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How Poor are America's Poorest? U.S. $2 a Day Poverty in a Global Context

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Introduction

In the United States, the official poverty rate for 2012 stood at 15 percent based on the national poverty line which is equivalent to around $16 per person per day.[1] Of the 46.5 million Americans living in poverty, 20.4 million live under half the poverty line. This begs the question of just how poor America's poorest people are.

Poverty, in one form or other, exists in every country. But the most acute, absolute manifestations of poverty are assumed to be limited to the developing world. This is reflected in the fact that rich countries tend to set higher poverty lines than poor countries, and that global poverty estimates have traditionally excluded industrialized countries and their populations altogether.

An important study on U.S. poverty by Luke Shaefer and Kathryn Edin gently challenges this assumption.[2] Using an alternative dataset from the one employed for the official U.S. poverty measure, Shaefer and Edin show that millions of Americans live on less than $2 a day—a threshold commonly used to measure poverty in the developing world.[3] Depending on the exact definitions used, they find that up to 5 percent of American households with children are shown to fall under this parsimonious poverty line.

These numbers are intended to shock—and they succeed. The United States is known for having higher inequality and a less generous social safety net than many affluent countries in Europe, but the acute deprivations that flow from this are less understood. A crude comparison of Shaefer and Edin's estimates with the World Bank's official $2 a day poverty estimates for developing economies would place the United States level with or behind a large set of countries, including Russia (0.1 percent), the West Bank and Gaza (0.3 percent), Jordan (1.6 percent), Albania (1.7 percent), urban Argentina (1.9 percent), urban China (3.5 percent), and Thailand (4.1 percent). Many of these countries are recipients of American foreign aid. However, methodologies for measuring poverty differ wildly both within and across countries, so such comparisons and their interpretation demand extreme care.

This brief is organized into two parts. In the first part, we examine the welfare of America's poorest people using a variety of different data sources and definitions. These generate estimates of the number of Americans living under $2 a day that range from 12 million all the way down to zero. This wide spectrum reflects not only a lack of agreement on how poverty can most reliably be measured, but the particular ways in which poverty is, and isn't, manifested in the U.S.. In the second part, we reexamine America's $2 a day poverty in the context of global poverty. We begin by identifying the source and definition of poverty that most faithfully replicates the World Bank's official poverty measure for the developing world to allow a fairer comparison between the U.S. and developing nations. We then compare the characteristics of poverty in the U.S. and the developing world to provide a more complete picture of the nature of poverty in these different settings. Finally, we explain why comparisons of poverty in the U.S. and the developing world, despite their limitations and pitfalls, are likely to become more common.

Methodologies for measuring poverty differ wildly both within and across countries, so comparisons and their interpretation demand extreme care.

Part One: Measuring $2 a day poverty in the U.S.

Many distinct household surveys of living standards are administered in the U.S.. This presents analysts with an embarrassment of riches in determining which data source to use. In contrast, developing countries are fortunate if they have a single institutionalized living standards survey.

Here we compare the results from three U.S. surveys. Our $2 a day poverty line is based on 2005 prices, to replicate the benchmark against which developing countries are assessed in global poverty estimates by the World Bank, after adjusting for differences in purchasing power across countries.

Before proceeding, a word of caution is in order. The use of representative surveys to analyze a country's poorest households implies a focus on the tail of the distribution, where the risk of sampling error and sampling bias is undoubtedly high. In addition, the use of a meager poverty line makes poverty estimates especially sensitive to reporting error. With this in mind, the conclusions we draw from this paper place less emphasis on the specific poverty estimates we obtain but instead on the broader trends that emerge from them.

Survey of Income and Program Participation

We begin our analysis following Shaefer and Edin's lead with a review of the Survey of Income and Program Participation (SIPP). Initiated in 1976, the SIPP was specifically designed to overcome some of the known limitations of the Current Population Survey, the source of the official poverty rate, that disproportionately affect the estimation of incomes for poor households. These include the underreporting of participation in government welfare programs and unreliable estimates of irregular sources of income. Evidence confirms that the SIPP obtains the highest estimates of income among low-income households and the most accurate reporting of government program participation among comparable surveys.[4]

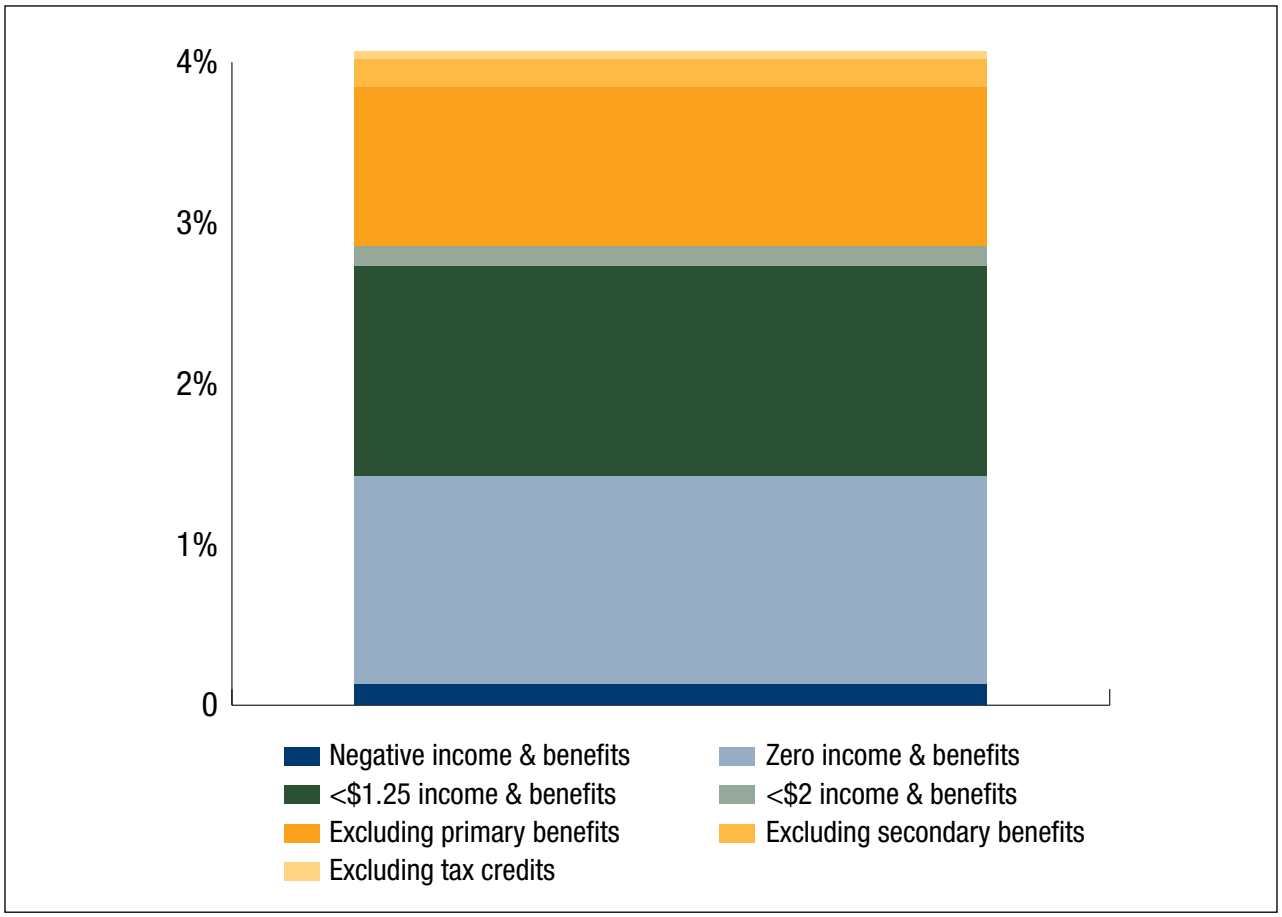
Our analysis of the SIPP differs from Shaefer and Edin's in two ways. First we include all households rather than limiting our focus to those containing children. Second, we consider in our definition of income a broader set of government programs that provide in-kind benefits whose value can be readily quantified.[5]

Despite these differences, our results are of roughly the same magnitude as those of Shaefer and Edin and serve to reaffirm their core findings. Under a restrictive definition of income, which excludes tax credits and all in-kind benefits, we estimate that 4 percent of the U.S. population was living under $2 a day in 2012. Under a more inclusive definition which includes food stamps, housing subsidies, and tax credits, this fraction falls to around 3 percent.

Figure 1 disaggregates these results to illustrate their composition. It reveals three key groups at the bottom of the income scale, each representing several million individuals: those who are reliant on government programs to keep them above the $2 threshold; those whose total income and benefits are positive but amount to no more than $2 a day; and those with no recorded income or benefits at all.

Expressed a different way, almost half the $2 a day poor, based on the broader definition of income that includes benefits, report no income or benefits. Moreover, there is little difference in the poverty rate whether we use

Figure 1: The composition of America's $2 a day poor (SIPP)



a $2 or $1.25 a day poverty line—the latter being the standard for "extreme poverty" against which global development goals are set. We can also see that the inclusion of additional in-kind benefits that Shaefer and Edin exclude makes only a minor difference to the poverty rate.

Figure 2 illustrates the distribution of income among low-income Americans, using the more inclusive income definition. The height of the bars at any given income level reflects the share of Americans who meet that exact standard of living. Thus the area of the bars to the left of the vertical line captures the number of people living under $2 a day. The large number of individuals reporting no income is again apparent; this represents the statistical mode among survey respondents; that is, more people report receiving no income or benefits than any other level of income. Such figures are troubling because they could easily be explained by measurement error or temporary conditions that are not reflective of longer term welfare. It is also noteworthy that a small number of

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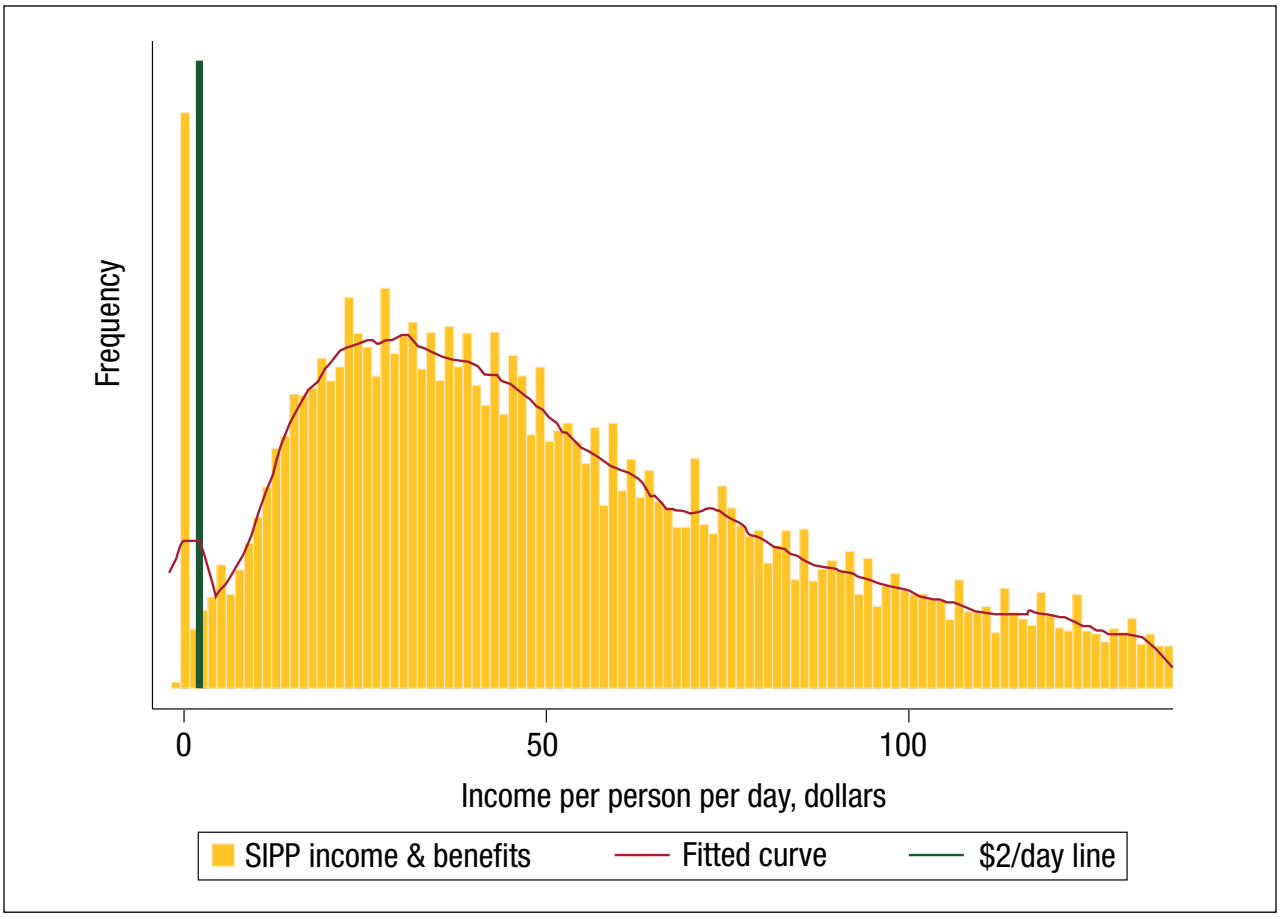
FIGURE 2: THE DISTRIBUTION OF INCOME (SIPP, INCLUSIVE DEFINITION OF INCOME)



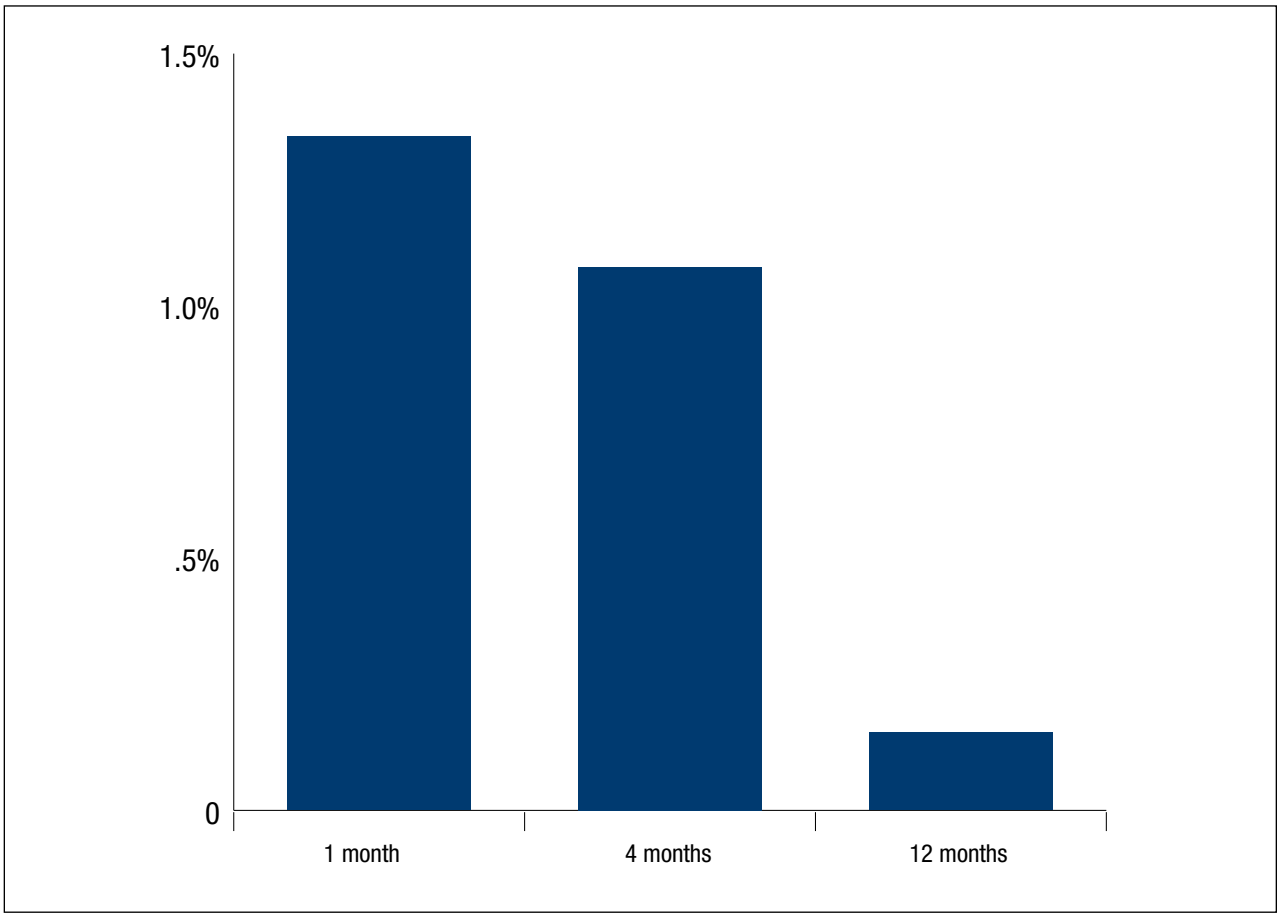
individuals report a negative income. Shaefer and Edin exclude those with negative incomes from their poverty count, on the assumption that they largely represent relatively affluent individuals who have had an unlucky year in their financial investments. This points to a broader problem with income-based poverty measures, to which we will return later.

One of the advantages of the SIPP is its longitudinal form combined with a relatively short recall period—the timeframe over which survey respondents are asked to report their income. Households receive visits every four months over 2 to 4 years, at which respondents are asked to report their income both during the current month and the preceding three months.

These features allow us to vary the duration over which welfare is assessed. Poverty estimates based on responses over a single month, as employed in the preceding analysis, are the highest as they are sensitive to temporary

There is a dramatic decrease in those reporting no income and benefits when the reporting period is increased from one month to 12 months.

Figure 3: Zero income share, measured at 1 month, 4 months, 12 months (SIPP)[6]



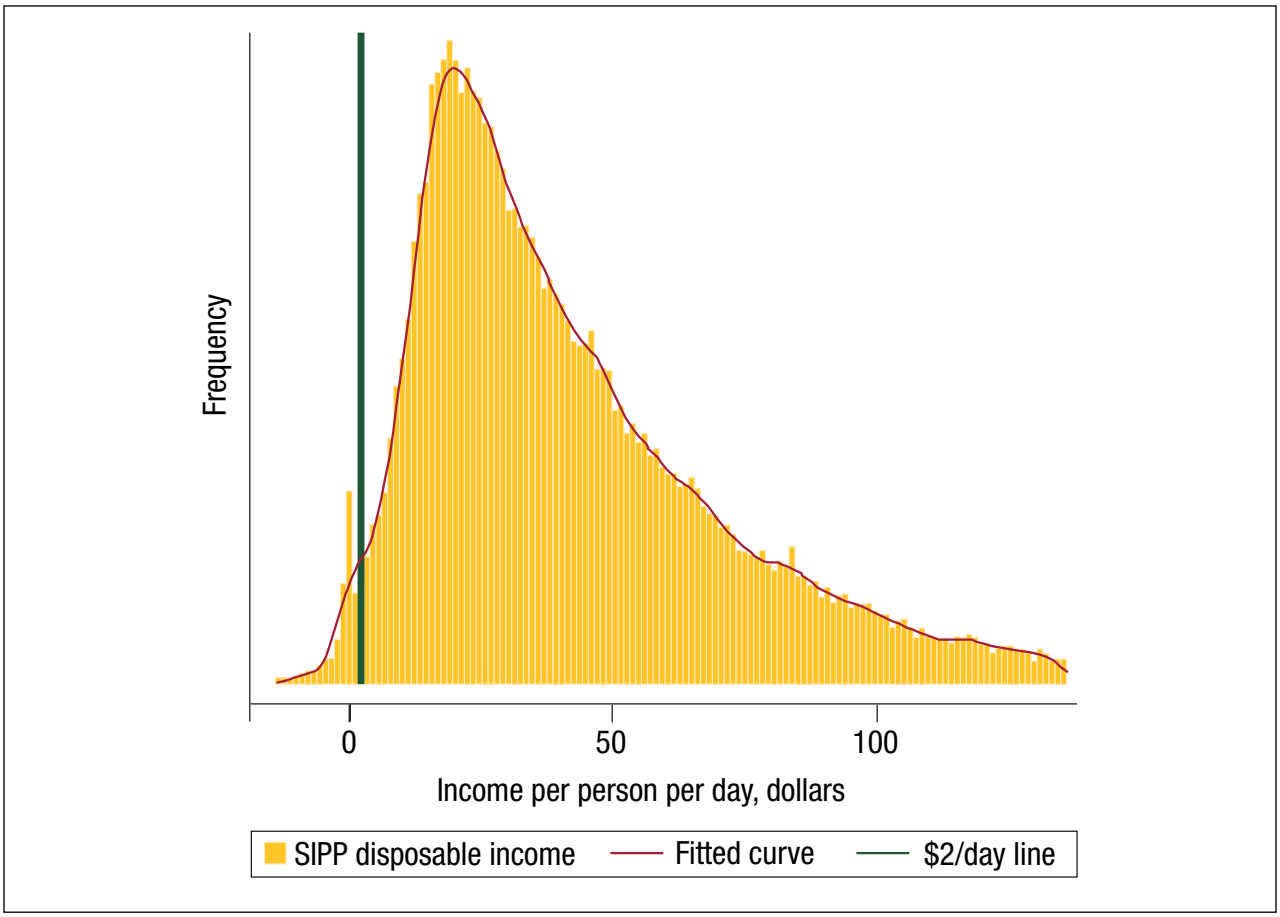
periods of financial stress. If we instead base our estimates on average responses over several consecutive months to obtain a more representative account of longer-term welfare, poverty rates are lower, as one would expect.

Figure 3 illustrates this point. There is a dramatic decrease in those reporting no income and benefits when the reporting period is increased from one month to 12 months, as employed in the official U.S. poverty measure. This drives a reduction in our broad measure of $2 poverty: from 4 percent using survey responses over a single month, to 3 percent when responses are averaged over 4 months, to under 2 percent when responses are aggregated over a year.

Supplemental Poverty Measure

We next turn to the source of official poverty estimates: the Census Bureau's Current Population Survey Annual Social and Economic Supplement. However, rather than using the definition of household resources employed in official poverty estimates, we use an alternative definition recently introduced by the Supplementary Poverty Measure (SPM).

Figure 4: The distribution of income (SPM)



The SPM was developed in response to criticism of the official poverty measure in the 50 years since it was developed. The SPM's design draws from the recommendations of an expert panel of the National Academy of Sciences and more recent academic research,[7] making the SPM an accurate reflection of expert contemporary opinion on how poverty ought to be measured in the U.S.. Notably, its measure of household resources seeks to capture the impact of government policies intended to fight poverty and to exclude necessary expenses such as medical contributions and child care—areas where the official poverty measure falls short. (While not relevant to our analysis, it also takes a different approach to defining the poverty line.)

The SPM estimate of $2 a day poverty for 2011 stands slightly below that of the SIPP at 2.1 percent. Like the SIPP, the results are relatively insensitive to the exact poverty line, with the poverty rate falling only marginally to 1.9 percent when the more meager $1.25 a day threshold is used. Again, a spike is evident at zero income (although it is smaller than that under the SIPP) and a number of respondents report negative net resources (more so than under the SIPP).

Consumption is more difficult and time-consuming to measure than income.

Consumer Expenditure Survey

Our third and final source of poverty measurement is the Consumer Expenditure Survey (CEX). This survey, which in contrast to the previous two surveys measures consumption as opposed to income, dates back to 1980 and is conducted principally for the purpose of computing weights of the Consumer Price Index.

Consumption is more difficult and time-consuming to measure than income.[8] For this reason, the CEX covers a smaller sample than the preceding income surveys, but is representative at a national level.

More fundamental weaknesses in the survey's design and implementation have motivated recent efforts to redesign the CEX, with at least one expert describing the CEX's use for poverty measurement as "not ready for primetime."[9] The excessive burden placed on respondents is likely a factor behind high and rising rates of refusal to participate in the survey. This, combined with underreporting by those who do participate, results in the underestimation of aggregate consumption in the economy. However, both the refusal to participate and underreporting have been shown to most affect those near the top of the income scale, who are not the subject of our analysis.[10] We mitigate the underestimation problem further by ignoring the diary component of the survey in which underreporting is more common, and relying only on the more robust interview component of the survey.[11] Nevertheless, these and other weaknesses increase the likelihood of measurement error from the CEX.[12]

Based on an assessment of consumption in the fourth quarter of 2011, we obtain a much lower $2 a day poverty rate of only 0.07 percent. To verify this result, we rerun our calculation using a more selective definition of consumption with the same survey data.[13] This yields a similar poverty rate of 0.09 percent.[14]

Summary

Our brief review of alternative measures of U.S. poverty points to four conclusions:

First, the range of $2 poverty estimates we obtain for the U.S. is very large, stretching from 4 percent (12 million people) to effectively zero (Figure 5). This vividly demonstrates how important definitions and sources are to poverty estimates. Obtaining a definitive estimate of $2 a day poverty would require a universal definition of poverty and a data source with no flaws—neither of which we have (Table 1).

Second, much $2 poverty appears to be temporary, as evidenced by the lower poverty rates recorded when we extend the duration over which individuals' welfare is assessed in the SIPP. The same phenomenon is observed around the official poverty line: Nearly one in three Americans experienced a poverty spell lasting at least two months from 2009 to 2011 but only 3.5 percent of Americans remained in poverty throughout these three years.[15]

Third, social protection programs play a critical role in the welfare of many of America's poorest households. According to the SIPP, programs such as food stamps (SNAP) and the Earned Income Tax Credit mean the difference between living above or below the $2 threshold for millions of people. This mirrors evidence of the importance of government programs further up the income distribution at the official poverty line.[16]

Fourth, even the most inclusive income-based poverty estimate reports dramatically higher poverty than any consumption-based estimate. Put simply, America's poorest appear to consume more than they report in income. Later, we explore what this tells us about the characteristics and welfare of the country's poorest people, and the implications for poverty measurement.

Figure 5: Different estimates of $2 a day poverty rate

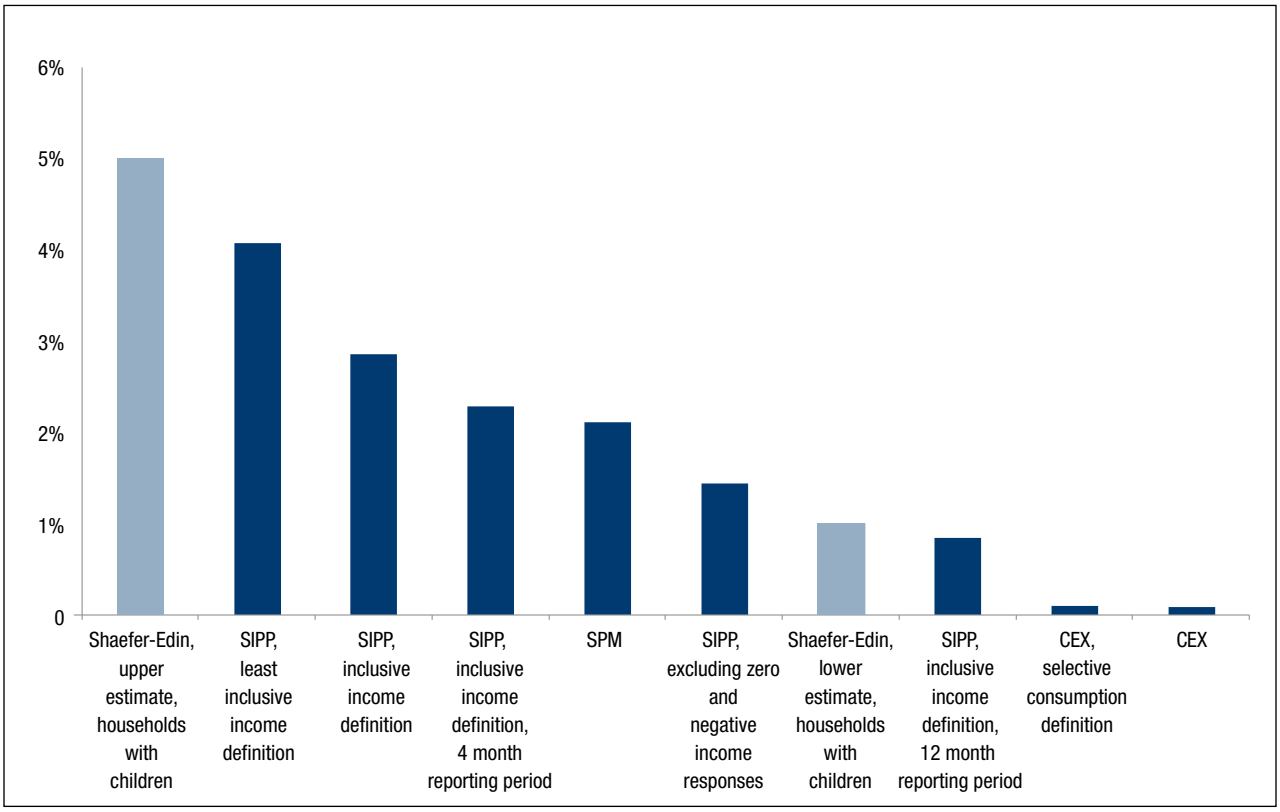


Table 1: Comparison of U.S. surveys for measuring $2 poverty

Survey	Survey of Income and Program Participation (SIPP)	Supplemental Poverty Measure (SPM)	Consumer Expenditure Survey (CEX)
Welfare measure	Income (market)	Income (disposable)	Consumption
Strengths	Best coverage of government programs aimed at the poor, and irregular income Longitudinal survey with short recall	Best practice for measuring income poverty in the US	Consumption a closer proxy of well-being, more stable than income, and an easier variable to define for those without formal wages
Weaknesses	Large number of respondents report zero income	Large number of respondents report negative income	Smaller sample High and rising rates of refusal to participate in survey
$2 a day poverty rate	2 to 4%	2%	0.07%

Part Two: U.S. $2 a day poverty in a global context

Applying the methods of global poverty measurement to the U.S.

Given the range of possible poverty estimates for the U.S., how can a fair comparison be made with estimates from the developing world? This challenge is made harder by the fact that there is no definitive approach to poverty measurement in developing countries. Indeed the variance in the way surveys are designed and administered across the developing world is striking and has important implications for the accuracy of global poverty estimates.[17]

Our approach here is to replicate as faithfully as possible the practice of the World Bank in its treatment of country data for the compilation of global poverty aggregates. In this sense, we treat the U.S. as if it were an anonymous developing country whose source data were submitted to the Bank. It is notable that the Bank does not correct for much of the variation across countries in poverty measurement. However, certain preferences are revealed in the way the Bank sources and manipulates country data.

First, where both are available, the Bank prefers to use consumption surveys over income surveys. This is for both conceptual and practical reasons. Consumption is considered a closer proxy of well-being. It is more stable due to consumption smoothing—and therefore more representative of well-being over time—and an easier variable to define in developing country settings, where formal wage employment is less common.[18]

Of course, these advantages are not all applicable in the U.S. context. The prevalence of formal wages means that income is more easily measured and more stable than in developing country settings—though not necessarily among America's poorest. Moreover, the abundance of publicly available survey data in the U.S. mean that traditional trade-offs between consumption and income surveys don't apply so readily; for instance, the long reporting period employed in the SIPP and Current Population Survey eliminates much of the advantage consumption surveys are perceived to have over income surveys.

A second important aspect of the Bank's methodology concerns its processing of survey data. The Bank's standard practice is not to measure poverty directly from survey micro data.[19] Rather, it uses the distribution data obtained from surveys to estimate a Lorenz curve that accords to a particular functional form, and then uses the Lorenz curve as the basis for estimating poverty for a given poverty line. This ensures that the distribution from each survey exhibits certain characteristics and can be easily manipulated for generating poverty simulations required to obtain global poverty estimates.[20]

An important consequence of this is that the distribution in each survey is assumed to pass through the origin, meaning that no part of the population can have zero consumption or negative values of consumption.

If we measured poverty in the U.S. as if it was a developing country, we would conclude that no-one falls under the $2 threshold.

When we replicate this process using data from the U.S. CEX, our estimate of $2 a day poverty falls all the way to zero.[21] In other words, if we measured poverty in the U.S. as if it was a developing country, we would conclude that no-one falls under the $2 threshold.

The characteristics of poverty in the U.S. and the developing world

We are still left with the question of why we obtain such a wide range of $2 a day poverty estimates for the U.S.. Understanding this can help to distinguish poverty in the U.S. and the developing world, and demonstrate why caution is warranted in equating the welfare of the poor in each setting.

The finding that reported consumption appears to exceed reported income for America's poorest households is part of a more generalizable trend among the bottom quintile of U.S. households. We posit two causes for this trend. The first is a valid difference when consumption occurs out of resources that don't count as income—savings and assets, borrowing, and certain kinds of government welfare that aren't counted under a restrictive definition of income. The second is measurement error. While consumption and income are likely both measured with some error, our concern here is with the underreporting of income relative to consumption. Capturing income from government programs is a particular challenge with all income surveys underestimating welfare provision to a degree.[22]

One of the key findings from Shaefer and Edin's analysis of U.S. poverty is how successive welfare reforms in the 1990s and 2000s have resulted in a shift away from cash assistance toward subsidies and in-kind transfers for the non-working poor. This includes the replacement of Aid to Families with Dependent Children (AFDC) with Temporary Assistance for Needy Families (TANF); the State Children's Health Insurance Program; and relaxed eligibility for the Supplemental Nutrition Assistance Program (SNAP).

We speculate that these reforms may have contributed to the cleavage between income and consumption measures for the very poorest households since welfare that looks like income is more likely to be recorded as income. If this is correct, then the case is further strengthened for treating consumption as a preferred measure of welfare, and switching the metric for official poverty measurement in the U.S. from income to consumption.

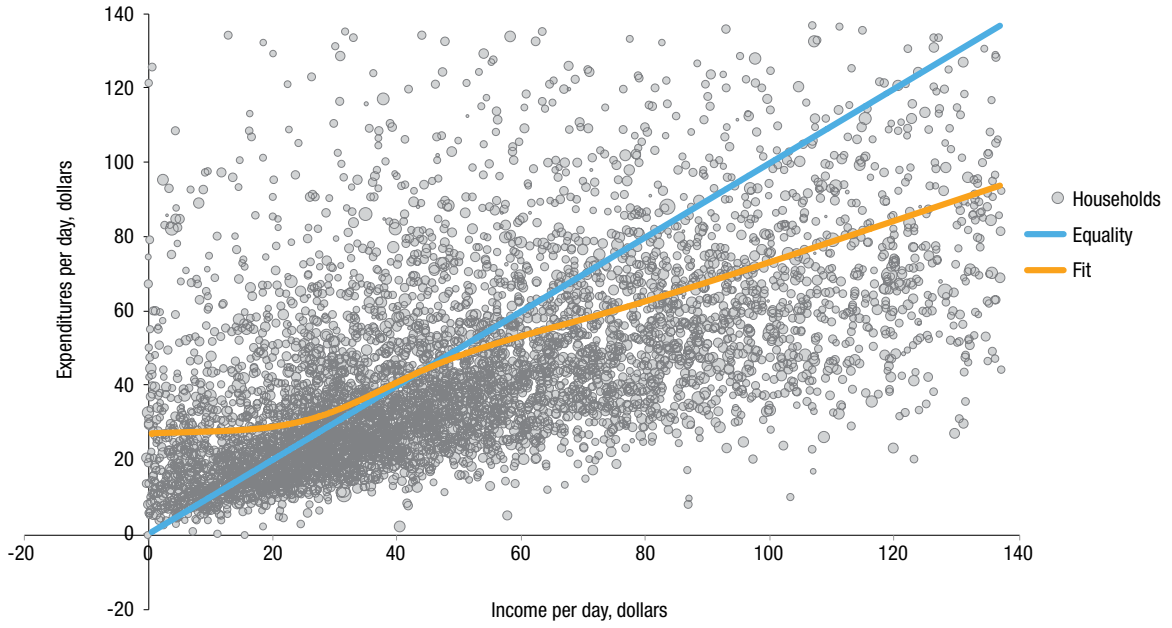
Let's assume for now that our consumption measures are accurate so that differences between income and consumption either reflect valid differences or underestimates of income.[23] What, if anything, can we infer about the welfare of households that report zero or close to zero income which are the focus of Shaefer and Edin's study?

We explore this question by observing the relationship between consumption and a restrictive measure of post-tax income reported by the same individuals sampled in the CEX (Figure 6a). (We should stress that this measure of

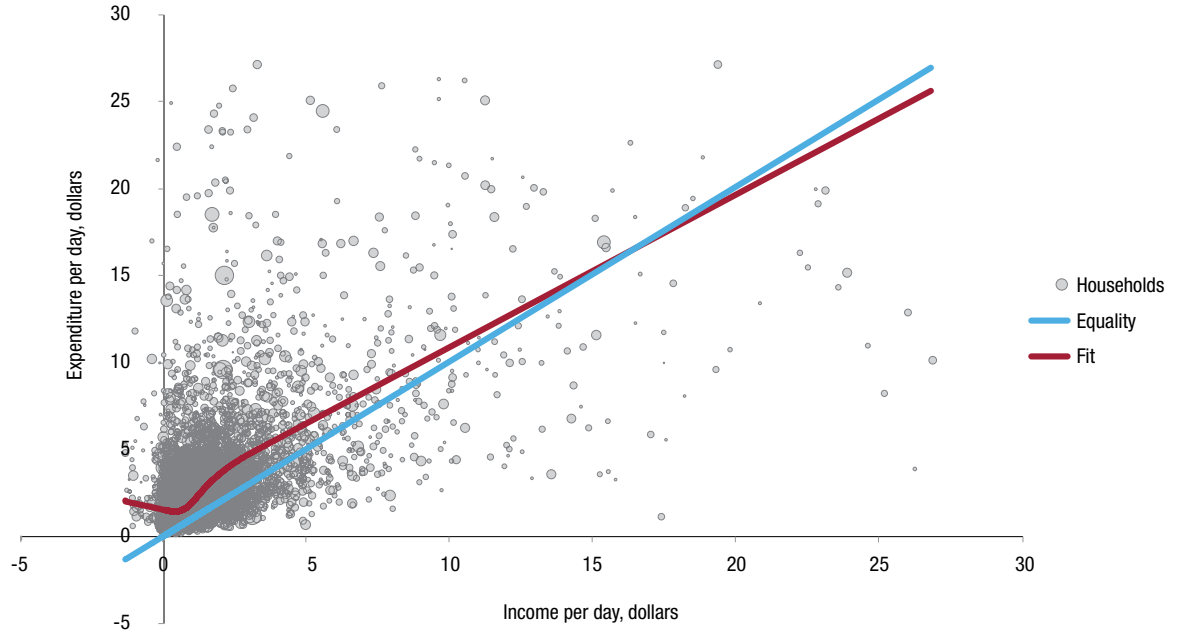
It is not clear whether a comparison of individuals reporting 20 dollars and zero dollars a day in income coincides with any different in consumption or welfare in the U.S.

Figure 6: Income versus consumption

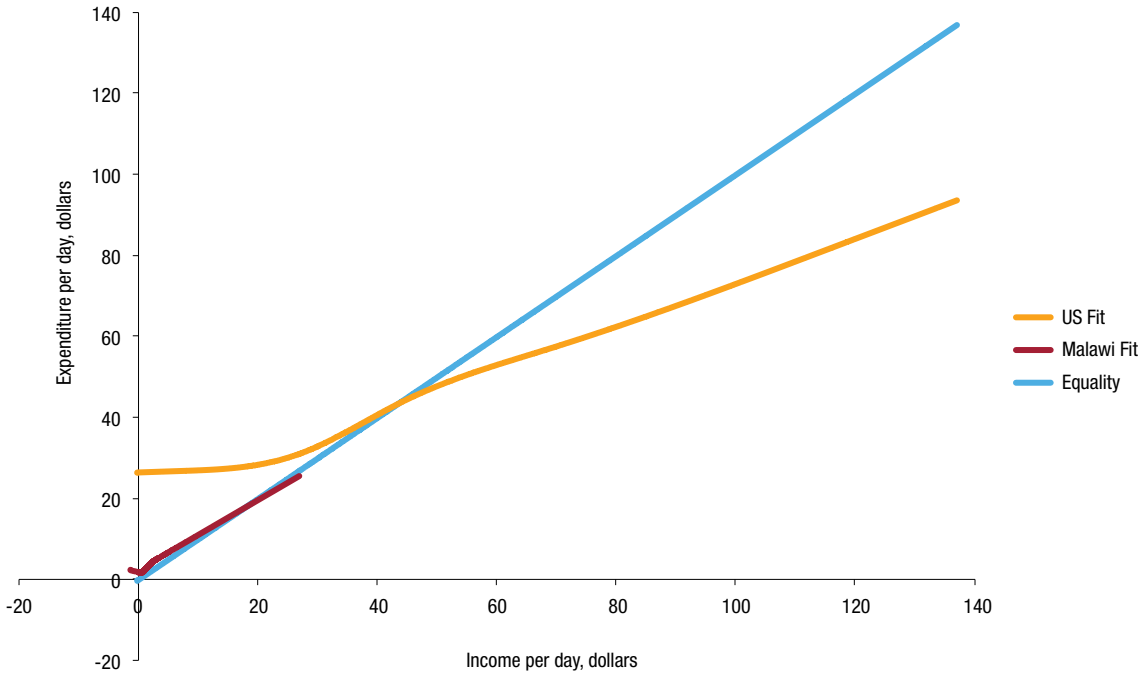
6a. U.S. income versus consumption (CEX)



6b. Malawi income versus consumption (2010 Integrated Household Survey)



6C. COMPARING BEST-FIT CURVES OF INCOME VERSUS CONSUMPTION FOR THE U.S. AND MALAWI



income drawn from the CEX is understood to be especially crude and we use it here reluctantly in the absence of an alternative.) This relationship turns out to be far from uniform. Notably, the range of consumption levels for those reporting zero or close to zero income is not only wide but indistinguishable from the equivalent range for those reporting income levels up to 20 dollars of income per person per day—above the level of the official U.S. poverty line. This is illustrated by the horizontal section of the best-fit curve where the relationship between reported income and consumption is absent. Put differently, it is not clear whether a comparison of individuals reporting 20 dollars and zero dollars a day in income coincides with any difference in consumption or welfare. Thus, a focus on zero or close to zero income respondents may not offer the best filter for examining minimum living standards in the U.S..

We repeat this exercise using data from Malawi's Third Integrated Household Survey from 2010 to explore how the relationship differs in a developing country (Figure 6b).[24] Here the relationship between consumption and income is considerably stronger at lower levels. In addition, the best-fit curve bottoms out at a much lower level of consumption meaning that zero income responses serve as a better indication of acute deprivation (Figure 6c).

A dearth of cash implies a dearth of agency, which is a critical component of welfare.

It would be wrong to conclude, however, that the alarming income-based estimates of $2 poverty in the U.S. can be rejected altogether. Recall that the divergence between income and consumption may be valid, with consumption occurring out of non-income resources. We tend to think of this kind of consumption as being a sign of resilience, but such consumption can have drawbacks too. Specifically, when consumption occurs out of in-kind assistance, beneficiaries have limited discretion as to which goods and services are consumed. For these individuals, $2 a day income poverty represents a state of purgatory where relatively robust levels of consumption ensure many of their most basic material needs are met, but the absence of a reliable source of income or equivalently liquid assets makes it extremely difficult or impossible to cope with unexpected needs, such as replacing broken or stolen assets or emergency travel. Shaefer and Edin document this phenomenon in terms of the virtual exclusion of income-poor households from the cash economy—and trace its origins to welfare reform.

These circumstances imply a severe form of poverty in both a practical and intangible sense. A dearth of cash implies a dearth of agency, which is a critical component of welfare.[25] If we want to capture this aspect of welfare in poverty measures, then income—not consumption—may be the more relevant metric after all. Moreover, if divergent levels of consumption and income are a particular feature of contemporary U.S. poverty, then there may be a case for employing a unique approach to poverty measurement in the U.S.. This may justify the seemingly crude comparison of income poverty in the U.S. with consumption poverty in the developing world after all.

One determinant of living standards across countries that has yet to be mentioned is public goods. If government welfare programs can be divided into two categories—those that are captured in income and consumption surveys, and those that just register in consumption surveys—most public goods fall into a third category: those that appear neither in the income nor the consumption ledger. We postulate that access to and quality of these goods—for instance, public education, justice and infrastructure—is the most important distinguishing factor between the welfare of the poor in the U.S. and developing countries. The difficulty of quantifying their contribution to the welfare of the poor is further proof, if it were needed, of the elusiveness of robust comparisons of poverty across diverse settings.

Why comparisons of U.S. and developing world poverty matter

Comparing the degree of poverty in the U.S. and the developing world is intriguing. But given the conceptual and empirical difficulties it entails, is it worth the trouble? Two developments over the past 12 months would suggest it is—or at least that it deserves further exploration.

The first is the U.N. process to negotiate a set of Sustainable Development Goals (SDGs) by September 2015. These goals will replace the Millennium Development Goals which have provided a framework for motivating, managing

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and monitoring international efforts to support poverty reduction and global development over recent years. The difference this time around is that the new framework aspires to being universal, with application to developed and developing countries alike.

What this means in practice still needs fleshing out. It is already clear that the SDGs will set a headline goal of eliminating extreme poverty, using the $1.25 poverty line, by 2030. There will also likely be some attempt to incorporate progress recorded against national poverty lines. Whichever way the framework develops, it will raise the demand for approaches to poverty measurement that can be meaningfully applied across different settings. On this issue, it is notable that while the World Bank's official $2 a day global poverty rate has been cut by a third since 1996, Shaefer and Edin report a sharp increase in $2 poverty in the U.S. over the same period, based on their narrow income measure. A fully developed SDG framework should seek to verify such stories and bring others to light.

The second development is a change in the World Bank's approach to compiling global poverty estimates. What is referred to as the global poverty rate has traditionally been a developing world poverty rate in practice. In other words, when a country is classified as high-income, its population is assumed to no longer be relevant to global poverty measures since global poverty lines are set at such a low absolute value. People from rich countries have therefore appeared neither in the numerator of global poverty estimates (as members of the global poor) or in the denominator (as members of the relevant population that is being assessed).

As of last year, this has changed. The World Bank has begun reporting the global poverty rate in a literal sense where the denominator consists of the world population. The twist is that they retain the assumption that global poverty lines are not applicable to high-income countries by excluding the full population of high-income countries from the numerator. Thus the full population of high-income countries, including their poorest, are treated as equivalent to the non-poor in low and middle income countries.

The most immediate result of this change is to appear to bring down the global poverty rate by around 3 percentage points: according to the World Bank, the global poverty rate for 2010 using the $1.25 poverty line now stands at 17 percent, compared to the previous measure of 20 percent. (It also makes for a slightly more lenient interpretation of the World Bank's new global poverty target of 3 percent by 2030.) However, its longer term impact may be to encourage greater scrutiny of the assumption that extreme poverty does not exist in the developed world, following in the spirit of Shaefer and Edin's important work.

Conclusion

How poor are America's poorest people? This brief offers three insights on this question.

First, plausible estimates of the share of the U.S. population living under $2 a day range from 4 percent (12 million people) to zero depending on the definitions and sources used to obtain poverty estimates. Second, although the war on poverty remains far from won, very few Americans are deprived of their most basic material needs, as $2 a day poverty implies in the developing world. Third, poverty is manifested in different ways in the U.S. and developing countries, and focusing narrowly on material needs means missing other critical components of welfare, such as agency, which may be especially lacking among America's poorest people.

Regardless of the relative standing of America's poor with people living in developing countries, the inability to obtain a more precise estimate of $2 a day poverty in the U.S. ought to be addressed.

Obtaining a robust understanding of the extremes—or tails—of the income distribution is notoriously difficult and a recognized weakness of standard representative surveys. Due to the pioneering work of Thomas Piketty, Tony Atkinson and others, information about the upper tail of the distribution in rich countries has been greatly advanced in recent years. Their insight, drawing on an approach pioneered by Simon Kuznets, was to use tax data to obtain estimates of the incomes of the rich, and to combine these with survey data to locate higher incomes in the context of the overall distribution of income. This leaves the lower tail as the least explored and understood part of the distribution in rich countries.

In poor countries, the converse is true: tax systems are insufficiently developed to provide an accurate portrayal of the rich so the upper tail remains largely unknown; by contrast the concentration of incomes near zero means that surveys capture the lower tail relatively well. Thus, we know least about the top of the distribution in poor countries and least about the bottom of the distribution in rich countries.

There is a sad irony in the fact that the analytical tools used to assess welfare in the U.S. are poorly equipped to capture those whose lives are most precarious. However, adapting existing surveys to more accurately identify and assess living standards of the poorest members of society is possible. Steps could include oversampling those on very low incomes, addressing low response rates, and incorporating the homeless and institutionalized who are traditionally excluded from survey respondents.[26] Such changes would provide a stronger evidence base to inform poverty programs.

If we accept a shared concern for the poor in society, then it follows by an unstoppable logic that we have an even greater responsibility for the very poorest. Without reliable estimates of their welfare, this responsibility is too easily ignored.

Appendix

SIPP

The primary definition of income in the SIPP attempts to capture all forms of monetary income, including income from a job, unemployment payments, gifts from friends or family, among many other sources.

As in Shaefer and Edin, tax credits are computed using the TAXSIM program which estimates taxes based on information in the survey data. The most important aspect of taxes for our purposes is tax credits such as the Earned Income Tax Credit, which on net benefit poorer households. Like Shaefer and Edin, we ignore taxes for any household that on net owes money to the government. We thus do not consider anyone to be in $2 poverty due to tax liability.

Our "primary" in-kind benefits consist of the Supplemental Nutrition Assistance Program (SNAP), or food stamps, and a valuation of housing subsidies and public housing. All of these are considered in Shaefer and Edin.

Our "secondary" in-kind benefits consist mainly of a valuation of free and reduced breakfasts and lunches at public schools. We also include small amounts of energy, transportation, food, and clothing assistance though these have a negligible impact on our figures. These benefits are not considered in Shaefer and Edin.

SPM

We use the SPM definition of total resources, which is income and transfers net of taxes without modification. We divide this value by family size, ignoring the SPM "household equivalence" scale and poverty thresholds.

CEX

Through interviews and diary surveys—we use the former—the CEX attempts to record total expenditures on a wide variety of items, including food, housing, and transportation.

We take the CEX measure of total quarterly household expenditures as a given. This figure is converted to an annual measure and divided by family size to obtain our final measure of household resources.

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Endnotes

1. Based on the preliminary estimate of the poverty threshold for a 2 adult, 2 children household of $23,624 per year in 2013. U.S. Census Bureau, 2014a
2. Shaefer and Edin, 2013
3. The $2 poverty line has traditionally been employed alongside the more meager $1.25 measure that denotes "extreme poverty." The $2 line is considered the more relevant measure for assessing poverty in middle income countries. $2 is the median poverty line among developing countries. $1.25 is the mean poverty line of the world's poorest 15 countries. All poverty lines are denominated in 2005 PPP dollars.
4. Czajka and Denmead, 2008; Meyer, Mok and Sullivan, 2009
5. Shaefer and Edin adopt a definition of income that incorporates in-kind benefits, but does not include free and reduced price school meals and a number of smaller forms of assistance, including energy assistance and public transportation assistance. See appendix for details.
6. We classify respondents as reporting zero income if they report no more than 1 cent of income or benefits a day.
7. See Short, 2011.
8. McWhinney and Champion, 1974
9. Fremstad, 2012. Initiated in 2009, the Bureau of Labor Statistics' Gemini project has undertaken research and led the redesign of the CEX in conjunction with an expert panel by the National Academies' Committee of National Statistics. See Panel on Redesigning the BLS Consumer Expenditure Surveys, 2013.
10. Sabelhaus et al., 2012
11. Bee, Meyer and Sullivan, 2012
12. One additional concern is the CEX's generation of inconsistent trends vis-à-vis other surveys. These cannot be fully explained but seem to be at least partly due to changes in the CEX design. See Bavier, 2014. Another concern for this analysis is the recent introduction of a screening process known as the minimum expenditure edit, which results in a small number of households that report zero or very low expenditures being treated as nonresponders. Given the limited available public information, we have to assume that this process works judiciously and does not exclude valid responses from those at the very bottom of the distribution. Bass, 2008.
13. We use data from Meyer and Sullivan, 2012, choosing their core consumption measure which excludes health spending.
14. These small estimates give a false impression of precision; it is worth emphasizing that they are based on the responses of only a handful of observed households.
15. Census Bureau, 2014b. See also Dang and Lanjouw, 2014.
16. Wimer et al., 2014
17. Chandy, 2013; Beegle et al., 2010
18. Deaton and Grosh, 2000
19. The exception is where the Bank has access to survey micro data and the data show a bunching of income or consumption at zero. The CEX does not exhibit significant bunching, in contrast to the SIPP and SPM surveys.
20. Datt, 1998
21. Note that this process means that poverty measurement can be affected by error in the measurement of consumption at the top end of the distribution, which is well evidenced in the CEX.
22. The underreporting of income and the difficulty of accurately recording non-market sources of income in surveys are well-documented. See Weinberg, 2004, and Branch, 1994. For evidence of survey performance in capturing social program participation, see Czajka and Denmead, 2008; Meyer, Mok and Sullivan, 2009. Consumption too suffers from measurement error and underreporting, as discussed earlier.
23. As, for instance, in Azzarri et al., 2010
24. Using the standard consumption measure of welfare from this survey, 62 percent of Malawi's population lives below $1.25 a day, and 82 percent lives below $2 a day.
25. Sen, 1999. Under these circumstances, individuals likely face other negative social effects that diminish their welfare, such as shame and social exclusion. Chen and Ravallion, 2013, argues that since these effects are likely to be greater in countries with higher overall living standards, global poverty measures should be altered to at least partially capture aspects of relative poverty.
26. These population groups are also excluded from surveys in developing countries. See Carr-Hill, 2012.