

Table 5a.

Effect of Excluding Individual Elements on SPM Rates: 2011

(Numbers in thousands, confidence intervals [C.I.] in thousands or percentage points as appropriate. People as of March of the following year. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see www.census.gov/apsd/techdoc/cps/cpsmar12.pdf)

Elements	All persons		Children		Adults aged 18–64		65 years and older	
	Estimate	90 percent C.I.† (±)	Estimate	90 percent C.I.† (±)	Estimate	90 percent C.I.† (±)	Estimate	90 percent C.I.† (±)
Research SPM	16.1	0.3	18.1	0.5	15.5	0.3	15.1	0.5
Social Security	24.4	0.3	20.3	0.5	19.7	0.3	54.1	0.8
Refundable tax credits	18.9	0.3	24.4	0.6	17.7	0.3	15.2	0.5
SNAP	17.6	0.3	21.0	0.5	16.8	0.3	15.8	0.6
Unemployment insurance	17.2	0.3	19.4	0.5	16.8	0.3	15.5	0.5
SSI	17.2	0.3	18.9	0.5	16.7	0.3	16.3	0.6
Housing subsidies	17.0	0.3	19.5	0.5	16.3	0.3	16.3	0.6
Child support received	16.5	0.3	19.1	0.5	15.8	0.3	15.1	0.5
School lunch	16.4	0.3	19.0	0.5	15.8	0.3	15.1	0.5
TANF/General Assistance	16.4	0.3	18.7	0.5	15.7	0.3	15.1	0.5
WIC	16.2	0.3	18.4	0.5	15.6	0.3	15.1	0.5
LIHEAP	16.2	0.3	18.2	0.5	15.6	0.3	15.1	0.5
Workers compensation	16.2	0.3	18.2	0.5	15.7	0.3	15.1	0.5
Child support paid	16.0	0.3	18.0	0.5	15.4	0.3	15.0	0.5
Federal income tax	15.6	0.3	17.8	0.5	15.0	0.3	14.8	0.5
FICA	14.8	0.3	16.4	0.5	14.2	0.3	14.8	0.5
Work expense	14.4	0.3	15.9	0.5	13.8	0.3	14.7	0.5
MOOP	12.7	0.3	15.4	0.5	12.7	0.3	8.0	0.4

† A 90 percent confidence interval is a measure of an estimate's variability. The larger the confidence interval in relation to the size of the estimate, the less reliable the estimate. Confidence intervals shown in this table are based on standard errors calculated using replicate weights instead of the generalized variance function used in the past. For more information see "Standard Errors and Their Use" at www.census.gov/hhes/www/p60_243sa.pdf.

Source: U.S. Census Bureau, Current Population Survey, 2012 Annual Social and Economic Supplement.

Table 5b.

Effect of Excluding Individual Elements on SPM Rates: 2010¹

(Numbers in thousands, confidence intervals [C.I.] in thousands or percentage points as appropriate. People as of March of the following year. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see www.census.gov/apsd/techdoc/cps/cpsmar11.pdf)

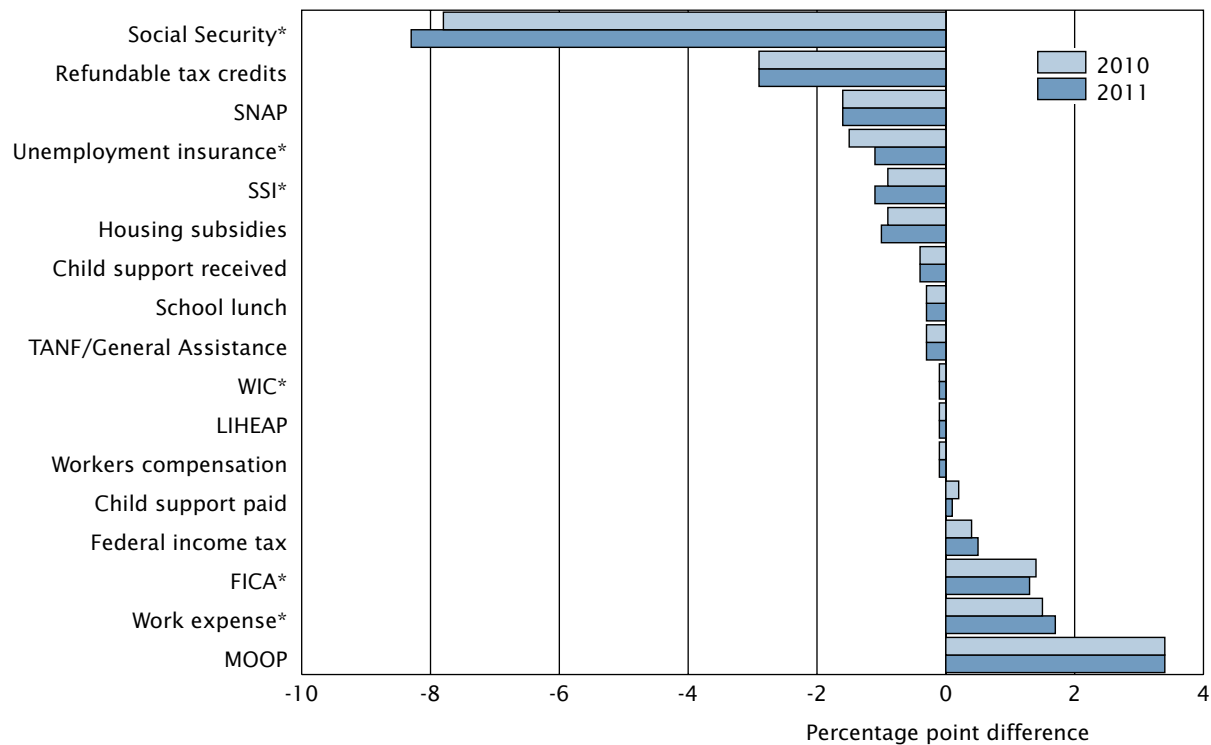
Elements	All persons		Children		Adults aged 18–64		65 years and older	
	Estimate	90 percent C.I.† (±)	Estimate	90 percent C.I.† (±)	Estimate	90 percent C.I.† (±)	Estimate	90 percent C.I.† (±)
Research SPM	16.0	0.3	18.0	0.5	15.2	0.3	15.8	0.6
Social Security	23.8	0.4	19.9	0.5	18.9	0.4	54.5	0.8
Refundable tax credits	18.9	0.3	24.3	0.5	17.4	0.3	16.0	0.6
SNAP	17.6	0.3	21.0	0.5	16.5	0.3	16.7	0.6
Unemployment insurance	17.5	0.3	19.7	0.5	16.9	0.3	16.3	0.6
SSI	16.9	0.3	18.8	0.5	16.2	0.3	16.9	0.6
Housing subsidies	16.9	0.3	19.3	0.5	15.9	0.3	17.0	0.6
Child support received	16.4	0.3	19.0	0.5	15.5	0.3	15.9	0.6
School lunch	16.3	0.3	18.8	0.5	15.5	0.3	15.9	0.6
TANF/General Assistance	16.3	0.3	18.7	0.5	15.4	0.3	15.9	0.6
WIC	16.0	0.3	18.1	0.5	15.3	0.3	15.8	0.6
LIHEAP	16.1	0.3	18.1	0.5	15.3	0.3	15.9	0.5
Workers compensation	16.1	0.3	18.1	0.5	15.4	0.3	15.9	0.5
Child support paid	15.8	0.3	17.9	0.5	15.1	0.3	15.8	0.6
Federal income tax	15.6	0.3	17.7	0.5	14.7	0.3	15.6	0.6
FICA	14.5	0.3	16.1	0.5	13.7	0.3	15.5	0.6
Work expense	14.5	0.3	16.0	0.5	13.7	0.3	15.5	0.6
MOOP	12.6	0.3	15.2	0.5	12.4	0.3	8.6	0.4

† A 90 percent confidence interval is a measure of an estimate's variability. The larger the confidence interval in relation to the size of the estimate, the less reliable the estimate. Confidence intervals shown in this table are based on standard errors calculated using replicate weights instead of the generalized variance function used in the past. For more information see "Standard Errors and Their Use" at www.census.gov/hhes/www/p60_239sa.pdf.

¹ Consistent with 2011 data through implementation of Census 2010 based population controls. Estimates for calendar year 2010 differ from previously published estimates due to weighting adjustments to the 2010 Census and improvements to the tax calculations, see Webster, 2012.

Source: U.S. Census Bureau, Current Population Survey, 2011 Annual Social and Economic Supplement.

Figure 5.
Difference in SPM Rates After Including Each Element: 2010 and 2011



*Statistically significant change between 2010 and 2011.

Source: U.S. Census Bureau, Current Population Survey, 2011 and 2012 Annual Social and Economic Supplements.

Because child support paid is subtracted from income in the SPM, we also examine the effect of child support received on alleviating poverty. Child support payments received are counted as income in both the official and the SPM.

Removing one item from the calculation of family resources and recalculating poverty rates shows, for example, that without Social Security benefits, the SPM rate would have been 24.4 percent rather than 16.1 percent. Not including refundable tax credits (the EITC and the refundable portion of the child tax credit) in resources, the poverty rate for all people would have been 18.9 percent rather than 16.1 percent, all else constant. On the other hand, removing amounts paid for child support, income and payroll

taxes, work-related expenses, and medical out-of-pocket expenses from the calculation resulted in lower poverty rates. Without subtracting MOOP from income, the SPM rate for 2011 would have been 12.7 percent rather than 16.1 percent. Table 5b shows the same calculations for the year 2010.¹⁹

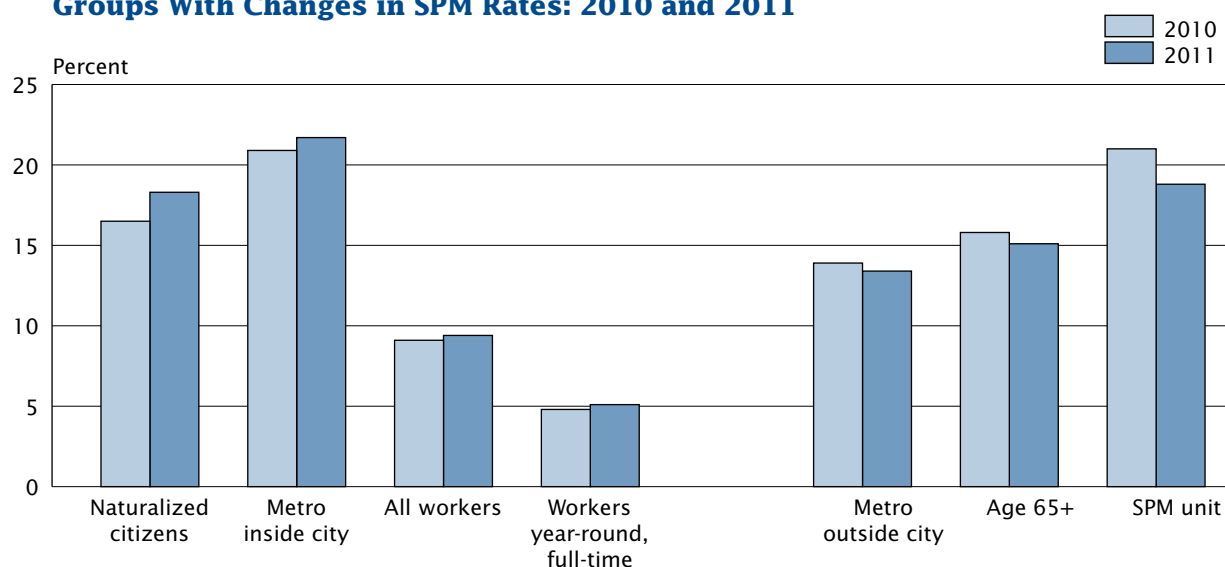
In 2011, not accounting for refundable tax credits would have resulted in a poverty rate of 24.4 percent for children, rather than 18.1 percent. Not subtracting MOOP from the income of families with children would have resulted in a poverty rate of 15.4 percent. Findings are similar for the other

¹⁹ Estimates for calendar year 2010 differ from previously published estimates due to weighting adjustments to the 2010 Census and improvements to the tax calculations; see Webster, 2012.

two age groups shown. For the 65 years of age and older group, however, WIC had no statistically significant effect while SPM rates increased by about 7.0 percentage points with the subtraction of MOOP from income. Clearly, the subtraction of MOOP had an important effect on SPM rates for this group. On the other hand, Social Security benefits lowered poverty rates by 39.1 percentage points for the 65 and over group.

Tables 5a and 5b also show the same calculations for three age groups for 2011 and for 2010. Figure 5 shows the percentage point difference in the SPM rate for each item for the two years 2010 and 2011 and allows us to compare the effect of transfers, both cash and noncash, and nondiscretionary

Figure 6.
Groups With Changes in SPM Rates: 2010 and 2011



Source: U.S. Census Bureau, Current Population Survey, 2011 and 2012 Annual Social and Economic Supplements.

expenses on SPM rates. For most elements the effect of additions and subtractions between the two years was not statistically different, however, some items had small differences in their effect on poverty rates. Social Security benefits, WIC, and Supplementary Security Income (SSI) were more effective at reducing poverty rates in 2011 than they were in 2010. Unemployment insurance had a smaller effect in 2011 than in 2010. Payroll taxes (FICA) increased poverty rates less in 2011 than in 2010, while work expenses, such as commuting and child care costs, increased poverty rates more. Federal income taxes shown here exclude refundable tax credits, the earned income tax credit, and the advance child tax credit, but include the nonrefundable child tax credit.

Notable among the differences in the effects of benefits and expenses was the increased effectiveness of Social Security benefits. While benefit amounts did not increase in 2011, the number

of individuals over age 64 did increase between the two years. The number of elderly individuals grew 4.3 percent from 39.8 million in 2010 to 41.5 million in 2011. The percent of people reporting Social Security benefits increased from 22.3 percent to 22.9 percent. Likewise, the percent reporting receipt of SSI benefits increased slightly. The increased effect of work expenses likely reflected increased commuting costs caused by slight increases in work effort and a rise in the price of gasoline as measured by the CPI-U.^{20, 21} Declines in the effect of unemployment benefits in moving people out of poverty reflect a decline in the number of workers receiving benefits between 2010 and 2011. The percent reporting receiving

²⁰ De Navas et al., 2012.

²¹ "Consumer Expenditures—2011," BLS (2012) and as reflected in IRS mileage allowances between 2010 and 2011 used to calculate commuting costs in the SPM. All work-related expenses per week as estimated from the Survey of Income and Program Participation were \$27.16 for each worker. This compares to the amount of \$25.50 per week for 2010.

unemployment benefits fell from 11.0 percent in 2010 to 9.0 percent in 2011. Declines in the effect of payroll taxes in pulling people below the poverty line reflect the payroll tax holiday enacted as part of the Tax Relief Act of 2010.

CHANGES IN SPM RATES BETWEEN 2010 AND 2011: SPM

As has been documented (De Navas et al., 2012), real median household gross cash income declined by 1.5 percent between 2010 and 2011. Despite increased thresholds and falling median income, this change resulted in no change in the official poverty rate. Median total SPM resources fell from \$36,939 for 2010 (in 2011 dollars) to \$36,382 in 2011, a decline of 1.5 percent, not different from the change in median household gross cash income and reflecting only small changes between 2010 and 2011 in the effect of in-kind benefits received and nondiscretionary expenses subtracted. Table 6 shows SPM rates

Table 6.

Percent of People in Poverty Using the Supplemental Poverty Measure: 2010–2011

(Numbers in thousands, confidence intervals [C.I.] in thousands or percentage points as appropriate. People as of March of the following year. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see www.census.gov/apspd/techdoc/cps/cpsmar12.pdf)

Characteristic	Below Poverty Level								Difference	
	SPM 2010 ¹				SPM 2011					
	Number		Percent		Number		Percent		Number	Percent
	Estimate	90 percent C.I.† (±)	Estimate	90 percent C.I.† (±)	Estimate	90 percent C.I.† (±)	Estimate	90 percent C.I.† (±)		
All people	48,984	921	16.0	0.3	49,695	905	16.1	0.3	712	0.1
Sex										
Male	22,842	494	15.2	0.3	23,112	474	15.3	0.3	270	0.1
Female	26,142	517	16.7	0.3	26,583	503	16.9	0.3	441	0.2
Age										
Under 18 years	13,376	375	18.0	0.5	13,429	381	18.1	0.5	53	0.1
18 to 64 years	29,316	611	15.2	0.3	30,020	577	15.5	0.3	704	0.3
65 years and older	6,292	221	15.8	0.6	6,247	229	15.1	0.5	-45	*-0.8
Type of Unit										
In married couple unit	18,205	632	9.8	0.3	18,576	632	10.0	0.3	372	0.2
In female householder unit	18,049	547	29.0	0.8	18,996	515	30.0	0.7	*948	1.0
In male householder unit	7,220	311	22.5	0.8	7,071	313	21.9	0.9	-150	-0.6
In new SPM unit	5,510	340	21.0	1.2	5,052	302	18.8	1	*-458	*-2.2
Race² and Hispanic Origin										
White	33,929	725	14.1	0.3	34,427	729	14.3	0.3	498	0.1
White, not Hispanic	21,461	595	11.0	0.3	21,427	587	11.0	0.3	-34	0.0
Black	10,005	383	25.4	1.0	10,214	410	25.7	1.0	210	0.3
Asian	2,592	210	16.6	1.3	2,719	215	16.9	1.3	126	0.3
Hispanic (any race)	14,170	473	27.7	0.9	14,670	504	28.0	1.0	500	0.3
Nativity										
Native born	39,073	849	14.6	0.3	39,368	756	14.6	0.3	296	0.0
Foreign born	9,911	340	25.1	0.8	10,327	385	25.8	0.9	416	0.7
Naturalized citizen	2,862	159	16.5	0.8	3,286	184	18.3	0.9	*424	*1.8
Not a citizen	7,049	301	31.9	1.2	7,041	329	31.9	1.3	-8	0.0
Tenure										
Owner	20,096	669	9.7	0.3	19,978	616	9.7	0.3	-118	0.0
Owner/Mortgage	11,296	473	8.2	0.3	11,138	480	8.1	0.3	-158	0.0
Owner/No mortgage/rent free	9,578	439	13.2	0.6	9,592	400	13.1	0.5	14	-0.1
Renter	28,110	746	29.4	0.6	28,966	740	29.3	0.6	856	0.0
Residence										
Inside metropolitan statistical areas	42,867	886	16.6	0.3	43,322	898	16.6	0.3	455	0.0
Inside principal cities	20,694	603	20.9	0.5	21,748	721	21.7	0.6	*1054	*0.8
Outside principal cities	22,173	745	13.9	0.4	21,574	700	13.4	0.4	-599	*-0.5
Outside metropolitan statistical areas ³	6,117	447	12.8	0.7	6,373	492	13.5	0.7	256	0.7
Region										
Northeast	7,964	346	14.5	0.6	8,262	337	15.0	0.6	299	0.5
Midwest	8,650	356	13.1	0.5	8,454	349	12.8	0.5	-196	-0.3
South	18,501	533	16.3	0.5	18,432	650	16.0	0.6	-69	-0.2
West	13,869	517	19.3	0.7	14,547	512	20.0	0.7	*678	0.7
Health Insurance Coverage										
With private insurance	14,643	466	7.5	0.2	15,010	475	7.6	0.2	367	0.1
With public, no private insurance	19,067	558	31.5	0.8	19,677	490	31.3	0.7	610	-0.3
Not insured	15,274	469	30.6	0.8	15,008	451	30.9	0.8	-265	0.3

See footnotes at end of table.

Table 6.

Percent of People in Poverty Using the Supplemental Poverty Measure: 2010–2011—Con.

(Numbers in thousands, confidence intervals [C.I.] in thousands or percentage points as appropriate. People as of March of the following year. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see www.census.gov/apsd/techdoc/cps/cpsmar12.pdf)

Characteristic	Below Poverty Level								Difference	
	SPM 2010 ¹				SPM 2011					
	Number		Percent		Number		Percent			
	Estimate	90 percent C.I.† (±)	Estimate	90 percent C.I.† (±)	Estimate	90 percent C.I.† (±)	Estimate	90 percent C.I.† (±)	Number	Percent
Work Experience										
Total, 18 to 64 years	29,316	611	15.2	0.3	30,020	577	15.5	0.3	704	0.3
All workers	13,071	329	9.1	0.2	13,611	350	9.4	0.2	*540	*0.3
Worked full-time, year-round	4,550	167	4.8	0.2	4,983	177	5.1	0.2	*433	*0.4
Less than full-time, year-round	8,522	260	17.8	0.5	8,628	279	18.5	0.6	106	0.7
Did not work at least 1 week	16,244	424	33.3	0.7	16,409	400	33.5	0.7	164	0.2
Disability Status⁴										
Total, 18 to 64 years	29,316	611	15.2	0.3	30,020	577	15.5	0.3	704	0.3
With a disability	4,139	188	27.6	1.0	4,133	186	27.6	1.1	-6	0.0
With no disability	25,094	562	14.2	0.3	25,795	526	14.5	0.3	*702	0.3

* Statistically different from zero at the 90 percent confidence level.

† A 90 percent confidence interval is a measure of an estimate's variability. The larger the confidence interval in relation to the size of the estimate, the less reliable the estimate. Confidence intervals shown in this table are based on standard errors calculated using replicate weights instead of the generalized variance function used in the past. For more information see "Standard Errors and Their Use" at www.census.gov/hhes/www/p60_243sa.pdf.

¹ Consistent with 2011 data through implementation of Census 2010 based population controls. Estimates for calendar year 2010 differ from previously published estimates due to weighting adjustments to the 2010 Census and improvements to the tax calculations, see Webster, 2012.

² Federal surveys now give respondents the option of reporting more than one race. Therefore, two basic ways of defining a race group are possible. A group such as Asian may be defined as those who reported Asian and no other race (the race-alone or single-race concept) or as those who reported Asian regardless of whether they also reported another race (the race-alone-or-in-combination concept). This table shows data using the first approach (race alone). The use of the single-race population does not imply that it is the preferred method of presenting or analyzing data. The Census Bureau uses a variety of approaches. Information on people who reported more than one race, such as White **and** American Indian and Alaska Native or Asian **and** Black or African American, is available from Census 2010 through American FactFinder. About 2.9 percent of people reported more than one race in Census 2010. Data for American Indians and Alaska Natives, Native Hawaiians and Other Pacific Islanders, and those reporting two or more races are not shown separately.

³ The "Outside metropolitan statistical areas" category includes both micropolitan statistical areas and territory outside of metropolitan and micropolitan statistical areas. For more information, see "About Metropolitan and Micropolitan Statistical Areas" at www.census.gov/population/www/estimates/aboutmetro.html.

⁴ The sum of those with and without a disability does not equal the total because disability status is not defined for individuals in the Armed Forces.

Source: U.S. Census Bureau, Current Population Survey, 2011 and 2012 Annual Social and Economic Supplements.

for 2010 and 2011, calculated in a comparable way.

In 2010, the percent poor using the SPM was 16.0 percent and in 2011 that rate was 16.1 percent, not statistically different. While for most groups there were no changes in SPM rates across the two years, there were small increases for naturalized citizens, those residing inside principal cities, and for workers including year-round, full-time workers. On the other hand, SPM rates for the elderly, those in metropolitan areas but outside principal cities, and those in new SPM-defined units declined.

To gain insight into changes in poverty rates between 2010 and 2011, it is useful to return to comparisons with the official poverty measure (see De Navas et al., 2012). While changes in the poverty rates for the two measures were not statistically different from each other, changes in the rates for some subgroups are of interest. Two of the six SPM groups with statistically significant changes between the two years also were statistically significant using the official poverty measure; naturalized citizens had an increase in poverty rates for both measures while those residing inside metropolitan areas but outside principal

cities declined in poverty rates for both measures. In both groups, the net changes in poverty rates were not statistically significant between the two measures.

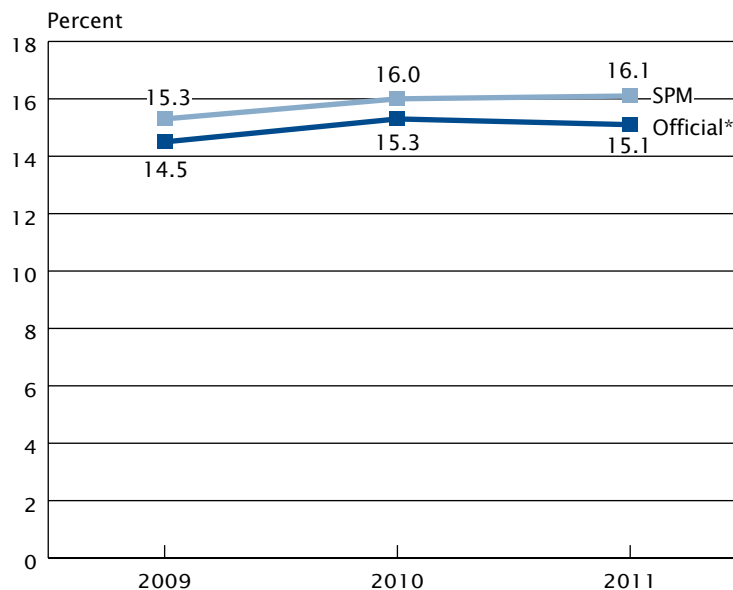
Two other groups had net changes that were not statistically significant between the two measures: the elderly and those in principal cities. Those 65 years of age and over experienced a significant decline in the SPM rate across the two years and those residing inside the principal cities increased in the SPM rate, while the official poverty rates were not statistically significant. However, for both these

groups, like those above, the net changes in poverty rates were not statistically different between the two measures.

More interesting are those groups with differences in the net change between the two measures. The SPM measure indicates that there is a statistically significant increase in the poverty rate for all workers and those working year-round, full-time, while the official measure indicated no statistically significant differences. For Hispanics, males, noncitizens, and those living in the south, the SPM measure indicated that there is not a statistically significant difference in poverty rate, but the official poverty measure indicated that these groups had a decrease in their poverty rate. For all of these groups, the net changes in poverty rates were statistically different between the two measures.

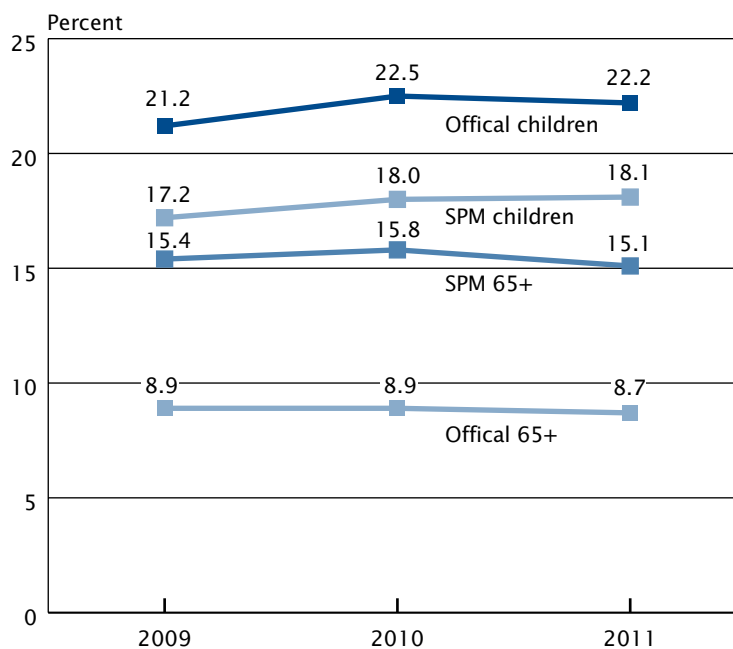
Finally, we show the official measure and the SPM over the three years for which we have estimates. As noted earlier, the estimates differ from those previously published due to implementation of Census 2010 based population controls and other changes to the tax calculator. Figure 7 shows the official measure and the SPM across the three years, and Figure 8 shows the rate using both measures for children and for those over 64 years of age.

Figure 7.
Poverty Rates Using the Official Measure and the SPM: 2009 to 2011



*Includes unrelated individuals under age 15.
Source: U.S. Census Bureau Current Population Survey, 2010–2012 Annual Social and Economic Supplements.

Figure 8.
Poverty Rates Using the Official Measure and the SPM for Two Age Groups: 2009 to 2011



Source: U.S. Census Bureau, Current Population Survey, 2010–2012 Annual Social and Economic Supplements.

SUMMARY

This report provides a third year of estimates of a new Supplemental Poverty Measure (SPM) for the United States. Estimates presented were based on data from the 2005 to 2012 CE and the 2010 to 2012 CPS ASEC and they refer to calendar years 2009 to 2011. The results illustrate differences between the official measure of poverty and a poverty measure that takes account of in-kind benefits received by families and nondiscretionary expenses that they must pay. The SPM also employs a new poverty threshold that is updated with information on expenses for food, clothing, shelter, and utilities. Results showed higher poverty rates using the SPM than the official measure for most groups.

In addition, the distribution of people in the total population and the distribution of people classified as in poverty using the two measures were examined. Results showed a higher proportion of several groups were poor using the SPM. The share of people 65 years of age and over in poverty is higher when the SPM is used, 12.6 percent compared with 7.8 percent with the official measure. Use of the SPM also results in a higher share of the poor for: men, those who are 18 to 64 years of age, people in married-couple families, people in households with male householders, Whites, Asians, Hispanics, the foreign born, homeowners with mortgages, individuals with private health insurance, the uninsured, all workers, and individuals without a disability. The shares are also higher with the SPM for those residing in metropolitan areas but outside principal cities and in the Northeast and West regions.

The SPM allows us to examine the effects of taxes and in-kind transfers on the poor and on important groups within the poverty

population. As such, there are lower percentages of the SPM poverty populations in the very high and very low resource categories than we find using the official measure. Since in-kind benefits help those in extreme poverty, there were lower percentages of individuals with resources below half the SPM threshold for most groups.

The effect of benefits received from each program and taxes and other nondiscretionary expenses on SPM rates were examined. It was shown that medical out-of-pocket expenses had an important effect on SPM rates and on the well-being of those 65 years of age and over, in particular.

These findings are similar to those reported in earlier work using a variety of experimental poverty measures that followed recommendations of the National Academy of Sciences (NAS) poverty panel (Short et al., 1999 and Short, 2001). Experimental poverty rates based on the NAS panel's recommendations have been calculated every year since 1999. While SPM rates are available only from 2009, estimates are available for earlier years for a variety of experimental poverty measures, including the most recent for 2011.²² They include poverty rates that employ CE based thresholds, as well as thresholds that increase each year from 1999 based on changes in the Consumer Price Index (similar to the official thresholds) and estimates that do not adjust thresholds for geographic differences in housing costs. However, the methods used for many of the elements in the experimental measures differ markedly from those in the SPM and, therefore, they are not considered to be comparable measures.

²² These estimates are available on the Census Bureau Web site.

FUTURE RESEARCH AND PLANS FOR 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 the SPM that would be released along with the official measure each year. In addition to specifying the nature and use of the SPM, the ITWG laid out a research agenda for many of the elements of this new measure. They stated:

As with any statistic regularly published by a Federal statistical agency, the Working Group expects that changes in this measure over time will be decided upon in a process led by research methodologists and statisticians within the Census Bureau in consultation with BLS and with other appropriate data agencies and outside experts, and will be based on solid analytical evidence.

Among the elements designated by the ITWG for further development were methods to include in-kind benefits in the thresholds, improving geographic adjustments for price differences across areas, improving methods to estimate work-related expenses (commuting costs), and evaluating methods for subtracting medical out-of-pocket expenses having to do with the uninsured. This section summarizes ongoing research on these and other related topics discussed in more detail in Short and Garner (2012).

Including in-kind benefits in thresholds

The Census Bureau has a long history of valuing in-kind benefits in income measures (U.S. Census Bureau, 1982). For consistency in measurement with the resource measure, the thresholds should include the value of in-kind benefits

(ITWG, 2010). Since the value of SNAP benefits is collected in the CE as food expenditures, it is included in the SPM thresholds used here. The CE collects data on whether or not a consumer unit lives in subsidized housing or participates in another government program that results in reduced rent but does not collect data on the receipt of other in-kind benefits. As per the ITWG suggestions, methods to impute the value of school lunch, WIC, and rent subsidies are the subject of ongoing research. See Garner and Hokayem (2012).

Necessary expenses subtracted from SPM resources: Work-related expenses

The ITWG suggested that further research on this topic and a refinement of methods would be valuable. Going to work and earning a wage often entails incurring expenses, such as travel to work and purchase of uniforms or tools. Another aspect of transportation expenses in the SPM has also been raised. There is concern that transportation costs vary with different geographical areas, including urban/rural and transit-rich/non-transit-rich areas, as do commuting expenses for mass transit/personal vehicle usage, access to public transportation, and/or vehicle availability. Rapino et al. (2011) addressed this topic. This research examined the appropriateness of applying a flat amount—the federal mileage reimbursement rate—for work-related expenses by investigating geographic variation in average commuting expenses for automobile commuters across 100 urban areas, regions, and divisions. Ongoing work at the Census Bureau on transportation expenses takes advantage of information derived from several ACS questions related to the work commute and work schedule. This work will shed light on the appropriateness

of the current method used here to value work-related expenses as well as the geographic adjustment that account only for differences in housing costs. See Appendix for a description.

Necessary expenses subtracted from SPM resources: Medical out-of-pocket expenses (MOOP)

The Interagency Technical Working Group (ITWG) recommended subtracting medical out-of-pocket expenses from income, following the NAS panel. However, because the uninsured have lower medical services utilization and MOOP spending, their spending may reflect unmet needs relative to the insured's spending. Recognizing this aspect of the SPM, the ITWG recommended investigating the pros and cons of implementing an "adjustment" for the uninsured that accounts for such differential spending and its effect on poverty measurement. Caswell and Short (2011) conducted a study in response to the ITWG suggestions. Results showed that the poverty rates using uninsured adjustments increased compared with the "base" SPM, which incorporates only observed MOOP spending.

Necessary expenses subtracted from SPM resources: Taxes

The SPM subtracts federal, state, and local income taxes and Social Security payroll taxes (FICA) before assessing the ability of a family to obtain basic necessities such as food, clothing, and shelter. Taking account of taxes allows us to account for receipt of the federal or state earned income credit (EITC) and other tax credits. The CPS ASEC does not collect information on taxes paid but relies on a tax calculator to simulate taxes paid. These simulations include federal and state income taxes and social security payroll taxes. The Census

Bureau is conducting research to improve tax simulations. Webster (2012) discusses estimates of federal and state taxes, including estimates of several tax credits. One further study takes advantage of the CPS/IRS exact match study to examine the performance of the tax simulator described above in assigning EITC benefits based on ethnicity. This research suggests that misassignment of these benefits is greater for Hispanic than non-Hispanic tax units (Short et al., 2012).

Extending the SPM to other surveys: Survey of Income and Program Participation (SIPP)

NAS recommendations to improve the official measure of poverty included using SIPP as the basis of a revised measure of poverty. This recommendation (5.1) stated that the SIPP should become the basis of official U.S. income and poverty statistics as it collects most of the elements of information required to fully estimate the recommended poverty measure (Citro and Michael, 1995). Short (2003) described the challenge of measuring poverty in the CPS relative to the SIPP, where most SPM elements are collected. Questions in the SIPP that collect items such as MOOP, child care, and child support paid were used as a starting point for including new questions in the CPS ASEC in 2010.

Beyond examining measurement differences from using different surveys, there are additional reasons to reproduce the SPM in the SIPP. Information about assets and liabilities and an array of measures of material hardship would allow an examination of poverty measures that incorporate wealth and an analysis of correlations with other measures of economic well-being such as material hardship or levels of household debt (see Short, 2005,

and Short and Ruggles, 2005, for earlier work using experimental poverty measures in SIPP.) Funded research will provide poverty estimates from the 2004 panel of the SIPP using 2004 calendar year data. The SIPP is a longitudinal survey and this research will provide a framework for future researchers measuring poverty spells and transitions into and out of poverty using the SPM. This study will also serve as guidance to the Census Bureau to estimate the SPM in a redesigned SIPP set for production in 2014.

Extending the SPM to other surveys: American Community Survey

While state level estimates of the SPM are provided in this report, the Census Bureau recommends the use of the American Community Survey for official poverty estimates for state and sub-state geographic units. For this reason, and others detailed below, the Census Bureau is endeavoring to implement an SPM measure using the ACS. The ACS lacks a number of key data elements required to produce SPM estimates. Despite limitations, researchers have been actively involved in exploring ways in which the ACS data can be used to produce NAS-based and/or SPM poverty estimates. The New York City Center for Economic Opportunity has produced NAS-based estimates for 2005 through 2010 (New York City Center for Economic Opportunity, 2012). New York State's Office of Temporary and Disability Assistance has presented estimates for the state of New York. The Urban Institute has created a NAS-style measure for Minnesota, Connecticut, Georgia, Massachusetts, and Illinois and the Institute for Research on Poverty at the University of Wisconsin has implemented NAS-based measure for the

state of Wisconsin.²³ Renwick et al. (2012) lay out a proposal for how these data limitations might be overcome to produce SPM estimates using ACS data. Another paper explored alternative methods of forming resource units, specifically those that rely on the relationship imputations provided by the IPUMS project (Heggeness et al., 2012).

SPM topics being examined within the BLS

Garner and Gudrais (2012) test the sensitivity of assumptions underlying the production of the thresholds. Examples include testing the impact of increasing the years of CE Interview data used for the threshold estimation: the NAS used 3 years of data while the SPM uses 5 years. This change reduces the impact of changes in the economy or improvements in CE methodology on the measure. Improvements in CE methodology in 2007 were mitigated by moving to an SPM based on 5 years of CE interview data versus one based on 3 years of data.²⁴ Another test changed from the NAS estimation sample of two-adult-two-child families to a sample of consumer units with two children. This change was made to reflect the increasing diversity in household structure. In the SPM, medical expenditures are subtracted from resources. However, there is a growing interest in SPM thresholds that include medical care expenditures. SPM thresholds that include medical expenditures appear in the Garner and Gudrais study. These SPM FCSUM thresholds

²³ For a comparison of the methods used by each of these groups, see David Betson, Linda Giannarelli, and Sheila Zedlewski, "Workshop on State Poverty Measurement Using the American Community Survey," Urban Institute, July 18, 2011, <www.urban.org/publications/412396.html>, accessed September 2012.

²⁴ To see the impact of improvements in CE methods on SPM thresholds, go to <www.brookings.edu/~media/events/2011/11/07%20supplemental%20poverty%20measure/1107_spm_garner_presentation.pdf>.

have been used by Zedlewski et al. (2010) and Isaacs et al. (2011) in ACS SPM estimates.

In addition to the work just mentioned, several events have been held to collect information about key issues related to the redesign of the CE: a Survey Redesign Panel Discussion (January 2010), a Data Capture Technology Forum in March 2010, and a Data Users' Needs Forum in June 2010. In December 2010, CE and the Council of Professional Associations on Federal Statistics held a CE Methods Workshop where five key topics central to the redesign were discussed: global questions, interview structure, proxy reporting, recall period, and split questionnaire designs. Under the Gemini Project, a CNSTAT committee is also working on a report focused on redesigning the CE to improve data quality, while reducing respondent burden and maintaining response rates. The desire to improve data quality and the need to cope with expected budget constraints are likely to reduce the number of survey questions asked of respondents. With a reduction in survey questions asked, it is assumed the quality of CE data will improve. The impact on the SPM is unknown; however, changes in the SPM thresholds would be expected.

The Census Bureau and the BLS will continue their research efforts on this important topic and will improve the measures presented here as resources allow. With additional funding, this work will move from a research operation to full-fledged production. At that time, the Census Bureau would be prepared to release estimates of the SPM at the same time as the release of the official poverty statistics, and the BLS could move forward in its efforts to add important questions to the CE and formalize the threshold production effort.

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APPENDIX—SPM METHODOLOGY

Poverty Thresholds

Consistent with the NAS panel recommendations and the suggestions of the ITWG, the SPM thresholds are based on out-of-pocket spending on food, clothing, shelter, and utilities (FCSU). Five years of CE data for consumer units with exactly two children (regardless of relationship to the family) are used to create the estimation sample. Unmarried partners and those who share expenses with others in the household are included in the consumer unit. FCSU expenditures are converted to adult equivalent values using a three-parameter equivalence scale (see below for description). The average of the FCSU expenditures defining the 30th and 36th percentile of this distribution is multiplied by 1.2 to account for additional basic needs. The three-parameter equivalence scale is applied to this amount to produce an overall threshold for a unit composed of two adults and two children.

To account for differences in housing costs, a base threshold for all consumer units with two children was calculated, and then the overall shelter and utilities portion was replaced by what consumer units with different housing statuses spend on shelter and utilities. Three housing status groups were determined and their expenditures on shelter and utilities produced within the 30th–36th percentiles of FCSU expenditures. The three groups are: owners with mortgages, owners without mortgages, and renters.

Equivalence Scales

The ITWG guidelines state that the “three-parameter equivalence scale” is to be used to adjust reference thresholds for the number of adults and children. The three-parameter

scale allows for a different adjustment for single parents (Betson, 1996). This scale has been used in several BLS and Census Bureau studies (Short et al., 1999; Short, 2001). The three-parameter scale is calculated in the following way:

One and two adults:

$$\text{scale} = (\text{adults})^{0.5}$$

Single parents:

$$\text{scale} = (\text{adults} + 0.8 * \text{first child} + 0.5 * \text{other children})^{0.7}$$

All other families:

$$\text{scale} = (\text{adults} + 0.5 * \text{children})^{0.7}$$

In the calculation used to produce thresholds for two adults, the scale is set to 1.41. The economy of scale factor is set at 0.70 for other family types. The NAS Panel recommended a range of 0.65 to 0.75.

Geographic Adjustments

The American Community Survey (ACS) is used to adjust the FCSU thresholds for differences in prices across geographic areas. The geographic adjustments are based on 5-year ACS estimates of median gross rents for two-bedroom apartments with complete kitchen and plumbing facilities. Separate medians were estimated for each of the 264 metropolitan statistical areas (MSAs) large enough to be identified on the public-use version of the CPS ASEC file. This results in 358 adjustment factors. For each state, a median is estimated for all nonmetro areas (48), for each MSA with a population above the CPS ASEC limit (264), and for a combination of all other metro areas within a state (46).

Unit of Analysis

The ITWG suggested that the “family unit” include all related individuals who live at the same address, any coresident unrelated children

who are cared for by the family (such as foster children²⁵), and any cohabitators and their children. This definition corresponds broadly with the unit of data collection (the consumer unit) that is employed for the CE data that are used to calculate poverty thresholds. They are referred to as *SPM Resource Units* and include units that added a cohabitor, an unrelated individual under 15 years, foster child aged 15 to 21, or an unmarried parent of a child in the family. Note that some units change for more than one of these reasons. Further, sample weights differ due to forming these units of analysis. For all new family units that have a set of male/female partners, the female partner’s weight is used as the SPM family weight. For all other new units there is no change.²⁶

In-Kind Benefits

Supplemental Nutrition Assistance Program (SNAP)

SNAP benefits (formerly known as food stamps) are designed to allow eligible low-income households to afford a nutritionally adequate diet. Households who participate in the SNAP program are assumed to devote 30 percent of their countable monthly cash income to the purchase of food, and SNAP benefits make up the remaining cost of an adequate low-cost diet. This amount is set at the level of the U.S. Department of Agriculture’s Thrifty Food Plan. In the CPS, respondents report if anyone in the household ever received SNAP benefits in the previous calendar year and if so, the face value of those benefits. The annual household amount is prorated to

²⁵ Foster children up to the age of 22 are included in the new unit.

²⁶ Appropriate weighting of these new units is an area of additional research at the Census Bureau.

SPM Resource Units within each household.

In 2008, as a part of the Food, Conservation, and Energy Act of 2008, the name of the program changed from food stamps to the supplemental nutrition assistance program. With the change in the name of the federal program and state-by-state differences in the program name, the quality of CPS ASEC responses may deteriorate if respondents are uncertain of the name of the program from which they receive benefits. Most states have changed the name of the state program to SNAP but a number of states have adopted their own program name. The CPS questionnaire can use the specific state name of the state of residence of the respondent.

The 2011 CPS ASEC changed the questions asking about the receipt of food stamps:

2009 and 2010 CPS ASEC:

Did (you/ anyone in this household) get food stamps or a food stamp benefit card at any time during 2009?

- 1 Yes
- 2 No

At any time during 2009, even for one month, did (you/ anyone in this household) receive any food assistance from (State Program name)?

- 1 Yes
- 2 No

Which of the people now living here were covered by that food assistance during 2009?

2011 CPS ASEC:

At any time during 2010, even for one month, did (you/ anyone in this household) receive any food assistance from (State Program name) or a food assistance benefit card (such as State EBT card name)?

- 1 Yes
- 2 No

Which of the people now living here were covered by that food assistance during 2010?

This change in the question resulted in a noticeable decline in the number of households reporting food stamp receipt during a time when administrative data showed an increase. As a result, a Monte Carlo method was used to assign food stamps to households reporting none. Assignment was based on reported receipt during the previous year (for sample households interviewed both years), participation in other public assistance programs (TANF, SSI, Medicaid, energy assistance, or rental assistance) and household total money income. Imputation flags were set for cases where food stamp receipt was changed as a result of this adjustment.

The 2012 ASEC reverts back to a series of questions similar to the ones used in 2010 and earlier:

Did (you/ anyone in this household) get food stamps or a food stamp benefit card at any time during 2011?

- 1 Yes
- 2 No

At any time during 2011, even for one month, did (you/ anyone in

this household) receive any food assistance from (State Program name) or a food assistance benefit card (such as State EBT card name)? Do not include WIC benefits.

- 1 Yes
- 2 No

National School Lunch Program

This program offers children free meals if family income is below 130 percent of federal poverty guidelines, reduced-price meals if family income is between 130 and 185 percent of the federal poverty guidelines, and a subsidized meal for all other children. In the CPS, the reference person is asked how many children 'usually' ate a complete lunch at school, and if it was a free or reduce-priced school lunch. Since we have no further information, the value of school meals is based on the assumption that the children received the lunches every day during the last school year. Note that this method may overestimate the benefits received by each family. To value benefits, we obtain amounts on the cost per lunch from the Department of Agriculture Food and Nutrition Service that administers the school lunch program. There is no value included for school breakfast.²⁷

²⁷ In the SIPP, respondents report the number of breakfasts eaten by the children per week, similar to the report of school lunches. Calculating a value for this subsidy in the same way as was done for the school lunch program yielded an amount of approximately \$2.8 billion for all families in the SIPP for the year 2004. For information on confidentiality protection, sampling error, nonsampling error, and definitions, for the 2004 Survey of Income and Program Participation, see <www.census.gov/apsd/techdoc/sipp/sipp.html>, accessed September 2012.

Supplementary Nutrition Program for Women, Infants, and Children (WIC)

This program is designed to provide food assistance and nutritional screening to low-income pregnant and postpartum women and their infants, and to low-income children up to age 5. Incomes must be at or below 185 percent of the poverty guidelines and participants must be nutritionally at-risk (having abnormal nutritional conditions, nutrition-related medical conditions, or dietary deficiencies). Benefits include supplemental foods in the form of food items or vouchers for purchases of specific food items. There are questions on current receipt of WIC in the CPS. Lacking additional information, we assume 12 months of participation and value the benefit using program information obtained from the Department of Agriculture. As with school lunch, assuming year-long participation may overestimate the value of WIC benefits received by a given SPM family.

Low-Income Home Energy Assistance Program (LIHEAP)

This program provides three types of energy assistance. Under this program, states may help pay heating or cooling bills, provide allotments for low-cost weatherization, or provide assistance during energy-related emergencies. States determine eligibility and can provide assistance in various ways, including cash payments, vendor payments, two-party checks, vouchers/coupons, and payments directly to landlords. The 2010 CPS ASEC asked if, since October 1 of the previous year, the reference person received help with heating costs and, if yes, the amount

received. In ASEC 2011, the question on energy assistance asked for information about the entire year and captures assistance for cooling paid in the summer months or emergency benefits paid after the February/March/April survey date. Many households receive both a “regular” benefit and one or more crisis or emergency benefits. Additionally, since LIHEAP payments are often made directly to a utility company or fuel oil vendor, many households may have difficulty reporting the precise amount of the LIHEAP payment made on their behalf.

Housing Assistance

Households can receive housing assistance from a plethora of federal, state, and local programs. Federal housing assistance consists of a number of programs administered primarily by the Department of Housing and Urban Development (HUD). These programs traditionally take the form of rental subsidies and mortgage-interest subsidies targeted to very-low-income renters and are either project-based (public housing) or tenant-based (vouchers). The value of housing subsidies is estimated as the difference between the “market rent” for the housing unit and the total tenant payment. The “market rent” for the household is estimated using a statistical match with United States Housing and Urban Development (HUD) administrative data from the Public and Indian Housing Information Center (PIC) and the Tenant Rental Assistance Certification System (TRACS). For each household identified in the CPS ASEC as receiving help with rent or living in public housing, an attempt was made to match on state, CBSA (Core Based Statistical Area), and household

size.²⁸ The total tenant payment is estimated using the total income reported by the household on the CPS ASEC and HUD program rules. Generally, participants in either public housing or tenant-based subsidy programs administered by HUD are expected to contribute towards housing costs the greater of one-third of their “adjusted” income or 10 percent of their gross income.²⁹ See Johnson et al. (2010) for more details on this method. Initially, subsidies are estimated at the household level. If there is more than one SPM family in a household, then the value of the subsidy is prorated based on the number of people in the SPM family relative to the total number of people in the household.

Housing subsidies help families pay their rent and as such are added to income for the SPM. However, there is general agreement that, while the value of a housing subsidy can free up a family’s income to purchase food and other basic items, it will do so only to the extent that

²⁸ HUD operates two major housing assistance programs: public housing and tenant-based or voucher programs. Since the HUD administrative data only include estimates of gross or contract rent for tenant-based housing assistance programs, the contract rents assigned to CPS ASEC households living in public housing are adjusted by a factor of 767/971. This adjustment factor was derived from data published in the “Picture of Subsidized Households: 2008” which estimates the average tenant payment and the average subsidy by type of assistance. The average contract rent would be the sum of these two estimates: $\$324 + \$647 = \$971$ for tenant-based and $\$255 + \$512 = \$767$ for public housing, <www.huduser.org/portal/picture2008/index.html>, accessed September 2012.

²⁹ HUD regulations define “adjusted household income” as cash income excluding income from certain sources minus numerous deductions. Three of the income exclusions can be identified from the CPS ASEC: income from the employment of children, student financial assistance, and earnings in excess of \$480 for each full-time student 18 years or older. Deductions which can be modeled from the CPS ASEC include: \$480 for each dependent, \$400 for any elderly or disabled family member, child care, and medical expenses.

it meets the need for shelter. Thus, the values for housing subsidies included as income are limited to the proportion of the threshold that is allocated to housing costs. The subsidy is capped at the housing portion of the appropriate threshold MINUS the total tenant payment.

Necessary expenses subtracted from resources

Taxes

The NAS panel and the ITWG recommended that the calculation of family resources for poverty measurement should subtract necessary expenses that must be paid by the family. The measure subtracts federal, state, and local income taxes and Social Security payroll taxes (FICA) before assessing the ability of a family to obtain basic necessities such as food, clothing, and shelter. Taking account of taxes allows us to account for receipt of the federal or state earned income credit (EITC) and other tax credits. The CPS ASEC does not collect information on taxes paid but relies on a tax calculator to simulate taxes paid. These simulations include federal and state income taxes and Social Security payroll taxes. These simulations also use a statistical match to the Statistics of Income (SOI) microdata file of tax returns. The Census Bureau is conducting research to improve tax simulations. Webster (2012) describes these new methods.

Work-Related Expenses

Going to work and earning a wage often entails incurring expenses, such as travel to work and purchase of uniforms or tools. For work-related expenses (other than child care), the NAS panel recommended subtracting a fixed amount for each earner 18 years of age or older. Their calculation

was based on 1987 Survey of Income and Program Participation (SIPP) data that collected information on work expenses in a set of supplementary questions. They calculated 85 percent of median weekly expenses—\$14.42 per week worked for anyone over 18 in the family in 1992. Total expenses were obtained by multiplying this fixed amount by the number of weeks respondents reported working in the year. Since the 1996 panel of SIPP, the work-related expenses topical module has been repeated every year.³⁰ Each person in the SIPP reports their own expenditures on work-related items in a given week. The most recent available data are used to calculate median weekly expenses. The number of weeks worked, reported in the CPS ASEC, is multiplied by the 85 percent of median weekly work-related expenses for each person to arrive at annual work-related expenses.

Child Care Expenses

Another important part of work-related expenses is paying someone to care for children while parents work. These expenses have become important for families with young children in which both parents (or a single parent) work. To account for child care expenses while parents worked, in the CPS, parents are asked whether or not they pay for child care and, starting in 2010, how much they spent. The amounts paid for any type of child care while parents are at work are summed over all children. The NAS report recommended capping the amount subtracted from income, when combined with other work-related expenses, so that these do not exceed reported earnings of the lowest earner in the family. The

³⁰ The 2004 panel, wave 9 topical modules were not collected due to budget considerations.

ITWG also made this recommendation. This capping procedure is applied before determining poverty status.³¹

Child Support Paid

The NAS panel recommended that, since child support received from other households is counted as income, child support paid out to those households should be deducted from those households that paid it. Without this subtraction, all child support is double counted in overall income statistics. New questions ascertaining amounts paid in child support have been included in the 2010 CPS ASEC, and these reported amounts are subtracted in the estimates presented here.

Medical Out-of-Pocket Expenses (MOOP)

The ITWG recommended subtracting medical out-of-pocket expenses from income, following the NAS panel. The NAS panel was aware that expenditures for health care are a significant portion of a family budget and have become an increasingly larger budget item since the 1960s. These expenses include the payment of health insurance premiums plus other medically necessary items such as prescription drugs and doctor copayments that are not paid for by insurance. Subtracting these “actual” amounts from income, like taxes and work expenses, leaves the amount of income that the family has available to purchase the basic bundle of goods (food, clothing, shelter, and utilities [FCSU] and a “little bit more”).

While many individuals and families have health insurance that covers

³¹ Some analysts have suggested that this cap may be inappropriate in certain cases, such as if the parent is in school, looking for work, or receiving types of compensation other than earnings.

most of the very large expenses, the typical family pays the costs of health insurance premiums and other small fees out of pocket. In these questions, respondents report expenditures on health insurance premiums that do not include Medicare Part B premiums. Medicare Part B premiums pose a particular problem for these estimates. The CPS ASEC instrument identifies when a respondent reported Social Security Retirement benefits net of Medicare Part B premiums. For these respondents, a Part B premium set at a fixed amount of \$96.40 per month is automatically added to income. Corrections for these applied amounts are discussed in Caswell and Short (2011) and applied here. To be consistent with

what is added to the SSR income in these cases, the same amount is added to reported premium expenditures.³² For the remaining respondents that report Medicare status, Medicare Part B premiums are simulated using the rules for income and tax filing status (Medicare.gov).³³ The simplifying assumption is made that married

³² In these cases, it is important to assign an amount for Medicare Part B premiums that is equal to what is added to the resource side, i.e., SSR income, of the poverty calculation. Note that the instrument calculation is done irrespective of Medicaid status, and therefore dual-enrollees who report “net” SSR income receive an estimate for Medicare Part B that is added to reported premiums.

³³ The CPS ASEC does not collect the number of months that a person was on Medicare; therefore we make the simplifying assumption that respondents were insured for the entire year. Given this data limitation, this assumption is appropriate as few individuals on Medicare transition out of Medicare.

respondents with “spouse present” file married joint returns. For these cases, the combined reported income of both spouses is used to determine the appropriate Part B premium. Finally, it is assumed that the following two groups pay zero Part B premiums: 1) dual-eligible respondents (i.e., Medicare and Medicaid) and 2) those with a family income less than 135 percent of the Federal Poverty Level. The latter assumption is based on a rough estimate of eligibility and participation in at least one of the following programs: Qualified Medicare Beneficiary (QMB), Specified Low-Income Medicare Beneficiary (SLMB), or Qualified Individual-1 (QI-1). We abstract from the possibility of (state-specific) asset requirements.

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