# The CNSTAT workshop on experimental poverty measures, June 2004

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The Committee on National Statistics (CNSTAT) convened a workshop on June 15–16, 2004, to review federal research on alternative methods for measuring poverty. The workshop had been requested by the U.S. Office of Management and Budget to evaluate progress in moving toward a new measure of poverty, as had been recommended in 1995 by a CNSTAT panel on poverty measurement:

> Our major conclusion is that the current measure needs to be revised: it no longer provides an accurate picture of the differences in the extent of economic poverty among population groups or geographic areas of the country, nor an accurate picture of trends over time. The current measure has remained virtually unchanged over the past 30 years. Yet during that time, there have been marked changes in the nation's economy and society and in public policies that have affected families' economic well-being, which are not reflected in the measure.[1]

Since the publication of the panel's report, there has been much research on elements of its recommendations by a variety of government agencies, think tanks, and universities. The Census Bureau has also produced a large number of alternative measures of poverty. However, the methods used to produce these alternatives have changed from year to year, so that there are no consistent time series of alternative poverty statistics.

Thus, the workshop had three explicit goals: (1) obtain feedback from the scientific community on which components of alternative measures are methodologically sound, (2) specify elements of the poverty measure for which more research is necessary, and (3) trim the number of experimental measures issued in Census Bureau reports. The planning group for the workshop asked several researchers to summarize the research conducted on particular elements of alternative poverty measures, to discuss the technical issues that have arisen, and to outline the strengths and limitations of alternative approaches.[2] Discussants and panel participants then assessed the soundness of different alternative measures.

## Background: The current official poverty measure

The current official poverty measure has two components—poverty thresholds and a particular definition of family income that is compared to these thresholds. Mollie Orshansky, an economist at the Social Security Administration, developed poverty thresholds in 1963 and 1964 by using the "Economy Food Plan" (the lowest-cost food plan) for families of different types and sizes prepared and priced by the U.S. Department of Agriculture. To arrive at overall threshold figures, Orshansky multiplied the price of the food plans by three, based on information from the 1955 Household Food Consumption Survey that indicated that families of three or more people had spent about one-third of their after-tax income on food in that year. The thresholds have been updated yearly for inflation using the Consumer Price Index (CPI).

The definition of family resources is the Census Bureau's definition of income—gross annual cash income from all sources, such as earnings, pensions, and cash welfare. A family and its members are considered poor if their income falls below the poverty threshold for a family of that size and composition.[3]

The current official poverty measure was, for a time, a sensible indicator of material deprivation in the United States. When first adopted by the Office of Economic Opportunity in 1965, the poverty lines were set at a dollar level that coincided with people's views of poverty. The method of measuring people's resources—gross cash income—also managed to fairly accurately capture the income people had to meet their basic needs.

Over the past 40 years, however, the poverty measure has become increasingly outdated. Poverty lines based on the cost of food no longer capture families' basic needs because of the rapid growth in housing prices and other expenditures, such as medical care and child care, relative to food prices. Today, people spend closer to one-sixth of their income on food rather than one-third. In the 1960s, the official poverty threshold for a four-person family coincided with people's views of the dollar amount needed to support such a family, as reported in public opinion surveys. By the 1990s this was no longer true.[4]

## Recommendations of the NRC Report

### Calculating the poverty threshold

A new threshold should be calculated by determining, for a reference family of two adults and two children, a dollar amount for food, clothing, shelter, and utilities, and then increasing that dollar amount by a modest percentage to allow for other needs (such as household supplies, personal care, and non-work-related transportation). The dollar amount would be scaled down from the median spending for those four basic items using data gathered in the Consumer Expenditure Survey.

This threshold would then be adjusted for families of different sizes and types by using an equivalence scale.

The resulting thresholds would be further adjusted for housing cost variations across regions and metropolitan areas of different population sizes.

### Calculating family resources

Family resources are defined as the value of cash income from all sources plus the value of near-money benefits that are available to buy goods and services covered by the new thresholds, minus some basic expenses.

Cash income sources are the same as those in the current official Census Bureau poverty measure.

Near-money income includes food stamps, housing subsidies, school breakfast and lunch subsidies, home energy assistance, assistance received under the Women, Infants, and Children nutritional supplement program (if the data are available), the Earned Income Tax Credit, and realized capital gains (or losses).

Basic expenses to be subtracted include taxes, child care, and other work-related expenses of working parents, medical out-of-pocket costs, and, if the data are available, child support payments made to another household. Taxes represent a nondiscretionary expense in that people cannot spend this money. Child care and other work-related expenses (such as commuting expenses) are also subtracted because these costs are often incurred if parents are to work and earn labor market income.

An article by K. Short, T. Garner, D. Johnson, and P. Doyle, *Experimental Poverty Measures: 1990 to 1997.* Current Population Report P60-205, U.S. Census Bureau, Washington, D.C., 1999, contains detail on the actual operationalization and implementation of the NRC-recommended poverty measure.

Many also believe that the definition of money income used in the official measure—gross cash income—inadequately captures the amount of money people have at their disposal to meet basic needs. It has been argued that taxes should be subtracted from income, because this money cannot be spent to meet basic needs, and that in-kind or near-money government benefits—such as food stamps, housing and child care subsidies, and the EITC—should be added, because they are intended to meet such needs. The omission of these items from the official definition of income has become increasingly serious in recent years because government transfers are now concentrated in benefits that are not considered part of families' gross cash income. The unfortunate result is that the current official poverty measure no longer accurately captures either people's perceptions of poverty or the effect of various policies on poverty.

## Recommendations in the 1995 NRC report and subsequent research

In response to the increasingly apparent weaknesses of the official poverty measure, the U.S. Congress appropriated funds for an independent scientific study of the official poverty measure; this led to the 1995 report of the National Research Council (NRC) panel, *Measuring Poverty: A New Approach.* (The panel's main recommendations appear in the box on this page.)

The release of the NRC report has been followed by considerable research activity. Two Census Bureau reports have been devoted to experimental poverty measures.[5] From 1999 to the present the Census Bureau has also released a number of alternative poverty measure estimates in materials that accompany the annual official poverty report. Some 50 research papers on experimental poverty measures have been written by researchers in various government agencies, including the Census Bureau, the Bureau of Labor Statistics, the Department of Health and Human Services, the Office of Management and Budget, and the Social Security Administration, to name a few, and by researchers at think tanks and various universities.[6] This research has helped identify strengths and weaknesses in the NRC recommendations.

As noted above, Census Bureau reports have offered a large number of alternative measures of poverty, which have also changed from year to year. The second experimental poverty report, for example, presented 24 alternative poverty measures with estimates from 1990 to 1999.[7] The subsequent 2002 annual official poverty report included tables based on six NRC-related experimental measures that were a subset of some of those contained in the second experimental poverty report and that covered the years 2001–2002.[8] With the information available, one cannot piece together a single time series of alternate measures from 1990 to 2002.

## A summary of the workshop proceedings

The general purpose of the June 2004 CNSTAT workshop was to revisit the 1995 NRC recommendations and evaluate the findings of the subsequent research. The workshop planning committee believed that some of the NRC recommendations were so widely accepted that they did not warrant much discussion. Specifically, the measure of family income should consist not only of gross cash income (the current official definition), but it should also, as the 1995 NRC panel had recommended:

- Account for taxes (subtract taxes, add the Earned Income Tax Credit and realized capital gains/losses).
- Add the value of food stamps and other near-cash benefits, including child care subsidies, school lunch subsidies, home energy assistance, and, if the data are available, benefits received under the Women, Infants, and Children nutrition program and the school breakfast program.
- Subtract from income any child support payments made by the payer, if the data are available.

Workshop sessions therefore focused on setting and updating a reference family poverty threshold; equivalence scales; geographic adjustments to thresholds; incorporating medical out-of-pocket expenses, work-related expenses including child care, and the value of housing; and data issues and other miscellaneous topics. After lengthy discussions, and at times significant disagreements, participants did reach consensus on a number of issues.

### Adopting a new poverty measure

There was broad support for adopting a new poverty measure. Some favored calling this a "low-income" measure, believing that this term more precisely describes the measure. Most participants favored having just one new poverty measure rather than several, though there was also support for having data available to calculate poverty in alternative ways in order to gauge the effect of different elements of the new measure on poverty estimates. Many also expressed support for continuing to calculate and publish the current poverty measure for the foreseeable future, given how familiar that measure is to many people.

### Setting the reference family threshold

Most workshop participants supported the NRC panel's recommended approach to setting the reference family threshold (for a family of two adults and two children), as implemented in current Census Bureau reports on experimental poverty measures. This method involves determining the dollar value of food, clothing, shelter, utilities, and a little more, using Consumer Expenditure (CE) data. This dollar value does not actually differ much from the reference family threshold in the current official measure.

There was little support for an alternative "equal rate" method, which would set the new threshold at a level that would, by design, produce a poverty rate that equaled the official poverty rate in a particular base year (after which it would presumably diverge in one direction or another). The advantages of this method are that it would provide a more seamless change in measured poverty rates from the current official measure, and it would provide a good sense of how the composition of the poverty population differs when using the alternative measure. But most participants believed these advantages were outweighed by the main disadvantage of this method : that the threshold would in essence be an artifact and not inherently meaningful, since its level would depend entirely on the official poverty rate in a given year.

### Adjusting the reference family threshold over time

There was broad agreement on using the NRC panel's recommended "quasi-relative" approach for annually updating the threshold. This involves using the latest three years of CE data on expenditures on items in the threshold. The advantage of this method over "absolute" poverty thresholds, which are adjusted over time only for inflation, is that CE-based thresholds change as *real* expenditures on basic items change. The reasoning here is that CE-based calculations will allow the thresholds to retain their social significance for longer periods of time than absolute thresholds. Thresholds in the quasi-relative approach are based on expenditures for certain basic needs, and not just median (or mean) incomes as a whole, as often is done in purely "relative" poverty measures.

### Equivalence scales

Many participants favored using a three-parameter equivalence scale to adjust thresholds for families of different sizes and compositions. Specifically, the recommended scale takes into account the following three factors: (1) children consume less on average than adults; (2) economies of scale dictate that a decreasing dollar amount should be added to the poverty threshold for each additional family member; and (3) the first child in a single-adult family increases the scale more than the first child in a two-adult family.[9] The three-parameter scale is therefore a little more refined than the two-parameter scale recommended by the 1995 NRC panel. The three-parameter scale has been implemented in many of the experimental poverty measures included in Census Bureau reports.[10] A few participants expressed support for research on whether more factors should be taken into account in equivalence scales, such as age of children and household production by stay-at-home parents. Some researchers hold that family spending on basic needs is different if there is one stay-at-home parent than if both parents work. For example, families in which both parents work or a single parent works often incur higher food expenses because they are less likely to prepare home-cooked meals.

**Geographic adjustments to thresholds**

Many, though certainly not all, workshop participants agreed that geographic price adjustments to the poverty thresholds *should not* be incorporated into a new poverty measure at this time. Although nearly all participants agreed that incorporating geographic adjustments to poverty thresholds was appropriate in principle, many felt that the methods currently available to make these adjustments were too technically problematic and too crude, especially in light of their substantial effect on state-level poverty rates—a politically sensitive issue (see the article in this *Focus* on geographic adjustments).

One problem with current methods used in experimental poverty measures is that they account only for variations in housing and not other items.[11] They are also based only on rental costs. Moreover, since some of these methods involve using rental cost estimates developed by the U.S. Department of Housing and Urban Development to run their Section 8 certificate and voucher program, they may not be suitable for poverty measurement purposes.

At the workshop, some of those most familiar with the technical issues indicated that improving these methods to a technically acceptable level is still some time away. Many participants thought that constructing appropriate adjustments should not hold up the implementation of a new poverty measure, and nearly all placed a high priority on continued research on improving methods to determine geographic variations in housing and other components of the threshold.

**Medical out-of-pocket expenses**

There was broad agreement on accounting for medical out-of-pocket spending, but no clear consensus on how to incorporate these costs. The method receiving greatest support includes expected medical out-of-pocket expenses in the poverty thresholds themselves, rather than subtracting actual expenses from resources. It entails calculating average expenses for different family types using several factors: whether family members have health insurance, self-reported health status, presence of elderly family members, and family size. This approach explicitly treats medical out-of-pocket expenses as a basic need, along with food, clothing, shelter, and utilities.

One advantage of this method is that these expenses can be adjusted for the underconsumption of medical care by the uninsured, whose need for health care may exceed their actual spending. The thresholds can reflect the minimum resources needed by an uninsured family to buy a health insurance policy. One criticism is that the use of expected rather than actual out-of-pocket expenses overestimates actual medical costs for many families and underestimates the costs for a few families that experience high medical expenses in a particular year. This may indeed occur, but it was pointed out that erroneous poverty classifications resulting from this method were rather modest; the same error also applies to accounting for the cost of housing in the thresholds. Many participants also argued that extreme values observed in the data should not be allowed to affect the calculation of expected out-of-pocket expenses.

**Child care and other work-related expenses**

Most participants agreed that a new poverty measure should account for work expenses. There was strong support for incorporating expected child care and work-related expenses in a poverty measure—that is, assigning fixed amounts based on a family's demographic characteristics and labor force participation. Such an approach treats child care and work-related expenses as a basic need among families where both parents work or where a single parent works.

Work-related expenses other than child care are calculated by subtracting 85 percent of the median of work-related expenses reported in the Survey of Income and Program Participation (SIPP) by all workers for every week they worked. Total family work-related expenses are capped so that they do not exceed the earnings of the lower-earning parent in a family. Similarly, child care expenses are calculated by subtracting a flat amount equal to 85 percent of the median cost of child care reported in the SIPP by all working families with children under 12 years old. Different medians are used, depending on the number and ages of the children.

This approach to work-related expenses assigns such expenses to more families than actually report incurring them. Nevertheless, expenses per family are, in the aggregate, lower with this method than when subtracting actual expenses.

**Incorporating the value of housing**

Many participants favored incorporating the value of housing in a new measure by making distinctions among the income needs of owners with substantial mortgages, owners with low or no mortgages, and renters. The current official poverty measure makes no such distinctions. The crux of the problem is that people who own a home outright or have low mortgages have more money to spend on other basic needs (such as food and clothing) than either renters or people with large mortgages.

The 1995 NRC report noted the complex and highly technical nature of discussions of these ownership distinctions. Many of the approaches involve accounting for the flow of services that owners obtain from their homes by adding a "rental equivalence value" or "imputed rent" to homeowners' incomes that would also be consistent with the value of housing represented in the thresholds. These terms refer to the estimated amount of money owners would receive if they rented out their homes. The value added is net of owners' spending on their mortgages, property taxes, and maintenance costs. The thinking is that if the rental equivalence value is not added to the homeowners' incomes, then people who own their homes with low or no mortgages would appear to be no better off than otherwise similar renters or homeowners with higher costs.

Workshop participants tended to favor incorporating the value of housing to homeowners in a new poverty measure, but there was little discussion concerning which exact method should be adopted, given the highly technical aspects of the methods available. Most participants also agreed that estimates of housing subsidies should be added to family resources.

**Data and other topics**

Most participants favored the continued use of the Current Population Survey as the main data source for poverty statistics. Although many agreed that the SIPP does a more thorough job of collecting income data, the SIPP currently has a few shortcomings. An important one is that many people—especially low-income households—drop out of the survey over the course of a panel, likely introducing some bias into the poverty estimates over time. This bias could be overcome by reintroducing "overlapping" panels (a strategy that was dropped after the 1993 panel), in which a new 3- or 4-year panel is implemented every year. Another shortcoming of the SIPP is that data have not consistently been released in a timely manner. These shortcomings are, however, potentially addressable.

A final statistical issue centered on the importance of operationalizing a single new poverty measure that is internally consistent and statistically defensible. Many of the workshop presentations noted that changes in one element of the measure (e.g., items to be included in the threshold) sometimes affect the subsequent implementation of another element (e.g., the construction of the equivalence scales).

**Areas for future research**

Workshop participants advocated developing improved methods for incorporating geographic adjustments to the thresholds and supported more research on whether equivalence scales should incorporate more than three parameters. Many participants favored eventually using SIPP data rather than CPS data as the main source for poverty statistics, but only if attrition problems are addressed and the data are released in a more timely manner.

Areas for future research also include the use of an alternative unit of analysis other than the official "family," intrahousehold resource allocation in nonfamily households, and the feasibility and practicality of accounting for wealth and/or household production (the work of a stay-at-home parent) in a new poverty measure. ■

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[1]C. Citro and R. Michael, *Measuring Poverty: A New Approach,* a report of the Committee on National Statistics of the National Research Council (Washington, D.C.: National Academy Press, 1995), p. 1.

[2]The workshop planning group consisted of Rebecca Blank and Timothy Smeeding (Co-chairs), David Betson, Graham Kalton, and Barbara Wolfe. Constance Citro, Michele Ver Ploeg, Michael Siri, and Tanya Lee of the National Academies helped organize the workshop and I served as the rapporteur. A more extended review is J. Iceland, *Experimental Poverty Measures: Summary of a Workshop* (Washington, D.C.: National Research Council, 2005), available from the National Academies Press or on-line at http://books.nap.edu/catalog/11166.html.

[3]Since its adoption, the official poverty measure has undergone minor changes; see Citro and Michael, *Measuring Poverty*, pp. 24–25.

[4]Citro and Michael, *Measuring Poverty*; D. Vaughan. "Exploring the Use of the Public's Views to Set Income Poverty Thresholds and Adjust Them over Time," *Social Security Bulletin* 56, no. 2 (1993): 22–46.

[5]K. Short, T. Garner, D. Johnson, and P. Doyle, *Experimental Poverty Measures: 1990 to 1997*, Current Population Report P60-205, U.S. Census Bureau, Washington, D.C.; K. Short, *Experimental Poverty Measures: 1999*, Current Population Report P60-216, U.S. Census Bureau, Washington, D.C., 2001.

[6]Many of these papers are available on a Census Bureau Web site. See http://www.census.gov/hhes/www/povmeas.html.

[7]Short, *Experimental Poverty Measures: 1999.*

[8]B. Proctor and J. Dalaker, *Poverty in the United States: 2002,* Current Population Report P60-222, U.S. Census Bureau, Washington, D.C., 2003.

[9]When compared to the two-parameter scale originally recommended by the 1995 NRC panel, the three-parameter scale provides more economies of scale between single adults and childless couples and more similarity between the scales for families of one parent and two children vs. two parents and one child.

[10]Short and colleagues, *Experimental Poverty Measures: 1990 to 1997*; Short, *Experimental Poverty Measures: 1999.*

[11]See, for example, Short, *Experimental Poverty Measures: 1999.*