

Estimating the value of WIC benefits for the Supplemental Poverty Measure¹

Suzanne Macartney

Social, Economic and Housing Statistics Division

U.S. Census Bureau

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Summary

This paper proposes a measurement change for the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) based on the Current Population Survey's Annual Social and Economic Supplement (CPS ASEC). Working papers on the Supplemental Poverty Measure (SPM) have estimated WIC participation based on the number of WIC family cases and *not* on the number of individual participants. Identifying only one WIC beneficiary per eligible family has likely resulted in an undercount of WIC benefits. To address the problem, we propose assigning WIC participation in the CPS ASEC at the household level and then designating as beneficiaries all eligible women and children in households reporting WIC participation. Using this method, the SPM rate for 2011 decreased by less than one tenth of a percentage point or by 125,000 fewer people in poverty.² Although the resulting WIC participation estimates were lower than those from administrative records, the proposed method is an improvement. Based on the results in this paper, a change in the way we estimate WIC in the CPS ASEC is recommended.

¹ Suzanne Macartney (suzanne.macartney@census.gov) is a Demographer in the Poverty Statistics Branch of the U.S. Census Bureau, 4600 Silver Hill Road, Washington, DC 20233. This paper presents results of research and analysis undertaken by Census Bureau staff. Any views expressed are those of the author and not necessarily those of the U.S. Census Bureau. The paper has undergone a more limited review than official publications and was released to inform interested parties of ongoing research. Thanks to Trudi Renwick for key inputs and oversight.

²All comparative statements in this report have undergone statistical testing, and unless otherwise noted, are statistically significant at the 90 percent confidence level.

Introduction

In 1995, the National Academy of Sciences (NAS) Panel on Poverty and Family Assistance released a report (Citro and Michael, 1995) that evaluated the current method of poverty measurement in the United States and recommended changing the definition of both the poverty thresholds and the family resources that are compared with those thresholds to determine poverty status. One of the goals of the NAS panel was to produce a measure of poverty that explicitly accounted for government spending aimed at alleviating the hardship of low-income families.

In the fall of 2009, the Office of Management and Budget's Chief Statistician formed an Interagency Technical Working Group (ITWG) on Developing a Supplemental Poverty Measure. That group included representatives from the U.S. Census Bureau, Bureau of Labor Statistics (BLS), Economics and Statistics Administration, Council of Economic Advisers, U.S. Department of Health and Human Services, and Office of Management and Budget. The 2010 ITWG was charged with developing a set of initial starting points to permit the U.S. Census Bureau, in cooperation with the Bureau of Labor Statistics (BLS), to produce a Supplemental Poverty Measure (SPM).

The ITWG issued a series of suggestions to the Census Bureau and BLS on how to develop a new Supplemental Poverty Measure (see *Observations from the Interagency Technical Working Group on Developing a Supplemental Poverty Measure*, 2010). These suggestions drew on the recommendations of a 1995 National Academy of Sciences report and the extensive research on poverty measurement conducted over the past 15 years, at the Census Bureau and elsewhere. The Census Bureau released research Supplemental Poverty Measure reports in November 2011 and November 2012.

Special Supplemental Nutrition Program for Women, Infants and Children (WIC)

One of the suggestions of the ITWG was that the value of benefits from the Special Supplemental Nutrition Program for Women, Infants and Children (WIC) be included in the resource measure used to estimate the Supplemental Poverty Measure. WIC is a federally funded program designed to improve the health of nutritionally at risk pregnant women, new mothers, and young children. Assistance is provided in the form of federal grants to states to provide nutritional counseling, breastfeeding support, and vouchers or cash for food. At the federal level, the Food and Nutrition Service at the U.S. Department of Agriculture (USDA) administers the WIC program.

WIC beneficiaries must be a pregnant or postpartum woman, a breastfeeding mother of a baby up to age one, or a child under age five. Participants must be low income and nutritionally at risk. Income may not be greater than 185 percent of the federal poverty guidelines. However, individual states may further restrict income eligibility.

According to the USDA approximately 8.9 million people participated in WIC in fiscal 2012. Nearly one-quarter were women ages 15-44, nearly one-quarter were infants, and just over one-half were children ages 1 to 4 (see Table 1). The total annual cost of the program in fiscal 2012 amounted to \$4.8 billion.

Table 1. U.S. Department of Agriculture Estimates, FY 2012

WIC Participants	Number	Percent	Annual Cost*
<i>Total Persons</i>	<i>8.9 million</i>	<i>100.0%</i>	<i>\$4,809 million</i>
Infants	2,067,788	23.2%	\$1,116 million
Children 1-4 Years	4,746,305	53.3%	\$2,652 million
Women, 15-44 Years	2,093,654	23.5%	\$1,130 million

*Estimates for 2012 are preliminary and subject to change.

Source: U.S. Department of Agriculture, Food and Nutrition Service, Office of Research and Analysis, National and State-Level Estimates of Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) available at < <http://www.fns.usda.gov/pd/wicmain.htm>>

Current Population Survey's Annual Social & Economic Supplement (CPS ASEC)

The Census Bureau uses the Current Population Survey's Annual Social and Economic Supplement (CPS ASEC) to estimate resources for the Supplemental Poverty Measure. Starting in 2001, the survey included a question for the reference person asking whether anyone in the household had participated in WIC during the previous year (*hrwicyn*). The question on the CPS ASEC is the following:

HRWICYN < At any time during 20__, were you or anyone in this household on WIC, the Women, Infants, and Children Nutrition Program?

If the reference person answers yes, follow-up questions ask who in the household received WIC. The responses are used in the editing process to assign program participation to women of child-bearing age and women of any age who are listed as the parent or guardian of age-eligible children using the person level variable *wicyn*.

From 2001 to 2007 these items were asked of all respondents. In an effort to reduce respondent burden, beginning in 2008 only those who met the criteria to be in the WIC universe were asked about WIC participation. The program participation question is asked if households include at least one adult female member and have income below a designated threshold—less than \$25,000 for a one-person household, less than \$35,000 for a household with two or three people, or less than \$60,000 for larger households.

The distribution of the person level variable *wicyn* is shown in Table 2. According to the 2012 CPS ASEC, a total 3.9 million people reported receipt of WIC benefits in 2011.³ Most of the recipients are women ages 15-44. As shown in Table 2, very few children are included in the count. In fact, the small number of unweighted cases attributed to infants or children (4 unweighted cases) suggests the source may be an editing error. In contrast, the administrative USDA data report more infant and child participants than adult women participants.

Table 2. WIC participation based on person variable ‘wicyn’, CPS ASEC 2012

Persons	USDA Number	CPS ASEC Estimate (weighted)	CPS ASEC SE	<i>CPS ASEC Estimate (unweighted)</i>
Total WIC Participants	8,879,278	3,899,159	88,206	2,692
<i>Age 0-14</i>	6,863,680	9,539	6,687	4
<i>Age 15-44</i>	2,096,913	3,889,620	87,253	2,688

Sources: U.S. Department of Agriculture, Food and Nutrition Service, Office of Research and Analysis, National and State-Level Estimates of Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); U.S. Census Bureau, Current Population Survey, Annual and Social Economic Supplement, 2012.

³Standard errors for estimates in this report were calculated using replicate weights. Further information about the data and accuracy of the estimates is available at <www.census.gov/hhes/www/p60_243sa.pdf>.

WIC Estimates for the Supplemental Poverty Measure

The Research SPM estimates for 2009, 2010 and 2011 included a measure of the value of WIC benefits based on the CPS ASEC person level variable *wicyn*. Rather than families, the Supplemental Poverty Measure is based on the SPM resource unit.⁴ The number of WIC participants in each SPM resource unit was set equal to the sum of individuals in the resource unit with *wicyn*=1. Lacking additional information, it was assumed that each person with *wicyn*=1 participated for 12 months. The value of the WIC benefit was then calculated by multiplying the average monthly benefit (\$46.67 per USDA program information) times 12 months times the number of participants in each resource unit.

While the assumption of 12 months of participation may have overestimated the value of WIC benefits received by any given SPM resource unit, the overall number of participants and the total value of benefits assigned in the CPS ASEC were well below administrative benchmarks (Renwick 2010).

An Alternative Method to Develop WIC Estimates for the Supplemental Poverty Measure

Further investigation of the *wicyn* variable led us to reconsider our methodology for assigning WIC participation in the CPS ASEC.⁵ Since the universe of the *wicyn* variable was limited to women over the age of 15, the *wicyn* tally was actually providing a count of the number of WIC family cases in the household rather than the number of WIC participants.

As an alternative, we propose to assign WIC participation in the CPS ASEC at the household level and then designate as beneficiaries all eligible women and children in households reporting WIC participation. For households flagged for WIC, eligibility is assigned to all children ages 0-4, one adult woman in each household with an infant under age 1 and one adult woman in any childless household. The assignment of WIC participation to the parent or guardian of an infant covers women eligible in the previous calendar year due to either pregnancy or lactation status or both. It is presumed that women who report WIC participation in childless households are pregnant.

⁴ SPM family resource units include unrelated children under age 15 as part of the family and also treat cohabiting partners and their children as one resource unit.

⁵ The authors thank Arloc Sherman of the Center on Budget and Policy Priorities for alerting us of a possible concern with the WIC estimates.

One challenge with estimating WIC in the CPS ASEC is a slight mismatch between respondents' ages at the time of the survey and program participation in the previous calendar year. Respondents are asked their age in the spring of the survey year but are asked about participation in WIC for the previous calendar year. A child age 5 at the time of the survey is not WIC eligible but was program eligible at some point during the last calendar year at age 4. We address this problem by capturing only those currently eligible--we count children at age 0 in the current year (who were not part of in the household for the entire previous calendar year) but do not count children age 5 in the current year (who were eligible for at least a portion of the previous year). To include children at both ends of the age range would result in an over count.

Table 3 shows the weighted count of infants, young children, and women assigned to WIC. In the third column under 'CPS ASEC 2012 proposed method,' the method proposed in this paper yielded an estimate of 1.2 million infants and 3.6 million young children participating in WIC in 2011. About 1.4 million women between ages 15 and 44 were also counted as WIC participants because they lived with infants aged 0 to 1 and were presumed to have received benefits in the previous calendar year either because of pregnancy or breastfeeding or both. About 400,000 of these women were women were presumed to be expectant mothers. In such cases someone in the household received WIC benefits and no children were present.

Table 3A. Individuals Receiving WIC Benefits, USDA and CPS ASEC Estimates by Age (USDA and CPS ASEC 2012)

	USDA FY 2012		CPS ASEC 2012 old method			
	Number	Pct	Number	SE num	Percent	SE pct
Total	8,907,747	100.0	3,899,159	88,206	100.0	--
Infants & children	6,814,093	73.5	9,539	6,687	0.2	0.2
<i>Age 0</i>	<i>2,067,788</i>	<i>23.2</i>	<i>2,741</i>	<i>2,651</i>	<i>0.1</i>	<i>0.1</i>
<i>Age 1 to 4</i>	<i>4,746,305</i>	<i>53.3</i>	<i>6,798</i>	<i>4,896</i>	<i>0.2</i>	<i>0.1</i>
Women Ages 15-44	2,093,654	23.5	3,889,620	87,253	99.8	0.2

Sources: U.S. Department of Agriculture, Food and Nutrition Service, Office of Research and Analysis, National Level Estimates of Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); U.S. Census Bureau, Current Population Survey, Annual and Social Economic Supplement, 2012.

Table 3B. Individuals Receiving WIC Benefits Under the Revised CPS ASEC Estimation Method by Age (CPS ASEC 2012)

	USDA FY 2012		CPS ASEC 2012 proposed method			
	Number	Pct	Number	SE number	Pct	SE pct
Total	8,907,747	100.0	6,291,289	136,804	100.0	--
Infants & children	6,814,093	73.5	4,892,034	108,347	77.8	0.7
Age 0	2,067,788	23.2	1,246,443	42,226	19.8	0.5
Age 1 to 4	4,746,305	53.3	3,645,591	93,226	57.9	1.0
Women Ages 15-44	2,093,654	23.5	1,399,256	56,877	22.2	0.7

Source: U.S. Department of Agriculture, Food and Nutrition Service, Office of Research and Analysis, National and State-Level Estimates of Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); U.S. Census Bureau, Current Population Survey, Annual and Social Economic Supplement, 2012.

The proposed WIC estimation method yielded an age distribution more similar to that of USDA administrative records (see Table 3). The proposed CPS ASEC method shows more than one-half of those enrolled in WIC are young children (57.9 percent) compared to just over one-half from the USDA (53.3 percent). Adults constitute less than one-quarter of WIC participants using both the proposed CPS ASEC method and USDA records (22.2 percent and 23.5 percent, respectively). However, about one-in-five participants are infants in the CPS ASEC compared to more than one-in-five from the USDA (19.8 percent to 23.2 percent).

Effect of New WIC Estimates on the Supplemental Poverty Measure (SPM)

The method used to assign WIC participation impacts the poverty estimates for the SPM. The estimates in Table 4 show that without any WIC benefits, 16.2 percent of the U.S. population would have incomes below the SPM poverty threshold in 2011. Using the old approach to assign WIC participation, when WIC benefits are added to resources the SPM poverty rate falls to 16.1 percent. Using the WIC assignment technique proposed in this paper, the SPM rate decreases further, but by less than tenth of a percentage point. However, assigning WIC benefits to women and children based on the new estimation procedure results in a decrease of 125,000 people in poverty.

Table 4. Supplemental Poverty Rates by WIC Estimation Method, CPS ASEC 2012

Supplemental Poverty Measure Methods	Total pop (in 1,000s)	Number Below SPM Poverty (in 1,000s)	SE of num. (in 1,000s)	Percent Below SPM Poverty	SE of pct	Difference			
						Number (by row)	SE of num	Pct (by row)	SE of pct
Row 1: SPM, no WIC	308,827	50,035	549	16.2	0.18	--	-	-	-
Row 2: SPM, old WIC <i>compare Row 1</i>	308,827	49,695	550	16.1	0.18	340*	59	0.11*	0.02*
Row 3: SPM, new WIC <i>compare Row 2</i>	308,827	49,571	548	16.1	0.18	125*	33	0.04*	0.01*

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

*Compared with the percent or number on the previous line, the difference is statistically different from zero at the $p < .10$ level.

Compared to the total population, the target population for the WIC program is relatively modest. In 2011, approximately 16.5 million people lived in households in which someone reported WIC participation. Table 5 shows the 2011 poverty rates for this group. Shown on the last row of the table, the proposed method of assigning WIC benefits decreases the poverty rate for this group by 0.8 percentage points, from 37.9 percent to 37.1 percent. More significantly, it increases the impact of WIC benefits on the poverty rate for this group. Compared to the SPM rate with no WIC benefits, the proposed method reduced the SPM rate from 39.9 percent to 37.1 percent, a difference of 2.8 percentage points.

Table 5. Supplemental Poverty Rates for Persons in Households Receiving WIC, CPS ASEC 2012
(numbers in thousands)

Supplemental Poverty Measure Methods	People in WIC Households	Number below SPM Poverty	SE of num	Percent below SPM Poverty	SE of pct	Difference			
						Number (by row)	SE of num	Percent (by row)	SE of pct
Row 1: SPM, no WIC	16,363	6,603	257	39.9	1.2	-		-	
Row 2: SPM, old WIC <i>(compare Row 1)</i>	16,363	6,263	252	37.9	1.2	340*	59	2.0*	0.4
Row 3: SPM, proposed WIC <i>(compare Row 2)</i>	16,363	6,139	248	37.1	1.2	125*	33	0.8*	0.2

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

* Compared with the percent or number on the previous line, the difference is statistically different from zero at the $p < .10$ level.

Under the proposed method of estimating WIC participation, the average number of WIC beneficiaries per SPM resource unit increased from 1.02 to 1.59. As a result, mean benefits per resource unit increased from \$570 per year per unit to \$892 (see Table 6) and the sum of all WIC benefits increased from \$2.151 billion to \$3.378 billion.

Table 6. Result of Current and Proposed Methods for WIC Estimation: Benefits, Program Costs and Beneficiaries

	Old Method	Proposed Method	Difference (Proposed-Old)	SE of difference
Average Benefit: Mean per SPM Resource Unit	\$570	\$892	\$322*	\$10
Total WIC Benefits	\$2.151 billion	\$3.378 billion	\$1.227 billion*	\$.048 billion
Total Persons, Beneficiaries	3,840,948	6,031,461	2,190,513*	85,877
Average Persons: Mean Beneficiaries per household	1.02	1.59	-0.57*	0.017

Note: '*' denotes a statistically significant difference from zero at p<.10 level
Source: U.S. Census Bureau, Current Population Survey, Annual and Social Economic Supplement, 2012.

Conclusion

Based on results presented here, the proposed procedure results in WIC participation and benefit estimates more consistent with USDA administrative records than the current estimation method. The proposed CPS ASEC estimation method for WIC is a marked improvement over the old method in the following ways:

- 1) A reduced gap in estimated WIC recipients between the CPS ASEC and the USDA
- 2) The distribution of WIC participants by age in the CPS ASEC more closely approximates USDA reports
- 3) Annual WIC program costs in the CPS ASEC more closely match the cost reported by the USDA

Although WIC participation estimates remain lower than USDA estimates under the proposed method, it is an improvement. Based on the results reported here, we should change the way we estimate WIC in the CPS ASEC and adopt the method proposed here.

Sources:

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