

# Counting the poor

Methods, problems and solutions behind the \$1.25 a day global poverty estimates

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Ending poverty within a generation



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## Investments to End Poverty

Global poverty is falling fast. 21% of the world's people are living on less than US\$1.25 a day compared with 52% in 1980. However, 1.2 billion people still live below the poverty line. To plan for and finance the end of poverty by 2025 we need to understand the scale and scope of all potential resources including aid, domestic revenues, private sector spending and that of non-governmental organisations (NGOs).

Investments to End Poverty is an initiative which provides independent, reliable, accessible data and information to make this happen. It proposes a more rigorous framework to ensure that all resources are better used and engages with a wide range of actors including companies, aid agencies, governments, foundations, civil society and the military to share knowledge and understanding on how poverty can be ended. To find out more about the initiative please email us at [info@devinit.org](mailto:info@devinit.org)

This paper is the third Investments to End Poverty working paper, following *ODA loans* and *Harnessing all resources* which are available at [www.devinit.org](http://www.devinit.org). In 2013 several other papers will be added to this series, including a working paper on food aid.

## Introduction

Data play an important role in global efforts to end poverty. Data are relied on to determine the prevalence of poverty and its characteristics, to quantify and allocate global resources devoted to reducing poverty, and to assess whether investments to help the poor ultimately work. Good data can inspire confidence in poverty reduction plans and enable results to be rigorously pursued; weak or absent data reduce the goal of poverty reduction to a matter of faith.

This paper is concerned with the central data issue in poverty analysis: counting the number of people who live in poverty around the world. It describes various problems encountered in calculating global poverty estimates and their implications for the accuracy and application of poverty data.

Understanding and awareness of how poverty is measured is generally very low in the development community. This is surprising given the focus on reducing poverty and the frequency with which poverty numbers are cited. Part of the reason for this is that poverty measurement is a deceptively complex field. This paper is intended to expand understanding and awareness by singling out the most important issues and explaining them in layman terms.

Poverty is defined here by the narrowly construed, but widely used, income-based poverty line of US\$1.25 a day. This poverty measure is employed in the first and foremost Millennium Development Goal (MDG1a) – to halve the rate of global poverty by 2015 from its 1990 level. It will almost certainly be used again in any successor target as part of a new set of global goals. The reliability of poverty estimates based on this poverty measure is therefore pivotal to the credibility of the MDG and “post-2015” agenda.

The overarching message of the paper is threefold. First, counting the number of people living in poverty worldwide is difficult. It incurs technical, resource, coordination and institutional challenges. Second, the availability and quality of poverty data has improved dramatically over the past two decades. At the same time, however, certain weaknesses within the data have crystallised. Third, there is scope to significantly improve the quality and usefulness of poverty data through a combination of immediate reforms and longer term investments.

The paper is structured as follows. It begins by briefly explaining how global poverty numbers are obtained. It then explores weaknesses in the data organised around three core problems: the reliability of household surveys; adjustments for prices; and timeliness and frequency issues. Next, it describes the underlying constraints to improving poverty data. A concluding section looks at data solutions and the ways in which the scope of, and demand for, poverty data are changing.

## Where do poverty numbers come from?

Global poverty numbers are an amalgamation of a vast amount of data collected from different places, time periods and sources. Their construction represents an impressive logistical feat. What follows is a summary of how global poverty estimates are derived. Some of the finer details are deliberately overlooked for the sake of brevity.<sup>1</sup>

The primary source of poverty numbers is household surveys. These are organised at the country level and administered by government statistical agencies. In a typical survey, a nationally-representative sample of households is interviewed and asked to specify purchases against a list of market products over a given period of time. By combining their responses with answers to questions about non-market goods and services and the changing stock of household assets, it is possible to estimate the level of consumption in each surveyed household. The results for all surveyed households are aggregated and extrapolated to obtain an estimate of the mean level of consumption per person throughout the country and the distribution of consumption around that mean (in other words, how consumption levels throughout the population vary from the average). With these two pieces of information, it is a relatively straightforward quantitative exercise to estimate the share of the country's population who fall below any given consumption level, or poverty line, at the time of the survey.

Global poverty estimates represent the sum of country-level estimates using a common poverty line. Responsibility for calculating global poverty numbers falls to the World Bank. It sets the international poverty line of US\$1.25 a day to correspond with the level where poverty lines are typically drawn, and thus with how poverty is defined, in the world's poorest countries.<sup>2</sup> The Bank collates household surveys from across the world and uses the results from the most recent survey for each country to arrive at a global total.<sup>3</sup> (For those countries where no survey exists at all, the rate of poverty is assumed to be the same as that recorded in the remainder of the continent in which the country is located.)

However, before country level poverty estimates can be added together, two key adjustments must be made to survey results to account for differences across places and time.

First, the consumption mean from each survey is converted into comparable international prices, or purchasing power parity (PPP) terms, to account for differences in the cost of living between countries.<sup>4</sup> Second, each survey mean is adjusted further to account for any change in the country's level of consumption that has occurred between the year of the most recent survey and the year for which global poverty is being estimated, since in the majority of countries these do not coincide.<sup>5</sup>

The result of these adjustments is that global poverty estimates represent a fusion of five unique data sources: household surveys, population censuses, national accounts, consumer price indexes and the International Comparison Program. Information from the population census is used to design the sampling frame for a survey to ensure it is truly representative, and to translate poverty rates in a country into numbers of poor people based on population estimates. PPPs from the International Comparison Program are used to convert the

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<sup>1</sup> Those seeking a more exhaustive account are encouraged to read Ravallion and Chen 2004, 2008.

<sup>2</sup> The US\$1.25 global poverty line is set in 2005 prices. This paper does not call into question the level at which the global poverty line is drawn or the methodology for deriving the global poverty line.

<sup>3</sup> Where a country has undergone a survey before and after the year for which global poverty is estimated, the Bank uses the results from both surveys to arrive at the country estimate.

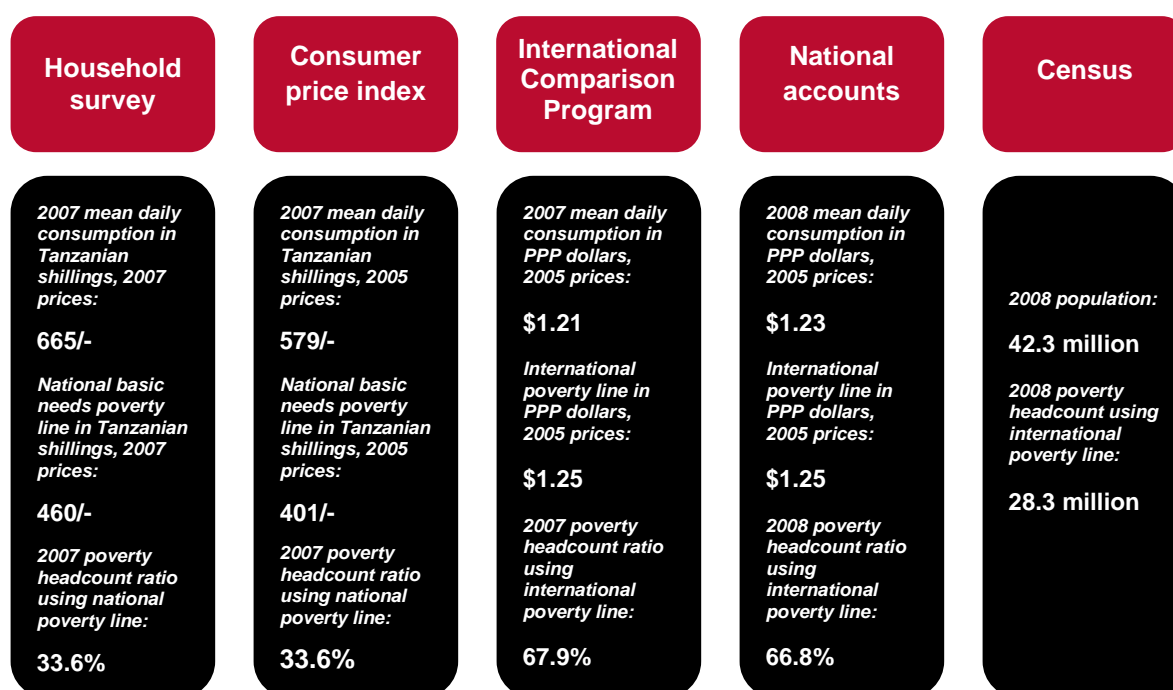
<sup>4</sup> This adjustment can be made to the poverty line instead of the consumption mean to obtain the same result.

<sup>5</sup> See footnote 3. Note that the distribution of consumption is usually assumed to be unchanged from the most recent survey.

consumption mean in local currency to a comparable dollar value, only after being adjusted by the consumer price index to account for changes in prices between the year in which PPPs are calculated and the year of the survey. Consumption growth rates from a country's national accounts are used to capture changes in consumption levels between the survey year and the year for which global poverty is estimated.

Figure 1 provides an example of how the five different sources are combined to transform the results from Tanzania's 2007 household survey so that they can be used in the global estimate of poverty for 2008.

**Figure 1: Transforming results from Tanzania's 2007 household survey for use in the 2008 global poverty estimate**



This reliance on multiple sources of data reflects the challenge of making disparate survey results compatible with one another. It is also an inherent weakness of poverty estimates. Each source introduces errors, which are compounded in aggregate poverty numbers. Together, these sources form a house of cards on which household surveys perch. An exhaustive account of the reliability of poverty estimates would therefore require a full analysis of each data source. In this paper we highlight only the most egregious problems among these data sources, while stressing that the reliability of poverty estimates is only as good as the quality of all the underlying statistics on which they draw.

Finally, it is worth noting that the methodology for counting global poverty is barely more than 20 years old. While household surveys have a much longer history, it is only recently that they have been administered across the world and aggregated through a consistent and transparent approach. Examining how this was brought about – which is beyond the scope of this paper – would likely provide valuable insights for how improvements in poverty data can be institutionalised.

## Problem 1: Reliability of survey estimates

There is near-universal agreement that household surveys are the most, if not the only, reliable means of estimating the incomes of poor people. However, considerable variance exists in the way surveys are designed and implemented, both across countries and within the same country over time. (This contrasts with other data sources, such as demographic health surveys, where data collection methods have been largely standardised.) These differences have a significant impact on survey results and comparability.

This section identifies a number of decision points encountered in administering surveys and the way choices shape poverty estimates. While some differences in approach may be justified to account for country-specific characteristics, most are made with little appreciation of the implications for poverty measurement. Some correction techniques have been developed to allow results from different survey methods to be objectively compared, but these only exist for some of the issues described below and besides, they are rarely employed.<sup>6</sup>

- **Consumption versus income.** In a minority of countries, mostly in Latin America, poverty estimates are derived from surveys of household income, as opposed to household consumption. Income is difficult to measure accurately in developing countries: it is more volatile than consumption, needing a longer recall period (see pp8–9) for an accurate assessment of welfare; it is a foreign concept to many rural, low-income households and has to be imputed, creating scope for significant measurement error; and it is likely to be under-reported if respondents believe declaring their income will make them liable to be taxed.<sup>7</sup> In Ghana, income and consumption surveys were carried out concurrently allowing poverty estimates from the two approaches to be compared.<sup>8</sup> Results from income surveys were found to be highly unstable. Out of five localities, the capital, Accra, was measured as having the highest incidence of poverty in one round of the survey and the lowest incidence in the second round, a year later.
- **Number of consumption items.** Consumption questionnaires vary in the number of unique items respondents are required to report; questionnaires range from identifying less than 20 to over 400 unique products. Longer lists of items and greater disaggregation of product types tend to result in higher estimates of consumption by prompting respondents' memories, and are perceived as being more accurate. Average consumption levels reported against a detailed questionnaire in El Salvador were 31% higher than responses collected under a condensed set of consumption items; poverty estimates were 46% higher when calculated from the condensed survey.<sup>9</sup>
- **Treatment of non-food items.** While the monitoring of food purchases is a core part of all surveys, questionnaires vary in their inclusion of other important consumption items, such as health, education, energy, water and housing.<sup>10</sup> When these items are excluded, reported consumption is naturally lower resulting in higher rates of reported poverty. One study of Brazil, Ecuador and Nepal showed that excluding these items could result in poverty rates that are up 50% higher.<sup>11</sup>

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<sup>6</sup> Lanjouw and Lanjouw, 2001

<sup>7</sup> McKay, 2000

<sup>8</sup> Coulombe and McKay, 1995

<sup>9</sup> Jolliffe, 2001

<sup>10</sup> Wane and Morisset, 2011

<sup>11</sup> Lanjouw and Lanjouw, 2001

- **Recall versus diary.** The most common approach to identifying household purchases is through an interview in which a household member is asked to recall transactions over a given period. However, in a number of countries, including China and many East and Central Asian countries, the household representative is instead asked to maintain a diary of daily household purchases. The latter approach tends to result in higher reported consumption, likely due to fewer purchases being forgotten, and is therefore seen as more accurate. For instance, in an experiment in Latvia in which the same households were surveyed using both methods, reported expenditure on food was 46% higher when recorded using a diary.<sup>12</sup> However, the diary method is less feasible in countries with high rates of illiteracy and its accuracy has been shown to diminish over time as respondents develop fatigue.<sup>13</sup>
- **Recall period.** The length of time over which respondents are asked to recall purchases differs from one survey to another. Recall periods can range from as little as three days to a year. Longer recall periods provide a more representative snapshot of household consumption but risk under-reporting by stretching respondents' memories too far. There is also a risk of over-reporting as respondents erroneously allocate older purchases to the recall period ("telescoping"). An experiment in Ghana found that each day added to the recall period produced a three percentage point decline in reported daily expenditure.<sup>14</sup> In the 1990s, India tried reducing its recall period from 30 days to 7 days for food expenditures, resulting in an *increase* in reported food expenditure of 30%. This translated into a reduction in its poverty headcount of almost 200 million people, forcing a subsequent adjustment to allow comparison with previous estimates.<sup>15</sup>
- **Seasonality.** A related challenge to the recall period is to account for changes in consumption patterns that occur with the seasons. In some countries, such as Laos, Namibia and Lesotho, different households are visited at different times of the year, which creates biases in the data that need to be carefully managed.<sup>16</sup> A preferred approach is to visit the same households at multiple times during the year but this is rarely done. Analysis of survey data from China, where respondents keep daily consumption diaries for 12 months, shows that a simple extrapolation from a single month's report could result in the headcount poverty being overstated by 50%.<sup>17</sup>
- **Number of family respondents.** Relying on a single household member to account for expenditure of the entire household may result in under-reporting, especially in urban areas and societies where responsibility for expenditure is not centralised in the household. In surveys where expenditures are recorded using a diary, a separate diary can be provided for each household member. When this was tested in Tanzania (see below), reported consumption was 14 to 17% higher using personal diaries than with a single diary for the entire household.

A recent experiment in Tanzania tested a number of different survey designs and protocols to demonstrate their impact on poverty estimates.<sup>18</sup> The most reliable approach *ex ante* (a personal diary method) provided a benchmark against which all others were tested. The variant approaches all resulted in lower reported consumption and significantly elevated poverty estimates (Figure 2). Given that the personal diary method is very rarely employed in practice, this suggests that most household surveys overestimate poverty levels.

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<sup>12</sup> Scott and Okrasa, 1998

<sup>13</sup> Beegle et al., 2010

<sup>14</sup> Scott and Amenuvegbe, 1991

<sup>15</sup> Deaton, 2001

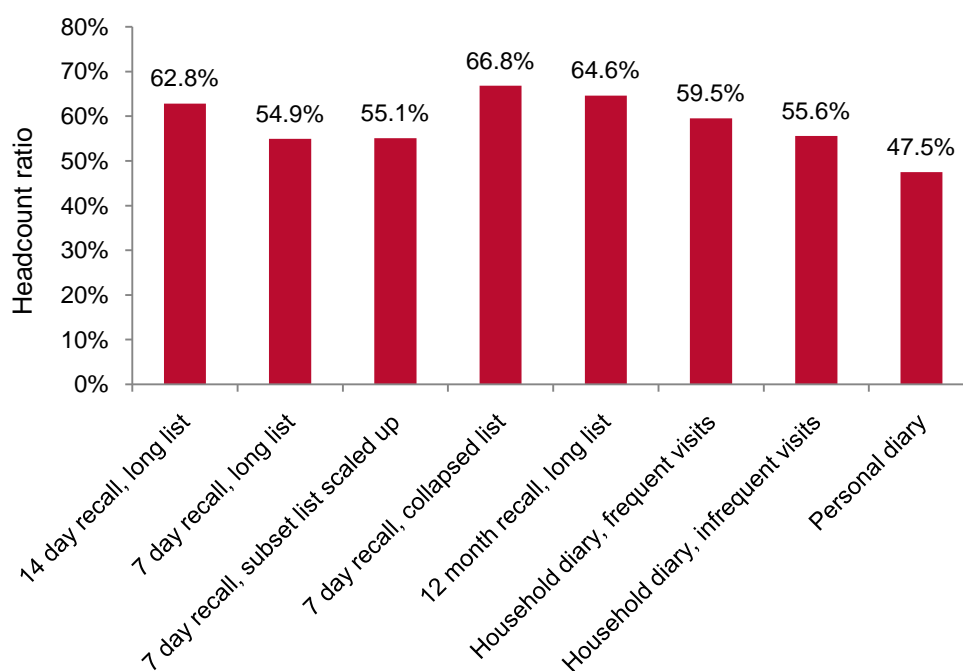
<sup>16</sup> Pettersson 2005

<sup>17</sup> Gibson, Huang and Rozelle, 2003

<sup>18</sup> Beegle et al 2010



**Figure 2: Results from eight alternative methods for measuring household consumption in Tanzania**



### Discrepancy between surveys and national accounts

Household surveys may be an indispensable tool for gauging the consumption of the poor, but they do not offer the only estimate of consumption in an economy. An alternative estimate can be derived from a country's national accounts: the macroeconomic accounting framework used to derive gross domestic product (GDP) and its components.<sup>19</sup> This provides a potentially useful tool for verifying household survey results. Unfortunately, in many countries, large differences have been recorded between the two sources in the level of mean consumption and in its growth over time.<sup>20</sup>

India presents one of the most egregious and well-documented cases of this paradox. National account estimates of per capita consumption have consistently and significantly exceeded those from surveys (Figure 3). India's rapid economic growth since the early 1990s has hardly registered in survey data. Since national accounts have arrived at larger estimates for both consumption levels and consumption growth, the difference in levels estimated from the two sources has grown gradually wider.

How serious is this problem for the credibility of poverty estimates? Some difference in the two measures of consumption is to be expected. First, there are some subtle but important conceptual differences between what the two sources purport to measure which can likely explain some portion of their deviation.<sup>21</sup> Second, just as there is measurement error in surveys, attributable in part to the inconsistencies in survey methods described above, there are equivalent reasons to doubt the accuracy of national accounts.<sup>22</sup>

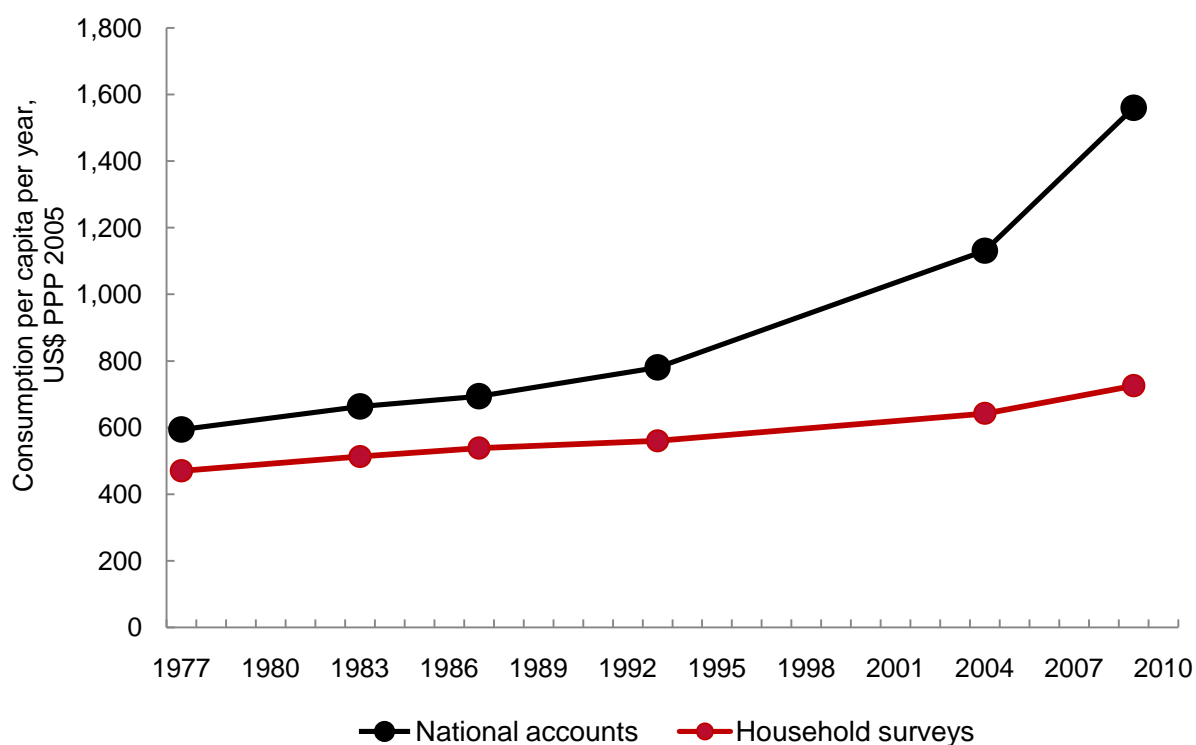
<sup>19</sup> The relevant measure from national accounts is household final consumption expenditure.

<sup>20</sup> Ravallion 2003; Deaton 2005

<sup>21</sup> Namely, the exclusion of imputed rents for housing and indirectly imputed financial services from surveys.

<sup>22</sup> Jerven, 2012

**Figure 3: Difference in consumption estimates in India**



One of the most serious criticisms levelled at surveys is that response rates tend to drop off for households with higher incomes.<sup>23</sup> This can result in a portion of an economy's consumption being missed altogether from survey measures and mean consumption being underestimated. The consequences of this are potentially profound: not only might it explain part of the discrepancy between survey and national account measures of consumption, it suggests that the latter could be more accurate. However, this need not invalidate surveys from poverty measurement. Low response rates from high income households are likely to result in inequality also being underestimated in surveys, and if these two errors perfectly offset each other, an accurate poverty estimate can still be derived.<sup>24</sup> In other words, accurately capturing the consumption of low-income households in surveys may be sufficient to gain accurate poverty estimates.

Where does this leave us? Even with these insights, the paradox remains and cannot simply be brushed aside. After a debate in the academic literature lasting nearly 40 years, our understanding of why differences exist between surveys and national accounts remains very limited. If we conclude that the true value of an economy's consumption likely lies somewhere between the two sources, this does not get us very far given the size of the gulf that exists between them in many countries.<sup>25</sup> Nevertheless, it provides further weight to the claim that surveys tend to understate progress against poverty.<sup>26</sup> It also indicates that the use of national accounts in global poverty estimates (to adjust survey consumption estimates for growth between the survey year and the year for which global poverty is being estimated) is problematic.

<sup>23</sup> Groves and Couper, 1998. Other research argues that lower-income individuals are under-represented in surveys. See, for instance, Carr-Hill, 2013.

<sup>24</sup> Korinek, Mistiaen and Ravallion, 2005

<sup>25</sup> Indonesia, Pakistan and Mexico are among those countries where survey estimates of consumption persistently stand at less than half of national account estimates.

<sup>26</sup> Deaton, 2010

Moreover, the disconnect between surveys and national accounts has implications for our overall stock of knowledge about poverty. A huge body of literature has been amassed over recent decades postulating relationships between poverty and various macroeconomic variables such as economic growth, investment and aid volumes. These studies rely on data from different sources being of sufficient quality and compatible with each other.<sup>27</sup> For instance, predictions of the impact of global events on poverty, such as rising food prices or the global financial crisis, typically employ elasticity measures whose credibility hinges on the relationships observed in historical data across different datasets being accurate and persisting over time. Such assumptions cannot be taken for granted.

## **Problem 2: Adjustments for different prices**

The credibility of global poverty estimates relies on survey results from different countries and different time periods being expressed in the same terms, or prices. This ensures that equal values from different surveys reflect the same consumption power and that consumption levels can be judged against a common international poverty line. Despite adopting increasingly sophisticated techniques to achieve comparability, it is far from clear that these are sufficient for global poverty estimates to be deemed reliable.

PPPs are intended to allow consumption levels to be compared across countries. They convert local currencies into a comparable dollar value by adjusting for differences in the cost of living between countries. Such differences exist because many goods and services are not traded and low wages in developing countries cause these items to be relatively cheap. The result is that the same amount of money can go a lot further in low-income countries than in rich economies. PPPs correct for this difference: a PPP dollar should have the same consumption power regardless of where it is spent.

PPPs are derived from an extensive multi-year process known as the International Comparison Program (ICP), the most recent of which was calculated for 2005. Successive rounds of the ICP have led to significant improvements in the coverage and quality of PPPs so that today there is much greater confidence in our ability to compare poverty levels across countries.

For all this progress, the reliability of PPPs remains subject to considerable doubt. At its root, this uncertainty concerns the concept of PPPs itself and the futility of trying to capture the difference in prices in one country with those of all others in a single weight. Patterns of consumption vary significantly from one place to another meaning that there are few items that are commonly consumed everywhere. Those that are may not be easily compared because of differences in form or quality. This tension between what is comparable and what is common is a key challenge in the selection of which goods and services are analysed under the ICP.

Each of the weaknesses identified with the 2005 ICP relate to this central tension: the difficulty in accurately adjusting for the relative prices of services such as education and health, given the high variance in their quality; the lack of reliability of price level comparisons of countries in different continents; and the neglect or limited coverage of rural prices for many countries, including some large countries such as Brazil, Pakistan and Thailand.

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<sup>27</sup> "Claiming that growth has done little to reduce poverty is comparable to saying that, in spite of rapid growth in China, poverty in India remained the same. The [national accounts] and the surveys evidently measure different things." Deaton, 2010

Beyond this conceptual challenge, the ICP relies on national accounts in each country to determine what is being consumed and in what quantities. The dramatic upward revision in Ghana's GDP announced in 2010 has highlighted the failure of many African countries to regularly update the weights employed in their national accounts<sup>28</sup> – the very information on which the ICP depends. For these countries, PPPs are not only less reliable, but are vulnerable to significant revisions, in either direction, if national account weights are subsequently rebased.

A country's consumer price index (CPI) is used to update its PPP for changes in relative prices between each ICP round. This is an imprecise tool given that the two measures differ in the commodities whose prices they track and the weights applied to those commodities.<sup>29</sup> The result is that price adjustments become less reliable as surveys extend further from the last ICP round. The quality of CPIs varies from country to country. CPIs face some common challenges to PPPs in monitoring prices: determining which items' prices to track, failing to periodically update the selection of items, and focusing disproportionately on prices in urban areas.

It is difficult to quantify the degree of confidence that should be placed in (and the associated margins of error that could be drawn around) today's PPPs and consequently global poverty estimates. One approach is to consider the extent to which previous ICP rounds have revised previous poverty estimates. This gives some indication of the degree to which poverty estimates might be revised again in future ICP rounds, even if we accept that each revision leads to an overall improvement in accuracy.

The 1993 round resulted in the poverty rate for Sub-Saharan Africa being revised upward by 10 percentage points and revealed for the first time that its poverty rate exceeded that of South Asia. Meanwhile, the poverty rate for Latin America and the Caribbean was modified downwards by eight percentage points. The 2005 round precipitated an update to the international poverty line that itself led to a dramatic upward revision in global poverty estimates of nearly half a billion people.

Such large revisions in poverty estimates, which affect estimates for both the past and present, again call into question the robustness of previous research on poverty dynamics and characteristics. Much of what we know about poverty rests on statistically demonstrated relationships that might not be robust to updated price estimates. Moreover, with another round of the ICP drawing to a close, further large-scale revisions of PPPs, and consequently global poverty estimates, could be on the horizon as soon as the end of 2013. Given such uncertainty, the credibility of global poverty data is severely tested.<sup>30</sup>

### **The volatility of global poverty estimates**

Figure 4 illustrates the evolution of poverty estimates over the past 30 years for the world and the three regions that account for most of the world's poor: East Asia and Pacific, South Asia and Sub-Saharan Africa. It compares our understanding of the trajectory of poverty today with estimates published over that period. While the scale of global poverty has continuously been revised upwards or downwards, these revisions bear little or no relationship with reported poverty trends but are instead driven by measurement changes, be they new survey and census data, PPP revisions, or updates to the poverty line.

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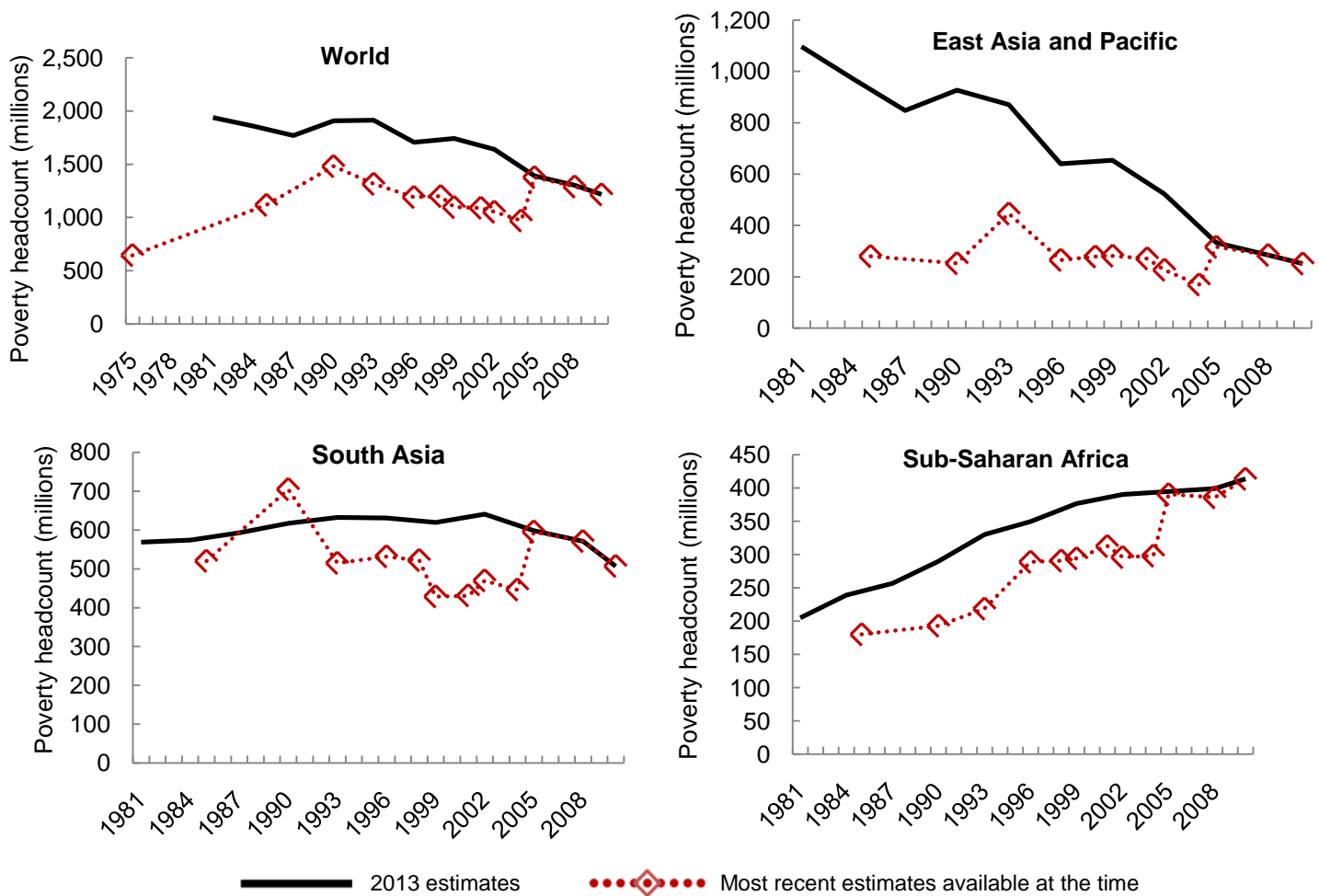
<sup>28</sup> Jerven, 2012

<sup>29</sup> Deaton, 2012

<sup>30</sup> Deaton and Heston, 2008

For instance, the number of people in poverty in South Asia is believed to have held remarkably constant over the past 30 years, but estimates have oscillated between 400 and 700 million people over that period. Conversely, reported levels of poverty in East Asia have consistently hovered at around 200–400 million people, but today it is understood that over 800 million people have been lifted from poverty over that period.

**Figure 4: Current versus contemporary poverty estimates**

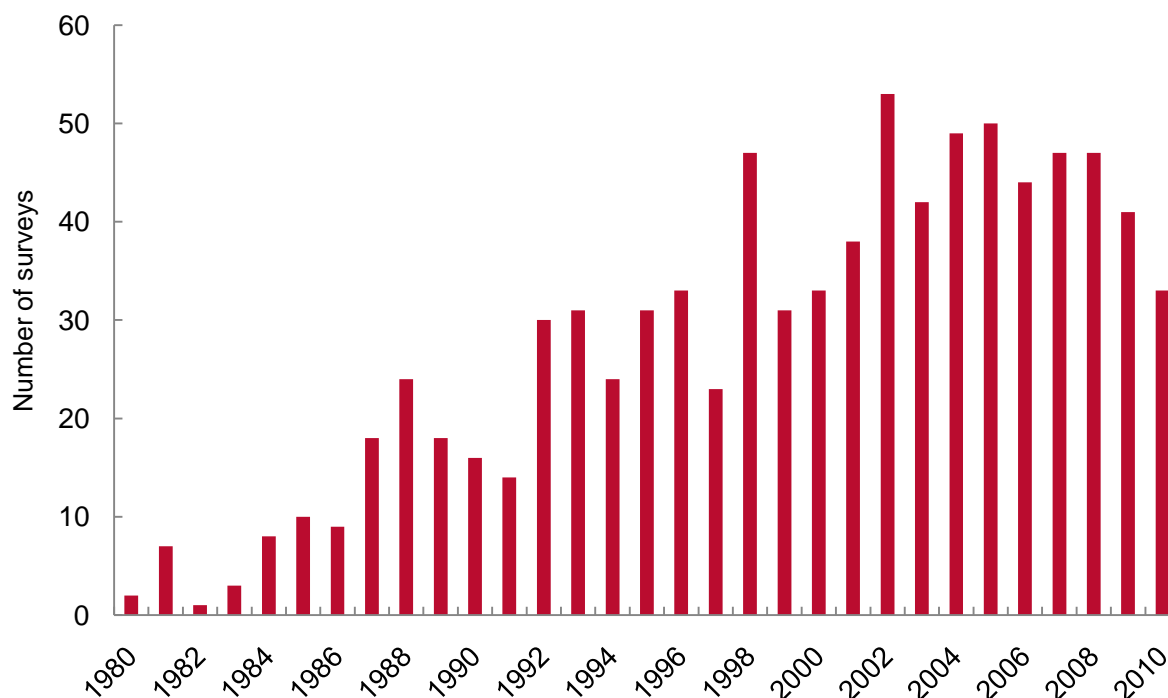


### Problem 3: Frequency and timeliness

The accuracy of global poverty numbers depends on the availability of household surveys. The fewer surveys there are or the less up-to-date they are, the greater reliance there is on shaky assumptions and adjustments to generate the country-level poverty estimates from which global estimates are formed. These accommodations also make it harder to justify producing global estimates promptly, given the inevitable trade-off that exists between the accuracy and timeliness of poverty data. Despite tremendous growth in the availability of surveys, this remains one of the biggest constraints to poverty data today.

Growth in the use of surveys chronicles the systemisation of today’s approach to global poverty monitoring. The first attempt<sup>31</sup> to count the number of poor people worldwide using the survey method was conducted by the World Bank in 1990 and used data from 22 national surveys; the most recent update undertaken in early 2013 drew on 869 surveys from 129 countries. After rising over the 1980s and 1990s, the total number of surveys conducted has stood at around 45 a year for the last decade (Figure 5).

**Figure 5: Number of new surveys conducted each year**



An important part of this story has been the growth in country coverage. Over recent years and especially the last decade, there has been a systematic – and highly successful – effort to expand the reach of household surveys to all corners of the developing world. Today only a handful of countries remain without a survey, Myanmar, North Korea, Zimbabwe, Somalia and Eritrea being the largest.

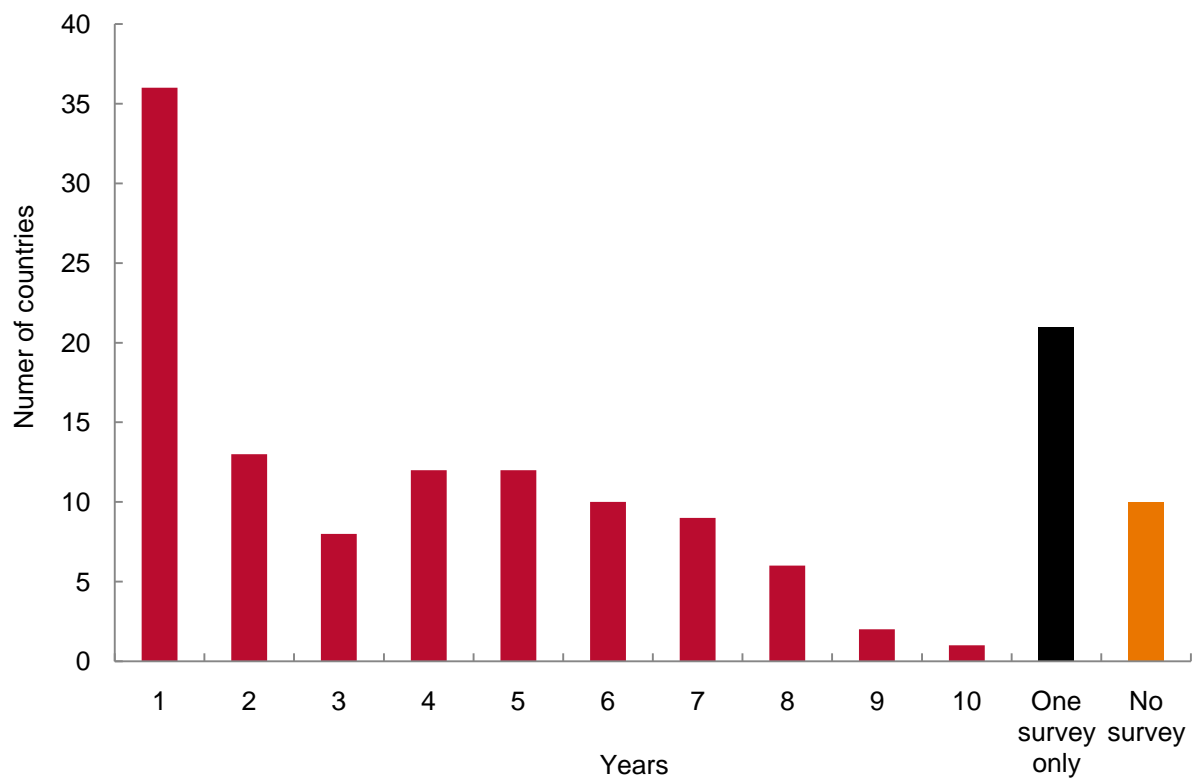
Institutionalising household surveys so that they are conducted on a regular basis in each country has proven a greater challenge. Figure 6 shows the numbers of years that have passed between the two most recent surveys in each country. Two-fifths of the countries failed to meet the International Monetary Fund’s (IMF) criterion of satisfactory statistical governance of conducting a survey at least every five years.<sup>32</sup> Figure 7 shows the survey results employed for the 2010 global poverty estimate. Twelve of these were conducted a decade or more ago.

Of the 49 countries in Sub-Saharan Africa, 43 have undergone a survey, but only 28 of these countries have survey results from the past seven years. This means that a quarter of the 414 million people who are estimated to live on under US\$1.25 a day in the region according to the most recent official poverty estimate are derived by extrapolating from surveys dating from 2005 or earlier.

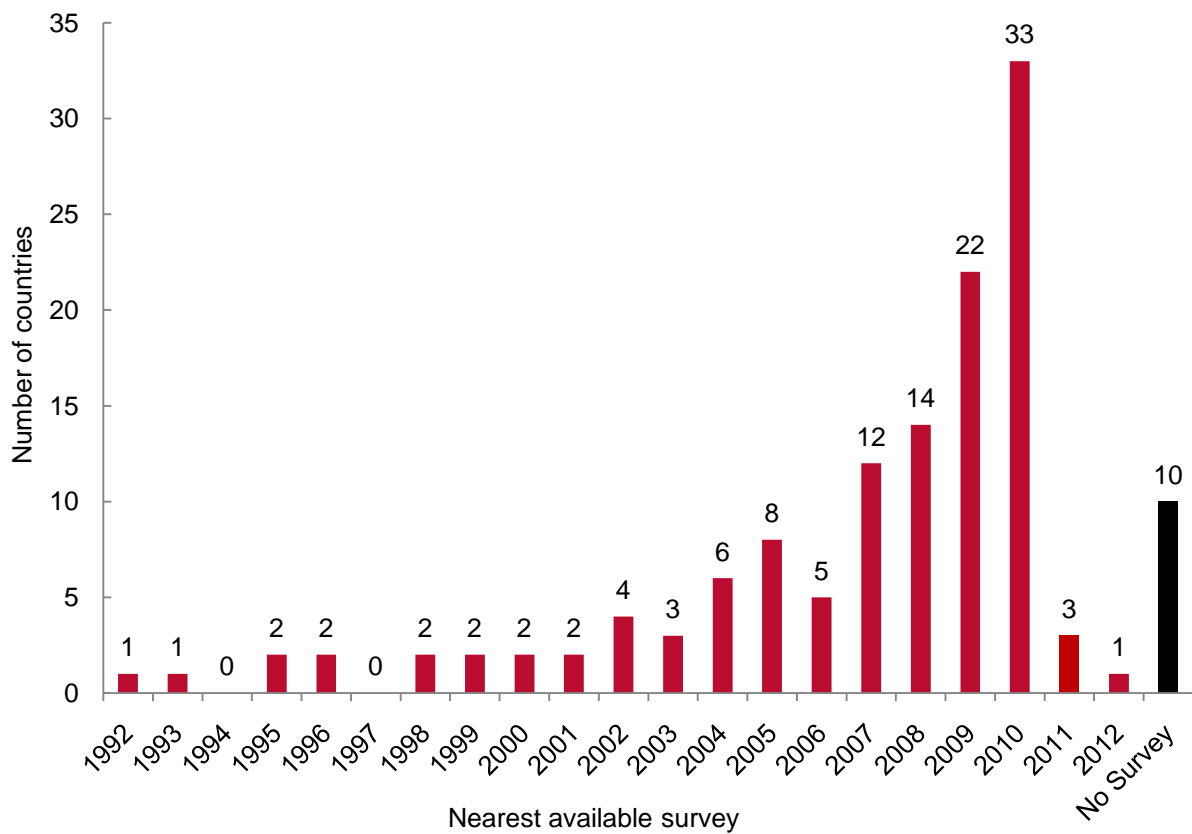
<sup>31</sup> An earlier version of the current methodology was used for the 1975 poverty estimate in Ahluwalia, Carter and Chenery, 1978.

<sup>32</sup> IMF, 2007.

**Figure 6: Number of years between last two surveys**

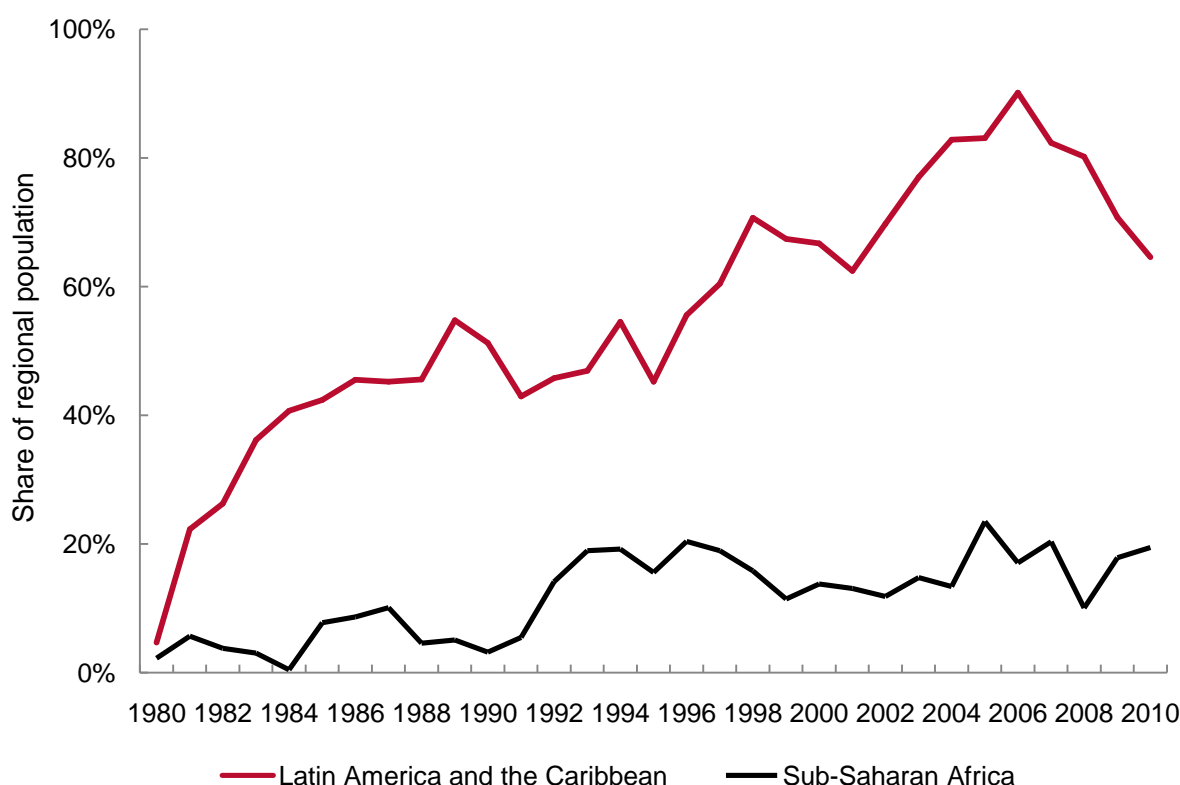


**Figure 7: Year of nearest survey used in estimation of 2010 global poverty**



The frequency of household surveys falls largely along regional lines. On average, countries in Latin America and Eastern Europe conduct surveys most frequently, African and Middle Eastern countries have the fewest and Asian countries fall somewhere in the middle. Thus, whereas the average country in Sub-Saharan Africa has undertaken three surveys over the past three decades, the average country in Latin America can claim thirteen.<sup>33</sup> Following a steady increase in survey frequency in Latin America, new surveys each year now account for over 60% of the region's population (Figure 8). This compares with less than 20% in Sub-Saharan Africa – a figure that has not shown any trend improvement in the past two decades.

**Figure 7: Survey coverage of regional population per year: Latin America versus Sub-Saharan Africa**



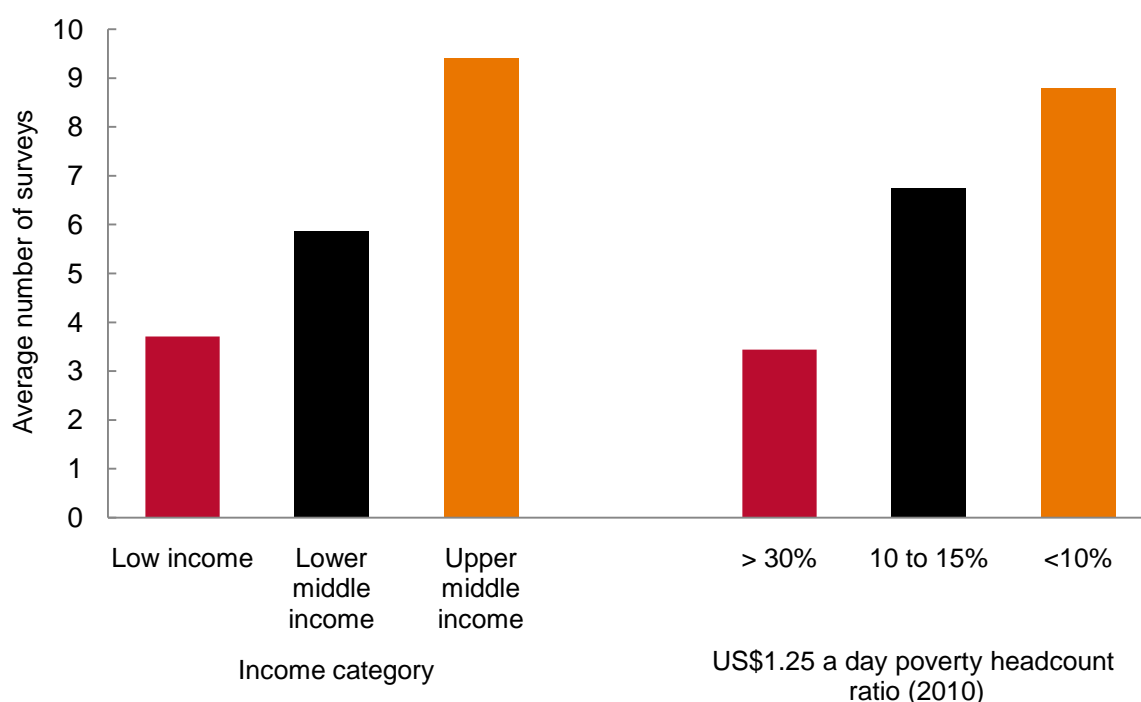
Given the global community's commitment to ending poverty, its greatest interest is in surveying the poorest countries. However, survey frequency is low among this group. Today's low-income countries have undertaken, on average, four surveys since 1980, whereas lower-middle income countries can claim six, and upper-middle income countries nine. Unsurprisingly, the same pattern emerges if we group countries by their rates of poverty (Figure 9). This means that our knowledge about poverty is generally weakest in countries where poverty is most acute.

The tendency of the world's poorest countries to have the fewest surveys has many plausible explanations, such as limited resources and capacity, or poor governance. But these are not an excuse. There are a handful of countries that buck the trend and demonstrate the feasibility of conducting regular surveys despite their country characteristics. Uganda and Madagascar are low-income countries in East Africa with poverty rates exceeding 30%, but have administered seven surveys each.

<sup>33</sup> Excludes countries with populations <1m.



**Figure 8: Average number of surveys per country group**



Whether up-to-date surveys are available for global poverty estimates depends not just on the frequency of surveys, but on the time it takes for them to be organised, carried out and processed, which can easily drag into years. A particularly egregious example comes from Botswana. The most recent global poverty estimate for 2008 extrapolates all the way back from Botswana’s 1993 survey. A more recent survey was undertaken in 2002–3, but a decade later, its data has yet to be made available to the World Bank. At the other end of the spectrum, a recent effort to fast-track the execution of a survey in Bangladesh reduced the time for data collection, processing and publication to six months. This was achieved by strengthening preparation, training, and having data validated and “cleaned” in the field.<sup>34</sup>

What about the availability of global poverty estimates? Until recently, these have been updated every three to four years, and operated on a lag of four to seven years. This cycle is useful as a basis for analysing economic history but is much less suited to understanding current events and informing actions looking ahead.

For instance, the World Bank announced in 2012 that it believes the first Millennium Development Goal – to halve the rate of global poverty from its 1990 rate – was likely reached in 2010. Ironically, the UN MDG Summit that took place in September 2010 was spent studying the global poverty estimate for 2005 and discussing the risks on progress to the goal, when it was the perfect occasion to celebrate the goal’s early accomplishment. In another example, it has taken until 2013, five years after the collapse of Lehman Brothers, to develop an accurate sense of the immediate impact of the global financial crisis on global poverty. (It turns out the impact was rather modest.)

In October 2012, World Bank President Jim Kim announced that the Bank will begin updating its global poverty estimates every year. This is a welcome and significant improvement but the lags in global poverty estimates, while shorter, will remain. The 2015 benchmark against which future progress on poverty reduction will ideally be measured in the post-2015 framework will not be known until 2018 based on the existing cycle.

<sup>34</sup> World Bank, 2012.

## Constraints to better data

Improving the quality of global poverty estimates depends not only on identifying problem areas but understanding why these exist. The previous sections demonstrate that some of the problems that plague poverty data are purely technical: for instance, the anomalous divergence between national account and survey measures of consumption, or the difficulty of adjusting for price levels across countries with distinct consumption patterns. However, the majority of problems are operational. This is good news since it means they can more readily be solved.

Four factors account for most of the problems with poverty data. Attention is limited here to constraints that affect surveys but similar factors account for weaknesses in other data sources used in global poverty estimates.

### Limited capacity

Government statistical agencies in many developing countries suffer from acute capacity constraints; these affect both the quality and frequency of household surveys. In extreme cases where major flaws in survey design or implementation occur, the results have to be rejected altogether. More common is for small errors to enter into the results and surveys to go far beyond their intended budget and schedule. A vicious cycle is created where low capacity leads to surveys being conducted less frequently, and low frequency prevents institutional learning that would make surveys easier to perform over time. Given their limited capacity, many statistical agencies rely on donors and consultants to lead surveys.

The World Bank has developed an index that ranks countries on their statistical capacity, known as the Bulletin Board on Statistical Capacity (BBSC). There is a strong correlation (0.7) between each country's 2011 BBSC score and the number of household surveys undertaken over the past three decades, confirming that the capacity to monitor poverty reflects a country's overall statistical capacity. Despite significant improvements in the index by some countries (for example, Nigeria and Malawi) and deteriorations by others (Botswana, Cote d'Ivoire) the average performance across all developing countries over the past 8 years has remained entirely unchanged.

It is less clear why capacity constraints exist. A modest correlation (0.5) is found between BBSC scores and the World Governance Indicator's government effectiveness measure. This suggests that statistical capacity might be best understood as part of the broader challenge of improving policy formulation and implementation, and the performance of public services and the civil service. However, given that this correlation is only partial, it also indicates considerable scope for statistical capacity to exceed (or lag behind) the standards set by the rest of government.

### Limited resources

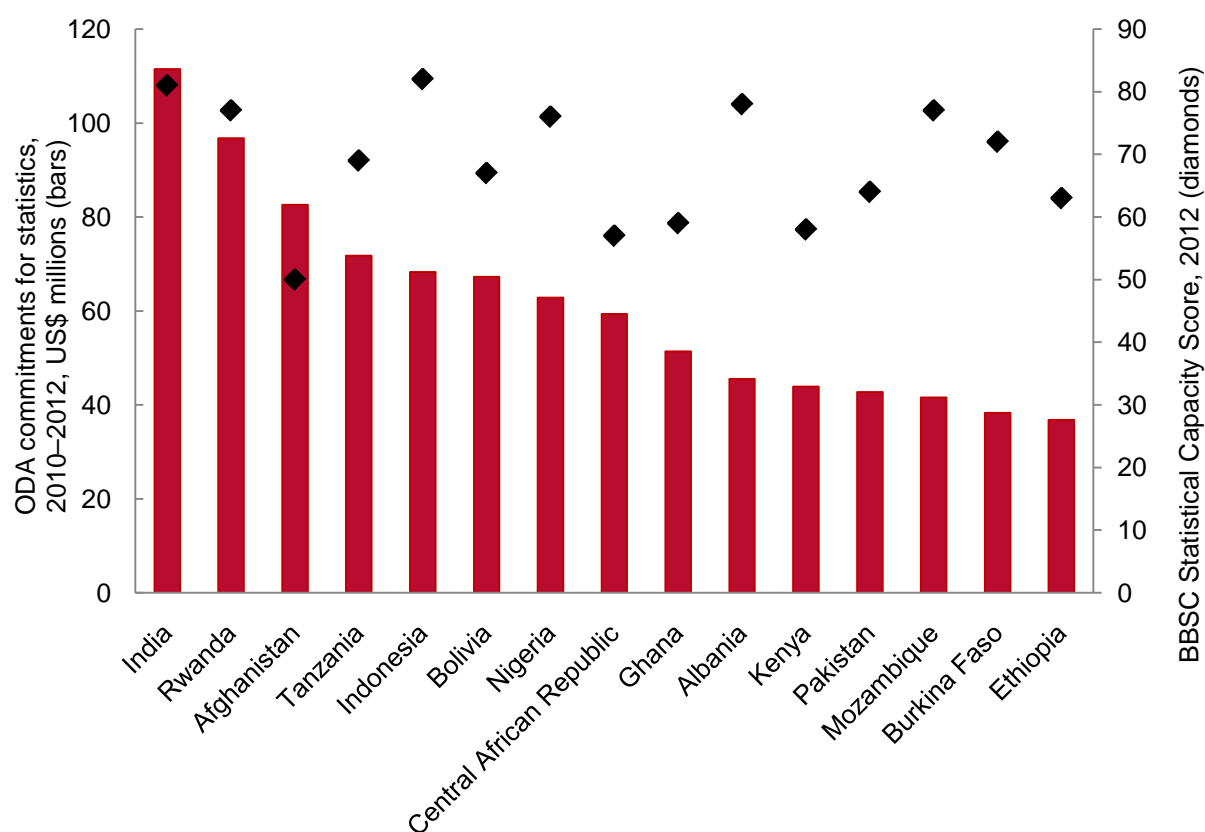
A typical cross-sectional survey costs US\$1–2 million, although there is significant variance around this figure. (For instance, the different survey methods described earlier imply costs per household ranging from US\$100 to \$1,000.) This is a non-trivial amount of money in the budget of a low-income country government. Since surveys are not conducted regularly in most developing countries, they are financed out of the development budget as opposed to the recurrent budget, meaning they must compete for heavily oversubscribed funds alongside all other public investment opportunities. The result is that the funding they receive is often a fraction of their request and initial cost estimate. Since the design, implementation and processing of surveys often takes place over several years in poor countries, funding for subsequent years can fail to materialise, further delaying survey completion.

Aid commitments to support statistical systems in developing countries currently stand at between US\$200 and \$500 million a year.<sup>35</sup> This represents no more than 0.3% of total aid commitments. In recent years, much of this aid has been devoted to establishing country strategies for building statistical strength although assistance for surveys remains largely one-off and project-based. It cannot be automatically assumed that more donor money would translate into better results. While there are examples of successful donor-funded programmes to support statistical capacity building – such as the MECOVI Program in Latin America – there are many cases of failure.

### Coordination failure

The World Bank has played a central role in expanding the use of household surveys over the past three decades. However, it has had less success in standardising survey designs and promoting a schedule of regular surveys for each country. Despite joint donor efforts to improve statistical capacity including PARIS21 and the 2004 Marrakesh Action Plan for Statistics, a review of aid flows suggests that coordination is still lacking. Ongoing assistance for statistical development is highly concentrated, with 15 countries accounting for 54% of aid (Figure 10).<sup>36</sup> Furthermore, there is no apparent relationship between the volume of aid received and recipients’ statistical capacity.

**Figure 9: Top 15 Recipients of ODA for statistical capacity building, 2010–2012**



<sup>35</sup> OECD Creditor Reporting System, 2012; PRESS, 2012

<sup>36</sup> PRESS, 2012

## **Institutional issues**

Government statistical agencies suffer not only from limited capacity but limited status and influence compared with other central agencies responsible for data collection and management such as ministries of finance and central banks. This can be manifested in various ways: for instance, it is rare for strong leaders to be appointed to lead a statistical agency or for an agency to find a political champion who can advocate for its interests. Given their lowly status, statistical agencies struggle to attract and retain high quality technical staff for key posts; it would be highly unusual for a top-flight economist or mathematician returning from graduate studies in the US to take up such a role. Importantly, donors have tended to gravitate towards stronger government agencies with whom they can build strategically important relationships, and have paid short shrift to statistical agencies.

The World Bank's role in compiling global poverty aggregates may also be constrained by institutional factors. The infrequency and long lags attributed to global poverty estimates in recent years reflect the Bank's apparent reluctance to publish provisional poverty data that it may later have to revise. This contrasts with, for instance, its willingness to publish provisional GDP estimates and forecasts.

## **Data solutions and emerging poverty data needs**

The quality of global poverty estimates has significantly improved over the past 20 years, and there is every reason to believe this trend will continue. We will soon reach a point where every developing country with a population exceeding 1 million has undergone a survey; with each round of the ICP, PPPs are becoming more accurate, and as countries continue to develop, so will their capacity and resources for poverty measurement.

Such improvements are important but are also incremental. For those who anticipate the arrival of a disruptive innovation that can cut through the challenges of poverty measurement inherent in the existing methodology and its reliance on household surveys, a long wait is in store. Certainly there are a number of promising avenues for revolutionising how poverty is counted: polls of self-reported financial hardship, big data from cell phone activity and search engine entries, and satellite imagery are among the most creative.<sup>37</sup> However, the viability of these approaches remains largely unproven and therefore speculative.

A more fruitful approach to accelerating progress is to tinker with the current methodology or to make it work better. The ongoing process to define a new post-2015 global development agenda to replace the MDGs provides an opportunity to advance a programme of reforms and to shift some of the norms surrounding poverty measurement. Three modest but consequential proposals are offered below.

***Harmonising survey design and protocol.*** The variance in survey approaches (and the failure of previous efforts to address this problem) can be explained by a lack of coordination and deference to country preferences by the development community. The post-2015 process can raise the level of cooperation and reframe poverty measurement as a global public good that demands a common standard to which all countries must subscribe.

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<sup>37</sup> Deaton 2010; UN Global Pulse, 2012; Sutton, Elvidge and Ghosh 2007.

### ***Publishing provisional “real-time” poverty estimates at a global and country level.***

Publishing country and global poverty estimates would not have to wait for household surveys if the World Bank were to generate draft estimates on a systematic basis in the same way it does for GDP. At a country level, this would involve identifying and tracking indicators that correlate with poverty levels reported in surveys that can be or are already being monitored on a more regular basis, and using these to derive up-to-date provisional poverty estimates.<sup>38</sup> (Possible indicators include measures of asset ownership or household characteristics monitored in demographic health surveys, or labour force survey indicators which in many countries are monitored on a quarterly basis.) While this would not improve the quality of global poverty numbers, it would raise their profile and potentially raise demand for improved poverty data in the future. Moreover, it would make the data more relevant to policymakers.

***Reforming the governance of poverty data at a country level.*** Over the past 30 years, central banks have been made independent from government in most countries around the world. One of the lesser known consequences of these reforms has been an improvement in the quality of economic data that falls under their responsibility. Central banks have been able to devote sufficient resources to data collection and analysis, and attract and retain capable statisticians and economists by offering salaries beyond the confines of the public service pay scale. Similar reforms to national statistical agencies could achieve the same outcome for poverty statistics.<sup>39</sup> This should be attempted in countries where central banks are performing well but statistical agencies are languishing. Alternatively, responsibility for administering surveys could be transferred to central banks.

The post-2015 discussions should also prompt reflection on how the demand for and application of poverty data is evolving. Understanding these changes is important for guiding additional investment in poverty data over the timeframe of the post-2015 agenda. Two areas are identified below that entail natural extensions of traditional poverty counting. Both promise to significantly advance poverty analyses and interventions.

### **Poverty targeting**

Governments, donors and NGOs are increasingly interested in not just counting the poor, but identifying and targeting the poor through dedicated programmes. This is evidenced by the rapid spread of cash transfer and safety net programmes over the past decade. Today, an estimated 750 million to 1 billion people are beneficiaries of cash transfers in the developing world.

One of the factors that differentiates programmes is the method used to identify the poor from among a broader population. Community selection, self selection, geography and proxy means testing are among the most common methods. Proxy means testing draws on household survey results to identify, through statistical analysis, the salient characteristics that distinguish the poor and that can be readily observed or verified. For instance, poor households may be distinguished by the material with which their homes are constructed or by the absence of a fridge or television. These characteristics are then used as the criteria by which to identify eligible beneficiaries. All individuals who share this characteristic are eligible beneficiaries. The New America Foundation’s Global Savings and Social Protection Initiative tracks 63 anti-poverty social protection programmes across 37 developing countries that use proxy means testing. (Other initiatives, such as microfinance projects, use proxy means testing ex-post to assess whether they have been successful at targeting poor individuals.)

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<sup>38</sup> Christiansen et al., 2012.

<sup>39</sup> Sandefur, 2012.

In some of the more sophisticated programmes, beneficiary information is compiled in detailed registries. For instance, the Benazir Income Support Program in Pakistan maintains a database known as the National Economic and Social Registry which contains records drawn from a programme-specific nationwide survey of all households.<sup>40</sup> These records are linked to a country-wide database (the National Database and Registration Authority, or NADRA), which is used for issuing biometric identification cards and enables programme beneficiaries to be verified. While registries enable very precise targeting, it is unclear how feasible it is for them to be kept up to date without repeated exhaustive surveys that are expensive to administer.

### **Tracking the poor**

Frequent household surveys enable the prevalence of poverty to be closely monitored, but give no indication as to changes in the composition of poverty over time. This makes it difficult to assess vulnerability, to determine the impact of events on poor populations, and to understand the vagaries of living in poverty. Such analyses require panel surveys, in which the same sample of people is revisited in sequential surveys.

Only a handful of countries have undertaken panel surveys and even fewer have succeeded in institutionalising this approach to poverty analysis alongside standard (cross-sectional) surveys used for official poverty estimates, so that it can usefully inform policymaking. Such efforts have been prohibited by cost and the difficulty of executing panel surveys effectively: surveys often suffer from high rates of attrition and non-response which negatively affect their sample size and representativeness.

This may now be changing. Over the past five years, a number of attempts have been made to conduct high-frequency panel surveys using mobile phone interviews for data collection. These typically combine a standard face-to-face baseline survey with repeated remote interviews administered through a call centre. The baseline survey serves not only to collect respondent information and to explain the survey process, but to distribute mobile phones to those who do not already have them.

There are numerous merits to this approach. Most importantly, mobile surveys are extremely cost effective: reported costs per interview range between US\$4.10 and \$7.30, compared with the US\$100–1,000 range cited earlier for in-person surveys.<sup>41</sup> Rates of non-response and attrition are consistent with those recorded in in-person surveys, and, at least in one case, extremely low rates have been achieved.<sup>42</sup> Also, surveys are flexible and can be administered rapidly.

Despite this obvious promise, a number of obstacles remain. Experience suggests that phone interviews must be kept to a relatively short length (no more than 30 minutes) which may be not be long enough to obtain the amount of information that is needed for a reliable assessment of welfare. Providing poor respondents with a mobile phone represents an intervention which needs to be adequately accounted for. In countries where network coverage remains limited, it may be impossible to obtain a representative sample of the population. More experimentation and practice will allow these and other challenges to be assessed. The World Bank is currently rolling out mobile phone panel surveys to a number of countries in Africa and Latin America.

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<sup>40</sup> BISP, 2011

<sup>41</sup> Croke et al, 2012

<sup>42</sup> Dillon, 2011.



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