

**Unit of Analysis for Poverty Measurement: A Comparison of the Supplemental Poverty Measure and the Official Poverty Measure**

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In 2009 the Office of Management and Budget's Chief Statistician formed an Interagency Technical Working Group (ITWG) on Developing a Supplemental Poverty Measure. In March 2010 the ITWG issued a series of suggestions on how to develop a new measure drawing on the recommendations of the 1995 report of National Academy of Sciences (NAS) Panel on Poverty and Family Assistance and the extensive research on poverty measurement conducted over the past 15 years. One suggestion of the ITWG was that the family unit should be broadened to include all related individuals who live at the same address, any co-resident unrelated children who are cared for by the family (such as foster children), plus cohabiters and their children. The current official poverty measure more narrowly defines the unit of analysis to be a reference person and any individuals related to the reference person either through birth, marriage, or adoption.

In 1995, the NAS Panel released a report which evaluated the current approach to poverty measurement in the United States and recommended changes (Citro and Michael, 1995). NAS recommendations were generally of two types: the definition of the poverty thresholds and the definition of the family resources that are compared with those thresholds to determine poverty status. Regarding the unit of analysis, the NAS Panel recommended that the definition of “family” should be broadened for the purposes of poverty measurement to include cohabitating couples and their children. The NAS Panel further recommended that additional research be conducted on the extent to which roommates and other household and family members share resources in an effort to determine if the unit of analysis should be modified further (Citro and Michael, 1995: 13).

Over the past 15 years, the Census Bureau and others have conducted extensive research on poverty measurement, including the unit of analysis. Short and Smeeding (2005) use data from the Survey of Income and Program Participation (SIPP) to compare the unit of analysis recommended by the NAS Panel to the unit of analysis for the Consumer Expenditure Survey (CE), called a consumer unit. Data from the CE are used to create poverty thresholds so comparable units of analysis are preferable. The authors find that including foster children and cohabitating partners and their relatives in the family unit produces units more similar to consumer units compared with the current official family units. Other research during this period has focused on how poverty rates change as a result of a broadening of the unit of analysis (see <<http://www.census.gov/hhes/www/povmeas/topicpg7.html>>). In general, these studies conclude that the poverty rates of people in cohabitating families, particularly children in cohabitating families, are most affected by the change in definition. Measured differences are less pronounced among other groups of people by age, race/ethnicity, and type of family (Bauman, 1997; Carlson & Danziger, 1998; Iceland, 2000; and Short, 2009).

In 2009, the ITWG released a report that included a set of suggestions on how the Census Bureau and the Bureau of Labor Statistics (BLS) might develop a new Supplemental Poverty Measure (SPM) (see “Observations from the Interagency Technical Working Group on Developing a Supplemental Poverty Measure,” 2010). While many of these suggestions are consistent with the recommendations of the NAS Panel, some were informed by subsequent research. The ITWG suggested changes to the unit of analysis were precisely those recommended by the NAS Panel: the “family unit” should include all related individuals who

live at the same address, any co-resident unrelated children who are cared for by the family (such as foster children) and any cohabiters and their relatives. *See* Text Box 1 for an example of how these new *SPM resource units* may differ from the official Census Bureau family definition.

The Census Bureau will publish poverty estimates using the new approach for first time in September 2011 if the President's budget initiative is approved. The new SPM will not replace the official poverty measure and will not be used to determine program eligibility. The Census Bureau and the BLS plan to update the SPM on an annual basis and improve it as new data and new methods become available.

The unit of analysis for the current official poverty measure assumes only individuals related by birth, marriage, or adoption pool their resources. In contrast, the unit of analysis for the SPM, called *SPM resource units*, assumes cohabitating partners and foster children also pool their resources with the family unit. Cohabitating partners may exhibit considerable stability in their living arrangements such that there is little difference in their behaviors relative to married couples (see Bauman, 1997). Both approaches assume resource pooling only at the family level, not the household level, and treat unrelated individuals as separate economic units.

This assumption of resource pooling makes the unit of analysis for the SPM more consistent with the unit of analysis used to calculate poverty thresholds. Data from the Consumer Expenditure Survey will be used to calculate poverty thresholds. Similar to *SPM resource units*, the unit of analysis for these data adopts a broader definition of the unit. The unit of data collection for CE data includes the reference person, any relatives of the reference person, and other persons who live at the same address and pool resources to make joint expenditure decisions in at least two of three categories of expenditures: housing, food, and other living expenses. Persons who make joint decisions in one or fewer of these categories are deemed financially independent and are the sole member of a consumer unit. These consumer units that consist of one person are theoretically comparable to unrelated individuals for the SPM. Previous research showed that units including families and cohabitating couples resemble consumer units more than families alone. (Short & Smeeding, 2005).

The poverty universe for the SPM will consider all people in the population whereas the current official poverty measure excludes children under age 15 who are not related by birth, marriage, or adoption to a reference person. The current official poverty measure treats these children as unrelated individuals, so only their own income can be used to determine their

poverty status. Census Bureau surveys typically do not ask income questions of persons under age 15 so there is no information about the child's income and therefore the poverty status of these children cannot be determined. This problem does not arise with the SPM since it assumes resource pooling and therefore assigns these children to the *SPM resource unit* and determines their poverty status based on the income of the family.

There is good reason to include children under age 15 who are not related by birth, marriage, or adoption to a reference person in *SPM resource units*. Under the official poverty measure, foster child payments received for caring for a foster child are included in the income of a foster parent yet the foster child is eliminated from the poverty universe as an unrelated individual under age 15. Many of these unrelated children who are excluded from the poverty universe for the official poverty measure actually are foster children. As a result, the current official poverty measure may understate the poverty rate for members of the primary family because it does not apply the appropriate threshold for a sufficient number of family members.

Table 1 compares units of analysis for the current official poverty measure and the SPM using data from the 2010 Current Population Survey (CPS)<sup>1</sup>. The number of people in the poverty universe increases as a result of including children under age 15 who are not related by birth, marriage, or adoption to a reference person. The number of people in *SPM resource units* is greater than the number of people in primary families using the definition for the unit of analysis of the current poverty measure for two reasons. First, children under age 15 who are not related by birth, marriage, or adoption to a reference person are assigned to the primary family. Second, cohabiters and their relatives are included in the *SPM resource unit*. Some of the unrelated subfamilies and unrelated individuals using the definition for the unit of analysis for the current measure are cohabiters. Consequently, fewer people are in unrelated subfamilies and there are fewer unrelated individuals using the SPM definition for the unit of analysis. These people are now in *SPM resource units*.

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<sup>1</sup> The data in this report are from the Annual Social and Economic Supplement (ASEC) to the 2010 Current Population Survey (CPS). The estimates in this paper (which may be shown in the text, figures, and tables) are based on responses from a sample of the population and may differ from actual values because of sampling variability or other factors. As a result, apparent differences between the estimates for two or more groups may not be statistically significant. All comparative statements have undergone statistical testing and are significant at the 90 percent confidence level unless otherwise noted. Standard errors were calculated using replicate weights. The weighting method for the SPM resource units is currently under research and will be amended as necessary. Further information about the source and accuracy of the estimates is available at <[www.census.gov/hhes/www/p60\\_238sa.pdf](http://www.census.gov/hhes/www/p60_238sa.pdf)>.

The number of families by type and measure are also compared in Table 2. There are more *SPM resource units* than primary families using the unit of analysis for the current poverty measure. There are two sources of these additional families: (1) Householders with no relatives in the household but who are cohabitating are categorized as a *SPM resource unit* but are considered an unrelated individual<sup>2</sup> with the current official poverty measure (2) an unrelated individual living with children under age 15 who are not related by birth, marriage, or adoption to a reference person will be categorized as a *SPM resource unit*. The inclusion of cohabiters in *SPM resource units* also reduces the number of single-headed families.

The number of family units and the composition of family units are statistically different across the current official poverty measure and the SPM as a result of a change in the unit of analysis. While the unit of analysis for both measures includes relatives of a reference person, the unit of analysis for the SPM includes children unrelated to a reference person in the household and cohabitating partners and their relatives. The unit of analysis for the SPM identifies more people in families and more families in 2010. However, it is important to note that the total number of families may vary across units of analysis over time. It is possible to identify fewer families using the unit of analysis for the SPM relative to that for the current official poverty measure. For instance, two families may form one family under the SPM unit of analysis if the reference persons are cohabitating partners.

It is important for researchers to understand the differences in the unit of analysis for the current official poverty measure and the SPM. These differences in the unit of analysis may drive any variation in poverty estimates across measures. Researchers should use caution when making any comparison in poverty among primary families and *SPM resource units*.

## References

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<sup>2</sup> Beginning in 1989, any person(s) who is not related to the householder and who is not the husband, wife, parent, or child in an unrelated subfamily is counted as an unrelated individual (U.S. Census Bureau, 2010). Current data do not provide us with sufficient information to link these unrelated individuals to other household members, even if they are related in some other way (e.g. sibling of reference person).

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TABLE 1. People by Unit of Analysis and Selected Characteristics: 2009  
(Numbers in thousands. People as of March of the following year.)

People	Current official poverty measure		Supplemental poverty measure		Difference	
	Estimate	SE	Estimate	SE	Estimate	SE
Total	303,820	82	304,280	75	*460	32
Householder family <sup>1</sup>	249,384	501	262,823	422	*13,439	216
Householder	78,867	249	83,358	240	*4,491	90
Children under 18	73,410	107	74,590	89	*1,180	52
Unrelated individual under 15	-	-	460	32	*460	32
In unrelated subfamilies	1,357	76	911	74	*-446	64
Reference person	521	30	238	20	*-283	21
Children under 18	747	48	272	29	*-475	36
Unrelated individuals	53,079	480	40,547	410	*-12,533	208
Male	26,269	304	19,656	268	*-6,613	116
Female	26,811	281	20,891	265	*-5,920	119

- Represents or rounds to zero.

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

<sup>1</sup> Householder families are family units that include the householder.

Source: U.S. Census Bureau, Current Population Survey, 2010 Annual Social and Economic Supplement. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see [www.census.gov/apspd/techdoc/cps/cpsmar10.pdf](http://www.census.gov/apspd/techdoc/cps/cpsmar10.pdf).

TABLE 2. Primary Families versus Supplemental Poverty Measure Resource Units for Householder Families: 2009  
(Numbers in thousands. Families as of March of the following year.)

Householder families <sup>1</sup>	Current official poverty measure (Primary families)		Supplemental poverty measure (SPM resource units)		Difference	
	Estimate	SE	Estimate	SE	Estimate	SE
Total	78,867	249	83,358	240	*4,491	90
<b>Type of family</b>						
Married-couple	58,428	242	58,428	242	-	-
Cohabiting-couple	-	-	7,346	114	*7,346	114
Single-female householder	14,857	149	13,229	138	*-1,628	55
Single-male householder	5,582	111	4,354	99	*-1,228	46

- Represents or rounds to zero.

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

<sup>1</sup> Householder families are family units that include the householder.

Source: U.S. Census Bureau, Current Population Survey, 2010 Annual Social and Economic Supplement. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see [www.census.gov/apspd/techdoc/cps/cpsmar10.pdf](http://www.census.gov/apspd/techdoc/cps/cpsmar10.pdf).

TEXT BOX 1: CREATING FAMILY UNITS

The following example demonstrates differences in the unit of analysis for the current official poverty measure and the new SPM by considering how different groups of people may be classified in a given unit. Consider a household with seven individuals:

<u>Person</u>	<u>Relationship</u>	<u>Age</u>
John	Householder	42
Betty	Unmarried partner of John	38
Mary	Reference person of subfamily	40
Anne	Sister of Mary, Married to Peter	37
Peter	Married to Anne	38
William	Child of Anne	9
Eileen	Foster child of John	12

Table 3 describes the units of analysis by measure.

Using the unit of analysis for the current official poverty measure, the household would have one family: Anne, William, and Peter would be an unrelated subfamily. There would be no primary family. John would be a householder with no relatives present, or an unrelated individual. Betty, Mary, and Eileen also would be unrelated individuals. But Eileen is under age 15 so she would be excluded from the poverty universe. Mary is still classified as unrelated individual since she is not the spouse, cohabiting partner, child, or parent of another household member.

The household has three SPM Resource Units using the SPM unit of analysis: John, Betty, and Eileen are a householder family; the unrelated subfamily is unchanged; and one unrelated individual.

TABLE 3. Family Membership by Unit of Analysis

Unit type	Official Poverty Measure	Supplemental Poverty Measure
Householder family		John Betty Eileen
Unrelated subfamily	Anne William Peter	Anne William Peter
Unrelated individual	John Betty Mary	Mary
Not in the poverty universe	Eileen	