

COMPARING POVERTY RATES BY OFFICIAL AND EXPERIMENTAL MEASURES IN THE UNITED STATES

Introduction

The official poverty measure in the United States is used for more than statistical purposes. It is also used to set guidelines for eligibility for public programs, and thus directly affects the quality of daily life for persons and families with low income. The current official poverty measure was developed in the early 1960s.¹ Concerns about the level and extent of poverty estimates and the methodology that should be used to measure poverty have increased among academic researchers and policymakers.² Since 1999, the U.S. Bureau of the Census has published a series of reports on estimates of experimental (or alternative) measures of poverty rates in the United States³ based on implementations of the combined recommendations of a National Academy of Science (NAS) panel and on new survey data that were developed.⁴

¹ The official poverty measure compares the current money income of families with a set of predefined poverty “thresholds.” These thresholds were originally developed in 1963-1964 by Mollie Orshansky at the Social Security Administration. Orshansky based her poverty thresholds on the economy food plan, which was the cheapest of four food plans developed by the U.S. Department of Agriculture (USDA). The USDA dietitians, using complex procedures, developed nutritionally adequate diets designed for temporary or emergency use when funds were low (Fisher, 1997).

² For detailed discussion, see Wu, (2004).

³ See Short et al. (1999); Iceland (2000); Short (2001). From 2001 to 2003, U.S. Bureau of the Census analysts reported the estimates of alternative (experimental) poverty rates in the annual poverty report -- *Poverty in the United States: 2000, 2001, and 2002* (U.S. Bureau of the Census 2001, 2002, 2003).

⁴ In response to a request by a Congressional committee for an independent scientific study of poverty, including the concept, measurement

This report presents experimental measures of poverty as of 2001,⁵ particularly focusing on the population age 65 and older.

Experimental Measures of Poverty for the Total Population in 2001

Table 1 presents both official poverty rates and those using the NAS panel’s proposed experimental measures (NAS 1⁶) for the entire population in the United States from 1990 to 2001.

methods, and information needs for poverty measurement, the National Academy of Science established the Panel on Poverty and Family Assistance. In 1995, the panel released proposed recommendations for poverty measures in its report titled *Measuring Poverty: A New Approach*. (Citro and Michael, 1995)

⁵ In this report, some estimates of experimental poverty rates in 2001 are from the U.S. Bureau of the Census (2002), *Poverty in the United States: 2001*. Other estimates are from the author’s analysis of the Census Bureau’s 2001 micro data. Along with the Census Bureau’s reports, the micro data on “Experimental Poverty Measures” for years 1997, 1998, 1999, and 2001 are available to the public at: <http://www.census.gov/hhes/poverty/>

⁶ The experimental poverty measures are defined as the NAS panel’s proposed. The thresholds were calculated with Consumer Expenditure (CE) Survey data and adjusted by geographic differences in the cost of living and two parameter equivalence scales. The family income measure is all family money income plus family capital gains, the “Earned Income Tax Credit” (EITC), the value of “family energy assistance,” the value of “family housing subsidy,” “Food Stamps,” and the value of “school lunch income,” minus the amount of family capital loss, federal and state income tax, Social Security payroll tax, medical out-of-pocket expenditures (MOOP), and work-related and child-care costs. For year 2001, the thresholds of NAS 1 were calculated with more recent Consumer Expenditure (CE) Survey data. For detailed information about methods of thresholds calculation and the calculation of each item in family income, see Short, 2001, Appendix A. pp. A1-A13.

Year	Official	NAS 1	Percentage Point Change between Official and NAS 1
	%	%	
1990	13.5	16.9	3.4
1991	14.2	17.7	3.5
1992	14.8	18.2	3.4
1993	15.1	19.1	4.0
1994	14.6	17.8	3.2
1995	13.8	16.9	3.1
1996	13.7	16.1	2.4
1997	13.3	15.3	2.0
1998	12.7	14.8	2.1
1999	11.8	14.4	2.6
2000	11.3	12.3	1.0
2001	11.7	13.1	1.4
Average	13.4	16.1	2.7

Sources: Short, et al., 1999; Iceland, 2000; Short, 2001, and U.S. Bureau of the Census 2002.

The percentages indicate that the annual estimates of the experimental poverty rate were consistently higher than the official poverty rates during the time span. For example, in 2001, the NAS 1 experimental poverty rate was 13.1 percent, 1.4 percentage points higher than the official poverty rate (11.7 percent). The average of the annual NAS 1 rate was 2.7 percentage points higher than the average annual official poverty rate during the 12-year period.

Official measures in recent years, have shown that children (under age 18) have the highest poverty rate, and older persons (age 65 and older) have the lowest. Like the official poverty rate, the experimental poverty rate varied by age group. Table 2 presents estimates of the

experimental poverty rate by age group in 2001.

For children, the estimate of the poverty rate using the NAS 1 measure was 15.6 percent, 0.7 percentage points lower than the official poverty rate (16.3 percent). For older people (age 65 plus), the NAS 1 poverty rate was 16.5 percent, 6.4 percentage points higher than the official poverty rate (10.1 percent). For persons age 75 and older, the NAS 1 poverty rate was 19.2 percent, 8 percentage points higher than the official poverty rate (11.2 percent). The increase in the NAS 1 poverty rate over the official poverty rate was larger for the population age 65 and older than for other age groups.

The large increase in the poverty rates for older persons based on the

	Official	NAS 1	Percentage Point Change Between Official and NAS 1
	%	%	
Total Population	11.7	13.1	1.4
Under Age 18	16.3	15.6	-0.7
Age 18 to 64	10.2	11.5	1.3
Age 65 and Over	10.1	16.5	6.4
Age 65 to 74	9.1	14.2	5.0
Age 75 and over	11.2	19.2	8.0

Sources: U.S. Bureau of the Census 2002 and author's analysis of the Census Bureau's 2001 "Experimental Poverty Measures" micro data.

	Total Population	Poverty Population Using Official Measure	Poverty Population Using NAS 1 Measure
	%	%	%
Total Population	100.0	100.0	100.0
Under Age 18	25.6	35.6	30.4
Age 18 to 64	62.4	54.1	54.6
Age 65 and Over	12.0	10.3	15.1

Source: Author's analysis of the Census Bureau's 2001 "Experimental Poverty Measures" micro data.
* Tables may not add up to 100% because of rounding.

experimental measure also changes the distribution of the poor population among the age groups. The new age distribution of the poor consists of a larger proportion of older persons than is identified by the official poverty measure (Short, 1999).

Table 3 presents distributions of the entire population and the poor population by age group using the official poverty measure and the experimental poverty measure in 2001.

The population age 65 and older was 12 percent of the total population in 2001. Using the official poverty measure, the older poor were only 10.3 percent of the total poor population, which was 4.8 percentage points lower than the 15.1 percent using NAS 1. Children under age 18 were 25.6 percent of the total population, but they were 35.6 percent of the total poor population using the official measure. This was 5.2 percentage points higher than the 30.4 percent using the NAS 1 measure. Thus, relative to their share of the total population, older persons were underrepresented among the poor according to the official poverty measure, but overrepresented using the NAS 1 measure. Children were overrepresented among the poor using both measures compared to the total population.

In 2001, persons age 18 to 64 were 62.4 percent of the total population, but people in this age range living in poverty were only 54.1 percent of the total poor population based on the official poverty measure. Using the experimental poverty measure, this group increased slightly to 54.6 percent of the total poor population.

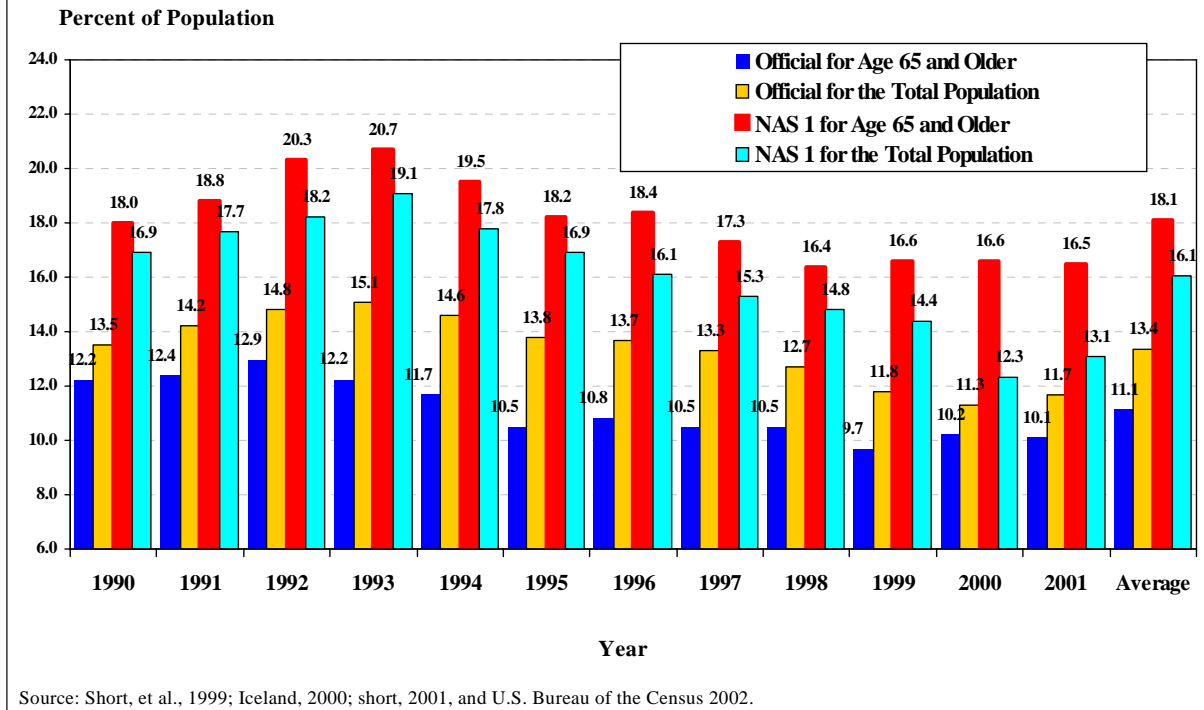
Experimental Measures of Poverty for Older Persons in 2001

Figure 1 compares the annual official poverty rate with the NAS 1 experimental measure for both older persons and the total population from 1990 to 2001.

The official poverty rate for older persons in 2001 (10.1 percent) was lower than that for the entire population (11.7 percent) (U.S. Bureau of the Census, 2002). However, using the NAS 1, the poverty rate (16.5 percent) for the older population was higher than that for the entire population (13.1 percent).

Each year the experimental poverty rates for persons age 65 and older (red bars) and the entire population (light blue bars) were consistently higher than the official rates for persons age 65 and older (dark blue bars) and the entire population (yellow bar) during the 12-year period. Looking at the entire time span, the average poverty rate for persons age 65

Figure 1
Poverty Rates Using Official and Experimental Measures
For Persons Age 65 and Over and the Total Population, 1990-2001



and older using the NAS 1 (red bar) was 7 percentage points higher than the average official poverty rate for the same age group (dark blue) (Figure 1).

Figure 1 also shows that under the official poverty measure, the poverty rate for the older population was lower than for the entire population for all 12 years. The average official poverty rate for older persons was 2.3 percentage points lower than for the total population. While using the NAS 1 experimental poverty measure, the poverty rate for the older population was consistently higher than for the entire population during the 12-year period. The average experimental poverty rate for older persons was 2.0 percentage points higher than that for the entire population in the same period.

Among the older population, the experimental poverty rate compared to the

official rate varied by demographic characteristics. Table 4 presents estimates of experimental poverty (NAS 1) by demographic characteristics for persons age 65 and older in 2001. Persons age 80 and older had the highest official poverty rate (11.9 percent) among the elderly, but their NAS 1 rate was even higher (20 percent -- a difference of 8.1 percentage points). The experimental poverty rate for persons age 75 to 79 was 18.3 percent, 7.9 percentage points higher than the official poverty rate (10.4 percent).

Women age 65 and older had a higher poverty rate than men of the same age using both measures in 2001. The NAS 1 poverty rate for older men (12.9 percent) was 5.9 percentage points higher than the official poverty rate (7 percent), while the NAS 1 poverty rate for older women (19.2 percent) was 6.8 percentage points higher than the official poverty rate (12.4 percent).

Demographic Characteristics	Official	NAS 1	Percentage Point Change between Official and NAS 1
	%	%	
Persons Age 65 and Over	10.1	16.5	6.4
Age			
Age 65 to 69	9.3	13.7	4.4
Age 70 to 74	9.0	14.8	5.8
Age 75 to 79	10.4	18.3	7.9
Age 80 and Over	11.9	20.0	8.1
Sex			
Men	7.0	12.9	5.9
Women	12.4	19.2	6.8
Race			
Non-Hispanic White	8.1	13.8	5.7
Non-Hispanic Black	21.8	29.6	7.8
Hispanic	21.8	34.0	12.2
Other	11.2	23.0	11.8
Marital Status			
Married	4.7	11.2	6.5
Widowed	15.3	22.5	7.2
Divorced or Separated	21.2	25.3	4.1
Never Married	21.4	25.7	4.3
Living Arrangement			
Living Alone	19.7	26.0	6.3
Living with Others	5.3	11.8	6.5
Health Condition			
Excellent	5.3	10.7	5.4
Good	6.9	11.9	4.9
Fair	10.7	17.4	6.6
Poor	16.4	25.1	8.8

Source: Author's analysis of the Census Bureau's 2001 "Experimental Poverty Measures" micro data.

In 2001, based on the NAS 1, Hispanics and non-Hispanic blacks had the highest poverty rate among the older population (34 percent for Hispanics and 29.6 percent for non-Hispanic blacks). These were 12.2 percentage points and 7.8 percentage points higher, respectively, than the official poverty rates (21.8 percent for both).

Married persons age 65 and older were less likely than never-married older persons to be poor by both the official and NAS 1 measures. The NAS 1 poverty rate was 6.5 percentage points higher than the official poverty rate for married older couples (11.2 percent versus 4.7 percent).

For never-married persons age 65 and older, the NAS 1 poverty rate was 4.3 percentage points higher than the official poverty rate the (25.7 versus 21.4 percent) (Table 4).

Living arrangements also influenced the poverty status of older persons. The NAS 1 poverty rate was 6.3 percentage points higher than the official poverty rate for older persons living alone (26.0 percent versus 19.7 percent). For older persons living with others, the NAS 1 poverty rate was 6.5 percentage points higher than the official poverty rate (11.8 percent versus 5.3 percent) (Table 4).

Table 4 shows that persons age 65 and older with poor health⁷ were more likely to live in poverty than those with better health. About one out of four older persons (25.1 percent) with poor health was below the poverty line using the NAS 1 measure, 8.7 percentage points higher than the official poverty rate (16.4 percent). For older people with excellent health, the NAS 1 poverty rate was 5.4 percentage points higher than the official poverty rate (10.7 percent versus 5.3 percent).

The Current Official Poverty Measure Understates the 65+ Poverty Population

In the current official poverty measure, the income threshold used to establish poverty status for older persons is about 10 percent lower than that for other age groups.⁸ The official poverty rate for older people would be higher if the same thresholds were applied to both elderly and non-elderly persons. For example, the official poverty rate for older individuals was 10.2 percent in 2003 (U.S. Bureau of the Census, 2004). If the poverty thresholds used for persons under age 65 were applied to persons age 65 and older, the poverty rate for older people would be 11.3 percent⁹ in 2003.

⁷ The March Current Population Survey (CPS) includes a question about the general health of each person in the family.

⁸ The poverty thresholds differentiate between persons age 65 and older and under age 65 only for families of 1 or 2 persons, not for large families. According to the March 2004 CPS, over 85 percent of persons age 65 or older live in families of 1 or 2 persons in 2003. The poverty threshold in 2003 was \$8,825 for a single person age 65 and older and \$9,573 for single persons under age 65. For couples, the threshold was \$11,133 for those age 65 and older and \$12,384 for those under age 65 (U. S. Bureau of the Census, 2004).

⁹ This figure is calculated by the author based on the March 2004 CPS micro data.

The use of different poverty thresholds for the older population is based on some hypothetical assumptions. The basic assumption is that the calorie needs of the elderly are less than those of the non-elderly; it was believed, for example, that older persons need to eat less than younger ones.¹⁰ Another assumption is that because the elderly are less likely to work, their work-related expenses (such as cost of transportation and clothing) are lower. However, older persons have some needs not typically faced by younger people, most notably, non-reimbursable health care expenditures which have risen rapidly over the past decades. In addition, although the elderly may need fewer calories than young people, many of them face health limitations that restrict diets and food preparation abilities, leading to relatively high food expenditures (Ruggles, 1990).

Medical Out-of-Pocket Expenditures in Experimental Poverty Measures

Growth of medical out-of-pocket (MOOP) expenses reduces family disposable income. According to AARP estimates in 2003, the average medical out-of-pocket expenditures for older persons who were covered by Medicare was \$3,455, 22 percent of their income (Caplan and Brangan, 2004). Adding in health care costs considerably increases the number of people who appear to be struggling to get by. In particular, it increases the number of elderly who are considered poor (Short and Garner, 2002).

¹⁰ This lower poverty standard for the elderly is an artifact of the original food budget used by Orshansky because the elderly were thought to need fewer calories than younger people to maintain their weight. The USDA food budget on which Orshansky data based her thresholds allowed a lower spending level for those age 65 and older; Orshansky translated these into lower budgets overall (Ruggles, 1990).

MOOP expenditures include health insurance premiums, medical service,¹¹ prescription drugs, and medical supplies. Based on the recommendations of the NAS panel and new research on poverty measures, the Census Bureau used three different methods to include MOOP expenditures in the experimental poverty measures.

The first of these (MSI)¹² subtracted MOOP expenditures from family income. The problem with this approach is that some inconsistency is introduced¹³ in a complete poverty measure. The result from this measure is likely to overstate the effect of MOOP expenditures on the poverty measure (Short and Garner, 2002). In light of both the conceptual and practical issues raised by this approach, the Census Bureau proposed two alternative methods.

Instead of subtracting MOOP expenses from family income, the second

method (MIT)¹⁴ adds the MOOP expenditure to the poverty thresholds. The new approach computed a threshold to allow for food, clothing, shelter, utilities, and MOOP spending. The thresholds can be calculated for family types based on health care spending patterns according to the size of family, ages of family members, and health insurance status. Threshold allowances for MOOP expenditures reflect expected -- that is, average -- medical expense along those dimensions. However, assigning an average expenditure to incorporate medical care needs in the thresholds may overestimate the costs for many families and may underestimate the costs for a few families due to the distributional properties of these expenditures.¹⁵ The NAS panel concluded that it would be impossible to capture the actual variation of medical needs by variation in the thresholds and that this could lead to erroneous poverty classification (Short and Garner, 2002).

The third method (CMB)¹⁶ in the measure has attributes of both the MSI and MIT measures. Like the MIT measure, the CMB includes expected MOOP expenditures in the thresholds. However, like the MSI measure, the CMB takes into account variations in medical need across families. The difference between the expected MOOP and the actual amounts each family spends out-of-pocket for medical care is calculated and the difference is subtracted from family income. By this method, families who had

¹¹ This includes co-payments made at doctors' offices that are not covered by insurance.

¹² MSI means that *MOOP* expenditures were *subtracted* from family *income*.

¹³ The method that the panel used to determine the value of the MOOP expenditures in a poverty measure using survey data is somewhat complex. Data from the 1987 National Medical Expenditure Survey were used to develop a model that assigned the occurrence of such expenditures and the amount spent. Once these amounts were assigned to families, then the aggregate amount assigned across all families was adjusted to match benchmarks developed from the Health Care Financing Administration's National Health Accounts. The adjusted amounts of MOOP expenditure were then subtracted from income as a necessary expense before comparing family income. This step introduced some inconsistency in a complete poverty measure in that no other component in the panel's measurement was adjusted to match independent aggregate estimates (Short and Gamer, 2002).

¹⁴ MIT means that *MOOP* expenditures were *included* in poverty *threshold*.

¹⁵ The panel argued that medical care needs differ from the need for food or housing in that not every family required medical care in a given year, but when they do, the associated costs may be extraordinarily large (Citro and Michael, 1995).

¹⁶ CMB means that the MSI and MIT methods were *combined*.

	MSI	MIT	CMB
	%	%	%
Total Population	12.3	12.7	12.9
Age Under 18	14.6	15.8	15.4
Age 18 to 64	10.8	11.5	11.3
Age 65 and Over	15.5	12.7	16.2

U.S. Bureau of the Census 2002. Poverty in the United States: 2001. U.S. Bureau of the Census, Current Population Report P60-219. Washington, DC: U.S. Government Printing Office.

greater-than-expected medical expenses may be classified as poor when they otherwise would not be (U. S. Bureau of the Census, 2002).

Experimental Poverty Rates Using Three Methods to Implement MOOP Expenditures

Table 5 presents experimental poverty rates under different approaches to implement MOOP expenditures in 2001. For the entire population, the MSI experimental poverty rate was 12.3, the MIT was 12.7 percent, and the CMB 12.9 percent. For children (under age 18), the poverty rate under the MSI experimental measure was 14.6 percent, which was

again the lowest rate among the three measures. The same pattern was also found for people age 18 to 64. In contrast, for the older population, the MIT experimental poverty rate was the lowest among the three measures at 12.7 percent. It was 3.5 percentage points lower than that using the CMB measure and 2.8 percentage points lower than that using the MSI measure. The variation of experimental poverty rates under the three measures among the three age groups shows that using different methods to implement MOOP expenditures in experimental poverty measures has a great impact on poverty estimates.

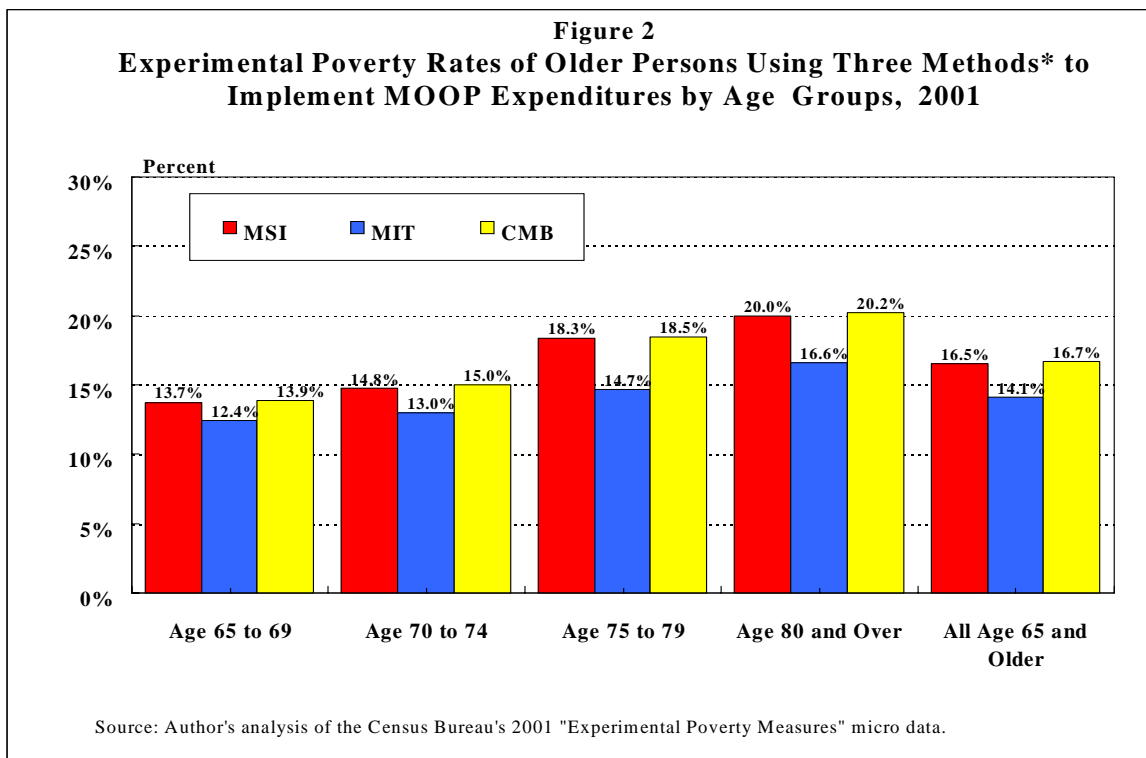
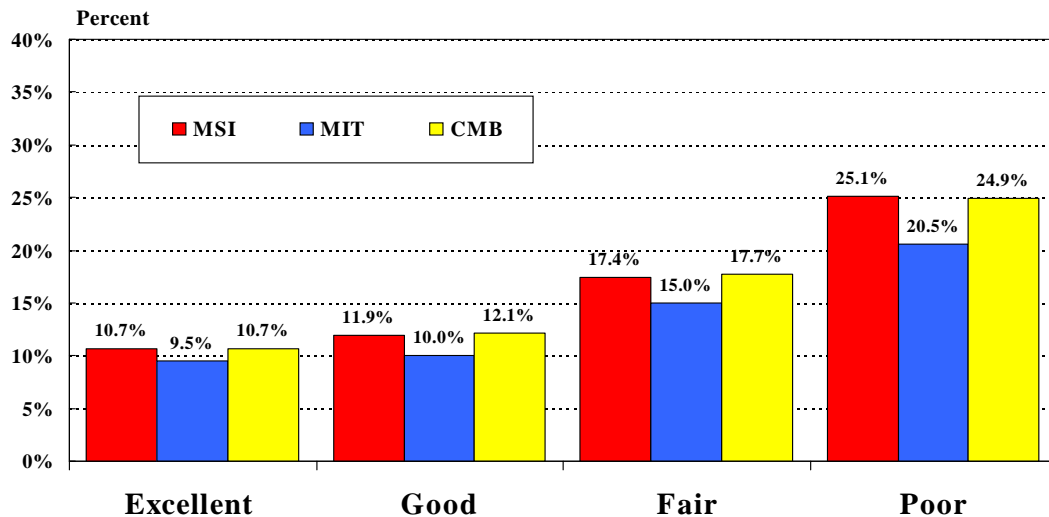


Figure 3
Experimental Poverty Rates of Older Persons Using Three Method to Implement MOOP Expenditures by Health Condition, 2001



Source: Author's analysis of the Census Bureau's 2001 "Experimental Poverty Measures" micro data.

Among the 65+ population, the three models of experimental poverty rates varied by age groups and health conditions. Figure 2 presents data by age. Poverty rates under the MIT measure were lower than those under MSI and CMB measures for all 65+ age groups. For example, the MIT experimental poverty rate was 12.4 percent for older persons age 65 to 69, 1.3 percentage points and 1.5 percentage points lower than those under the MSI measure and the CMB measure, respectively. For persons age 75 to 79, the MIT experimental poverty rate was 14.7 percent, 3.6 percentage points lower than that under the MSI measure and 3.8 percentage points lower than that under the CMB measure.

Figure 3 shows three experimental poverty rates when measuring health conditions. For older persons who reported having excellent health, the poverty rate was 9.5 percent under the MIT measure, 1.2 percentage points lower than those under either the MSI or the

CMB measures. For older persons who reported having poor health, the poverty rate was 20.5 percent using the MIT measure, 4.6 and 4.4 percentage points lower than the poverty rate under the MSI and CMB measures, respectively. Figures 2 and 3 indicate that the MIT measure underestimated MOOP expenses in experimental poverty measures for the older population, especially for older old persons and older persons with worse health conditions.

Conclusion

The results from the Census Bureau reports and our analysis show that the experimental poverty rates are higher than the current official poverty rates, particularly for older persons in 2001. The results indicate that it is important to precisely include MOOP expenditures in experimental poverty estimates. The results also suggest that reducing the burden of medical out-of-pocket expenditures on older persons, (through prescription drug coverage under

Medicare, for example), could potentially have a significant effect on reduction of poverty in this population.

References

Caplan, Craig and Brangan, Normandy September 2004, *Out of Pocket Spending On Health Care By Medicare Beneficiaries Age 65 and Older*. Data Digest #101, AARP Public Policy Institute.

Citro, Constance F. and Robert T. Michael (eds.) 1995. *Measuring Poverty: A New Approach*. Washington, DC: National Academy Press.

Fisher, Gordon M. 1992. "The Development and History of the Poverty Thresholds." *Social Security Bulletin*, Vol. 55, No. 4, pp. 3-14.

Iceland, John. 2000. *Poverty Among Working Families: Findings From Experimental Poverty Measures*. U.S. Bureau of the Census, Current Population Reports P23-203. Washington, DC: U.S. Government Printing Office.

Ruggles, Patricia 1990. *Drawing the Line*. Washington, DC: The Urban Institute Press.

Short, Kathleen and Thesia I. Garner 2002. "Experimental Poverty Measures: Accounting for Medical Expenditures." *Monthly Labor Review*, August, pp. 3-13.

Short, Kathleen 2001. *Experimental Poverty Measures: 1999*. U.S. Bureau of the Census, Current Population Report P60-216. Washington, DC: U.S. Government Printing Office.

Short, Kathleen, Thesia I. Garner, David Johnson, and Patricia Doyle 1999.

Experimental Poverty Measures: 1990 to 1997. U.S. Bureau of the Census, Current Population Report P60-205. Washington, DC: U.S. Government Printing Office.

U.S. Bureau of the Census 2004. *Poverty in the United States: 2003*. U.S. Bureau of the Census, Current Population Report P60-226. Washington, DC: U.S. Government Printing Office.

U.S. Bureau of the Census 2002. *Poverty in the United States: 2001*. U.S. Bureau of the Census, Current Population Report P60-219. Washington, DC: U.S. Government Printing Office.

U.S. Bureau of the Census 2001. *Poverty in the United States: 2000*. U.S. Bureau of the Census, Current Population Report P60-214. Washington, DC: U.S. Government Printing Office.

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