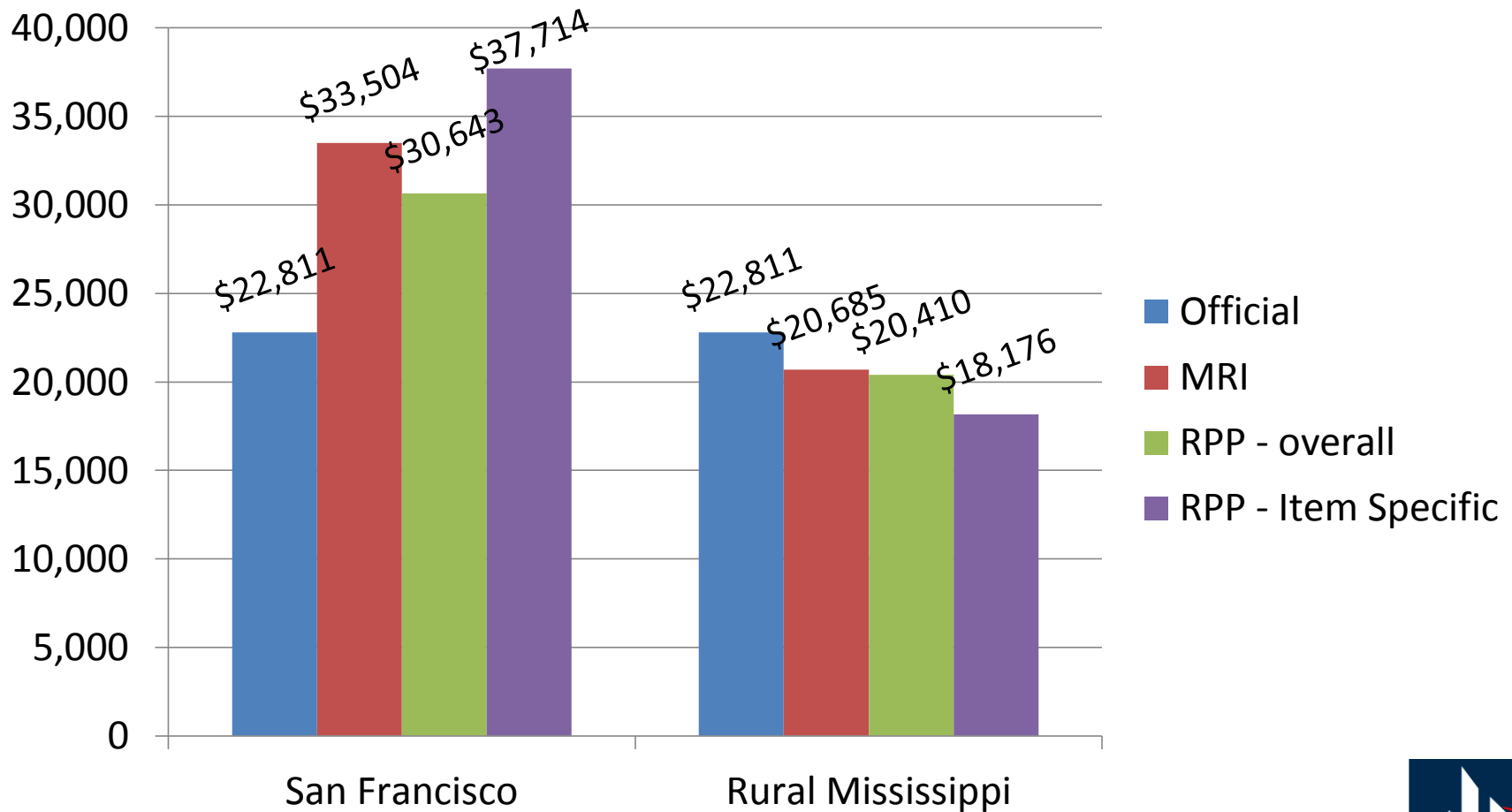
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Overall RPP Index	121.5	.809
Adjusted SPM Threshold	\$30,643	\$20,410
Item-specific RPP Indices: Rent/Food/Apparel	1.877/1.161/1.272	.497/.920/.861
Adjusted SPM Threshold	\$37,714	\$18,176

All three indices are are highly correlated (91.9, 96.3, 96.3)



Comparing SPM Thresholds – Renters with two adults, two children, 2011



Threshold Comparisons

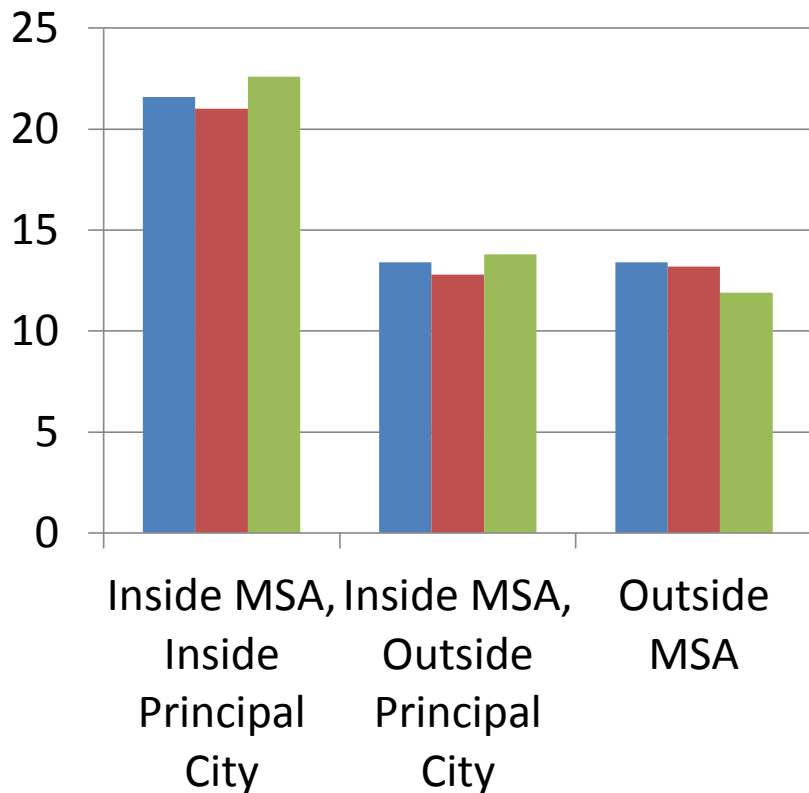
- The 2011 MRI thresholds for SPM resource units who were renters with two adults and two children ranged from \$20,163 for nonmetro North Dakota to \$34,310 for San Jose-Sunnyvale-Santa Clara CA MSA.
- For the overall RPP-adjusted thresholds, the values ranged from \$20,334 for nonmetro South Dakota to \$31,053 for Honolulu, HI.
- For the item-specific RPPs, the values ranged from \$17,987 in Arkansas nonmetro to \$38,359 in San Jose-Sunnyvale-Santa Clara CA.
- The difference between the highest and lowest threshold for the MRI was \$14,147 while the range for overall RPPS was \$10,719. The item-specific RPP-adjusted thresholds had a range of \$20,372.

Poverty Rate Comparisons

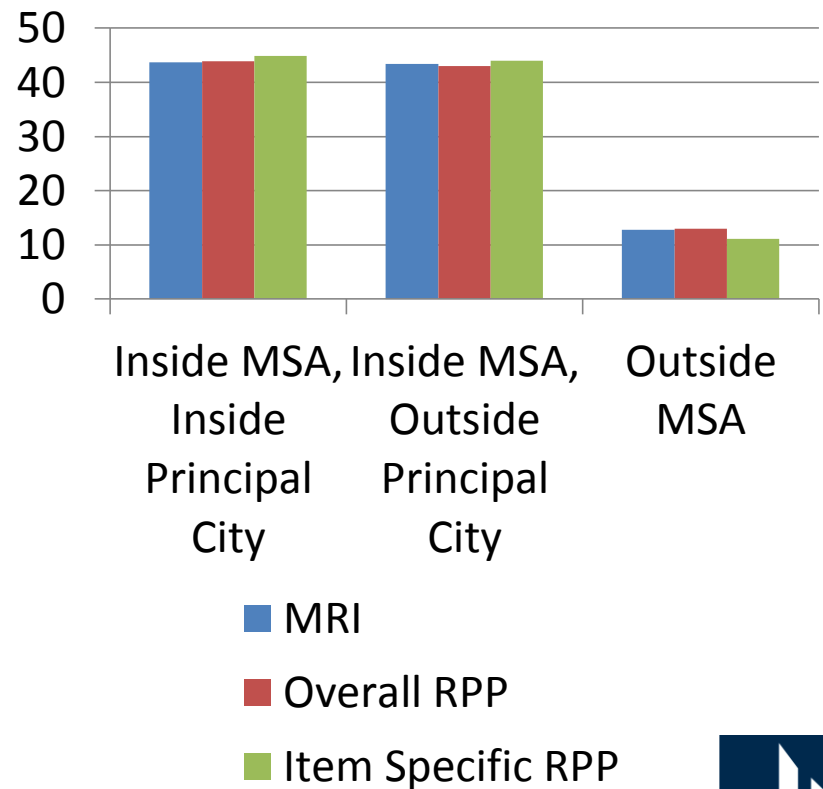
- Overall poverty rates:
 - MRI = 16.1 percent
 - Overall RPP = 15.6 percent
 - Item-specific RPP = 16.4 percent
 - Official = 15.1 percent
- Since the overall poverty rates differ so significantly, instructive to look at both poverty rates and distribution of the population in poverty for other characteristics

Place of Residence

Poverty Rates

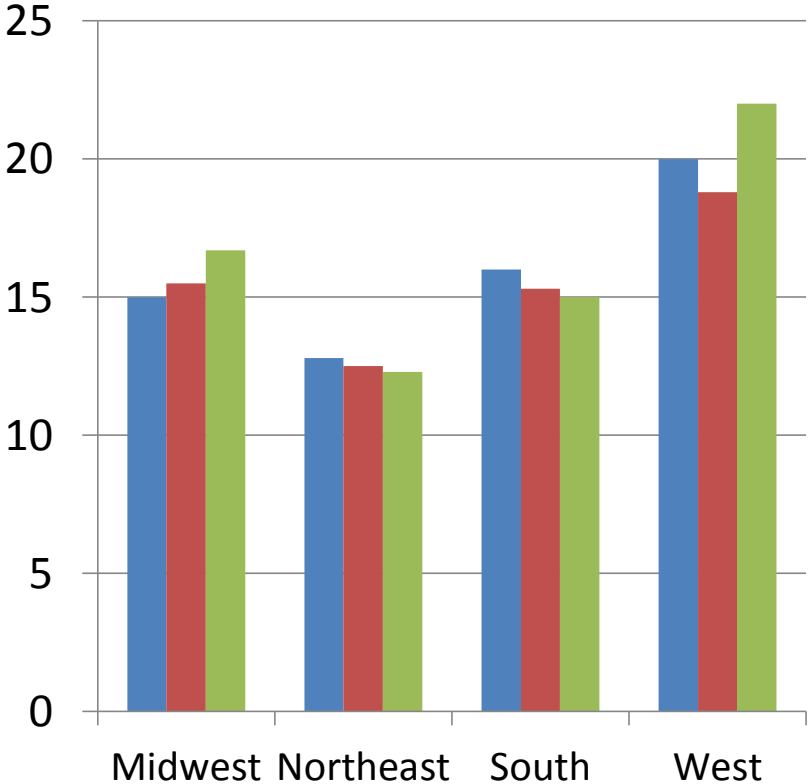


Distribution of the Poor

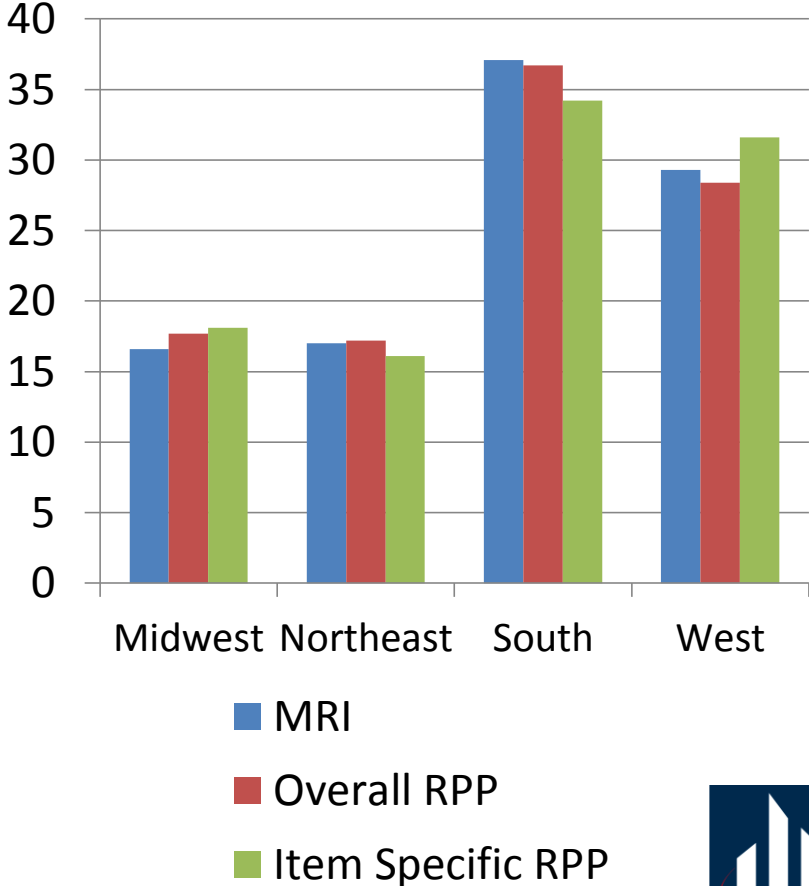


Region

Poverty Rates

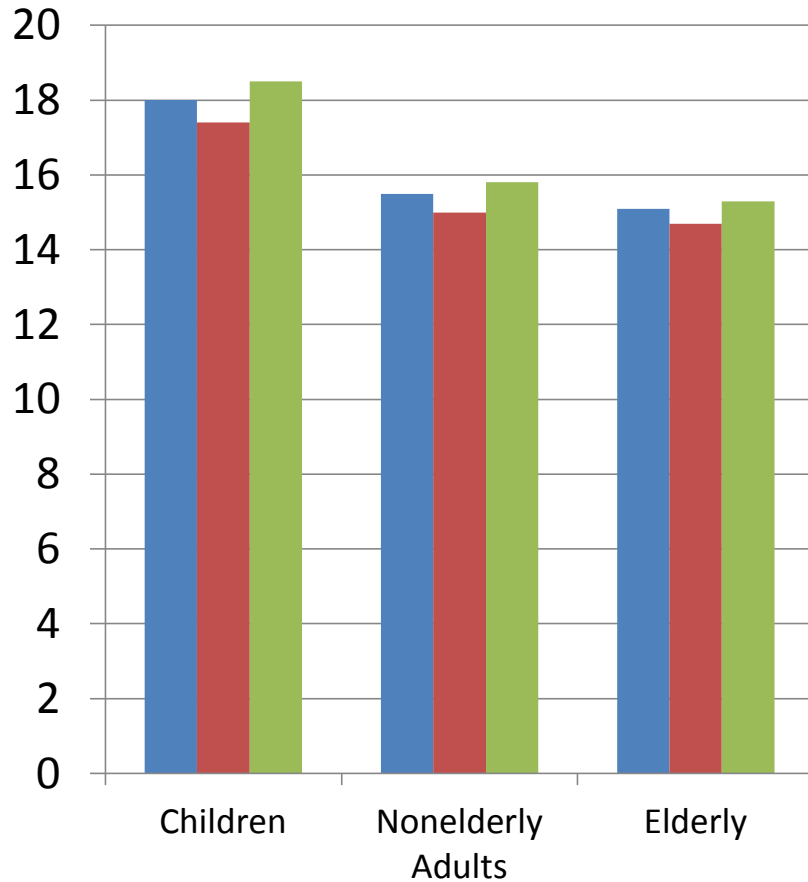


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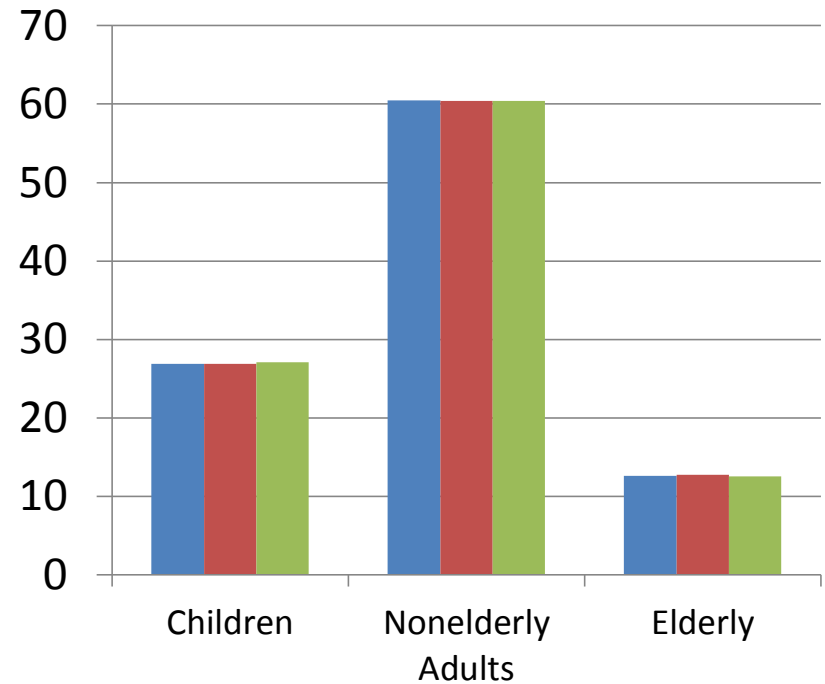


Age

Poverty Rates



Distribution of the Poor

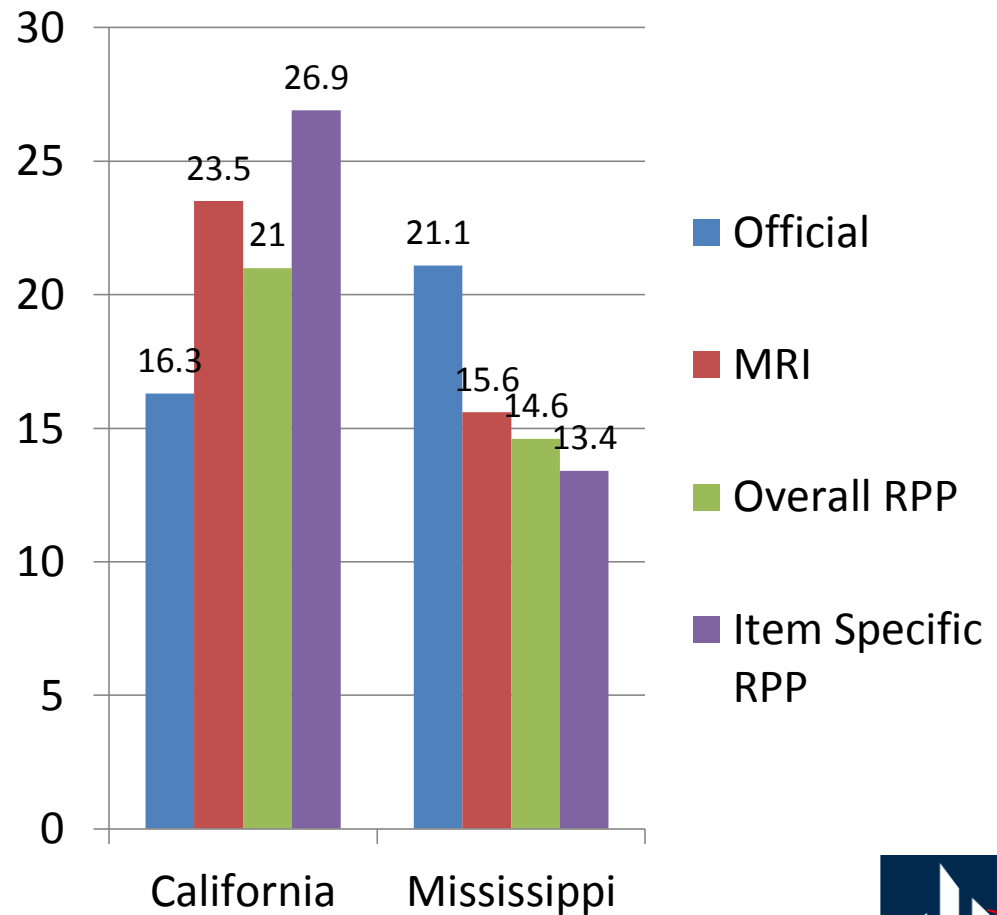


None of the differences are statistically significant.

- MRI
- Overall RPP
- Item Specific RPP

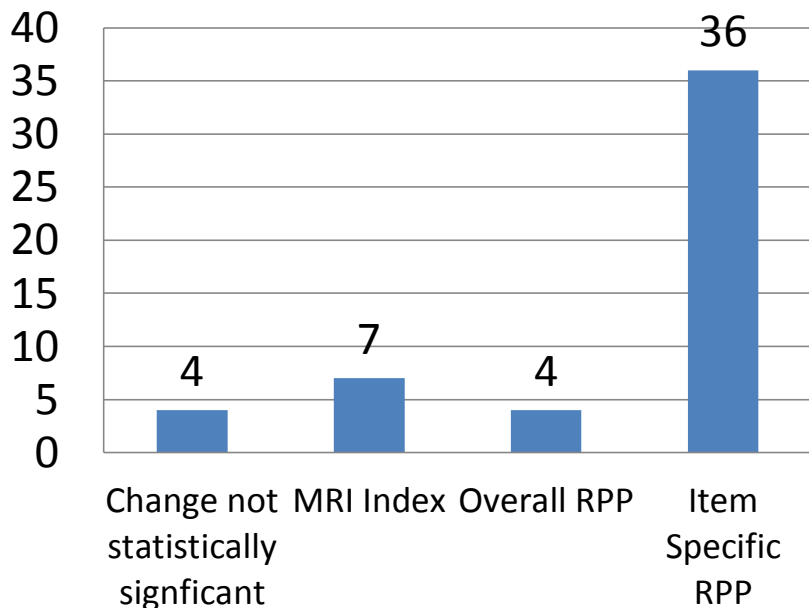
States

Comparing to the official poverty rates, if the differences are statistically significant, they are in the same direction with all three choices of adjustment index.



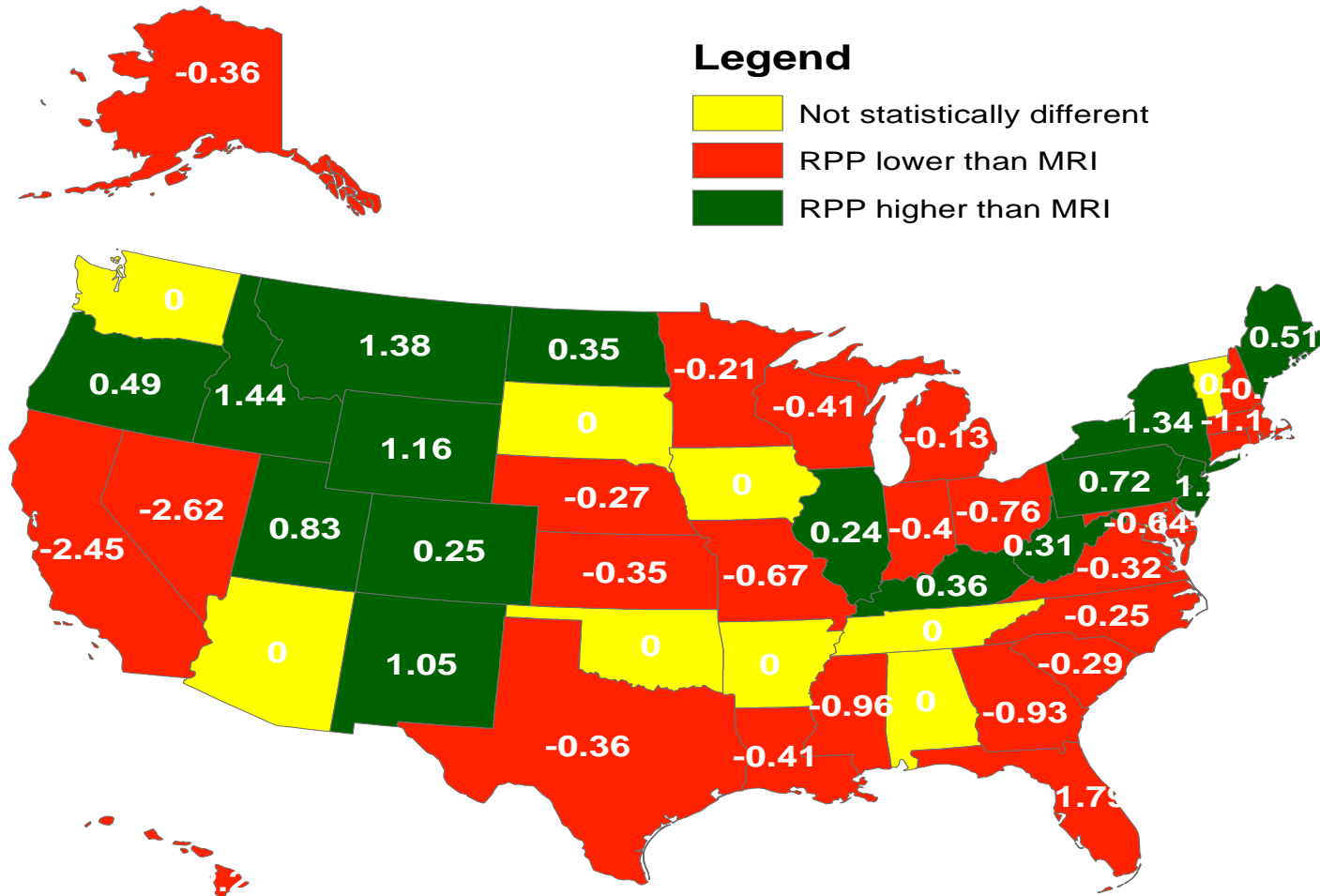
Comparing official poverty rates to SPM poverty rates at the state level

States with the largest absolute difference between SPM and Official poverty rates



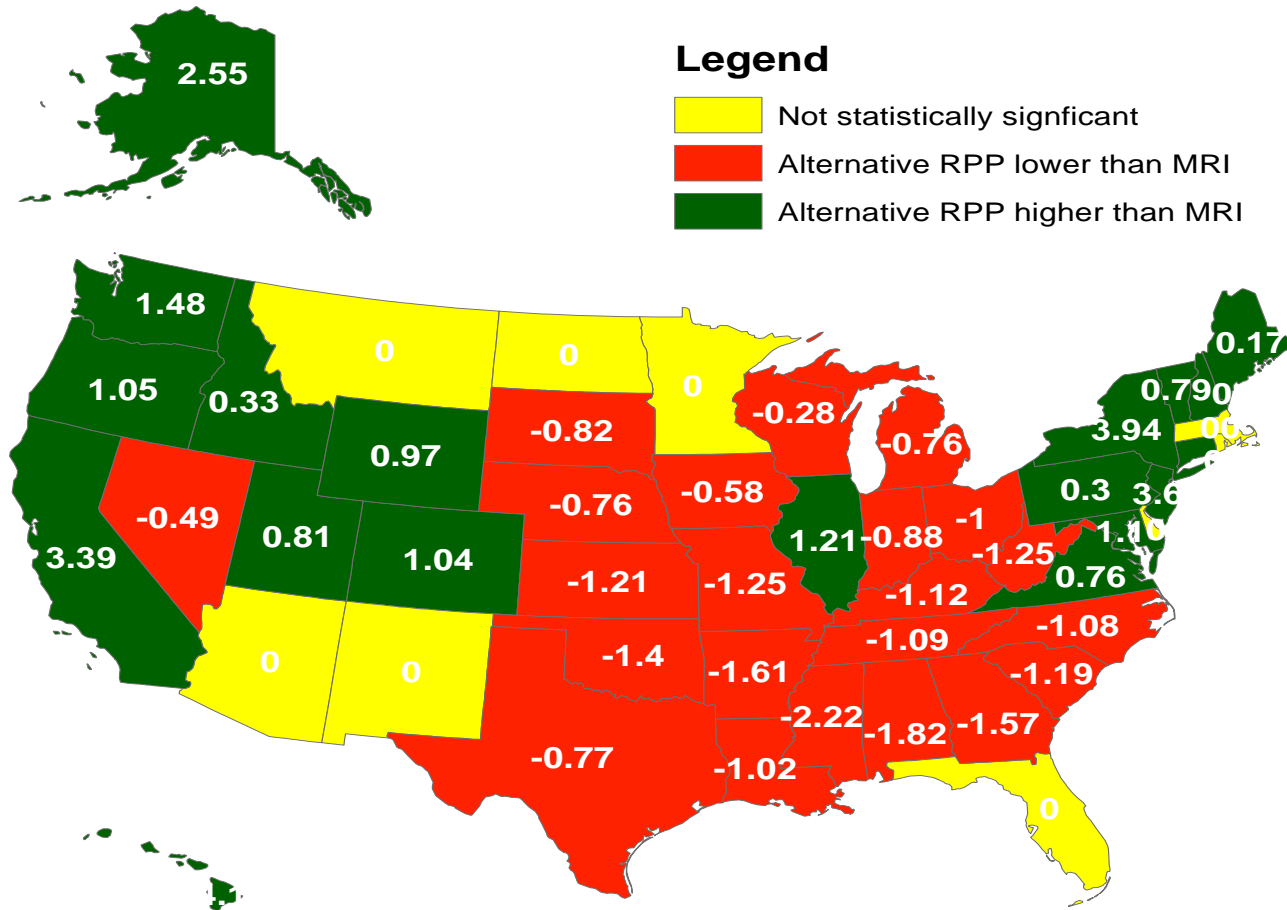
The choice of index impacts the magnitude but not the direction of the change.

Difference between SPM Poverty Rates: Overall RPP vs ACS Geographic Cost Adjustment: 2009-2011



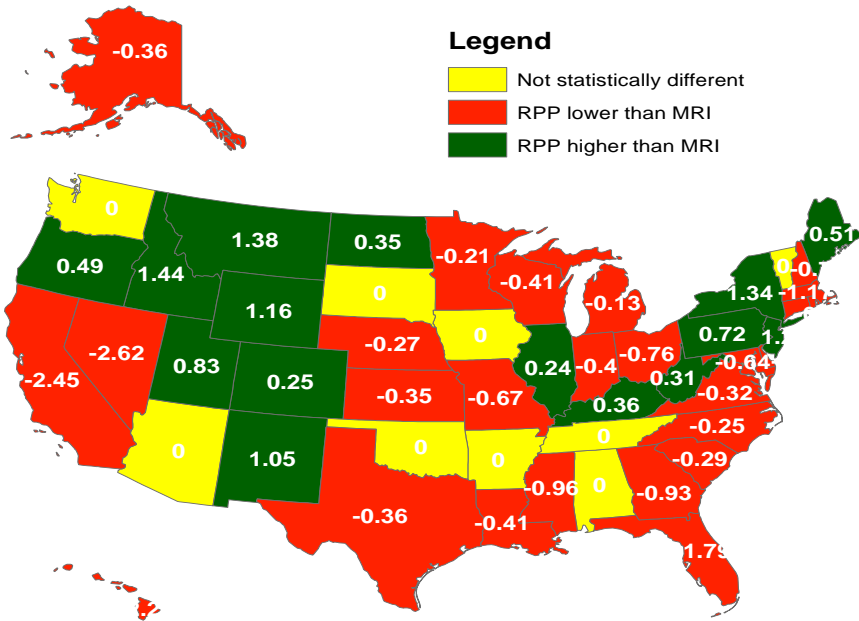
Source: Current Population Survey Annual Social and Economic Supplements 2010-2012.

Difference between SPM Poverty Rates: Item Specific RPP vs ACS Geographic Cost Adjustment: 2009-2011



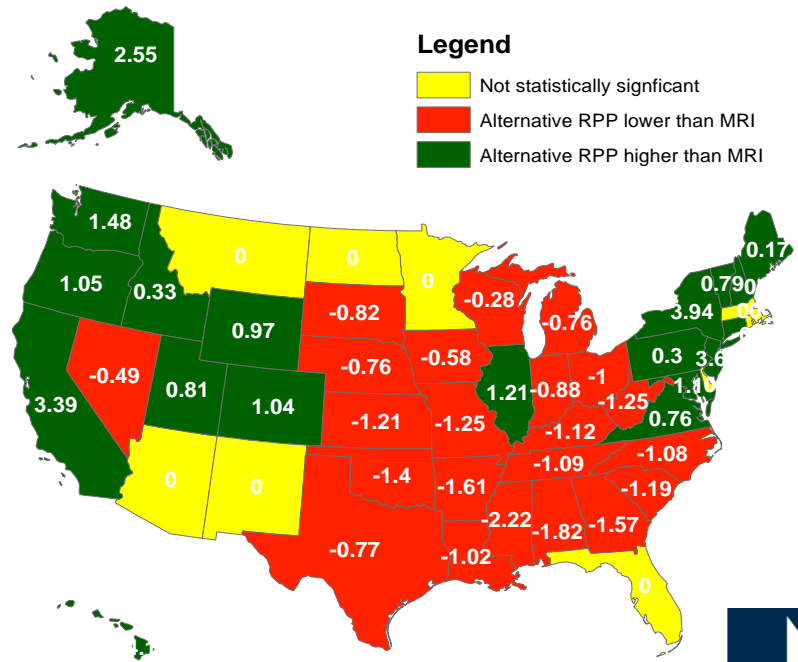
Source: Current Population Survey Annual Social and Economic Supplements 2010-2012.

**Difference between SPM Poverty Rates:
Overall RPP vs ACS Geographic Cost Adjustment: 2009-2011**



Source: Current Population Survey Annual Social and Economic Supplements 2010-1012.

**Difference between SPM Poverty Rates:
Item Specific RPP vs ACS Geographic Cost Adjustment: 2009-2011**



Source: Current Population Survey Annual Social and Economic Supplements 2010-1012.

Analysis

- Differences driven by the different implicit 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 RPPs, shelter costs represent 20.6 percent of the index
 - When SPM weights are used with the RPP index, the changes in poverty rates are generally greater
- Represent two different goals
 - MRI: Adjust the SPM thresholds
 - Overall RPP: Consistent with BEA national accounts

Next Steps/Future Research

- Investigate methods to evaluate the poverty rates that result from different indices
 - Correlation to measures of hardship?
 - Other criteria?
- BEA working on developing separate index for utilities – this analysis used the rent index
- How to account for geographic differences in amenities?

Contact Information

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Observations from the Interagency Technical Working Group - March 2, 2010

- Three basic thresholds by tenure/mortgage status:
 - Renters
 - Owners with a mortgage
 - Owners without a mortgage
- Poverty thresholds should be adjusted for price differences across geographic areas using the best available data and statistical methodology.
 - American Community Survey (ACS)
 - For Metropolitan Statistical Areas (MSAs) and by non-MSA areas in each State
 - Utilize a 5-year moving average of the data for each year
- Over time this adjustment mechanism may be modified and improved.