Measuring Poverty and Economic Inclusion

The Current Poverty Measure, the NAS Alternative, and the Case for a Truly New Approach

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Executive Summary

In contemporary policy debates about the official poverty measure, two major criticisms are widely shared: 1) an *adequacy* critique—that the thresholds are set far below the income level needed to maintain a minimally adequate standard of living; and 2) a *resources* critique—that the measure fails to take into account certain non-cash and tax-based benefits.

In 1995, a panel of the National Academy of Sciences (NAS) proposed a methodological overhaul of the current poverty measure. During the last session of Congress, legislation was introduced that would adopt the NAS poverty measure as the nation's official statistical measure of poverty.

An NAS-based poverty measure addresses the resources criticism of the current poverty measure, but fails to address the adequacy critique. An NAS measure would likely produce an overall national poverty rate and thresholds that are not substantially higher than the current rate and thresholds. In most states, the number of people considered to be experiencing poverty likely would decline or stay about the same.

Even as a poverty measure that addresses the resources critique, the NAS measure raises some concerns that need to be studied further before it is adopted as an official poverty measure. In particular, there is reason to believe that NAS poverty rates for children and people with disabilities are too low when considered in relation to other demographic groups, and that adjusting poverty rates for geographic differences in housing costs results in a weakened relationship between state poverty levels and various state-level measures of well-being. These concerns do not mean that an NAS-based poverty measure should not be adopted at some point in the future, but they require further study before such a measure is adopted.

Recommendation

The United States should move away from a single, primary statistical measure of poverty and toward the kind of "tiered approach" to measuring poverty and economic inclusion adopted recently by the United Kingdom. A tiered poverty measure for the United States that addresses the limitations of both the official poverty measure and the NAS alternative should have three components:

- a fixed, inflation-adjusted poverty measure—this would be either a simplified version of the NAS poverty measure or some other poverty measure;
- a low-income measure set at 60 percent of median household income and adjusted annually to remain at this income level—this measure is roughly equal to the minimum income the public believes is needed to "get along" at a basic level;
- a measure of material deprivation and low income combined—this would measure the number of people with incomes below 60-80 percent of median income who experience at least two kinds of material deprivation, including food, health, and housing-related hardships.

Efforts to reduce poverty and social exclusion in the United States should aim for reductions in all three indicators.

Introduction

"...there is numerical simplicity...and plausibility in the notion that living at levels that are less than half those enjoyed by the typical American family is likely to be, for most, a bleak experience."
—Final Report of Expert Committee on Family Budget Revisions (1980:59)

"...Given the data inadequacies inherent in any income measure and the estimating errors that emerge, whatever definition is selected, the search for a single poverty line is utopian at best."
—Lester Thurow (1969:21)

Developed in the early 1960s and adopted as an official statistic by the Nixon Administration in 1969, the federal poverty measure is the primary and most prominent measure of income deprivation in the United States. Yet, ever since its development, it has been subject to considerable criticism. In contemporary policy debates about the official poverty measure, two major criticisms are widely shared: 1) an *adequacy* critique—that the thresholds are set far below the income level needed to maintain a minimally adequate standard of living, or to obtain what Adam Smith in his *Wealth of Nations* called "necessaries"[1] and equated the lack of with "a disgraceful degree of poverty"; and 2) a *resources* critique—that the measure fails to take into account certain non-cash and tax-based benefits, such as food stamps and the Earned Income Tax Credit, that have become increasingly important elements of social policy, as well as work-related expenses like child care and commuting costs.

In response to the adequacy critique (and, to a lesser extent, the resources critique), economists and other social scientists have developed a variety of alternative measures of income adequacy. These standards typically involve the construction of "basic family budgets."[2] Before the development of the poverty line in the 1960s, such budgets were the most common approach to setting income standards during the 20th century in the United States.[3] However, family budgets rarely used the term "poverty." Instead of being a poverty or minimum-subsistence standard, they were generally designed to reflect a "modest, but adequate" or a "lower" standard of living for working-class families.[4] The federal government continued to use and refine family budget standards after the poverty line was developed in the 1960s. In 1967, for example, it published three standards: a lower, intermediate, and higher budget standard. Over time, however, the poverty line effectively displaced these measures. This displacement was complete by 1981 when the Reagan Administration cut funding for their continued development and discontinued publication of annual updates.

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1 As Smith (1776: Book Five, Chapter II, Article Four: 1102-1103) puts it: "By necessaries I understand not only the commodities which are indispensably necessary for the support of life, but what ever the custom of the country renders it indecent for creditable people, even the lowest order, to be without. A linen shirt, is, strictly speaking, not a necessary of life. The Greeks and Romans lived, I suppose, very comfortably, though they had no linen. But in present times, through the greater part of Europe, a creditable day labourer would be ashamed to appear in public without a linen shirt, the want of which would be supposed to denote [a] disgraceful degree of poverty..."

2 For background on family budget standards developed in the 1990s and 2000s, see Fisher (2007: 6-8).

3 See Johnson and others (2001).

4 In fact, some of the policy makers involved in the development of these measures expressed concern that setting a poverty standard could be counterproductive. As Johnson and others (2001: 30) note, at the end of World War II: "Members of Congress expressed some apprehension that employers had, on occasion, used the relief-type budgets [sometimes referred to as a "poverty and subsistence budget"] as leverage against wage adjustments for 'average' workers."

In response to the resources critique (and, to a much lesser extent, the adequacy critique), various expert and intergovernmental panels have proposed modifications to the current poverty measure. Most recently, in 1995, a panel of the National Academy of Sciences proposed a methodological overhaul of the current poverty measure.[5]

The NAS poverty measure is an improvement in several respects on the current poverty measure. However, an NAS-based measure would likely produce an overall national poverty rate and poverty thresholds that are not substantially higher than the current rate and thresholds. In most states, the number of people considered to be experiencing poverty would likely decline or stay about the same. Thus, an NAS approach only addresses the resources criticism of the current poverty measure. Because it is likely politically infeasible to revise the current poverty measure in a way that results in substantially higher *poverty* thresholds or rates, the first criticism should be addressed by adopting a new basic income adequacy standard, one that is not labeled as a *poverty* measure. Various names for this new standard should be considered, including *at-risk of poverty* and *basic economic inclusion*.

Even as a poverty measure that addresses the resources criticism, the NAS measure raises some concerns that need to be studied further before it is adopted as an official poverty measure. In particular, there is reason to believe that NAS poverty rates for children and people with disabilities are too low when considered in relation to other demographic groups, and that adjusting poverty rates for geographic differences in housing costs results in a weakened relationship between state poverty levels and various state-level measures of well-being. These concerns do not mean that an NAS-based poverty measure should not be adopted at some point in the future, but they require further study before such a measure is adopted.

Developing an official measure of basic income adequacy—one that addresses the adequacy criticism of the current poverty measure—should be a top priority for the incoming Administration, and a "working definition" should be an integral element of their economic-recovery proposal. Instead of a poverty measure, this measure should be more consistent with historical understandings of what it means to have a "low income" or live at a "modest, but adequate" level in the United States as well as with public opinion on the necessary minimum "get-along" income—the amount that most Americans say is the "smallest level of income needed to get along" in their local communities. To be consistent with public opinion, an at-risk-of-poverty or economic-inclusion standard should be set at roughly 60 percent of median income.

Such a measure would put a spotlight, not only on poverty, but on the need to widen the doors to the middle class and improve economic security and opportunity for all Americans in roughly the bottom third of the income distribution. Americans in the bottom third currently have incomes that fall below the economic-inclusion level. These families represent the bulk of today's working class—most of them live in families supported by service-sector workers in low-wage jobs that provide few or no benefits,[6] and most of them—including the majority living below the federal poverty line—self-identify in economic terms as "working class" rather than "poor."[7]

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5 Citro and Michael (1995).

6 See, e.g., Boushey and Fremstad (2008).

7 What might be called the conventional anti-poverty framework—a way of thinking and talking about low-income status and policy that dates back to the early 1960s and remains dominant today—typically distinguishes "poor people" from the working class and middle class. Yet, survey evidence shows that the vast majority of people with incomes below the poverty line self-identify as either working class or middle class. According to my analysis using data from

Finally, an economic-inclusion standard should be adopted as part of a broader "tiered" approach to measuring poverty and economic inclusion. Such an approach should be modeled on the tiered child-poverty measure adopted by the United Kingdom in 2003. The UK measure has three components:

- a price-adjusted, low-income measure: fixed at 60 percent of median income for the baseline year of 1998/1999 and adjusted annually for changes in prices;

- an income-adjusted, low-income measure: set at 60 percent of median household income and adjusted annually for changes in median income (rather than prices); and

- a combined measure of material deprivation and low income: measuring the number of children living in households that are both "materially deprived" and have an income below 70 percent of median income.

For U.S. purposes, the NAS measure (ideally, a somewhat simplified version) could be substituted for the first tier, the second tier could remain unchanged, and the third tier should include indicators of housing, medical, nutritional and other forms of deprivation.

The first part of this report discusses the current official poverty measure and the approach to measuring poverty recommended by the NAS panel. After providing background on the current and NAS measures, it draws on Census Bureau research to detail how poverty rates would change, both overall and for various subgroups, under an NAS approach. Because current discussion "inside the beltway" about measuring basic income security is framed as a poverty measurement debate and starts with the NAS approach to poverty measurement, most of the analysis in this report focuses on the NAS recommendations.[8] The second part of the report makes the case for a new measure of economic inclusion, one that addresses the criticism that both the current and NAS-based poverty measures are set far below the minimum amount that most Americans believe is needed to "get along" in their local communities. The concluding section discusses the recommendation of a broader "tiered" poverty and economic-inclusion measure.

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the General Social Survey, some 46 percent of persons living below the poverty line self-identify as working class and 30 percent self-identify as middle class. Only about 20 percent describe themselves as "lower class." Similarly, when asked if they would identify themselves as "poor" in income terms, less than half of those with incomes below the poverty level do so. Finally, a survey conducted by Peter Hart and Associates found that "working class" was the term that low-wage workers thought best described themselves—some 2/3rds of low-wage workers thought it described them well; by comparison, only about 1/3 of low-wage workers said that "working poor" described them well (Molyneux. 2007). See also O'Connor (2001: 185), noting that the official poverty line "helped to establish the poor as a separate, easily identifiable social group" and used as part of a conceptualization of poverty that "routinely shunned class as a conceptual category."

[8] For example, during the last Congress, a House subcommittee held two hearings on updating the poverty measure. Representative Jim McDermott (D-WA) and Senator Christopher Dodd (D-CT) subsequently introduced bills— H.R. 6941 in the House and S.3636 in the Senate—that would require the Census Bureau to develop "modern poverty thresholds" based on the NAS recommendations. Similarly, a recent Brookings Institution/Hamilton Project discussion paper on poverty measurement recommends adopting the NAS approach (Blank and Greenberg, 2008).

Measuring Poverty: The Current Measure and the Leading Contender to Replace It

The Current Official Poverty Measure

The current official poverty measure was developed in the early 1960s by Mollie Orshansky, an economist with the Social Security Administration, used as a "working" definition of poverty by the Office of Economic Opportunity from 1965 and 1969, and adopted by the Nixon Administration as the federal government's official statistical definition of poverty in August 1969.[9] Only a handful of significant modifications have been made to the measure since it was introduced.

The current poverty measure has two main components:

1. **Poverty Thresholds**: Poverty thresholds are dollar amounts that are compared with a family's resources. If a family's resources fall below the threshold, they are considered to be living in poverty.

2. **A Definition of Resources**: A poverty measure must specify the types of resources that are counted in determining whether a family is below or above the threshold.

To construct poverty thresholds, Orshansky used the economy and low-cost food plans developed by the Department of Agriculture based on data from a 1955 food consumption survey.[10] The low-cost food plan reflected the food consumption of families in the bottom third of the income distribution; the economy plan reflected a lower standard, about 75 to 80 percent of the low-cost plan, for "temporary or emergency use when funds are low." She then multiplied the costs of these plans by three, based on a finding in the 1955 survey that families on average spend about a third of after-tax income on food. The lower thresholds based on the economy plan were ultimately adopted as the poverty line, although the higher thresholds based on the low-cost plan were Orshansky's preferred measure.[11]

Orshansky defined resources as gross money income, that is, cash income before taxes. At the time, this resources definition appears to have been uncontroversial, likely because in-kind and tax-based benefits for low-income families were modest. Neither the Earned Income Tax Credit nor a nationwide federal food stamp program (recently renamed the Supplemental Nutrition Assistance Program or SNAP), for example, existed when the original poverty measure was developed.

Since the early 1970s, government research panels and committees have made recommendations to change the thresholds and the resource definition. In 1973, for example, the Interagency Committee on Poverty Statistics recommended updating the thresholds every ten years to reflect changes in food consumption.

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[9] See Bureau of the Budget (1969) and Office of Management and Budget (1978).
[10] For a detailed history of the development of the poverty line, see Fisher (1997).
[11] Fisher (1997).

Despite these and other studies, few changes have been made to the current measure. For example, neither the thresholds nor the resource definition have been redefined to take into account changes in the composition of household spending or the creation and expansion of near-cash and tax-based assistance like food stamps and the EITC. Among the more limited changes made to the measure, the most notable are the adoption of the Consumer Price Index for all Urban Consumers (CPI-U) to update the thresholds and the elimination of separate thresholds for farm households and female-headed households.

The 1995 National Academy of Sciences Panel and Approach to Poverty Measurement

In 1990, Congress directed the Department of Labor's Bureau of Labor Statistics to work with the National Academy of Sciences[12] to develop appropriate methods of revising the official poverty measure. In 1992, the NAS Committee on National Statistics convened a panel of experts to develop recommendations for a revised measure. These recommendations were published in a 1995 report.[13]

The NAS panel concluded that a new poverty measure was needed and made twenty-five recommendations related to that measure. The most important recommendations (summarized in **Table 1**) address the development of poverty thresholds and the definition of resources.

Thresholds: Instead of relying solely on food consumption, the panel recommended basing poverty thresholds on a budget for three basic needs—food, shelter (including utilities), and clothing—and a small additional amount for certain other basic needs (it specifically mentioned non-work-related transportation, household supplies, and personal care).

Notably, the panel did not recommend a specific budget amount for these basic needs. It did, however, suggest a "reasonable range" informed by "analysis of consumer expenditure data, consideration of the values of other thresholds developed in recent years on the basis of alternative concepts, and our judgment" (Citro and Michael, 1995:146). The reasonable range recommended by the panel for food, shelter, and clothing for a family of four (two parents/two children) is 78 to 83 percent of the median expenditures on these items by all two-adult/two-children families (or, expressed, in percentile terms, the 30th to 35th percentiles of the distribution of spending on these items by two-adult/two-child families).

To allow for other basic expenditures like non-work-related transportation and personal care items, the panel concluded that adding between 15 to 25 percent of the budget for clothing, shelter, and

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[12] The National Academy of Sciences is one of about 100 congressionally chartered nonprofit organizations. The chartering process is "honorific in character" and tends to "provide an 'official' imprimatur and ... prestige" to the activities of a chartered organization. However, the charter "does not award any material governmental status to the nonprofit" nor signify "U.S. government approval" or supervision of the organization's activities (Moe 2004: 5).

[13] Citro and Michael (1995). Since then, researchers in several government agencies have conducted extensive research on the NAS approach to poverty measurement, including estimates of poverty under measures that implement the approach. In 2004, at the instigation of the Chief Statistician of the Office of Management and Budget and with funding from the Census Bureau, the NAS held a workshop attended by more than 60 analysts and researchers from government, academia, and nonprofit research institutions to discuss the state of research on the alternative measure. For a summary of the workshop, see Iceland (2005). Papers presented at the workshop are available at: http://www7.nationalacademies.org/cnstat/Workshop_on_Experimental_Poverty_Measures.html.

food was reasonable. The combined amount ends being roughly equal to the median expenditures on food, clothing, and shelter for all two-adult/two-child families. To adjust the thresholds for family size, panel recommended using an "equivalence scale" that assumes: 1) children consume less on average than adults, and 2) economies of scale in families mean that decreasing amounts should be added to the threshold for each additional family member.

TABLE 1. Major Differences Between Current Poverty Measure and the NAS Alternative

	Current Measure	NAS Recommendations
Poverty Threshold	Initial thresholds set based on "economy food plan" (derived from 1955 food consumption data) multiplied by three. Subsequent thresholds updated annually using the Consumer Price Index.	Thresholds should be based on a budget for food, clothing, shelter (including utilities and telephone), and an additional amount to allow for other needs (e.g., household supplies, personal care, and transportation not related to work). Threshold should be developed using actual consumer expenditure data and updated annually to reflect changes in expenditures on food, clothing, and shelter over the previous three years. Panel did not recommend a specific threshold to initiate the new measure, but concluded that a "reasonable range" was a dollar amount (in 1992 dollars) equal to the expenditures for food, clothing, and shelter by families somewhere between the 30th and 35th percentile of all two-adult/two-children families, with a multiplier of between 1.15 and 1.25 for other needed expenditures.
Resources Definition	Gross money income: Includes pre-tax earnings, unemployment compensation, workers' compensation, Social Security, Supplemental Security Income, public assistance, veterans' payments, survivor benefits, pension or retirement income, interest, dividends, rents, royalties, income from estates, trusts, educational assistance, alimony, child support, assistance from outside the household, and other miscellaneous sources. Excludes: non-cash benefits, including food stamps and housing assistance, Earned Income Tax Credit, capital gains and losses.	Money and near-money disposable income: money income included in current measure, *plus* near-money, non-medical in-kind benefits (including food stamps, housing assistance, school lunch, energy assistance), *less* out-of-pocket medical care expenditures (including health insurance premiums), income taxes and Social Security payroll taxes, actual child care costs for families in which there is no non-working parent, a flat amount per week worked to account for work-related transportation and miscellaneous expenses for each working adult, child support payments from the income of the payer.

The panel also recommended that the thresholds be adjusted for differences in the cost of housing across geographic areas. To make the adjustment they suggested applying a cost-of-housing index to the housing portion of the thresholds.

Resources: The panel recommended defining resources as cash and near-cash disposable income. This definition includes most in-kind benefits and the refundable portion of the EITC. They also recommended subtracting the following from resources: income taxes, payroll taxes, child-care expenses (for families with no non-working parents), work-related transportation expenses, and certain non-discretionary expenses, including out-of-pocket medical expenses.

The 2008 McDermott/Dodd Legislation

In September 2008, Senator Christopher Dodd (D-CT) and Representative Jim McDermott (D-WA) introduced legislation directing the Census Bureau, in collaboration with the Bureau of Labor Statistics, to develop a "modern" poverty measure. The legislation specifies most of the major elements of this measure, with the specifications based almost exclusively on the NAS recommendations.

Where the NAS specified a reasonable range for a revised poverty thresholds, the Dodd/McDermott legislation specifies a precise amount in the middle of that range: the 33rd percentile of the distribution of annual expenditures by two-adult/two-child families on food, clothing, and shelter (including utilities), plus 20 percent of this amount.

As with the original NAS recommendations, out-of-pocket medical expenses and various other work expenses would be subtracted from income, and non-medical cash, near cash, and in-kind benefits that help families meet food, clothing, and shelter expenses would be added to income.

The legislation also requires, to the extent possible, the development of separate thresholds based on housing status, one for families making rent or mortgage payments, and one for families who own their primary residence and do not have a mortgage.

Finally, the legislation directs the Census Bureau and BLS to contract with the NAS to develop and publish a method of calculating a "decent living standard threshold" defined as "the amount of annual income that would allow an individual to live beyond deprivation at a safe and decent, but modest, standard of living." Based solely on the legislative language, the nature of the difference between this "decency" standard and the poverty measure specified in the legislation is somewhat ambiguous, but the intent is clearly to develop a standard that is higher than the poverty standard.[14]

[14] In particular, the use of the term "decent" to distinguish this "modest" living standard from the new poverty measure is confusing. Poverty measures have historically been described as measures of the minimum income needed to lead a minimally *decent* life. See, e.g., Smith (1776: 1102-1103): "By necessaries I understand not only the commodities which are indispensably necessary for the support of life, but what ever the custom of the country renders it *indecent* for creditable people, even the lowest order, to be without .... the want of which would be supposed to denote [a] disgraceful degree of *poverty*." (italics added). At the time the current poverty line was developed, the 1964 Report of the Council of Economic Advisors (now known as the Economic Report of the President), in a chapter that laid out the Johnson Administration's rationale for the War on Poverty, explained: "By the poor we mean those who are not now maintaining a *decent* standard of living—those whose basic needs exceed their means to satisfy them" (Council of Economic Advisors, 1964: 57, emphasis added). More recently, Rebecca Blank, one of the nation's leading experts on

Finally, it should be noted that the executive branch could adopt a new poverty measure without legislation, as it did with the original poverty measure. There is good reason to believe that this would be the more likely route by which a new poverty measure is adopted.

An Unhelpful Distinction: "Absolute" vs. "Relative" Poverty Measures

Poverty measures are often classified as either "absolute" or "relative." For example, the current poverty measure is typically described as an absolute measure, the NAS approach is sometimes described as "quasi-relative", and measures set at a percentage of median income are often described as relative measures.

This distinction confuses more than it clarifies, particularly when it comes to developing a meaningful poverty measure in a wealthy nation. As Fisher (1992) explains, "one of the essential characteristics of a purely 'absolute' definition is that is it derived without any reference to consumption patterns or income levels of the population as a whole." According to this definition, the current poverty line is not a purely absolute measure since it is derived from consumption patterns. In fact, Mollie Orshansky, who developed the measure, referred to it as a "relatively absolute" measure of poverty.

Perhaps the closest things to purely absolute poverty measures in the United States are measures of homelessness and hunger (but not necessarily measures of food insecurity or rent burden). Few would argue, however, that either condition is necessary for someone to be counted as living in poverty.

A related problem with the distinction between relative and absolute is that it contributes to the mistaken impression that an absolute measure is more objective or concrete than a measure referred to as relative. Yet, so-called relative measures are tied to very objective and concrete consumption patterns and income levels. For these reasons, I generally avoid using the terms absolute and relative to describe poverty measures in this paper. I also avoid the use of the term "arbitrary" which is sometimes used to describe poverty thresholds, including the current poverty measure. All poverty measures used today in wealthy nations, including the current U.S. measure, imperfect as it is, have some rational basis and are not set by whim or caprice.

Instead of absolute and relative, I generally use the terms "isolated" and "connected" to distinguish between poverty measures. An isolated measure is one that attempts to measure poverty without any reference to general living standards. A connected measure views economic deprivation as connected to changes in typical living standards.

poverty explained: "'Living in poverty' suggests that a family has so little income that they are unable to purchase the things that we as a society think they need for a minimally *decent* life" (Blank, 2008:234, emphasis added).

Some Unresolved Questions: Why We Cannot Say Precisely What the Poverty Rate Would Be Under an NAS Approach

The approach to measuring poverty recommended by the NAS is an extremely complex one that requires numerous judgments to operationalize and, to a lesser extent, some data that do not currently exist in a reliable form. As a consequence, the poverty rate under an NAS approach will vary depending on these judgments and the availability and quality of the data needed to calculate it. In addition, since the NAS panel issued its recommendations in 1995, research and reflection on the recommendations has led to some rethinking of various elements. The McDermott/Dodd legislation makes some of these judgments, but leaves other to the executive branch.

Most recently, the Census Bureau published alternative poverty estimates based on twelve different variants of an NAS measure, and analysts have developed additional NAS-based measures beyond these twelve (earlier Census publications included as many as twenty-four different variants). As I discuss in the next section, depending on which of these measures is used, the overall poverty rate and rates for various subgroups under an NAS approach could go either up or down relative to the current measure.

Among the major questions and issues involved in operationalizing the NAS approach to poverty measurement are the following:

Setting the Thresholds: Instead of specifying the specific dollar amount for the poverty threshold, the NAS recommended a "reasonable range." According to the panel, the range was "informed by our analysis of thresholds that result from a variety of concepts in the published literature and is consistent with our recommendation to update the thresholds in a conservative manner."[15] The panel also noted that it "cannot claim scientific backing for the ranges of values that we conclude are reasonable ... or for the reasonableness of the ranges we suggest both in terms of what these amounts would buy and in comparison with other thresholds."[16]

Even if one agrees that the NAS range is reasonable, a precise value rather than a range is needed to operationalize the NAS measure. Poverty estimates produced using the NAS approach have generally used the midpoint of this range, as does the McDermott/Dodd bill, but justifications could be put forward to set the thresholds higher or lower than that midpoint.

More generally, depending on how one wants to define poverty (or related terms like low income), reasonable justifications could be put forward to set the range itself higher or low. For example, if the poverty line were set in a manner with a historical understanding of what it means to have a *low* income (compared with a middle or high income) or to lack a "modest, but adequate" income, the range would be considerably higher.[17]

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[15] Citro and Michael (1995: 106).

[16] Citro and Michael (1995: 152-153).

[17] For example, 75 percent and 80 percent of median income are often used as a dividing line between "low" and "middle" incomes. By comparison, the NAS poverty measure is equal to roughly 30 percent of median income.

Adjustment for Housing Cost Differences: The NAS panel recommended adjusting for geographic differences in housing costs. Because housing is the largest category of expenditures in most families budgets, and given the general public understanding that housing costs vary by area, there are good arguments for making such an adjustment, particularly in cities with very high housing costs. However, subsequent research suggests that the geographic adjustment recommended by the panel has various limitations.[18] And many observers believe that such adjustments are "politically infeasible"[19] because they would change state poverty rates in ways that could result in reduced federal funding, particularly, as discussed later in this paper, for certain relatively poor states.

Regardless of feasibility, there are additional important arguments against geographic adjustments. States and areas with higher housing costs may provide more generous benefits to low-income families, some of these benefits may be reflected in a poverty measure, others, such as medical care and various forms of educational assistance, likely will not. In addition, geographic differences in housing costs may partly reflect differences in housing quality.[20] Finally, there is good reason to believe that some areas with higher housing costs also have better "locational amenities," such as better schools and post-secondary institutions, recreational opportunities, greater access to quality medical care, and more public transit options.[21] If these amenities improve the quality of life for people living in lower-income brackets, a poverty measure that includes a geographic adjustment for housing costs may not reflect geographic differences in well-being. An important question here, as John Ruser of the Bureau of Economic Analysis has raised, is whether "people who live in low-cost areas should have a lower poverty threshold (which makes them less likely to be poor) if they live in an undesirable place."[22]

Treatment of Medical Needs and Expenses: The NAS panel recommended subtracting out-of-pocket medical expenses from resources. Subsequent research and discussion has centered around two related issues: 1) should medical expenses be limited to actual expenses, even for people who are uninsured and may "under spend" relative to their medical needs, or should they be based on "expected" medical needs given health and demographic characteristics?; and 2) should medical expenses be subtracted from resources or treated as a basic need akin to shelter and food and included in the thresholds?

Updating the Thresholds: The NAS panel recommended updating the thresholds annually by using the three most recent years of consumer expenditure data to determine the median expenditure level on the sum of food, clothing, and shelter for two-adult/two-child families. The updated threshold would be set using whatever percentage of median expenditures had been selected for the initial year's threshold and applying the selected multiplier. To evaluate the behavior over time of this measure and method of updating, the panel also recommended producing a second set of poverty rates based on the same initial expenditure level but updated annually using the CPI.

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[18] See Short (2001b). Short concluded that estimates based on the original NAS methodology resulted in implausibly high poverty rates for some areas.

[19] See, e.g., Iceland (2005: 16), noting that economists Timothy Smeeding and Rebecca Blank agreed with geographic adjustment in principle, but thought that current adjustment methods were "too crude, especially in light of the fact that these adjustments have a substantial effect on state-level poverty rates—a politically sensitive issue."

[20] See General Accounting Office (1995).

[21] Malpezzi (1996).

[22] Iceland (2005: 15).

Using consumer expenditure data to update the thresholds has both strengths and weaknesses. As Constance Citro (2004) notes, it would make it "difficult to assess [poverty] going back in time" and might make the thresholds more volatile from year to year.[23] On the other hand, if the initial threshold is based on consumer expenditure data for a limited set of basic goods, using that same data to update the thresholds is more consistent than using the CPI.

Treatment of Homeownership: One of the more complex issues left unresolved by the panel involves the definition of shelter expenses for purposes of the thresholds. Questions include whether to include mortgage payments and whether to subtract the rental value of a home from resources. The panel noted that a preferable definition of shelter expenditures would include mortgage payments, property taxes, insurance, and maintenance and repairs" as well as "an imputed amount for the estimated rental value of a home net of such outlays."[24] However, it ultimately decided against imputing rental value because of various practical difficulties in accurately calculating it, and instead recommended additional research.

Estimating Child-Care Expenses: Similar to the treatment of medical expenses, a main issue here is whether to base child-care expenses on actual expenses or expected child-care needs.

Adjusting the Reference Family Threshold for Family Size: The panel recommended that thresholds for family sizes other than four persons be derived using an equivalence scale to scale up the four-person threshold for larger families and down for smaller families. The equivalence scale recommended by the panel assumes children consume 70 percent as much as adults, and that there are economies of scale as household size increases. Under this approach, the poverty threshold for a two-adult family will be greater than the threshold for a single parent with a child. However, subsequent research suggests that a single parent with a child should be treated similarly to a childless couple.[25]

[23] This is because thresholds derived from consumer expenditure data will have higher sampling errors than thresholds adjusted with the CPI.

[24] Citro and Michael (1995: 148).

[25] See Iceland (2005: 13), discussing research by David Betson.

Variation in NAS Poverty Rates

The most recent NAS-based poverty estimates published by the Census Bureau are for 2006 and include three tables: 1) estimates for 2005 and 2006 using 12 different versions of an NAS-based rate; 2) estimates by region and certain demographic characteristics using six of the 12 different versions used in the 2005-2006 table; and 3) a time series from 1999 to 2006 using the same 12 versions used for the 2005 and 2006 estimates.[26] In addition, a recent Bureau of Labor Statistics working paper by Thesia Garner of BLS and Kathleen Short of the Census Bureau provides a time series for 1996 to 2005 based on a single alternative measure.[27]

Reflecting some of the ongoing debates about how to operationalize the NAS recommendations, the twelve measures in the Census Bureau tables differ in three respects:

- half of the measures set and update thresholds using data from the Consumer Expenditure survey; the other half use Consumer Expenditure data to set the initial thresholds, but update them using the CPI-U;
- half of the measures adjust for geographic differences in shelter costs and half do not;
- four of the measures subtract medical expenses from resources, four include medical expenses in the thresholds, and four use a combination of these methods.[28]

All of the measures in the Census tables exclude payments for mortgage principle and imputed rent from the thresholds, and count the value of housing subsidies, school lunch, and home energy assistance as resources.

The BLS working paper does not adjust for geographic differences, includes medical expenses in the thresholds, and does not count housing subsidies, school lunch, or energy assistance as income. It also includes payments for mortgage principle, but does not include imputed rent. Finally, it uses an equivalence scale (applied to the non-medical part of the threshold) that includes an adjustment for single parents.

Overall Rates

As **Table 2** shows, the poverty rate for 2006 is higher than the official poverty rate using all but one of the alternative rates in the Census tables (the one exception is 0.1 of a percentage point lower than the current rate). The Census measure most similar to the one in the McDermott/Dodd legislation—a measure that updates thresholds using consumer expenditure data, adjusts for geographic differences in costs of living, and subtracts out-of-pocket medical expenses from income—is 1.3 percentage points higher in 2006 than the official measure, and 1 percentage point higher on average over the 1999-2006 period. However, the 1999 rate (based on expenditures from 1996-1998) is only 0.2 of a percentage point higher than official rate, suggesting that the difference

26 U.S. Department and Commerce, Census Bureau, (2006). Tables of Alternative Poverty Estimates.
27 Garner and Short (2008).
28 The combined measure includes an estimate of "expected" medical out-of-pocket value in the thresholds and subtracts net medical out-of-pocket expenses from family income. See Short (2001).

between the official and NAS rates in subsequent years may be due in part to the bubble in housing prices that started to emerge at the end of the 1990s, and, thus, may narrow over time as prices fall.

TABLE 2. Comparison Between the Official Poverty Measure and NAS-Based Poverty Measures

Official Poverty Measure			1999	2000	2001	2002	2003	2004	2005	2006
			11.9	11.3	11.7	12.1	12.5	12.8	12.6	12.3
NAS-based Poverty Measures										
Thresholds adjusted annually using:	**Thresholds adjusted for geographic differences in housing costs:**	**Treatment of out-of-pocket medical expenses**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
CPI-U	Yes	Subtracted from income	12.1	12.0	12.2	12.1	12.3	12.5	12.5	12.2
		In threshold	12.7	12.5	12.5	12.6	12.7	13.0	13.0	12.6
		Combined method	12.8	12.6	12.8	12.7	12.9	13.2	13.1	12.9
	No	Subtracted from income	12.2	12.1	12.3	12.3	12.4	12.7	12.6	12.4
		In threshold	12.8	12.7	12.7	12.8	12.7	13.1	13.0	12.8
		Combined method	12.9	12.8	12.9	12.9	13.0	13.3	13.3	13.0
Consumer Expenditure data	Yes	Subtracted from income	12.1	12.3	12.9	13.2	13.4	13.4	13.3	13.6
		In threshold	12.7	12.8	13.2	13.7	13.9	14.0	14.1	14.1
		Combined method	12.8	12.8	13.1	13.4	13.7	13.9	13.9	14.0
	No	Subtracted from income	12.2	12.5	13.0	13.4	13.5	13.4	13.5	13.7
		In threshold	12.8	13.0	13.4	13.9	14.1	14.1	14.2	14.2
		Combined method	12.9	13.0	13.2	13.7	13.9	13.9	14.0	14.1

Source: U.S. Department of Commerce, Census Bureau (2006). Tables of Alternative Poverty Estimates.

In general, adjusting the thresholds using the CPI results in poverty rates that are roughly similar or modestly higher than the current rate. None of the CPI rates adds more than 0.7 of a percentage point to the current rate, two are less than 0.3 of a percentage point higher than the current rate, and one is 0.1 of a percentage point lower. By contrast, all of the measures that adjust thresholds using consumer expenditure data increase the poverty rate by between 1 to almost 2 percentage points.

Adjusting for geographic differences in housing costs has relatively little impact on overall poverty rates. The overall NAS rates that adjust for geographic differences in housing costs are generally lower than the ones that do not (although this difference amounts to only 0.1 to 0.2 of a percentage point). Discussion of the need for such adjustments has focused on how the current poverty measure undercounts poverty in high-cost cities like New York City. For example, according to a recent estimate by New York City government analysts, the 2006 poverty rate would increase from 18 percent to 23 percent in New York City using an NAS-style measure.[29] However, an NAS approach also implies that the current poverty measure *over counts* poverty in states and areas with

[29] See New York City Center for Economic Opportunity (2008).

lower than average housing costs (state-level NAS poverty rates illustrating this effect are discussed further below). Thus, poverty would fall in certain areas using an NAS measure.

Moving from alternative thresholds that subtract medical expenses to ones that include them in the thresholds increases poverty rates by 0.4 to 0.5 of a percentage point. The combined approach increases the CPI-based measures by an additional 0.2 to 0.3, while the consumer expenditure measures drop by 0.1.

Compared to the rates in the Census tables, the alternative poverty rate in the BLS working paper is something of an outlier. The rate is 5 percentage points higher in 2005 and 2006 than the official poverty rate, and more than 3 percentage points higher than any of the alternative rates in the Census tables. Because the other CE-updated measures include the same estimates of food and clothing consumption, this change is likely largely driven by the inclusion of mortgage principal payments in the threshold and the exclusion of imputed rent. One consequence is that this measure may overstate the economic insecurity of homeowners relative to that of renters.

While the CE-updated measures are generally higher (and grow at a faster rate) than the CPI-updated measures, particularly the BLS working paper measure that includes mortgage payments, this trend will not necessarily continue over the short term. Growth in median expenditures on housing in the United States is likely to slow with the bursting of the housing bubble.

Differences in Poverty Rates for Specific Demographic Groups and Areas

The Census tables include poverty rates for people by family type, age, race and Hispanic origin, and region. Unlike the overall poverty rates in the Census tables, the poverty rates are limited to the six CPI-based alternative measures.

- The poverty rates for married-couple families increase by between 0.4 to 0.9 of a percentage point. Averaging across the six alternative measures, the alternative rate is about 0.6 of a percentage point higher than the official rate.

- The poverty rates for families with a female householder and no husband decrease by between 1.6 to 3.7 percentage points. Averaging across the six alternative measures, the alternative rate is about 2.5 percentage points lower than the official rate.

- The poverty rate for children decreases by 2.2 to 3.5 percentage points under the alternative measures. The decline on average is 2.8 percentage points. By contrast, the poverty rate for the elderly increases by 3.1 to 6.7 percentage points. On average, the alternative rate for the elderly is more than double the current rate.

- The poverty rate for blacks declines by 2.6 percentage points on average, while the rates for whites, Asians, and Latinos increase in nearly all cases.

- The poverty rate for people living the West increases by 1.8 percentage points on average. For people in the Midwest, it declines on average (by 0.5 of a percentage point), while that for the Northeast increases (by 0.6 of a percentage point). The South remains about the same (although, as discussed below, there are substantial changes in certain Southern states).

TABLE 3.

	Official Poverty Rate	NAS Poverty Rates						Average of NAS Rates	Difference between Official Rate and Average of NAS Rates
		No Geographic Adjustment for Housing Costs			Thresholds Adjusted for Geographic Differences in Housing Costs				
		Treatment of Medical Expenditures							
		Subtracted from Income	Included in Thresholds	Combined Method	Subtracted from Income	Included in Thresholds	Combined Method		
All people	12.3	12.4	12.8	13	12.2	12.6	12.9	12.7	0.35
People in families	10.6	10.4	10.9	10.9	10.3	10.8	10.9	10.7	0.1
People in married-couple families	5.7	6.1	6.4	6.4	6.1	6.4	6.6	6.3	0.6
People in families with a female householder, no husband present	30.5	27.4	28.7	28.9	26.8	28	28.1	28	-2.5
People in families with a male householder, no wife present	13.8	15.9	16.4	16.6	15.1	15.8	16	16	2.2
Age									
Under 18 years	17.4	14	15.2	14.7	13.9	15	14.7	14.6	-2.8
18 to 64 years	10.8	11.2	11.8	11.7	11.1	11.7	11.7	11.5	0.7
65 years and over	9.4	15.2	12.9	16.1	14.7	12.5	15.5	14.5	5.1
Race and Hispanic Origin									
White alone	10.3	10.9	11.2	11.4	10.7	11.1	11.3	11.1	0.8
Non-Hispanic White alone	8.2	9	9.1	9.5	8.4	8.4	8.8	8.9	0.7
Black alone	24.3	21.6	22.5	22.5	20.6	21.4	21.8	21.7	-2.6
Asian alone	10.3	10.7	11.1	11.1	13.3	13.7	13.8	12.3	2
Hispanic (of any race)	20.6	19.6	21	20.5	21.9	23.7	23.4	21.7	1.1
Region									
Northeast	11.5	10.8	11	11.3	12.7	13.1	13.5	12.1	0.6
Midwest	11.2	11.3	11.6	11.8	9.7	9.8	10.1	10.7	-0.5
South	13.8	14.4	14.8	15.1	12.3	12.7	12.8	13.7	-0.1
West	11.6	11.7	12.1	12.2	14.3	14.9	15.2	13.4	1.8

Source: U.S. Department of Commerce, Census Bureau (2006). Tables of Alternative Poverty Estimates.

The BLS working paper provides poverty rates for five demographic groups: children, non-elderly adults, the elderly, whites, and blacks. The direction and magnitude of these rates differs significantly for children and blacks relative to the Census Bureau tables. In both cases, the rates increase, instead of decreasing as they did using the NAS-style measures in the Census tables.

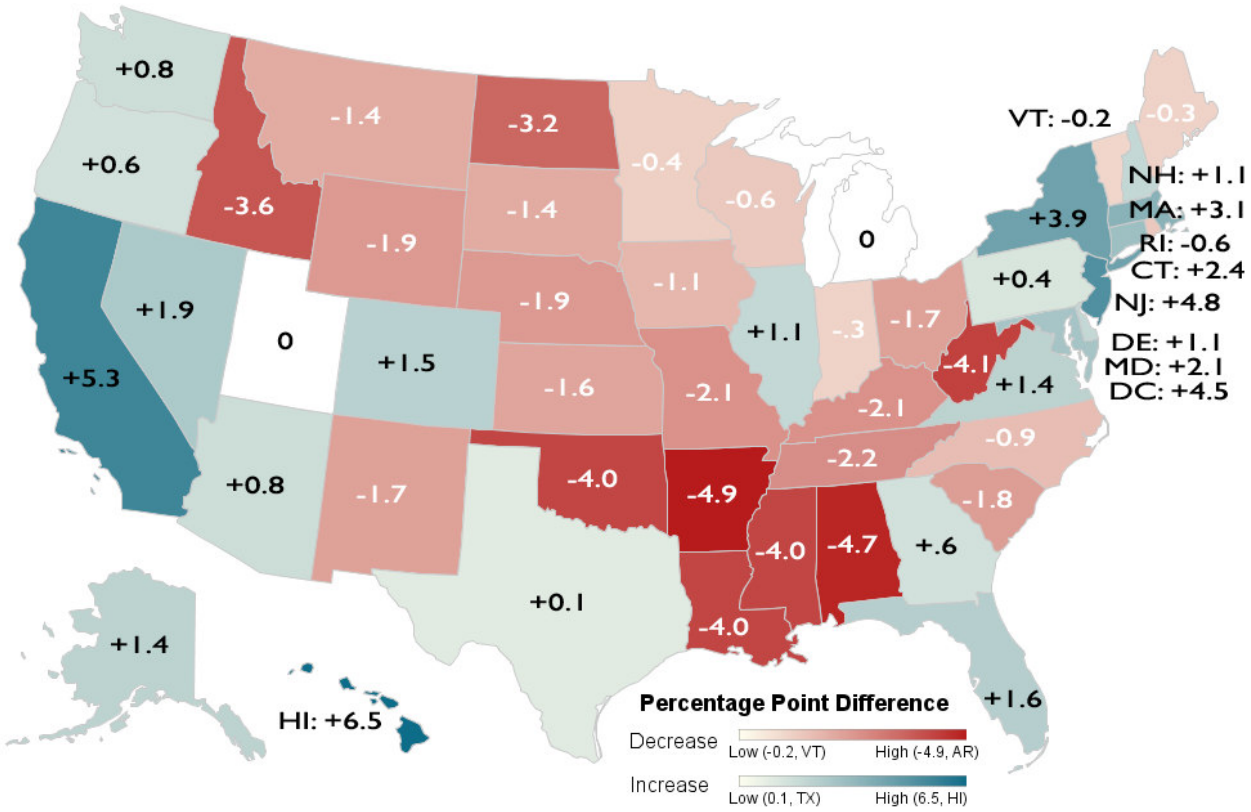
There are additional areas of potential changes in poverty rates not captured in the most recent Census Bureau/BLS estimates. Earlier research by government analysts examines some of the differences in the 1990s. Three are particularly notable: state poverty rates, rural/metro poverty rates, and poverty rates for persons with disabilities.

Rural/Metro: One study using an NAS-style measure with an adjustment for geographic differences in housing costs finds that poverty rates in non-metro areas would decrease by 3 percentage points and increase by 1 percentage point in metro areas.[30] The greatest decline (about 4 percentage points) would be in the non-metro South.

[30] Nord and Cook (1995).

States: The most recent study examining state-level differences in poverty rates using an NAS measure finds that poverty rates in 16 states (including the District of Columbia) would increase by more than 1 percentage point, and decrease in 20 states by more than 1 percentage points (see **Figure 1** for percentage-point change, and **Appendix Table 1** for official and NAS rates by state). In the remaining 15 states, rates would decline by less than a percentage point in seven states, stay the same in two states, and increase in six states. The most notable changes, reflecting the rural/metro shift, are in the more rural Southern states. Poverty rates would drop by 4 or more percentage points in Alabama, Arkansas, Louisiana, Mississippi, and West Virginia.[31] By comparison, poverty rates would increase by roughly 4 percentage points or more in California, New Jersey, and New York. California would go from having a lower poverty rate than the five Southern/Appalachian states mentioned above to having a higher one.

FIGURE 1. Percentage Point Change in State Poverty Rates Under an NAS Measure, 1999-2001

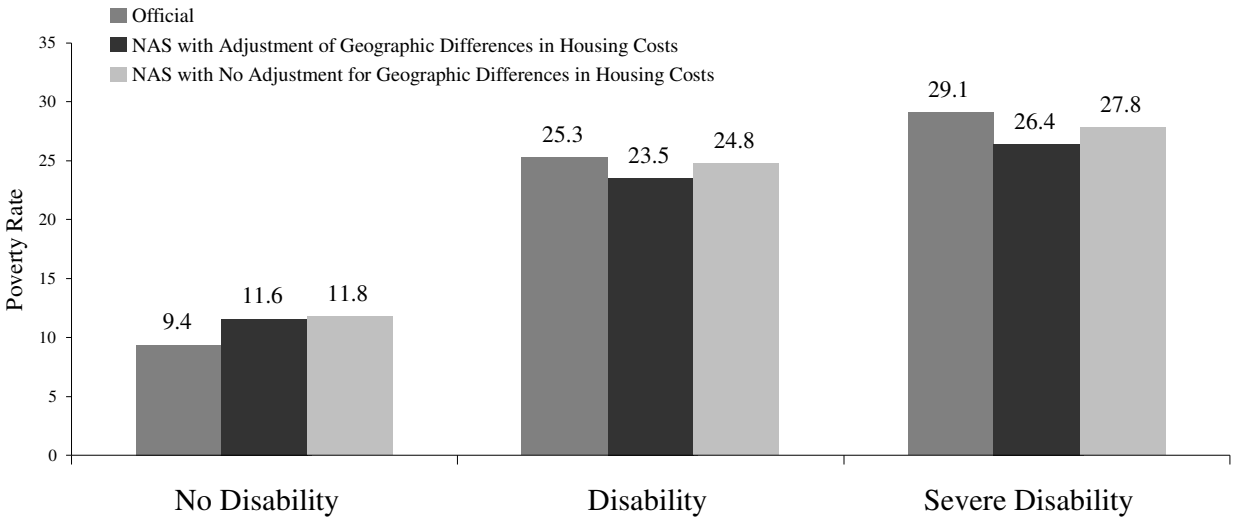


Source: Nelson and Short (2003)

Persons with Disabilities: As **Figure 2** shows, the poverty rate for persons with disabilities would decline using an NAS-style measure and the poverty rate for persons without disabilities would increase. The increase in poverty for the non-disabled is primarily due to the inclusion of work-related expenses.[32] The decrease in poverty for people with disabilities is most likely due to counting food stamps and other in-kind benefits as income. In general, people with disabilities are more likely to receive such benefits than people without disabilities.

[31] Nelson and Short (2003). See also Nelson (2004).
[32] Short and others (1999) and Short and Iceland (2000).

FIGURE 2. Official and NAS Poverty Rates by Disability Status, 1997



Source: Short and others (1999).

Implications

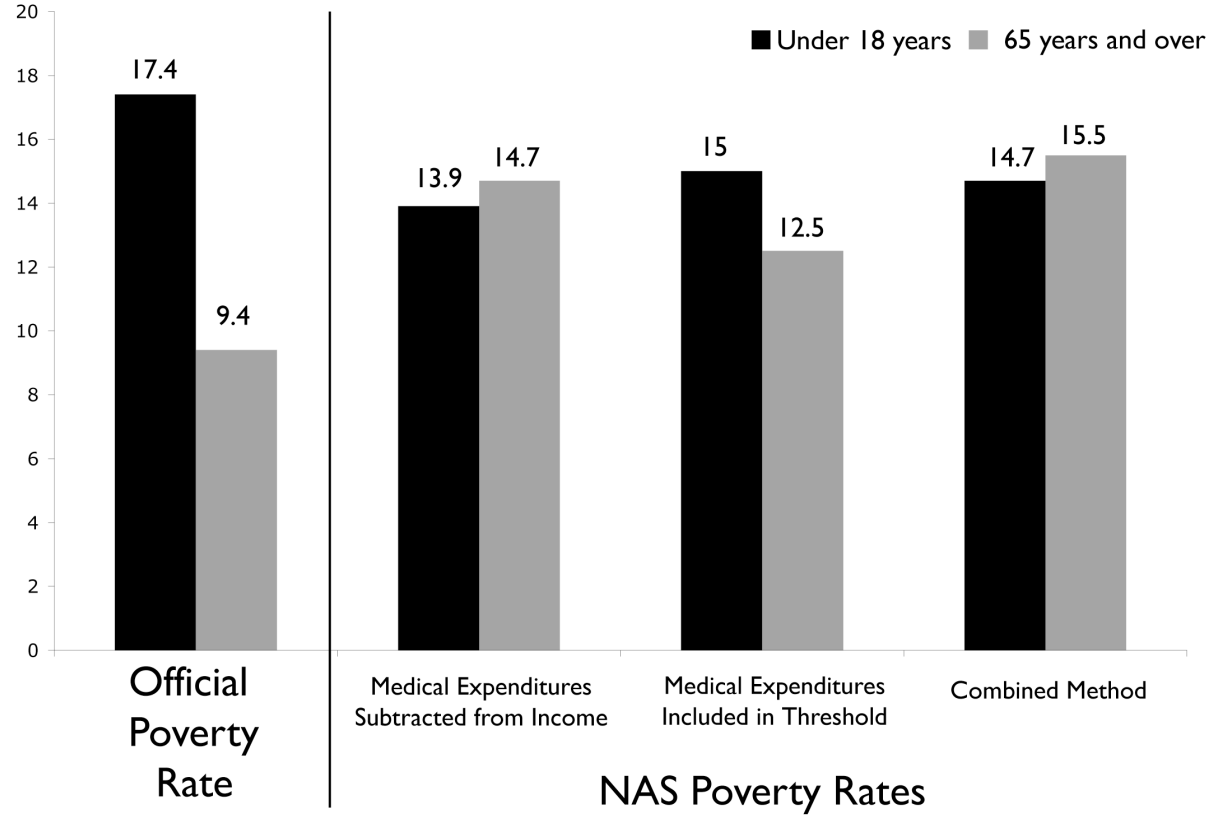
Changes in subgroup and sub-national poverty rates are not necessarily a concern, particularly if the changes are due to improvements in the accuracy of a poverty measure. However, changes that appear contrary to other evidence about the distribution of basic-needs deprivation deserve further scrutiny. Assessment of these changes may also help in making judgments about the design of various elements of a poverty measure.

Most of the changes in subgroup and sub-national poverty rates seem unremarkable, but three changes require further analysis: the decline in poverty rates for people with disabilities, the decline (or limited change) in poverty for children, and certain changes in state-level poverty rates, particularly substantial declines in poverty in more rural Southern states.

Does the NAS Approach Measure Child Poverty Rates Accurately?

As **Figure 3** shows, the current child poverty rate for 2006 is 17.4 percent and the elderly poverty rate is 9.4 percent. The size of the increase in the elderly poverty rate under an NAS approach—about 50 percent averaged across all six measures—is quite striking. By comparison, the child poverty rate would decline by about 16 percent on average. Under four of the NAS measures used in the Census tables, the elderly poverty rate would be higher than child poverty rate, and averaged across all six rates would be about the same. The alternatives that subtract medical expenses from resources all result in an elderly poverty rate that is higher than the child poverty rate, while those that include medical expenses in the thresholds result in an elderly rate that is lower than child rate. While the child poverty rate in the BLS working paper increases, it still ends up being slightly lower than the elderly poverty rate.

FIGURE 3. Child and Elderly Poverty Rates Under Current Poverty Measure and NAS Alternative Measures, 2006



Source: U.S. Department of Commerce, (2006). Tables of Alternative Poverty Estimates.

The increase in the elderly poverty rate is largely due to the inclusion of out-of-pocket medical expenses in an NAS-style measure. Only about 2 percent of the elderly are uninsured compared to 15 percent of the overall population, and the elderly are somewhat less likely to have out-of-pocket medical expenses than the non-elderly, but their out-of-pocket expenses are much higher.[33]

Considered in isolation, the increase in the elderly poverty rate is unobjectionable and is arguably an important indicator that more attention needs to be paid to poverty among the elderly. However, when considered in relation to the decrease in child poverty (or smaller increase, depending on the precise NAS-style measure used), it raises a question about whether the resulting rates are consistent with differences in other forms of economic hardship between children and the elderly.

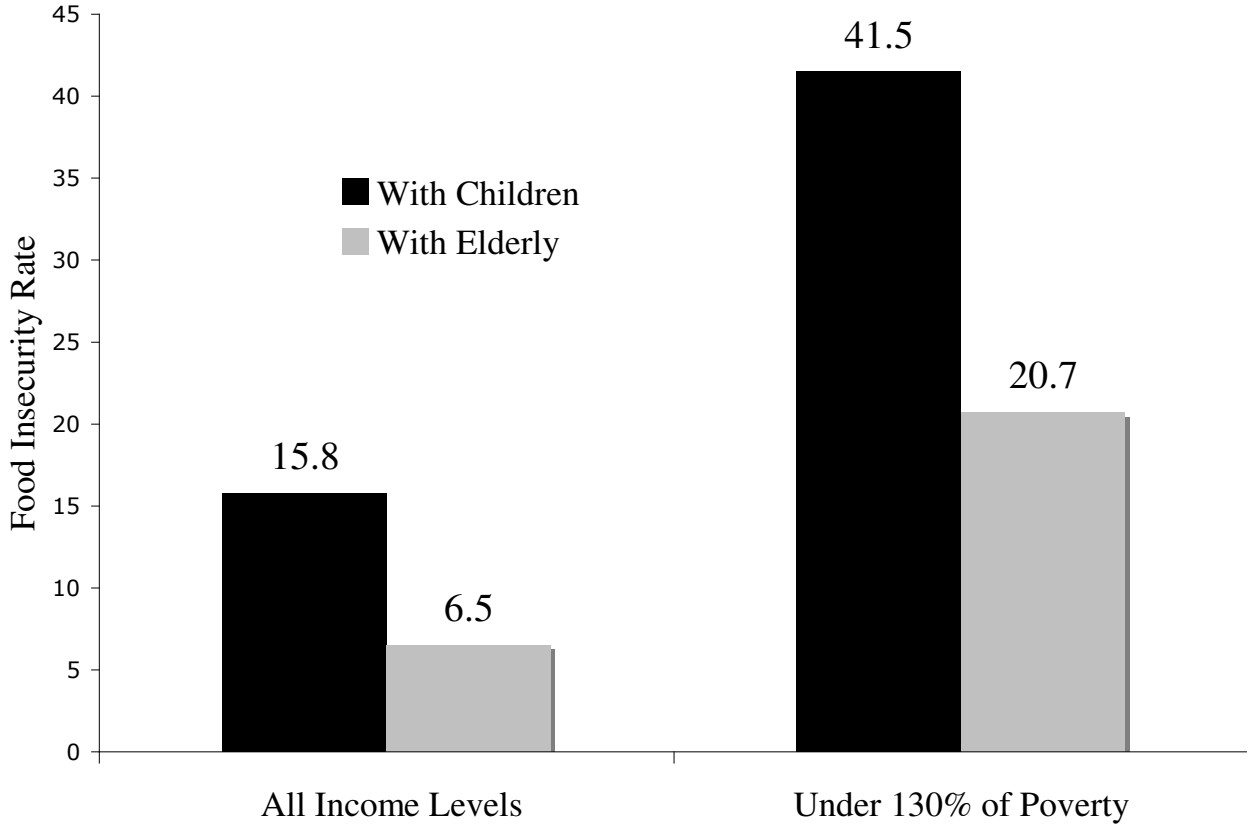
In general, the elderly experience much lower rates of economic hardship than children and families with children. As **Figure 4** shows, in 2007, 15.8 percent of households with children were food insecure compared to 6.5 percent of households with elderly persons.[34] Similarly, the elderly make up a much smaller share of the population suffering from various economic hardships—measured using an index of material hardship, an indicator of high debt, and responses to a survey question

[33] See, e.g., U.S. Department of Health and Human Services (2000).
[34] Nord, Andrews, and Carlson (2007: 16).

about inability to meet expenses—than they do of the population living in poverty under either the official or an NAS-style measure.[35]

This suggests that the NAS poverty rate for children may be too low, or, conversely, that the rate for the elderly may be too high. The former seems more likely. The NAS method as applied to the elderly is conceptually sound, but flawed when applied to children because of its extremely narrow definition of necessities. A bicycle and toys, for example, are properly considered necessities for children,[36] but the NAS approach makes no allowance for necessities other than food, clothing, shelter, certain work-related expenses, and a "small additional amount for other needs (e.g., household supplies, personal care, non-work-related transportation)."[37] Consideration should be given to increasing the multiplier to account for these other necessities for households with children, or to increasing the equivalence-scale factor for children.

FIGURE 4. Food Insecurity Among Children and Elderly



Source: USDA (2008).

[35] Short (2003). See also Mirowsky and Ross (1999) finding that the elderly are less likely to have trouble paying bills, and U.S. Department of Commerce (2003).

[36] Survey data finds that a majority of the public in the United Kingdom view these items as basic necessities for children. Gordon (2000). There is no reason to believe that U.S. public opinion would differ in this regard. See also Ginsburg (2007) for a discussion of the ways in which play is essential to children's development and maintaining strong parent-child bonds.

[37] Citro and Michael (1995: 4).

Does the NAS Approach Accurately Measure Poverty in Certain Appalachian and Deep Southern States?

Under an NAS-style measure, the largest declines in poverty (more than 4 percentage points) occur in Louisiana, Mississippi, Arkansas, West Virginia, and Alabama. These states would go from having the 2nd, 3rd, 4th, 6th, and 8th highest state poverty rates to having the 9th, 13th, 18th, 17th, and 27th highest rates, respectively.[38] These declines are surprising given these states' performance on other measures of human development. For example, these five states have the lowest rankings on the American Human Development Index (American HDI), a multi-dimensional index of well-being based on health, education, and living standards.[39] Since the living standards component of a state's HDI score is based on median earnings without any adjustment for geographic differences in housing costs, some may argue that the HDI underestimates well-being in states with low housing costs. However, if one calculates an HDI based on health and education alone, the same states remain at the bottom (only Arkansas moves out of the bottom five, to the sixth lowest position).

This raises a related question: does an NAS measure that adjusts for differences in housing costs strengthen or weaken the state-level relationship between poverty and measures of well-being and economic hardship, such as the HDI Health and Education Index or a measure of food insecurity? The first two scatterplots below (**Figures 5A and 5B**) show how the relationship between state poverty rates and state-level HDI Health and Education Indices change when the alternative poverty rate is substituted for the official poverty rate. The next two scatterplots (**Figures 6A and 6B**) do the same for poverty and food insecurity. In both cases, the relationships weaken when NAS poverty rates are substituted for official poverty rates. In other words, official state poverty rates are better correlated with a health and education index and food insecurity rates than are NAS poverty rates.

Finally, it is worth noting that the NAS approach, while adjusting for housing costs, does not take housing quality into account. This has particular implications for the non-metro South. According to the Housing Assistance Council, "the rate of substandard housing in the non-metro South is more than double that of any region of the country, and 63 percent of all rural substandard housing units are located in the South."[40]

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[38] Nelson and Short (2003).

[39] Health is measured using average life expectancy at birth, education is measured using educational-degree attainment for the population twenty-five years or older and school enrollment for the population age three or older, and living standards are measured using median earnings of all full-time workers sixteen years or older. For more on the HDI, see Burd-Sharps, Lewis, and Martins (2008) and the website of the American Human Development Project, http://measureofamerica.org/. The HDI was developed by The American Human Development Project, an independent, non-profit initiative of Oxfam America, the Conrad N. Hilton Foundation, The Rockefeller Foundation, and the Social Science Research Council.

[40] Housing Assistance Council (2002: 30). See also Mosley and Miller (2004: 9): finding higher rates of housing-related hardship in the South and West among families below 200 percent of poverty.

FIGURE 5A. Official State Poverty Rates by Health and Education Index

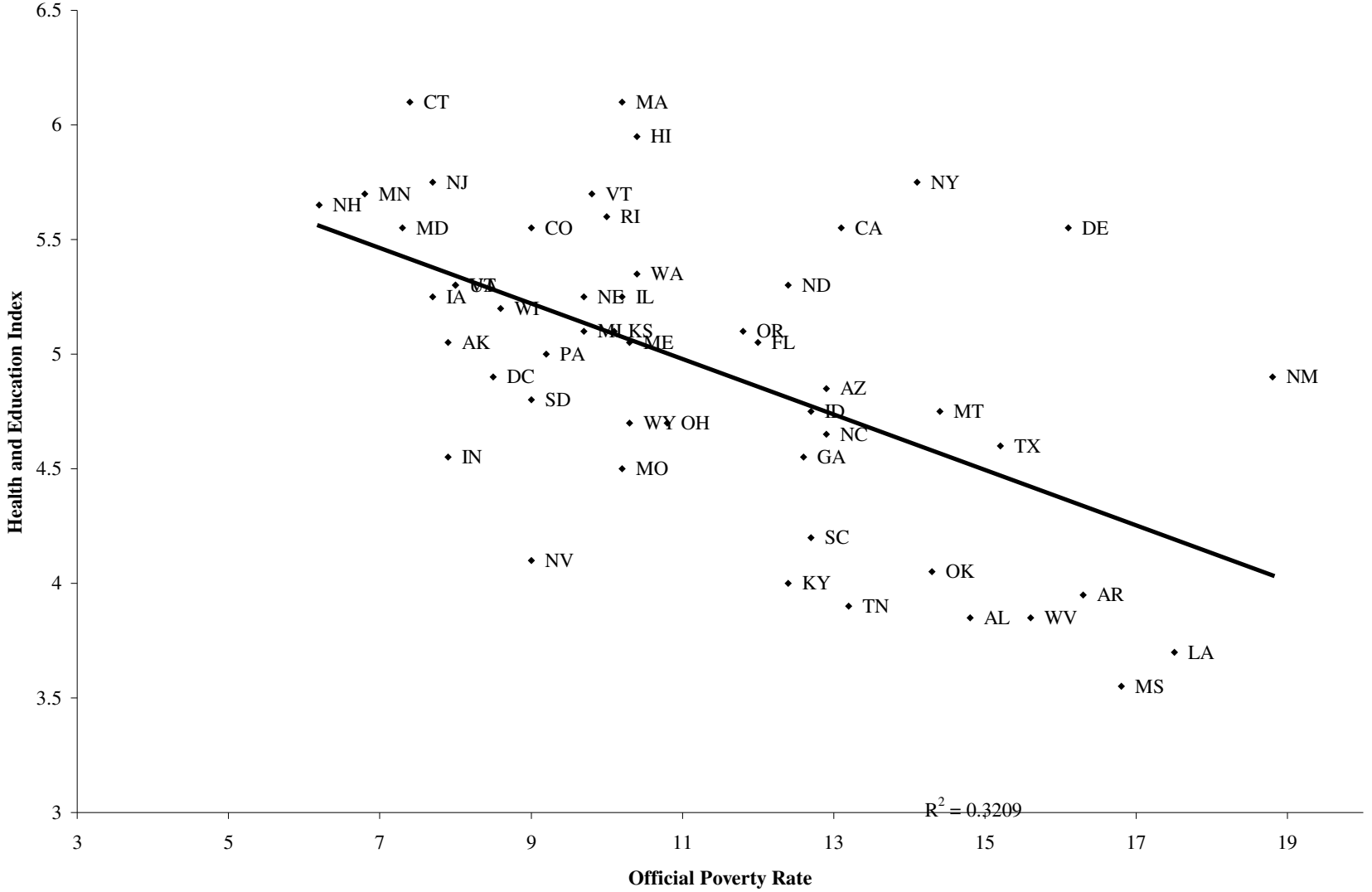
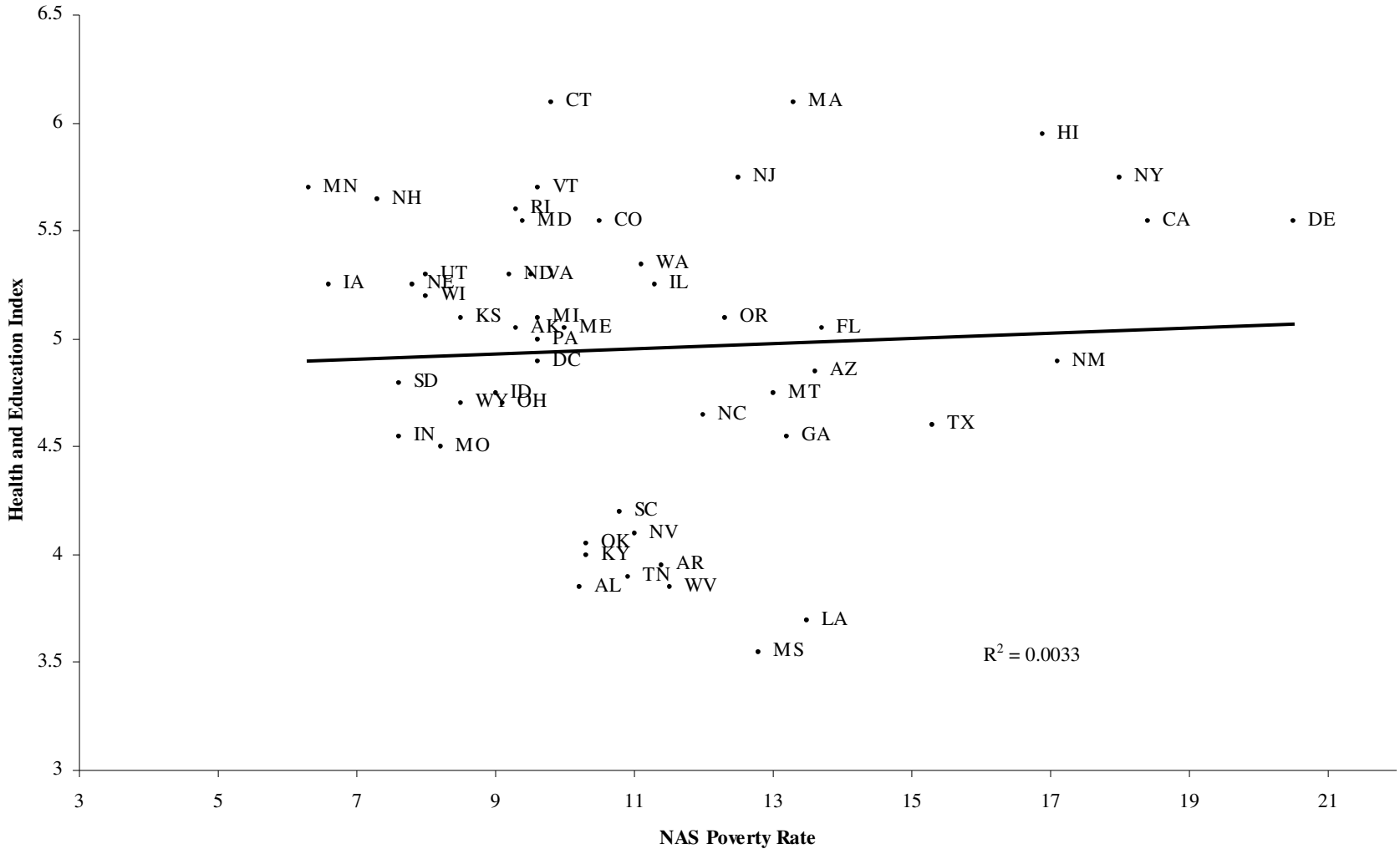


FIGURE 5B. NAS State Poverty Rates by Health and Education Index



Source: Health and Education Index calculated by author using data from Burd-Sharps, Lewis, and Martins (2008), poverty data from Nelson and Short (2003).

FIGURE 6A. Official State Poverty Rates by Food Insecurity Rates (1999-2001)

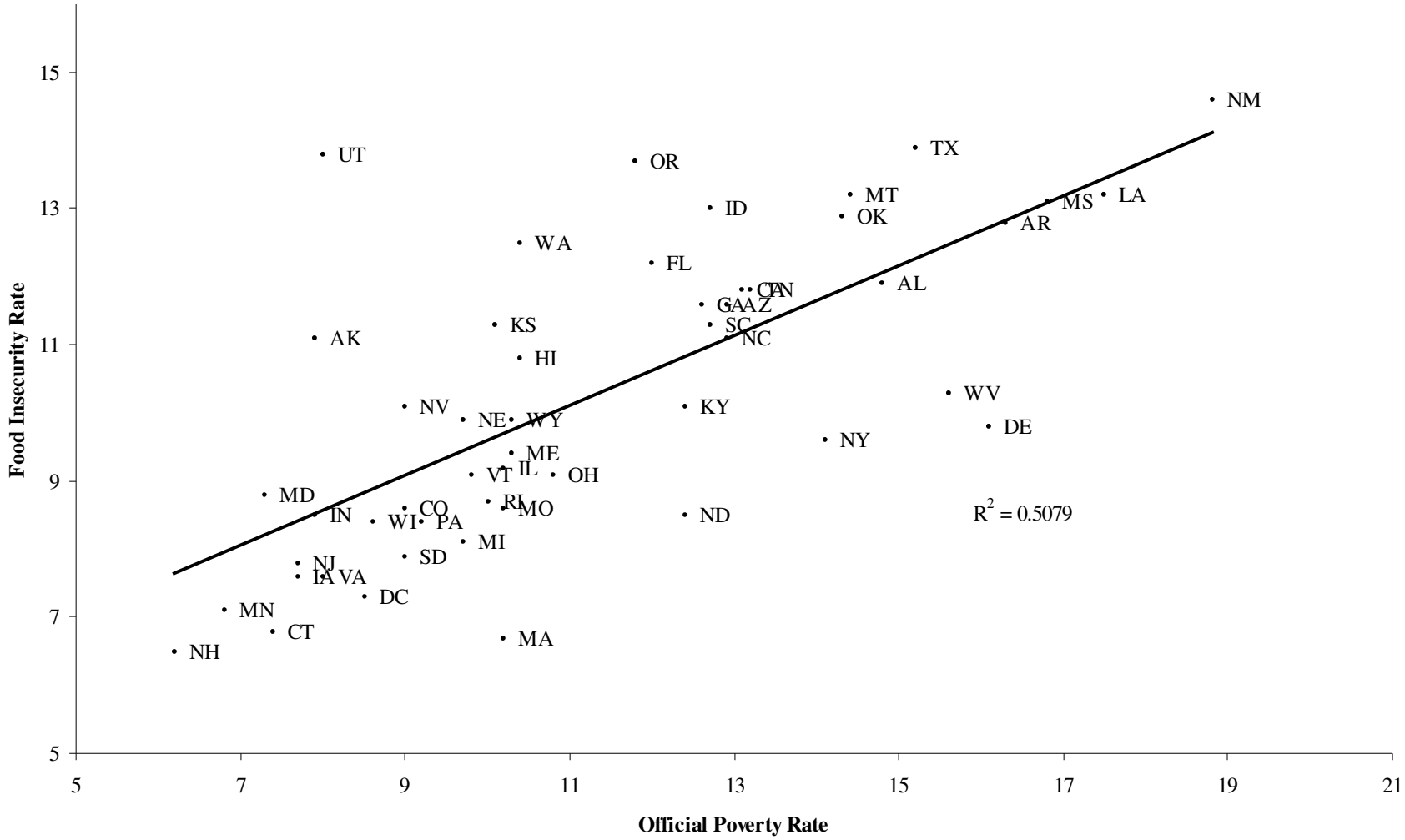
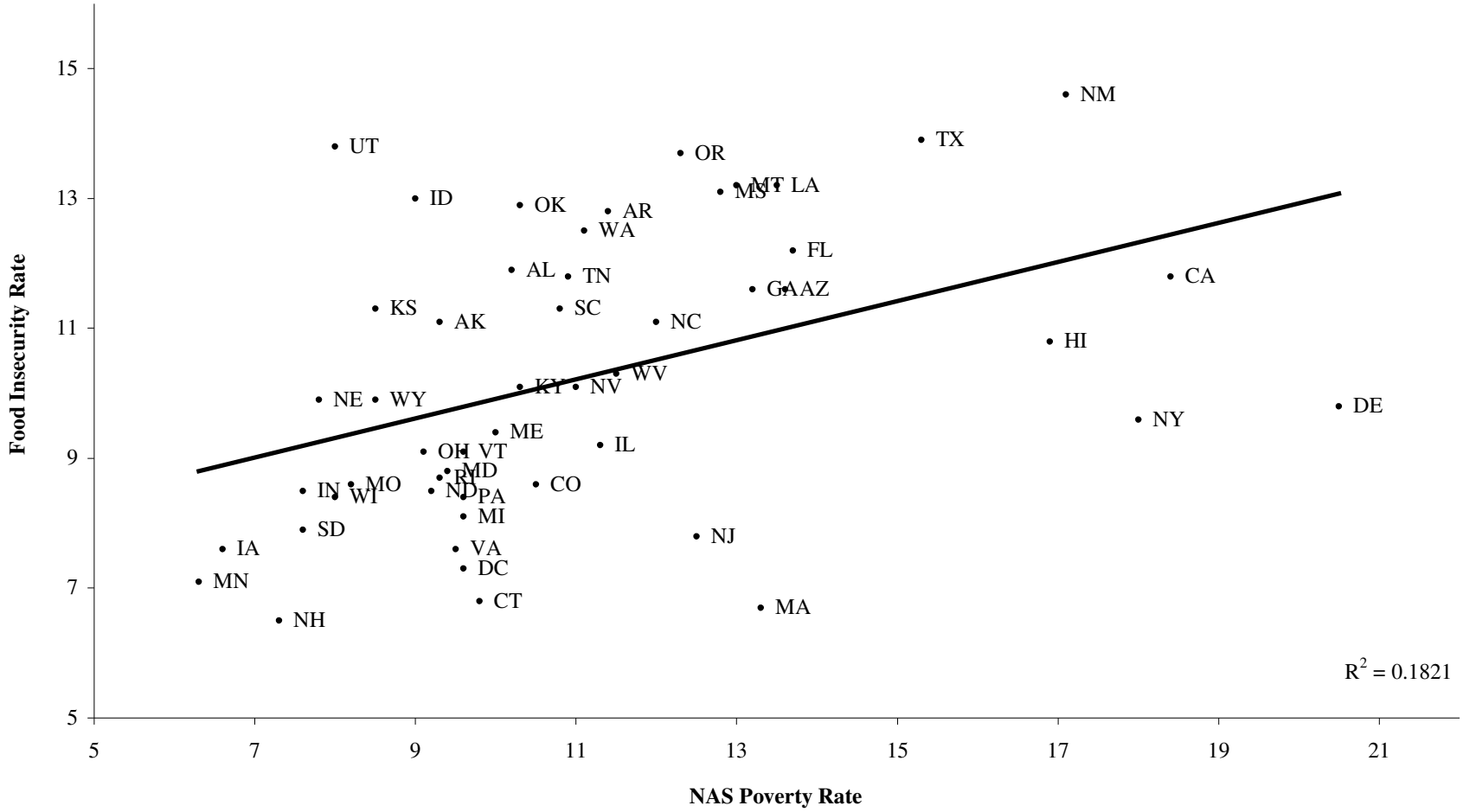


FIGURE 6B. NAS State Poverty Rates by Food Insecurity Rates (1999-2001)



Source: Nelson and Short (2003); USDA (2008).

This initial analysis raises concerns about the effect of adjusting for geographic differences in housing cost that deserve further scrutiny.[41] A particular policy (and political) concern involves the common use of state poverty rates for the distribution of federal funds. If an NAS-style measure were used, for example, to distribute State Children's Health Insurance Program (SCHIP) funds, states like Alabama, Arkansas, Louisiana, Mississippi, and West Virginia would all receive considerably less funding than they would under a measure that is not adjusted for geographic differences in housing costs.[42] Yet, three of these states (Mississippi, West Virginia, and Arkansas) have the lowest per capita GDPs in the United States.

The McDermott/Dodd legislation attempts to address this issue by specifying that the current federal poverty measure remain in place for purposes of any federal program that uses the poverty line to distribute funding or determine eligibility. It would be left to Congress and the President to determine on a program-by-program basis whether to use the new measure for current or future programs. But this simply defers, rather than resolves, the issue and seems unlikely to make the new measure any more politically palatable to states that stand to lose in the future under the new measure.

A better approach may involve taking "excess shelter costs" into account by subtracting them from income while basing the shelter component of the threshold itself on a share of national median expenditures on housing. This is the approach taken in the food stamp program, which deducts shelter costs that exceed more than half of the household's income after other deductions are taken into account.

Should the Poverty Rate for the Disabled Decline?

Disability is not commonly discussed in contemporary policy debates about poverty. Yet, among working-age adults living in poverty, just over one in three (34.7 percent) have a disability and about half of those who are consistently poor (at least 36 months in a 48-month period) have a disability.[43] Under an NAS measure, poverty rates for the non-disabled would increase by about 2 percentage points and poverty rates for persons with disabilities would decrease by 0.5 to 1.8 percentage points. These rates are for 1997 (and calculated by Census Bureau analysts in 1999), so it would be useful to know what the difference would be using more recent data.

The decline in poverty rates for the disabled is not surprising given the inclusion of non-cash benefits in the resources definition. However, some research suggests that the basic needs of persons with disabilities are higher than those for non-disabled persons. For example, Peiyun She and Gina Livermore of the Cornell Institute for Policy Research estimate that people with disabilities who lived alone in the latter half of the 1990s would need annual incomes that are almost double the poverty line or substantially higher to experience the same level of hardship, on average, as those without disabilities with incomes at the poverty level.[44] An NAS-based measure that takes

41 According to Nelson and Short (2003: 8), geographic adjustment is "by far the major contributor to state-level differences in poverty share estimates,"

42 For specific estimates, see Nelson (2004). According to Nelson's estimates, 24 states would have seen declines in SCHIP funding in FY2004, although the decline would amount to less than 1 percent of the state's SCHIP allotment in three of these states.

43 The annual poverty rate is the author's calculation based on Table 4 in U.S. Department of Commerce (2006). The figure for consistent poverty is for 1997 and is from She and Livermore (2006).

44 She and Livermore (2006). See also Zaidi and Burchardt (2003).

actual medical expenses into account should capture some, but not all, of this difference. One that includes medical expenses in the thresholds would not capture any of the difference. More research is needed to determine whether disability-specific modifications to poverty measures are necessary.

Should a Revised Poverty Measure Be More Consistent with Other Hardship Measures than the Current Poverty Measure?

The analyses in this paper are admittedly basic ones, but other research reaches similar conclusions. Using multivariate regression analysis, Short (2003: 24) concludes that the NAS measure "fails to improve the relationship between income poverty and material hardship or financial hardship."[45]

Some may argue that because income poverty is different from various other forms of economic hardship, we shouldn't expect an improved poverty measure to be a better (or even equal) indicator of material hardship than the current measure. Along these same lines, some proponents of the NAS measure point to its "internal consistency"—that is, the consistency between the concepts underlying the thresholds and the definition of resources—as the main reason to adopt it.

But if a supposedly better measure is actually less well-associated with other core indicators of hardship than the current measure, it is worth asking how we really know it is a better measure. Comparison with other hardship measures can help determine whether a new poverty measure meets what might be called a standard of "external consistency"—that is, whether it is more or less consistent with other core indicators of economic hardship, particularly hardship related to the basic needs that the measure's threshold is based upon.

45 Short models material hardship as a function of indicators of poverty, age, region, metro area residence, marital status, family size, presence of children, health, ethnicity, race, employment, education, and assets. In the model using the official poverty measure, the coefficient for poverty is .8629. In the model using the NAS measure, the poverty coefficient is .7812, but the difference between the two coefficients is not statistically significant.

A Truly New Alternative Approach to Measuring Poverty and Economic Inclusion in the United States

In developing an improved poverty measure and related measures of social inclusion, the perfect shouldn't become the enemy of the good. A perfect poverty measure is unobtainable, even if there were general agreement on what the term poverty actually means. However, before replacing the current poverty measure with an NAS-based one, the incoming administration should consider other approaches to poverty measurement that have been developed and adopted over the nearly 15 years since the NAS panel published its recommendations.[46]

A key question should be whether or not other measures address the two major limitations of the NAS approach identified in this paper: its apparent failure to meet a standard of improved external consistency, and its failure to address the adequacy critique of the current measure. Measures developed by the United Kingdom and Ireland better address these limitations than the NAS approach. In particular, the United States should move away from a single, primary statistical measure of poverty—an approach that will satisfy few and make it much more difficult politically to adopt a new approach—and toward the kind of "tiered approach" to measuring poverty and economic inclusion adopted recently by the United Kingdom.

Addressing the External Consistency Problem: Measuring Low Income *Plus* Deprivation

The most obvious way to address the external consistency problem is to develop a poverty measure that includes both an income threshold *and* a set of deprivation indicators. Both Ireland and the United Kingdom have recently adopted poverty measures based on this approach.

Ireland's primary measure of poverty—known as the "consistent poverty rate"—identifies the proportion of the population that meets *both* of the following two criteria: 1) have income below 60 percent of median income; and 2) are deprived of two or more goods or services considered essential for a basic standard of living (from a list of 11 deprivation indicators). In its National Action Plan for Social Inclusion 2007-2016, Ireland set a goal of reducing the consistent poverty rate from 7 percent to between 2 percent and 4 percent by 2012.[47] Similarly, in 2003, as part of the adoption of a "tiered approach" to measuring child poverty (discussed in more detail below), the United Kingdom adopted a measure that combines material deprivation and low income (measured as 70 percent of median income).

A key question in developing a tiered measure for the United States involves what indicators of deprivation to include and where to set the income threshold. At a minimum, indicators related to food insecurity, worst-case housing needs, and lack of health insurance should be included. Other indicators of social exclusion should added based on survey data about public perceptions of what goods are necessities. In particular, the indicators for children should go beyond the current, limited set.

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46 While there had been some research on these types of measures before the panel issued its report, it has only been within the last few years that such measures have been adopted for official use by governments.

47 Government of Ireland (2007).

A Better Measure of Basic Income Adequacy

NAS-style measures generally produce an overall poverty rate and poverty thresholds that are not substantially higher than the current poverty rate and thresholds, particularly when compared to other commonly used measures of low income such as basic needs budgets, 200 percent of the poverty line, or half of median income. As with the current poverty line, the NAS measure is essentially both: 1) a negative measure—a measure of income inadequacy, rather than a measure of income adequacy;[48] and 2) a measure of an *extremely low* living standard rather than a low living standard when compared to the typical (middle or median) standard of living in the United States.

As a practical matter, it would likely be politically infeasible—and even if feasible, not necessarily advisable—to adopt a *poverty* measure that results in a substantially larger share of the U.S. population living below it. A better course is to develop a new official measure (or measures) of basic income adequacy that addresses the low-threshold problem presented by poverty measures, *but that doesn't purport to be a poverty measure*. Such a measure should be more consistent with historical understandings of what it means to have a "low income" in the United States as well as public opinion on the necessary minimum "get-along" income—the amount that most Americans say is the "smallest level of income needed to get along" in their local communities.

As **Figure 7** below shows, public opinion research finds that most people believe that the minimum income needed to "get along" where they live is more than twice the poverty line.[49] Historically, the median response to the get-along question has risen at roughly the same rate of median income, and has been equal to between 50 and 60 of median income.[50] According to the most recent data, from a 2007 Gallup poll, the median response to the "minimum get along" question was $45,000 and the average value was about $52,000, or about 60 percent and 70 percent of median income, respectively.[51]

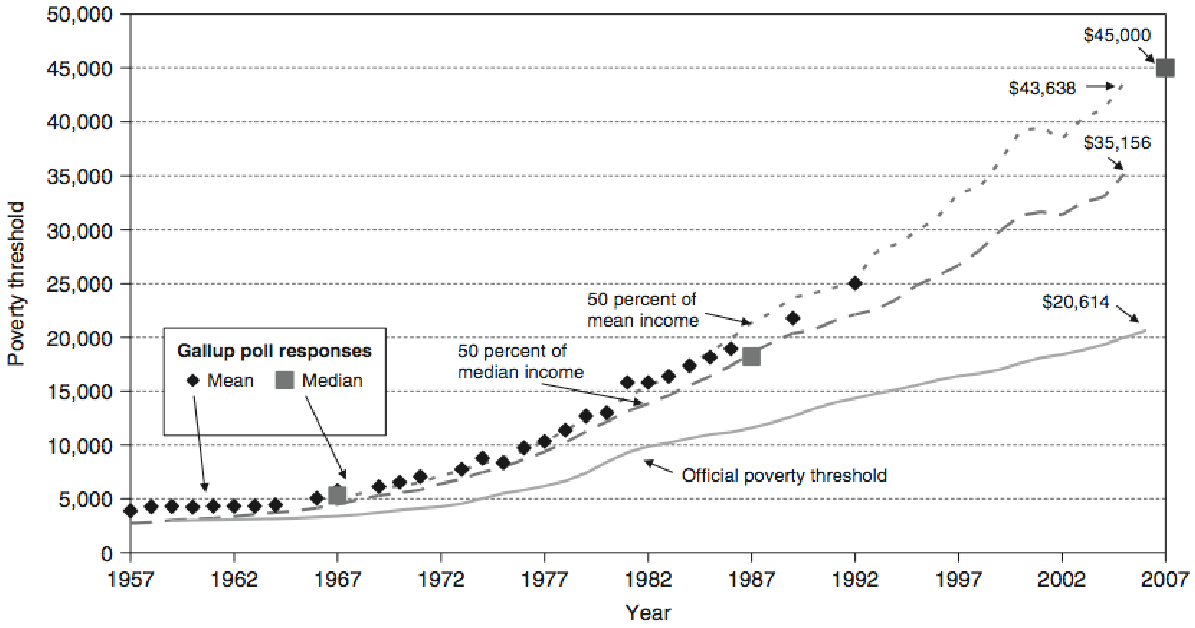
[48] Mollie Orshansky described the official poverty measure she developed as one of income *inadequacy*, explaining: "if it is not possible to state unequivocally 'how much is enough,' it should be possible to assert with confidence how much, on average, is too little." Fisher (2007).

[49] The chart is from Blank (2008).

[50] Blank (2008:250). Blank notes that the median response to the 2007 get-along question was closer to 50 percent of mean income (and 70 percent of median income), and suggests this may be due to rising inequality. An additional likely factor is the housing bubble.

[51] See Jones (2007).

Figure 7. Trends in Official Poverty Line and Responses to "Get-Along" Survey Question

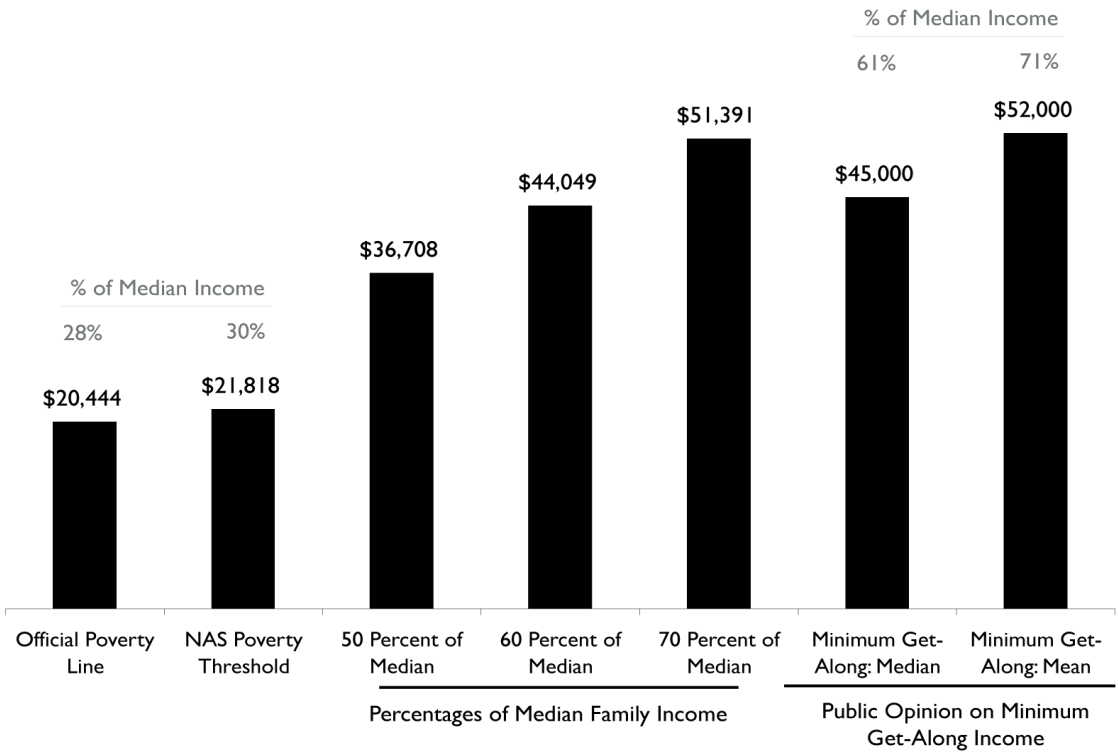


Source: Gallup data from Jones (2007) and Vaughan (1993). Poverty thresholds, median and mean income levels from sources cited in Figure 1.

Note: Gallup polls ask about the minimum amount of money a family of four would need to "get along in your local community." Gallup estimates are response means, except for 1967, 1987, and 2007, which are medians. Mean and median Gallup responses track together closely across the years for which both numbers are available. Fifty percent mean and median income figures and poverty thresholds are for a family of four.

One approach would be to set a "minimum get-along" or an "at risk of poverty" standard equal to 60 percent of median income. Such an approach would be much simpler and more easily explained to the public than an NAS-style measure (or the current poverty line for that matter). A key part of justifying a minimum "get along" measure would be that it is a common-sense measure based on public consensus about the smallest amount of income needed to get by in one's local community.

FIGURE 8. Comparing Poverty Measures with Public Perception of Minimum "Get-Along" Income for a Family of Four: 2006



Sources: U.S. Department of Commerce, Census Bureau (2006), Alternative Poverty Tables; U.S. Department of Commerce, Historical Income Tables, Families, Table 5-7; (Jones 2007).
Note: "Get-along" figures are for 2007, but are compared to family median income for 2006; family median income rose by 1.2 percent between 2006 and 2007. NAS threshold is geographically adjusted and based on consumer expenditure data. Medical expenses are subtracted from resources.

To avoid contentious and ideological debates over the meaning of "poverty," it is important to be clear that the new measure is not intended to be an improved or revised measure of poverty.[52] Careful consideration should be given to the name.[53] Given the current economic crisis, the next Administration should move as quickly as possible to adopt at least a "working definition" of such a standard for use in 2009. In my view, this should be a more immediate priority than adopting a revised poverty measure. While we currently have an income poverty measure, we don't have anything approaching a basic income adequacy standard. Of course, the current poverty measure is imperfect, but it still appears to be better correlated with economic hardship related to basic needs than an NAS measure.

The McDermott/Dodd legislation attempts to address the need for a better measure of income adequacy by having the National Academy of Sciences develop a "decent" income standard. Waiting for the completion of such a study would delay the development of an official income

[52] However, if combined with indicia of social deprivation, such a measure could reasonably be called a poverty measure, as discussed further below.

[53] Interestingly, as Fisher (2007) explains, Orshanksy's original purpose was not to introduce a new general measure of poverty; instead, she was trying to develop a measure to "assess the relative risks of low economic status (or, more broadly, the differentials in opportunity) among different demographic groups of families with children."

adequacy standard for at least several years, and likely much longer. Some five years elapsed between passage of the legislation directing the NAS to develop a new poverty measure and the publication of recommendations by the NAS, and more than a decade has passed since their publication.

Moreover, the development of normative living standards such as a "decent living standard" or an income adequacy standard is outside the core scientific competency of the National Academy of Science. That said, once such living standards have been adopted, the development and refinement of statistical surveys and methods to accurately measure them would be within the core competency of NAS.

The issue of developing "decent living standards" has already been studied by an expert panel at the request of the federal government, a panel that concluded it isn't possible to set living standards in a "scientific" fashion. That panel, the Expert Committee on Family Budget Revisions, issued a report in May 1980 concluding that "there is no economic or other theory that allows [the development of living standards] to be done in a scientific manner."[54] Instead of attempting to construct a "scientific" standard, they:

> ... proceeded on the general assumption that the idea of a standard of living has some everyday meaning to ordinary people and that they have found insight, based on experience, into the costs of different levels. The acceptability and usefulness of explicitly stated standards depends, in our opinion, on how successfully such statements capture the public notion of what it takes to live moderately or comfortably, or at any other level. [55]

The committee's conclusions remain relevant to current debates about measuring poverty and living standards. The committee recommended the adoption of four "American Family Budget Standards" established and named as follows:

- Prevailing Family Standard: This would "reflect the living levels achieved by the typical or ordinary family" and be determined by the median expenditure level for two-parent/two-child families.

- Social Minimum Standard: This would be set at half the Prevailing Family Standard (i.e., half of median family income for two-parent/two-child families).

- Lower Living Standard: Set at two-thirds of the Prevailing Family Standard and roughly equal to what was then known as the Department of Labor's "Lower Budget" standard. The committee noted that "this standard represents a level below which it is increasingly difficult to maintain what Americans regard as an acceptable standard of living.

- Social Abundance Standard: Set at 50 percent higher than the Prevailing Family Standard (or, at that time, three times the Social Minimum Standard).

Unfortunately, the committee's proposal was untimely, taking place just before the election of President Ronald Reagan in 1980. The Reagan Administration terminated the Department of

[54] Expert Committee on Family Budget Revisions (1980).
[55] Ibid. at ii-iii.

Labor's Family Budget program in 1981 and the report's recommendations were never acted on.[56] But the expert panel's report still provides an excellent guide to the issues involved in setting family budget standards.

Notably, since the report was issued, the United Kingdom, the European Union, and other wealthy nations have adopted "at risk of poverty standards" set at 60 percent of median income. While used most commonly in other nations, such a measure actually has American origins. In a 1965 report published by a task force of the U.S. Chamber of Commerce, American economist Victor Fuchs proposed setting the poverty line at 50 percent of median income. At that time, the Office of Economic Opportunities' "working definition" of poverty (the one that continues to this day as the official poverty measure) was roughly equal in value to the Fuch's standard).[57]

Finally, it is also worth nothing that measures defining "low income" by reference to median income have considerable precedence in the United States. Various public housing and rental assistance programs operated by the Department of Housing and Urban Development define "low income" as 80 percent of area median income and "very low-income" as 50 percent of area median income. Similarly, the Child Care and Development Fund sets an overall income limit equal to 85 percent of median income. When initially adopted in 1974, Title XX Grants to States for Services (now the Social Services Block Grant) used the term "low income" rather than "poverty" or "poor" and set an income limit on services equal to 80 percent of state median income.

The Case for a "Tiered Approach" to Measuring Poverty and Economic Inclusion

One criticism of a measure based on a percentage of median income is that the proportion of people below that standard will not decrease until income inequality narrows in the bottom half of the income distribution.[58] Given the long-term increase in inequality, this is actually an argument in favor of such a measure, particularly when considered as a basic economic-inclusion standard for working-class families.

The degree of income inequality in the United States has grown excessively since the early 1970s, and policy decisions made by the federal government have contributed to this growth.[59] For example, in an October 2008 speech, Larry Summers, who will be the head of President-elect Obama's National Economic Council, argued that the current historically high level of inequality "represents a critical problem of legitimacy" for market capitalism.[60] Similarly, a growing body of research suggests that for wealthy nations, inequality and relative position matter for well-being even for people who have sufficient income to meet "basic needs."[61] For all of these reasons, it would be

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[56] The lower living standard was revived in a limited fashion as part of the Workforce Investment Act of 1998, which defines the term "low income individual" as someone who has income below the higher of the poverty line or 70 of "the lower living standard level" (LLSIL). The current LLSIL is simply the 1981 lower budget standard adjusted for inflation by the CPI-U. For a family of four, the 2006 LLSIL ranges from $28,750 to $35,010 depending on region.

[57] Fuchs (1965).

[58] See Blank and Greenberg (2008: 12).

[59] See, e.g., Bartels (2008).

[60] Summers (2008). Summers pointed to three indicators of inequality: the growth in income inequality, particularly between the top 20 percent and the bottom 80 percent, the increasing gap in life expectancy between well-off Americans and the less well off, and the decline in intergenerational economic mobility.

[61] See, e.g., Kenworthy (2008: 14-18) for a review of research on the consequences of inequality, and Marmot (2004: 82-103).

extremely useful to have a measure that helps us track whether the segment of the U.S. population falling far behind the middle is growing or decreasing in size.[62]

That said, because inequality has increased between the top and the middle of the income distribution at roughly the same rate as it has between the middle and the bottom over the last two decades,[63] policy makers concerned about inequality will need to focus on lifting living standards of *both* the middle and the bottom of the income distribution. Thus, it also makes sense to adopt a poverty measure that is able to capture improvement in material well-being for the bottom of the income distribution even if their living standards increase at a rate equal to those in the middle.

To address this issue—as well as the need, as discussed above, for a measure that tracks not simply income poverty but additional dimensions of deprivation—the United States should adopt a "tiered" poverty and economic-inclusion measure modeled on the child poverty measure adopted by the United Kingdom in 2003.

The UK's tiered approach uses a set of interrelated indicators (the tiers) that "captur[e] different aspect of poverty whilst respecting the finding ... that income is at the core of people's conception of poverty."[64] The measure has three components:

- a fixed, inflation-adjusted low-income measure: this measure is fixed at 60 percent of median income for the baseline year of 1998/1999 and updated annually with a price index;

- a low-income measure set at 60 percent of median household income and adjusted annually to remain to remain at this percentage of income;

- a measure of material deprivation and low income combined: measuring the number of children living in households that are both "materially deprived" and have an income below 70 percent of median income.

Under the tiered approach, the UK government considers poverty to be falling "when all three indicators are moving in the right direction."[65]

When compared to the NAS approach, the UK approach has the benefits of being simpler in its construction, more sophisticated as an indicator of deprivation and economic risk, and more politically feasible. The measure is simpler because the income thresholds are tied to median income, but also more sophisticated because each of the tiers capture important dimensions of poverty. The multi-dimensional aspect of the measure also enhances its political feasiblity—instead of a single, narrow conception of poverty, the tiered approach better captures the various different understandings of poverty and deprivation held by experts and the public in the United States.

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62 See also O'Connor (2001: 292): "the single most important challenge for poverty knowledge in the post-welfare era is to put poverty on the national agenda as a legitimate public policy concern: not in the narrow sense of income deprivation, but as part of the larger problem of the steady and rapid growth of economic, political, and social inequality."

63 See Gordon and Dew-Becker (2008).

64 UK Department of Work and Pensions (2003).

65 Ibid, p. 7.

Is the NAS measure inconsistent with the tiered approach? Not necessarily, a version of the NAS measure could be substituted for the fixed low-income measure as part of a tiered U.S. measure. Ideally, this would be a simpler version of the NAS measure.

It took the UK government only twenty months to develop and adopt this new set of measures. The process started with a "consultation" period in April 2002. The government published a set of preliminary conclusions based on this consultation in May 2003, and a final version of the measure in December 2003. The incoming administration should utilize a similar approach to develop a new U.S. measure of poverty and economic inclusion, and aim at adopting it officially no later than December 2010.

Addressing Arguments Made in Favor of the NAS Measure

While there are good arguments to be made in favor of replacing the current poverty measure with an NAS-style measure, some commonly made arguments are overstated. For example, it isn't clear that an NAS measure would be much more helpful than the current measure in rebutting the argument, made most famously by Ronald Reagan, that "the Federal Government declared war on poverty and poverty won." While non-cash benefits have become more common over the last few decades and the NAS approach does help illustrate the effects of these benefits on poverty, it is also the case that overall poverty rates are about the same or slightly higher using the NAS approach. Although no time series exists for NAS poverty rates prior to 1990, it seems unlikely that poverty trends subsequent to the 1960's War on Poverty would be substantially different if an NAS measure had been in place. In 1969, the official poverty rate was 13.7; the NAS poverty rate for 2006 is roughly the same.

As a practical matter, income poverty rates, particularly for the non-elderly who compose the bulk of those living below the poverty line, are determined to a much larger extent by real wage rates, inequality, macroeconomic policy, and labor market institutions than by targeted anti-poverty programs. For example, male median earnings and the 50-10 male earnings ratio (a measure of wage inequality) explain over 80 percent of the variation in the poverty rate between 1967 and 2003.[66] One consequence is that "money income"—the resource definition used to calculate the current poverty rates—is a relatively good indicator of poverty trends.

Another commonly made argument is that the NAS approach would be more understandable and acceptable to the *public* than the current measure. Given the considerable complexity of the measure, it seems unlikely that it would be more understandable to the public than the relatively simple current measure or measures similar to those developed for the United Kingdom and Ireland. That said, the NAS poverty thresholds are roughly consistent with public opinion on the amount of income needed to not live in poverty.[67] As a practical matter, this is probably a far better indicator of the public acceptability of the NAS approach than the extent to which the public understands the measure's methodology. After all, few non-economists (and not even all economists) understand the intricacies of the CPI or GDP, but this doesn't seem to impede their broad public acceptability.

66 Lang (2007:96). See also Iceland (2003: 98-116); Levitan and Wieler (2008), and Hoynes, Page, and Stevens (2005).

67 See, e.g., Citro and Michael (1995: 139 and 156). The public sets the poverty line at a lower level than the "get-along" line.

A related issue is the extent to which various experts, advocates, and policy specialists accept an NAS measure. Here matters are more complicated. Some researchers may prefer an internally consistent measure, while many advocates and policy makers are likely to prefer one that is externally consistent.

It also seems unlikely that various conservative critics of the current poverty measure will find the NAS approach any more satisfying than the current approach.[68] Some aspects of the NAS approach may actually be more susceptible to attacks by these critics than the current measure. For example, the NAS approach ends up setting the poverty line at a level that is roughly equal to median family expenditures on shelter, clothing, and food. If the NAS approach is presented as no more than a subsistence "basic needs" measure, it will likely be subject to criticism that at least four out of every ten families spend less than this amount of shelter, clothing, and food, and most of them are not considered to be poor.

Addressing Arguments Made Against a Median-Income-Based Measure

One argument made against a median-income based measure is that it is:

> … difficult to say what aspect of family needs it is actually measuring. For instance, what is a family at 55 percent of median income able to do that a family at 50 percent of median income is not able to do?[69]

The obvious answer to this, given the public opinion data discussed above, is "according to the majority of the U.S. public, get along at a minimum level."

The NAS approach, of course, is subject to the same critique—i.e., what is a family with income equal to roughly 105 percent of median family expenditures on certain basic needs able to do that a family with equal to 100 percent of those expenditures not able to do? As with a median-income based measure, the best way to answer this question for the public is by reference to common public understanding of a poverty-level income.

Another argument against a median-income based measure is that during a recession the threshold for the "measurement could also decline, without regard to the actual cost of necessities."[70] The implication here is that the number of people living below the threshold would decline, resulting in a lower rate. First, it should be noted that declines in median income for four-person families (the most likely reference family for a percent-of-median-income measure) have been extremely rare, happening only once in the last half a century. Second, depending on what happens with income distribution, the rate itself wouldn't necessarily decline if median income declines—for example, if income falls at the same or a greater rate for the bottom third as it does for the middle, the rate will stay the same or increase. Finally, it is important to remember that a measure set at 60 percent of

68 In fact, the one member of the NAS panel with a background as a political conservative, John Cogan—a senior fellow at the Hoover Institute, a former official in the Reagan and first Bush Administrations, and a senior economic advisor to candidates George W. Bush (in 2000) and Mitt Romney (in 2008)—dissented from the NAS recommendation.

69 Blank and Greenberg (2008: 12).

70 Ibid.

median income isn't intended to be a subsistence measure—even if the thresholds decline in a particular year, they will remain considerably higher (about twice as high), as the poverty thresholds.

A final argument is that "[h]istorically, there has been little support in the United States for a *poverty* measure defined as a share of median income."[71] Yet, as discussed above, median-income-derived measures are used in various federal means-tested programs to define "low-income" status. Moreover, it is clear from the public opinion data discussed above that such measures are amply supported by the *public* understanding of what it means to have too little income to get by at a minimum level. Of course, it may take expert opinion some time to catch up with public understanding.

[71] Ibid (emphasis added).

Conclusion

The current U.S. poverty measure is outdated and has failed to keep up with public consensus on the minimum amount of income needed to "get along" in the United States in the 21st Century. One potential approach to revising the measure, based on recommendations made by a National Academy of Sciences panel in 1995, improves in some ways on the current measure, but has serious limitations of its own that require further research before it is adopted. Moreover, the NAS approach results in a poverty measure that would remain far below the public's get-along level. To address these problems, the incoming Administration should adopt a "tiered" poverty and economic-inclusion measure that is modeled on the child poverty measure adopted in 2003 by the United Kingdom.

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APPENDIX TABLE 1: Official and NAS State Poverty Rates, Three-Year Averages for 1999-2001.

	Official FPL	NAS Poverty Rate	Difference (p.p)
Alabama	14.8	10.2	-4.7
Alaska	7.9	9.3	1.4
Arizona	12.9	13.6	0.8
Arkansas	16.3	11.4	-4.9
California	13.1	18.4	5.3
Colorado	9	10.5	1.5
Connecticut	7.4	9.8	2.4
Delaware	8.5	9.6	1.1
District	16.1	20.5	4.5
Florida	12	13.7	1.6
Georgia	12.6	13.2	0.6
Hawaii	10.4	16.9	6.5
Idaho	12.7	9	-3.6
Illinois	10.2	11.3	1.1
Indiana	7.9	7.6	-0.3
Iowa	7.7	6.6	-1.1
Kansas	10.1	8.5	-1.6
Kentucky	12.4	10.3	-2.1
Louisiana	17.5	13.5	-4
Maine	10.3	10	-0.3
Maryland	7.3	9.4	2.1
Massachusetts	10.2	13.3	3.1
Michigan	9.7	9.6	0
Minnesota	6.8	6.3	-0.4
Mississippi	16.8	12.8	-4
Missouri	10.2	8.2	-2.1
Montana	14.4	13	-1.4
Nebraska	9.7	7.8	-1.9
Nevada	9	11	1.9
New Hampshire	6.2	7.3	1.1
New Jersey	7.7	12.5	4.8
New Mexico	18.8	17.1	-1.7
New York	14.1	18	3.9
North Carolina	12.9	12	-0.9
North Dakota	12.4	9.2	-3.2
Ohio	10.8	9.1	-1.7
Oklahoma	14.3	10.3	-4
Oregon	11.8	12.3	0.6
Pennsylvania	9.2	9.6	0.4
Rhode Island	10	9.3	-0.6
South Carolina	12.7	10.8	-1.8
South Dakota	9	7.6	-1.4
Tennessee	13.2	10.9	-2.2
Texas	15.2	15.3	0.1
Utah	8	8	0
Vermont	9.8	9.6	-0.2
Virginia	8	9.5	1.4
Washington	10.4	11.1	0.8
West Virginia	15.6	11.5	-4.1
Wisconsin	8.6	8	-0.6
Wyoming	10.3	8.5	-1.9

Source: Nelson and Short (2003).