

## ABSTRACT

### **Supplemental Poverty Measure: Adjusting Poverty Thresholds for Geographic Variations in Both Food and Housing Prices Impact on Child Poverty Rates**

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Drawing on the recommendations of the 1995 report of National Academy of Sciences (NAS) Panel on Poverty and Family Assistance and the subsequent extensive research on poverty measurement, in March 2010 an Interagency Technical Working Group (ITWG) issued a series of suggestions to the Census Bureau and BLS on how to develop a new Supplemental Poverty Measure. In November 2011, the Census Bureau issued the first Research Supplemental Poverty Measure report with poverty estimates for 2009 and 2010. The ITWG suggested that the poverty thresholds be adjusted for price differences across geographic areas using the best available data and statistical methodology. The estimates in the November 2011 report use American Community Survey (ACS) data to adjust the housing portion of the poverty thresholds for differences in housing costs. This geographic cost index used median outlays of renters for rent and utilities for two-bedroom apartments.

One shortcoming of this geographic cost adjustment mechanism is that it does not account for geographic differences in the cost of other elements of the poverty threshold. Both the 1995 NAS report and the 2010 ITWG suggestions concluded that while adjustment of the entire market basket may be desirable, adequate data on price differences for other elements did not exist.

In 2011, the nonprofit Feeding America issued a report, "Map the Meal Gap 2011," that used in-store scanning data and Homescan data provided by the Nielsen Company to establish a relative food price index that would allow for comparability between counties. Nielsen assigned every sale of UPC-coded food items in a county to one of the 26 food categories in the USDA Thrifty Food Plan (TFP). These were then weighted to the TFP market basket based on pounds purchased per week by age and gender. (<http://feedingamerica.org/hunger-in-america/hunger-studies/map-the-meal-gap/map-executive-summary.aspx>)

This paper will use the data from the "Map the Meal Gap 2011" report to construct a geographic cost of living index based on both food and housing costs. This index will be applied to the 2010 SPM poverty thresholds. Child poverty estimates using this alternative index will be compared to poverty estimates using the housing-only index.

This preliminary analysis applies the new index to March 2011 CPS ASEC data for 49 states and the District of Columbia. Map the Meal Gap 2011 did not include data for Alaska and Hawaii. The food index was applied to the food portion of the thresholds. These percentages varied by the tenure status of the household. For households with a mortgage, food was 28.4 percent of the threshold. For households without a mortgage, food was 34.5 percent of the threshold. For renters, food was 29.1 percent of the threshold.

All comparative statements will be statistically tested at the 90 percent confidence level. Standard errors will be calculated using replicate weights.

We can compare children classified as “in poverty” using each index. Perhaps the most important result of this exercise is that poverty status does not change for 99.5 percent of the children. There are 222,000 children classified as “in poverty” using the housing only index who are not classified as “in poverty” using the food/housing index. There are 186,000 children who are not “in poverty” using the housing index who are classified as “in poverty” using the food/housing index.

Another interesting comparison is to look at regional poverty rates using the two approaches. There are very small changes but the changes for the Northeast and the Midwest are statistically significant.

	Housing Only	Food/Housing Index
Northeast	16.0	16.5*
Midwest	15.1	14.5*
South	18.1	18.0
West	22.5	22.7

What about metropolitan areas compared to nonmetropolitan areas? The only statistically significant change was in the child poverty rates for children living inside metropolitan statistical areas, inside principal cities.

	Housing Only	Food/Housing Index
Metropolitan Statistical Area - Principal City	25.1	24.9*
Metropolitan Statistical Area - Outside Principal City	15.3	15.3
Not in Metropolitan Statistical Area	13.5	13.5

The next table provides preliminary state level child poverty estimates using the official poverty measure, the SPM housing-only index and using an index that included both food and housing. The differences in the poverty rates were small but were statistically significant in 18 states. Of states with statistically significant differences, poverty rates using the food/housing index were higher than the housing only poverty rates in 9 states and the District of Columbia: Alabama, California, Connecticut, District of Columbia, Maryland, New Jersey, New York, Rhode Island, Vermont and Virginia. Poverty rates using the food/housing index were lower in 8 states: Illinois, Indiana, Iowa, Kentucky, Michigan, Nebraska, Ohio, and Texas.

## Child Poverty Rates

State	Official	SE	Housing Only	SE	Food/Housing Index	SE	Housing Only Compared to Official	Food/Housing Compared to Official	Food/Housing Compared to Housing Only
AL	24.7	3.11603	12.1	2.19424	12.8	2.18755	* 12.59	* 11.82	-0.77
AZ	29.3	3.25287	25.1	3.21667	25	3.28162	* 4.14	* 4.3	0.16
AR	22.1	3.16225	14.6	2.79103	14.6	2.79103	* 7.44	* 7.44	0
CA	23.8	1.04735	27.5	1.10938	27.9	1.08282	* -3.7	* -4.14	-0.44
CO	19.3	2.10485	15.3	1.63957	15.2	1.62644	* 3.97	* 4.12	0.15
CT	12.4	1.5453	13.4	1.53703	14.3	1.55434	* -1.08	* -1.9	-0.82
DE	18.9	2.28007	13.4	1.83199	13.3	1.78822	* 5.49	* 5.58	0.08
DC	34	3.31624	32.6	3.06767	33.8	3.04024	1.44	0.24	-1.2
FL	23.3	1.48029	23.1	1.43743	23	1.46489	0.24	0.29	0.06
GA	25.4	1.95763	20.9	1.78396	20.8	1.77764	* 4.49	* 4.57	0.08
ID	19.4	2.51029	12	2.26413	12.7	2.40635	* 7.34	* 6.72	-0.62
IL	21.3	1.5053	19.7	1.53276	18.8	1.48278	1.61	2.47	0.85
IN	27.1	2.73309	18.1	2.42941	16.9	2.38905	9	10.2	1.2
IA	14.3	2.17833	8	1.03688	7.6	0.93621	* 6.35	* 6.78	0.43
KS	24.2	2.78258	13.5	2.35355	13.2	2.30147	* 10.71	* 11.03	0.32
KY	26	2.79651	15.2	1.87449	14.3	1.66176	* 10.86	* 11.74	0.88
LA	30.3	3.10638	23.3	2.98637	22.7	2.96304	* 6.98	* 7.59	0.62
ME	19.7	2.2202	11.3	1.86505	12.3	1.97758	* 8.3	* 7.39	-0.91
MD	14.1	1.69899	13.4	1.50533	14.3	1.53028	0.68	-0.15	-0.83
MA	15	2.12795	14.9	1.93693	15.3	1.92645	0.16	-0.28	-0.44
MI	22	2.1425	16.9	1.96016	16.3	1.9077	* 5.04	* 5.67	0.63
MN	15.3	1.74558	9.2	1.56204	9.2	1.56204	* 6.05	* 6.05	0
MS	35.2	3.36322	20.7	2.75089	21.1	2.65045	* 14.53	* 14.12	-0.41
MO	21.8	2.85683	14.5	2.50505	13.9	2.50079	* 7.21	* 7.9	0.69
MT	22.9	3.91262	10.8	2.70121	10.8	2.70121	* 12.12	* 12.12	0
NE	14.1	2.39599	9.2	1.87154	8.3	1.732	* 4.89	* 5.85	0.96
NV	24.1	2.4215	26.6	2.58892	26.1	2.56909	-2.57	-2	0.57
NH	7.2	1.21114	8.2	1.25613	8.8	1.33559	-0.98	-1.66	-0.67
NJ	15.4	1.98189	16.7	1.92742	17.4	1.90483	-1.33	-2.05	-0.72
NM	27	3.07231	15.3	2.84638	15.2	2.88435	* 11.62	* 11.81	0.18
NY	24.7	1.63734	20.7	1.47225	21.4	1.46613	* 4.03	* 3.34	-0.69
NC	28.9	2.06999	16.8	1.54401	16.8	1.54401	* 12.17	* 12.17	0
ND	18	1.85147	9.6	1.65585	9.2	1.62028	* 8.4	* 8.77	0.37
OH	24.4	2.17466	16.5	1.53958	15.9	1.58612	* 7.94	* 8.47	0.53
OK	25.7	3.40946	18.5	1.90497	18.5	1.90497	* 7.26	* 7.26	0
OR	23.7	2.79694	18	2.4993	17.8	2.36425	* 5.62	* 5.9	0.28
PA	17.7	1.28746	11.1	1.38384	11	1.3637	* 6.62	* 6.69	0.07
RI	21.8	2.26239	15.3	1.90016	16.6	1.88485	* 6.49	* 5.24	-1.26
SC	25.9	2.34938	18.1	1.91106	17.9	1.89834	* 7.82	* 8	0.18
SD	18	2.45647	10.5	1.8712	10.5	1.8712	* 7.47	* 7.47	0
TN	24.1	2.27217	14	1.70468	13.9	1.70466	* 10.04	* 10.2	0.16
TX	27	1.41625	18.6	1.1748	17.9	1.14068	* 8.4	* 9.08	0.68
UT	13.9	2.07741	10.8	1.74729	10.7	1.75018	3.03	3.17	0.13
VT	15.4	2.411	9.7	2.04966	10.8	2.16066	* 5.76	* 4.64	-1.12
VA	13	1.55727	13.2	1.44943	14.2	1.55612	-0.21	-1.21	-1
WA	17.6	1.95641	11.6	1.65964	11.2	1.61772	* 6.04	* 6.39	0.35
WV	22.5	2.79879	12.3	1.95556	12.2	1.97625	* 10.12	* 10.27	0.15
WI	14.6	1.7698	9.4	1.58087	9.3	1.58419	* 5.22	* 5.3	0.08
WY	14.9	1.55281	8	1.21841	8	1.21841	* 6.95	* 6.95	0

Preliminary tests of correlation show that the two indices are fairly closely correlated with each other. The Pearson Correlation Coefficient for the two indices was .66005. The Pearson Correlation Coefficient for the two sets of poverty designations was .98158.

Additional analysis: tests of differences in poverty rates by other demographic characteristics including race, family type and nativity. Maps comparing the child poverty rates using the two indices.

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