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[−] Summary and Keywords

Economists have long been preoccupied with trying to understand the nature and causes of poverty. From Adam Smith to David Ricardo, Thomas Malthus, Karl Marx, and John Stuart Mill, a common belief among economists is that the benefits of economic growth are rarely experienced by the poorer sections of society. An important issue is how to measure global poverty accurately. International organizations such as the United Nations and the World Bank have endeavored to measure global poverty since the adoption of the Millennium Development Goals (MDG), stated in the UN's Millennium Declaration which was adopted in 2000 by 189 nations. However, measuring global poverty is far from simple. Estimates of poverty and particularly of global poverty are very sensitive to the underlying assumptions, such as the notion of poverty itself, the choice of welfare indicator, the unit of measurement used, and purchasing power parity rates. One of the significant advances in global poverty studies was the World Bank's introduction of a poverty line in the 1990 World Development Report (WDR). Despite these efforts, the precise number of poor in the world remains ambiguous. Nevertheless, emerging frontiers in poverty analysis indicate new interest in measuring poverty more broadly. Some ideas that may dominate the future of poverty research include multidimensional poverty, vulnerability to poverty, and chronic poverty.

Keywords: global poverty, World Bank, welfare, poverty line, purchasing power parity, poverty measurement, multidimensional poverty, vulnerability to poverty, chronic poverty, Millennium Development Goals

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Introduction

"Measuring poverty at the local level is straightforward; at the national level it is hard but manageable; and at the level of the world as a whole it is extremely difficult, so much so that some people argue that it is not worth the effort" (Deaton 2006:12). Yet, international organizations such as the United Nations and the World Bank have invested heavily in measuring global poverty since the adoption of the Millennium Development Goals (MDG) by the world community. These goals are stated in the United Nations' Millennium Declaration which was adopted in 2000 by 189 nations. The first of the eight goals is to halve between 1990 and 2015 the proportion of people whose income is less than one dollar a day. International donor organizations across the world are investing large amounts of money to help developing countries meet this target, and monitoring poverty at global level has gained importance. Why is it so difficult to measure poverty at global level? What are the conceptual issues involved in measuring poverty globally? What type of data is used to estimate global poverty? How reliable are the estimates of global poverty? This essay reviews literature on global poverty in search of answers to these and similar questions.

Measuring global poverty accurately has never been more important than in the present times. The extent of global poverty lies at the heart of many passionate debates. For instance, the effect of globalization on poverty is much debated (Cline 2004; Harrison and McMillan 2007). Proponents of globalization argue that policies such as openness to international trade led to rapid economic growth in many developing countries, which in turn led to drastic decline in global poverty levels as the incomes of the poor rose equiproportionately with average income levels (Dollar and Kraay 2002). Others argue that globalization resulted in an increase in inequality between as well as within countries. Thus the poor have been denied participation in the emerging prosperity and have largely been marginalized in the process of globalization (Nissanke and Thorbecke 2006). Quintessential to these and similar other debates is the question: How much poverty exists globally? Where is it concentrated and how is it changing over time? The essay covers debates among scholars about estimates of global poverty since this discussion has dominated the measurement and understanding of global poverty and is central to the very definition of global poverty.

Poverty is a very broad notion and historically it has inspired not only economists, but sociologists, philosophers, anthropologists, and political scientists to conduct research on poverty. A word-limited essay is not sufficient to summarize the literature of poverty and perhaps an entire volume will be needed. The essay limits itself to reviewing literature from economics, which has traditionally studied poverty in great detail. Even within the discipline there is a large body of prescriptive literature addressing questions such as why poverty exists and how can it be reduced effectively. (See a recent book on these topics by Banerjee et al. 2006.) Given the limited space, the essay focuses on descriptive literature on poverty, reviewing the literature on measurement of global poverty and its varied estimates.

The essay opens with a discussion of the classical economists' views on poverty. It then lays down the conceptual and empirical challenges in measuring global poverty. The very notion of poverty can be conceived in absolute or relative terms. Estimates of poverty and particularly of global poverty are very sensitive to the underlying assumptions, such as the choice of the wellbeing indicator, the unit of analysis, the data surveys included, the purchasing power parity rates applied, and so on. The essay examines each of these factors carefully. It also reviews

different approaches to define a global poverty line. It details how the commonly used dollar per day global poverty line is defined, how frequently it is revised, and what its drawbacks are. The next section of the essay discusses trends in global poverty in different countries and at different points in time, including historical estimates of global poverty during the nineteenth and twentieth centuries and more recent estimates since the 1970s through 2005. Regional variations in poverty levels across the world are discussed as well.

Amartya Sen has long argued that an individual's wellbeing comes from a "capability" to function in society (Sen 1993). Thus the capability approach defines poverty more broadly. It implies that the poor are denied freedom in terms of choice of functionings not only due to lack of basic necessities such as food, clothing, and shelter but also lack of access to better health, education, and political participation. The essay closes with a discussion on frontiers of poverty analysis, including recent research on multidimensional poverty, vulnerability, and chronic poverty.

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Historical Background

Understanding the nature and causes of poverty has been a preoccupation of economists for a very long time. Adam Smith, the father of modern economics, propounded the theory of wealth-creating capitalism in his book, *The Wealth of Nations* (Smith 1978 [1776]). Although Smith argued for the benefits of a free market economy, he was aware that free economies had the poor locked in poverty. According to Smith, "the poor are not only unable to procure the necessities of life but they suffer from social isolation and are ashamed to appear in public" (Smith 1976 [1759]:51). Other classical economists such as David Ricardo, Thomas Malthus, Karl Marx, and John Stuart Mill shared Smith's concern for the poor. They believed that the benefits of economic growth are rarely experienced by the poorer sections of society. In his *Essays on Population*, Malthus argued that poverty was inevitable since economic growth fueled by improvement in agricultural productivity was unsustainable, as the supply of land was fixed and human population tended to grow exponentially (Malthus 1992 [1803]). Karl Marx, in his renowned work *Das Kapital*, proposed the labor theory of value and argued that in a capitalist society inequality between rich and poor will widen as workers will always receive poverty wages and will be exploited for surplus value (Marx 1872).

One of the early attempts at measuring regional poverty was the three surveys written by Seebohm Rowntree (1901). His essays on poverty in the English city of York were influential in providing guidelines for future poverty analysis. A detailed study of poverty in Britain was also conducted by Peter Townsend (Townsend 1954). In his systematic study of poverty, Townsend not only discussed poverty indicators and sampling methods but also introduced the notion of a relative poverty line. Dandekar and Rath's pioneering work on poverty in India in the early 1960s led to the conceptualization of an absolute poverty line. They set the poverty line equal to the expenditure required to consume an average of 2,250 calories per capita per day (Dandekar and Rath 1977). Their poverty line soon became a norm for defining poverty internationally. Orshansky was the first to propose a poverty line to estimate poverty in the United States (Orshansky 1965). Orshansky, who worked at the Social Security Administration, developed poverty thresholds based on thrifty food plans. While Dandekar and Rath set different poverty lines for the rural and urban sectors, Orshansky differentiated the poverty line according to family size, gender of the head of the household, and farm and non-farm status, resulting in a detailed matrix of more than 120 poverty thresholds. Despite these regional advances in estimating poverty levels, measuring the extent of poverty globally was not possible simply due to lack of data, until efforts to compile data at international level were undertaken by the World Bank.

The most common method to measure global poverty is to calculate the headcount index. The headcount index of poverty calculates the number of poor as a proportion of the total population. Though the headcount index is simple to understand, it is severely limited in its information content. For instance, it does not tell how poor the poor are. The seminal work of Sen (1976) introduced an analytical framework to measure poverty. Following his work, there was a surge in the literature proposing new poverty indices based on different axiomatic properties. (See Foster 2006 for an overview of axiomatic literature on poverty indices.) For instance, poverty indices sensitive to inequality in the distribution of income among the poor were proposed by several scholars including Watts (1969), Anand (1977), Clark et al. (1981), and Foster et al. (1984).

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However, most of these measures are not estimated consistently at global level owing to lack of sufficient data.

Conceptual Issues with Measuring Global Poverty

Identifying the poor within a population may seem straightforward to the layperson, but the problem is mired in difficulties and has led to intense research in poverty analysis. Below are reviewed important conceptual issues involved in defining and measuring poverty. (For a more complete discussion on these topics, refer to Ravallion 1996; Deaton 2006; World Bank Poverty Manual (http:/go.worldbank.org/UVD0DBDGC0).) Some of these issues are common to measurement of poverty at any level, regional or national, while others are more specific to measurement of poverty at global level.

Notion of Poverty

The notion of poverty can be described in subjective or in objective terms. The subjective approach to measuring poverty involves asking people whether they consider themselves poor. The Participatory Rural Assessment programs often implemented by nongovernmental organizations use this approach to assess poverty locally. However, the qualitative nature of these questionnaires makes it difficult to extend this notion of poverty across countries.

The objective approach defines poverty in terms of absolute or relative poverty. Estimates of global poverty are largely based on a definition of poverty in absolute terms. Absolute poverty estimates are anchored in absolute standards, such as the cost of a food basket required to meet basic needs. Unlike absolute poverty, which means not having adequate income to purchase food, relative poverty is concerned with the inability to participate in society. Relative measures of poverty are defined in relation to the overall distribution of income by anchoring the poverty lines to median income levels. For instance, the poverty line for the European Union measures the relative poor as those whose income is less than half of the mean household income. Relative measures of poverty are more commonly estimated in richer countries where people are concerned about inclusion and participation in society. Global poverty is usually measured in absolute terms, since most of the developing countries are concerned with the poor unable to meet basic needs of health and nutrition.

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Welfare Indicators

Conventionally, poverty is measured in monetary terms, mainly because income tends to be positively though not perfectly correlated with other aspects of wellbeing such as health and education and because data on income is readily available. Typically the poor are those individuals whose income is less than the benchmark income defined by a poverty line. While collecting data to estimate poverty, income is substituted by expenditure incurred by individuals. Seasonal fluctuations in income, particularly for the poor, tend to be high whereas consumption remains relatively stable. In developing countries with large agricultural or self-employed populations, income is largely understated. For instance, it is difficult to get an accurate measure of farm income, income from work in informal sectors, and value of income in kind. However, collecting accurate information on expenditure levels too is difficult. In many developing countries, markets do not exist for public goods and services and many markets such as those for rural credit are imperfect. Thus prices prevailing in these markets do not reflect the true value of the goods produced. Global poverty estimates are based on household surveys on income and expenditure. For instance, many Latin American countries conduct income surveys whereas expenditure surveys are conducted largely in Asian countries including India, Pakistan, and Indonesia, and there is no scientific way to aggregate this information.

Unit of Measurement

The most common survey used by the World Bank to measure global poverty is a single cross-section for a nationally representative sample, with data on income. These surveys collect information on household income which, when divided by the number of household members, gives a per capita measure of income. However, this simplistic method to arrive at per capita income ignores intra-household inequality among household members. Members of a household vary in their demographic composition, such as the number of males and females and adults and children. Ideally per capita income should be arrived at by using an equivalence scale. An equivalence scale measures the number of members in a household equivalent to a typical adult male. However, not all countries use equivalence scales to measure per capita income. The quality of household surveys varies considerably across different countries. Countries use different survey methods, making it difficult to evaluate the statistical properties of measures of income aggregated across countries.

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Poverty Line

Identifying the poor by defining an arbitrary poverty line is often undesirable policy-wise. Firstly, people marginally above the poverty line do not receive any benefits from anti-poverty programs, though they often share the plight of the poor. Secondly, in order to bring about a rapid reduction in headcount poverty, policies may tend to focus primarily on helping those people who are marginally below the poverty line while ignoring the people deeper in poverty. Nevertheless, setting a poverty line has been a common practice in estimating poverty.

Poverty in most poor countries is often closely associated with hunger. There are two methods to define a food poverty line. The cost of basic needs method calculates poverty lines by estimating the cost of a typical food basket. The basket consists of adequate food required to satisfy minimum calorie intake (2,100 calories per day), and some non-food essentials such as clothing and shelter. However, the typical basket might not be consumed by a majority of households, and the basket often does not represent differences in tastes and preferences across regions. Over a period of time, the reference basket is not changed; instead the poverty line is adjusted for inflation. But with the passage of time the original basket of goods becomes obsolete as people's tastes change and new products become available for consumption.

An alternative method to define the poverty line is the food energy intake method. Data is collected from households on income levels and average calories consumed. Using this data a calorie–Engel curve is plotted, which links income on the horizontal axis to calorie intake on the vertical axis. If the norm is a minimum of 2,100 calories then the poverty line is equal to that expenditure level associated with the minimum calorie intake. In a case study on Indonesia, Ravallion and Bidani (1994) found that estimates of poverty vary sharply depending on whether the poverty line is based on the ==cost of basic needs approach== or the food energy intake method.

Purchasing Power Parity Rates

==The World Bank's dollar per day global poverty line is based on neither of the two methods discussed earlier,== but is in fact chosen from among a set of poverty lines from the poorest countries. Since poverty lines of different countries are expressed in terms of different currencies, in order to be comparable they need to be converted to a common currency. However, market exchange rates are not suitable for this purpose. Market exchange rates are determined by commodities traded in international markets and do not reflect the value of non-tradable goods and services. As a result they tend to underestimate real incomes and consequently overstate poverty in developing countries. Hence the global poverty line is defined by using the purchasing power parity (PPP) rates. Purchasing power parity between any two countries is an average ratio of prices in those countries. In practice, PPP rates are usually computed among large numbers of countries and expressed in terms of a single currency, most commonly the US dollar. The International Comparison Program (ICP) was created in 1968 as a worldwide initiative to collect comparative price data and estimate purchasing power parities between countries.

Setting a Global Poverty Line

A major advancement in global poverty studies was made possible by the introduction of a poverty line by the World Bank in the 1990 World Development Report (WDR). Based on the 1985 PPP rates from Penn World Tables (Summers and Heston 1991), a global poverty line was defined at $1.02 per day. The global poverty line was chosen as being representative of national poverty lines in 33 low-income countries. National poverty lines for different countries were converted to a common currency by using PPP exchange rates. India's poverty line was very close to the poverty line for the poorest country in the group, namely Somalia, and as such, was chosen to measure extreme poverty (Ravallion et al. 1991). The World Bank also estimates poverty at two dollars a day, which is closer to the poverty lines of middle-income countries. Note that the World Bank's poverty lines provide a conservative definition of global poverty as they identify the global poor by applying the standards of the poorest countries.

[Misleading, since those lines rise over time.]

Revisions to the Global Poverty Line

The $1.02 poverty line was revised and set equal to $1.08 per day in 2000. The original poverty line was defined in 1985 PPP prices and was updated by using 1993 PPP prices. The PPP exchange rates for the original poverty line were based on the Penn World Tables which used the 1980s ICP data on 64 countries. The PPP rates in the Penn World Tables for 1985 were calculated by using the Geary–Khamis method which used quantity weights to compute price indices. This method resulted in putting higher weights to consumption patterns in the richer countries, which is not desirable to estimate global poverty (Ackland et al. 2006). To correct for this bias, the World Bank updated its poverty line by using PPP rates computed by using the EKS method (developed by O. Elteto, P. Koves, and B. Szulc [Schultz]). The 1993 PPP rates were computed in the World Bank tables with data on 110 countries (Chen and Ravallion 2001).

In 2008, the Bank revised the global poverty line yet again and set it equal to $1.25 per day. The $1.25 per day poverty line is the mean of the national poverty lines for the poorest 15 countries in terms of consumption per capita. The new poverty line is based on PPP rates anchored to the 2005 ICP instead of 1993 ICP price data. The 1993 price data failed to distinguish between quality differences among commodities in different countries. As a result, the PPP rates based on 1993 prices underestimated the cost of living in poor countries (Ravallion et al. 2008). The 2005 data rounds not only collected better quality data but covered data from more than 140 countries. China participated officially for the first time in the ICP surveys.

Criticisms of the Global Poverty Line

The global poverty line as defined by the World Bank has come under extensive scrutiny by other scholars. The dollar per day poverty line can be defined in terms of income earned or consumption expenditure. The World Bank, for example, uses consumption poverty [spending] whereas the MDG for poverty is stated in terms of income poverty. Sala-i-Martin (2002) constructed a world income distribution by aggregating individual-country distributions using the kernel estimation method. He estimated global poverty rates based on poverty lines equal to a dollar per day in

[MDG target]

terms of income and a dollar per day in terms of consumption. His results underscore the fact that estimates of poverty are higher if the benchmark is in terms of consumption levels than when the benchmark is in terms of income levels.

Disagreements about the estimates of global poverty also arise from other factors, such as the exact position of the poverty line. The Bank uses both the one dollar a day poverty line and the two dollars a day poverty line. However, independent estimates of poverty have been measured by varying the poverty line from 1.5 dollars per day (Bhalla 2002) to as high as 15 dollars per day (Pritchett 2003). Average incomes calculated from survey data are often biased downwards since the rich tend to underreport their income relatively more than the poor. To correct this bias, Bhalla (2002) proposed to increase the Bank's poverty line to $1.5 per day. Pritchett (2003) proposed an even higher global poverty line by finding a weighted average of national poverty lines of member countries of the World Bank. Thus the choice of benchmark income level to define the poverty line can vary for several reasons.

The PPP exchange rates used to define poverty lines also have been subjected to criticism. Although the most recent update of the global poverty line is based on improved PPP rates, the new PPP rates still have some drawbacks. The PPP rates cannot account for differences in standards of living due to unequal access to public goods such as medical facilities, modes of transportation, public schools, and so on. Ravallion argued that the weights attached to different commodities in calculating conventional PPP rates may not be appropriate for the poor and that there was a need to estimate "PPPs for the poor" (Ravallion et al. 1991). Deaton and Dupriez (2008) calculated the PPP rates by re-weighting the consumption basket to reflect consumption patterns of the poor. Expenditure on food constitutes a large share in overall consumption of the poor. Reddy and Pogge (2008) suggested using PPP rates based on food consumption alone to define a global poverty line. Since food prices are much higher than average price levels in most developing countries, they found that food PPP rates led to an increase in the estimates of global poor. They criticized the World Bank's global poverty line as being arbitrary. Instead of following the money-metric approach whereby the Bank set the dollar a day poverty line because it was the most typical poverty line among the poorest countries, a global poverty line could be defined to ensure that individuals are able to satisfy basic human needs. For instance, Kakwani and Son (2006) computed an alternative poverty line based on the basic needs approach.

Trends in Global Poverty

Assessments of the trends in global poverty diverge frequently and widely for several reasons. As discussed earlier, estimating the number of poor depends on the type of data used (national accounts data or household survey data); on the definition of the poverty line (global or national poverty line); on the choice of the wellbeing indicator (income or consumption); on the unit of measurement (individual or household); and so on. This section reviews estimates of global poverty based on different assumptions.

Historic Trends

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Maddison (1995) was the first to construct a consistent historical series of data on world income measured as gross domestic product (GDP) and population from 1820 to 1992. Though he documented changes in GDP per capita across the regions of the world and ascribed causal influences on countries' growth performance, he did not provide historic estimates of global poverty. These were presented for the first time by Bourguignon and Morrison (2002) who filled the gaps in Maddison's (1995) data and rebuilt the world distribution of income since the early nineteenth century. Their estimates showed that although inequality worsened during the nineteenth century and up until World War II, economic growth contributed to a steady decline in the headcount measure of poverty.

As seen from Table 1, the number of poor with income less than a dollar per day was estimated to be around 886 million in 1820. This number steadily increased and was as high as 1,376 million in 1950, coinciding with the end of World War II. Though the number of poor increased, the proportion of poor in the world population declined steadily. Between 1820 and 1970, headcount poverty declined from 84 to 36 percent using the one dollar per day line. Bourguignon and Morrison argued that headcount poverty would have declined at a faster rate during the two centuries had the distribution of income not worsened during the same period.

Trends during the 1970s and 1980s

The 1970s was a turning point in the comprehensive assessment of global poverty as the first of the series of World Development Reports by the World Bank was published in 1978. Since then the Bank has published these reports annually. WDRs for the year 1978, 1980, 1990 and 2000/01 were devoted exclusively to poverty and related topics. The first WDR (1978) described the absolute poor as those individuals whose "condition of life is characterized by malnutrition, illiteracy, disease, squalid surroundings, high infant mortality and low life expectancy." At that time, the Bank had not defined a common poverty line to measure global poverty. In the 1980 WDR the Bank used income earned by the 45th percentile of the population in India in 1975 as the poverty line cutoff income and estimated around 800 million people to be living in absolute poverty in 1980. Thus about one-third of the population in developing countries lived in poverty, according to the WDR (1990).

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Table 1 Historical estimates of global poverty				
Number of global poor (in millions)				
1820	**1850**	**1870**	**1890**	**1910**
886.8	978.8	954	1,040.5	1,127.7
1929	**1950**	**1960**	**1970**	**1980**
1,149.7	1,376.2	1,330.1	1,304.7	1,390.3

Poverty estimates are reported from Bourguignon and Morrison (2002) and are based on $1 per day income poverty line (1985 PPP)

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The 1980s is often regarded as the "lost decade" for the poor owing to the setbacks in poverty reduction. The global economy suffered from recession following the oil price shocks of the 1970s and an international debt crisis in the latter half of the decade. These shocks led to a severe reduction in external aid worldwide. As a result, many countries in Latin America suffered, as they had undertaken structural adjustment by borrowing money internationally and by printing more money. Countries in sub-Saharan Africa suffered from declining terms of trade due to falling petroleum prices. Many countries in these two regions experienced negative growth rates and higher poverty levels. However, not all was lost during the 1980s. Real per capita incomes grew in South and East Asia and led to a decline in poverty in those regions.

Trends since 1990

The introduction of a global poverty line and consistent collection of household survey data in developing countries by the Bank facilitated measuring trends in global poverty. In fact, the Bank's estimates can be replicated for different countries, and different years, by using data available on the PovcalNet website. PovcalNet is a poverty-monitoring website maintained by the Bank that has data on more than 120 countries from 1981 to 2005. Below are discussed estimates of global poverty since the 1990s provided by the Bank at different points in time as well as estimates provided by independent researchers using different sets of assumptions.

World Bank Estimates of Global Poverty since the 1990s

Chen and Ravallion have diligently provided global poverty estimates through a series of research papers over the past two decades (Chen et al. 1994; Chen and Ravallion 1997; 2001; 2004; 2007; 2008). Table 2 compiles estimates of the number of global poor provided by Chen and Ravallion for various years using different poverty lines. The table shows that global poverty estimates are sensitive to the baseline year, i.e., the year in which the poverty line is held constant over a period of time.

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Table 2 Estimates of global poverty with revisions to the poverty line									
Number of global poor (in millions)									
Poverty lines	**1981**	**1984**	**1987**	**1990**	**1993**	**1996**	**1999**	**2002**	**2005**
$1.08 (1993)	1488.5	1281.4	1178.5	1247.5	1172.4	1092.9	1119.8	1067.1	931.3
$1.25 (2005)	1913.3	1827.1	1718.2	1817.5	1785.1	1672	1695.4	1627.1	1399.6

Poverty estimates are reported from Chen and Ravallion (2008) and are based on consumption poverty line

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Using the 1993 PPP based poverty line the Bank estimated that the number of poor had declined from nearly 1.5 billion to about 930 million in 2005. These estimates indicated that for the first time in history there were fewer than a billion poor people in the world. However, the most recent update of the poverty line and the subsequent recalculation of poverty levels showed that the number of poor was previously underestimated. The latest revision of the poverty line led to major upward revision in the number of poor in the world for all years. Using the revised poverty line of $1.25 per day, the Bank estimated that there were 1.4 billion poor people (one in four) in the developing world in 2005, down from 1.9 billion (one in two) in 1981. Thus in 2005, there were nearly 500 million additional poor people than previously estimated. Although the updated poverty line led to a rise in the global poverty count, the overall rate of reduction in absolute poverty was fairly similar to the past estimates. Chen and Ravallion (2008) estimated that the trend rate of decline in the $1.25 a day poverty rate between 1990 and 2005 was 1 percentage point per year. Projecting this trend forward, they estimated that the headcount index would be around 17 percent by the year 2015. Thus they concluded that the developing world as a whole was on track to achieving the MDG for poverty.

## Independent Estimates of Global Poverty since the 1990s

Independent estimates of global poverty often differ from those published by the World Bank. These estimates vary because of differences in defining poverty lines, as was discussed in the previous section. But they also vary because of differences in data sources. For instance, poverty levels can be computed using data from national accounts or data drawn from household surveys. Empirically it is observed that not only is the level of consumption lower but also that growth in consumption is slower when measured from household surveys than when measured from national accounts statistics. National accounts data tend to give a much more optimistic view of trends in poverty than do household survey data (Deaton 2001). Researchers such as Bhalla (2002) and Sala-i-Martin (2006) combined household survey data with national accounts data to estimate the world distribution of income in order to compute global poverty levels. They found that the number of people living in extreme poverty had fallen more sharply than was indicated by World Bank estimates published in the WDR (2000/01). Bhalla's estimates suggested that the MDG of halving the 1990 "$1 a day" poverty rate by 2015 had already been reached in 2000. He criticized the Bank for underestimating the reduction in global poverty. However, Bank researchers refuted the criticism, citing several discrepancies in Bhalla's poverty estimates, including the use of incomplete data from secondary sources, incorrect estimation of income distribution, use of inconsistent PPP rates, and so on (Ravallion 2002).

Such debates on the estimates of global poverty underscore the fact that estimates of poverty are sensitive to various parameters and are often not comparable with each other. For instance, even the headcount index, a basic measure of poverty, is calculated differently. The Bank expressed its headcount index as the proportion of population in the developing countries whereas Sala-i-Martin (2006) measured the headcount index as the percentage of the world population living below the global poverty line. Importantly, even though they disagreed on the exact level of poverty and the rate at which it declined, most of the studies concluded that global poverty had decreased substantially since 1990.

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Regional Distribution of Global Poverty

The distribution of the world's poor among regions had changed considerably by the end of the twentieth century. Up until the 1980s poverty was largely an Asian problem. Poverty was mainly concentrated in South Asia, especially India and Bangladesh, and partly concentrated in East Asia, particularly in Indonesia. In 1981 nearly half of the world's poor lived in Asia. East Asia was the region with the highest incidence of poverty in the world, with 80 percent of the population living on below $1.25 per day, and South Asia had the next highest poverty rate of 60 percent. Sub-Saharan Africa had fewer numbers of poor owing to the overall low population in that region.

However, this scenario changed in the following decades. Figure 1 depicts the regional trends in poverty from 1981 to 2005. Sub-Saharan Africa traded places with East Asia and by 2005 had the highest poverty levels. Most of the poor in East Asian countries belonged to the rural areas. Headcount poverty in East Asia declined drastically, from 80 percent in 1981 to about 50 percent in 1993 and further to 18 percent by 2005. China's progress in reducing poverty was a significant contributor to the decline in overall poverty in East Asia. Chen and Ravallion (2008) estimated that there were over 600 million fewer people living on under $1.25 per day in China in 2005 than 25 years earlier. On the other hand, the number of poor in sub-Saharan Africa increased during this period. In 1981 the region had about 11 percent of the world's poor but by 2005 its share had increased to 27 percent. The Global Poverty Report (2000) noted that slow and highly inequitable growth led to a rapid rise in poverty levels in this region. Rising inequality implied that economic growth was ineffective in significantly reducing poverty in this region.
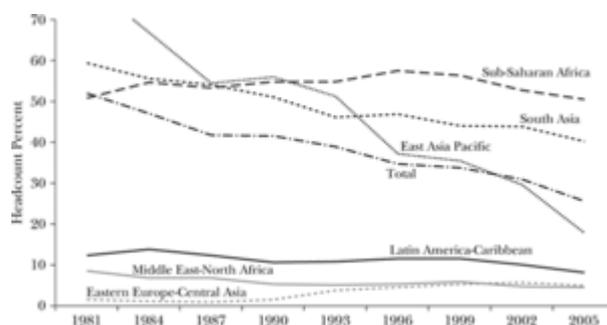
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Figure 1 Regional trends in global poverty

Estimates are taken from Chen and Ravallion (2008) and are based on poverty lines expressed in 2005 PPP. For a list of countries included in each region, refer to the World Bank's country classification.

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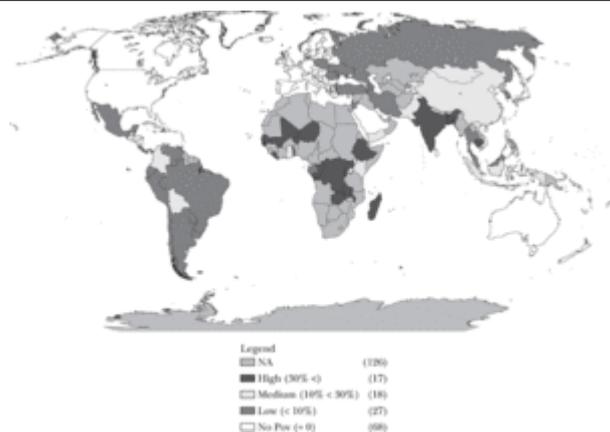
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Figure 2 Regional distribution of global poverty in 2005

Poverty estimates for the years 2004/05/06 are compiled from PovcalNet

Figure 2 shows the distribution of the poor across countries in 2005, the latest year for which data is available. Large numbers of poor were concentrated in parts of Africa and South Asia, particularly in India. China had medium poverty levels whereas countries in Latin America, Eastern Europe, and Russia had low poverty levels. The dollar per day global poverty line defined by the World Bank is designed to measure extreme poverty in the world. This low benchmark means that the poor in the richer countries such as the United States, Canada, Japan, Australia, and countries in Western Europe are not included in the count of global poverty.

South Asia had the largest number of poor in the world during the past two decades. Although headcount poverty declined in South Asia from 60 to 40 percent between 1981 and 2005, the number of poor was more or less constant at between 580 and 600 million. Just as Chinese poverty levels dominated the poverty scenario in East Asia, Indian poverty levels were dominant in South Asia. Between 1981 and 2005, the number of poor in India increased slightly from 420 to 455 million, but the poor as a proportion of the total population declined rapidly from 60 to 42 percent.

In Latin America and the Caribbean the proportion of the poor declined but the absolute number of poor increased, particularly in urban areas. Most of the countries in Eastern Europe and Central Asia also experienced rises in income inequality, resulting in a steady increase in the number of poor. However, countries in the Middle East and North Africa had on average the least number of poor by the standard of the $1.25 per day poverty line. Thus, although the number of poor increased in many regions, the proportion of the poor in the world declined, mainly due to the significant reduction in the headcount index in East and South Asia.

New Directions in Measuring Global Poverty

Though there is no agreement on the exact number of global poor, overall there is a consensus in the literature that there was a trend decline in the global incidence of poverty and in the total number of poor in the past two decades. Decline in poverty was not uniform across regions. East Asian countries including China were most successful, while South Asian countries had moderate success in reducing poverty. On the other hand, poverty increased rapidly in sub-Saharan Africa. In most of the other regions, rising inequality countered the impact of growth and poverty reduced more slowly.

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Measuring Global Poverty

A major hurdle in compiling estimates of global poverty is a lack of continuity in the available data. Bourguignon and Morrison (2002) is the most comprehensive source providing historical estimates of global poverty. However, their estimates are based on a dollar per day income poverty line defined in 1985 PPP prices. The World Bank estimates from 1981 to 2005 are based on consumption data and on revised poverty lines. Thus the historical estimates are not comparable to any contemporary poverty estimates and need to be updated using current poverty lines. Even for the period between 1981 and 2005, the World Bank provides estimates for only nine years and for only a few countries. For instance, as seen in Figure 2, no data was available for estimates of poverty in more than 120 countries since 2004.

Despite efforts by the World Bank as well as independent researchers, ambiguity remains about the precise number of poor in the world. This ambiguity arises from the fact that estimates of poverty are extremely sensitive to various parameters such as the poverty line, the PPP rates, data sources, and so on, as were discussed earlier in the essay. Instead of choosing different sets of assumptions to estimate global poverty, it would be useful to see how changing one assumption at a time affects poverty estimates. For instance, Chen and Ravallion (2008) use the same data source and estimate poverty for different poverty lines. Undertaking similar exercises will facilitate comparing the variance in poverty estimates, subject to the underlying assumptions used to compute them.

One of the purposes of this essay is to urge readers to be careful when comparing poverty estimates from different sources. It is possible to find different estimates of the number of poor for the same year with the same poverty line. For instance, the number of poor between 1981 and 2000 as estimated by Chen and Ravallion in 2007 and 2008 varies, despite the fact that both papers use the same dollar per day poverty line defined at 1993 PPP rates to compute poverty. The only difference is the coverage of underlying datasets. The dataset used to estimate poverty in the latter paper is much broader than that used to estimate poverty in the former paper. Revisions to estimates of poverty are bound to happen as more reliable data becomes available over a period of time. The hope is that there will be few major revisions in the global number of poor as poverty estimates become more robust to different updates.

However precise these estimates become in the future, it is important to realize that they capture only part of the larger picture of global poverty. These estimates essentially count the number of poor when poverty is defined as lack of income. But poverty cannot be measured entirely by estimating material deprivation indicated by income or consumption levels. The poor are deprived of food, shelter, health, education, and equal participation in society. The poor are vulnerable to risks from adverse shocks such as illness, violence, economic crises, bad weather, natural disasters, and war. Emerging frontiers in poverty analysis indicate new interest in measuring poverty more broadly. Some ideas that may dominate the future of poverty research are discussed below.

Vulnerability to Poverty

Traditional measures of poverty are based on average consumption or average income levels. They do not take into account the risks that individuals face in terms of fluctuations in future income. However, individuals' welfare depends not only on their current income levels but also on the uncertainty involved in earning income in future. Vulnerability is the downside risk of becoming poor in future due to uncontrollable external events. The poor are more likely to suffer

from external shocks such as epidemics, violence, inflation, bad weather, and natural disasters. They are less insured against such risks since they are less educated, they have limited access to credit markets, their income sources are less diversified, they suffer from poor health, and so on. The WDR (2000) was largely responsible for highlighting the need to measure the vulnerability of the poor. It discussed at length the ways in which poor people's security against risks could be enhanced.

Measuring vulnerability is challenging, theoretically as well as empirically. Current literature on vulnerability addresses several issues, such as how to measure an individual's risk of becoming poor, how to aggregate the risk over a group of people, what should be the length of time over which vulnerability is to be assessed, and so on. Measures of vulnerability are formulated similar to those measures of poverty that take into account the dynamic risk of income fluctuations (Lignon and Schechter 2003; Calvo and Dercon 2005). This literature often borrows measures developed in risk analysis and the economics of uncertainty. Empirically, vulnerability has been measured for populations of different countries, most commonly for countries in Africa which have extremely high poverty levels (Dercon and Krishnan 2000; Kamanou and Morduch 2004; Christiaensen and Subbarao 2005). There has been as yet no attempt to measure vulnerability on a global scale, mainly due to limited availability of data.

The Living Standard Measurement Study (LSMS) surveys compiled by the World Bank's Policy Research Department provide household survey data from developing countries since the 1980s. These surveys are designed to provide information on household assets, and outcomes in health, education, and employment. The LSMS website lists multi-period surveys for more than 30 developing countries. The WDR (2000) argued that these cross-sectional surveys need to be combined with panel surveys, monitoring the same households over time, to allow direct observation of how households deal with unanticipated shocks. With the availability of improved cross-sectional data further estimates of vulnerability would be possible in future.

Chronic Poverty

Global poverty estimates are largely static, i.e., they count the number of poor at a particular point in time. These estimates do not tell us whether individuals or households are persistently poor or if they have moved in and out of poverty over time. Most of the current literature has largely ignored the dynamic nature of poverty (Hulme and Shepherd 2003; Carter and Barrett 2006). For policy purposes it is important to distinguish between transient and chronic poverty (Jalan and Ravallion 2000). People trapped in poverty for many years, often for their entire lifetime, are termed as chronic poor. The Chronic Poverty Report (2008) estimates the number of people living in chronic poverty at around 320 to 443 million in recent years. The group of chronically poor people is heterogeneous and includes people who are socially marginalized, migrants and bonded laborers, refugees, and disabled people. Many chronically poor people work in regions with the least agricultural potential and poor transportation links to markets, and they depend on manufacturing jobs which are insecure, low paid, unhealthy, and unsafe. Thus without any policy interventions, economic growth by itself will not improve the lives of the chronically poor.

In order to estimate the number of chronically poor people, large surveys of panel data are required. The panel datasets track some individuals or households over multiple years. There has been some progress in the availability of panel datasets in a few developing countries

(Dercon and Shapiro 2007; Hulme and McKay 2008). However, many developing countries do not have nationally representative panel data extending over a period of 20 years or more. Many chronically poor people not only have low incomes but are deprived in other dimensions – hunger, under-nutrition, illiteracy, unsafe drinking water, lack of access to basic health services. Lack of income is only one aspect of poverty. The idea of poverty needs to be redefined in a much broader way to measure deprivation of the poor.

Multidimensional Poverty

The living conditions of the poor can be described in numerous ways. The poor not only lack income, they are often hungry, sick, uneducated, and unemployed. Hence it is important also to measure poverty as deprivation of multiple facilities. There has been recent growth in literature proposing methods to measure multidimensional poverty. One approach is to aggregate various attributes into a composite index to measure multidimensional poverty. An alternative is to specify a poverty line for each dimension of poverty and to consider that a person is poor if he or she falls below at least one of these various lines (Kakwani and Silber 2008).

International agencies such as the World Bank measure not only the number of people whose incomes are low, but also collect data on non-income dimensions of poverty such as health, infant mortality rates, life expectancy, education, access to services and infrastructure. Of the eight UN Millennium Development Goals, five are about promoting health and education. The United Nations Development Program (UNDP) annually publishes four human development indices, namely, the human development index (HDI), gender-related development index, gender empowerment measure, and human poverty index. The HDI was one of the first multidimensional indices and has been computed annually since 1990. The human poverty index (HPI), which was introduced in 1997, estimates a weighted average of the probability of not surviving to age 40, the percentage of adults who are illiterate, the percentage of the population without access to safe water, and the percentage of children who are underweight for their age in developing countries. According to the latest Human Development Report (2007/08), human poverty levels were least in most of the Caribbean and Latin American countries and were very high in most of the countries in sub-Saharan Africa.

Besides the human development reports, data on non-income variables is also being made available from other sources. The Demographic and Health Surveys (DHS) has collected data from more than 200 surveys in over 75 countries. The DHS provides data on health status, including indicators of maternal health, child nutrition, fertility, and HIV/AIDS. Thus, in the past few years, there has been rapid progress in making available improved data on income as well as non-income aspects reflecting the standard of living. It is hoped that improvements in data availability coupled with the advancement in estimation techniques will lead to a clearer picture of global poverty in future. Measuring global poverty accurately is the first step in effectively eradicating global poverty and attaining the goal stated in the World Bank's slogan, "Our dream is a world free of poverty."

References

Ackland, R., Dowrick, S., and Freyens, B. (2006) *Measuring Global Poverty: Why PPP Methods Matter*. Mimeo, Australian National University.

date: 14 May 2018

Anand, S. (1977) Aspects of Poverty in Malaysia. *Review of Income and Wealth* 23 (1), 1–16.

Banerjee, A., Benabou, R., and Mookherjee, D. (2006) *Understanding Poverty*. Oxford: Oxford University Press.

Bhalla, S. (2002) *Imagine There's No Country: Poverty, Inequality and Growth in the Era of Globalization*. Washington: The Peterson Institute of International Economics.

Bourguignon, F., and Morrison, C. (2002) Inequality among World Citizens: 1820–1992. *The American Economic Review* 92 (4), 727–44.

Calvo, C., and Dercon, S. (2005) *Measuring Individual Vulnerability*. Working Paper Series No. 229. Oxford: Department of Economics, Oxford University.

Carter, M., and Barrett, C. (2006) The Economics of Poverty Traps and Persistent Poverty: An Asset-Based Approach. *Journal of Development Studies* 42 (2), 178–99.

Chen, S., Datt, G., and Ravallion, M. (1994) Is Poverty Increasing in the Developing World? *Review of Income and Wealth* 40 (4), 359–76.

Chen, S., and Ravallion, M. (1997) What Can New Survey Data Tell Us about Recent Changes in Distribution and Poverty? *World Bank Economic Review* 11 (2), 357–82.

Chen, S., and Ravallion, M. (2001) How Did the World's Poorest Fare in the 1990s? *Review of Income and Wealth* 47 (3), 283–300.

Chen, S., and Ravallion, M. (2004) How Have the World's Poorest Fared since the Early 1980s? *World Bank Research Observer* 19 (2), 141–69.

Chen, S., and Ravallion, M. (2007) *Absolute Poverty Measures for the Developing World, 1981–2004*. World Bank Policy Research Working Paper Series 4211. Washington: World Bank.

Chen, S., and Ravallion, M. (2008) *The Developing World Is Poorer Than We Thought, But No Less Successful in the Fight against Poverty*. World Bank Policy Research Working Paper 4703. Washington: World Bank.

Christiaensen, L., and Subbarao, K. (2005) Towards an Understanding of Household Vulnerability in Rural Kenya. *Journal of African Economies* 14 (4), 520–58.

Clark, S., Hemming, R., and Ulph, D. (1981) On Indices for the Measurement of Poverty. *Economic Journal* 91, 515–26.

Cline, W. (2004) *Trade Policy and Global Poverty*. Washington: The Peterson Institute of International Economics.

Dandekar, V., and Rath, N. (1977) Poverty in India: Dimensions and Trends. *Economic and Political Weekly* 6 (1, January), 25–46.

Deaton, A. (2001) Counting the World's Poor: Problems and Possible Solutions. *The World Bank Research Observer* 16 (2), 125–47.

Deaton, A. (2006) Measuring Poverty. In A. Banerjee, R. Benabou, and D. Mookherjee (eds.) *Understanding Poverty*. Oxford: Oxford University Press, pp. 3–15.

date: 14 May 2018

Deaton, A., and Dupriez, O. (2008) *Poverty PPPs around the World: An Update and Progress Report*. Washington: Development Data Group, World Bank.

Dercon, S., and Krishnan, P. (2000) Vulnerability, Seasonality and Poverty in Ethiopia. *Journal of Development Studies* 36 (6), 25–53.

Dercon, S., and Shapiro, J. (2007) Moving On, Staying Behind, Getting Lost: Lessons on Poverty Mobility from Longitudinal Data. In D. Narayan and P. Petesch (eds.) *Moving Out of Poverty*, *Vol. I: Cross-Disciplinary Perspectives on Mobility*. New York: Palgrave Macmillan and the World Bank, pp. 77–126.

Dollar, D., and Kraay, A. (2002) Growth is Good for the Poor. *Journal of Economic Growth* 7 (3), 195–225.

Foster, J. (2006) Poverty Indices. In A. de Janvry and R. Kanbur (eds.) *Poverty, Inequality and Development: Essays in Honor of Erik Thorbecke*. Boston: Springer Science+Business Media.

Foster, J., Greer, J., and Thorbecke, E. (1984) A Class of Decomposable Poverty Measures. *Econometrica* 52, 761–76.

Harrison, A., and McMillan, M. (2007) On the Links between Globalization and Poverty. *Journal of Economic Inequality* 5, 123–34.

Hulme, D., and McKay, A. (2008) Identifying and Measuring Chronic Poverty: Beyond Monetary Measures. In N. Kakwani and J. Silber (eds.) *The Many Dimensions of Poverty*. London: Palgrave Macmillan, pp. 187–214.

Hulme, D., and Shepherd, A. (2003) Conceptualizing Chronic Poverty. *World Development* 31 (3), 403–424.

Jalan, J., and Ravallion, M. (2000) Is Transient Poverty Different? Evidence for Rural China. *Journal of Development Studies* 36 (6), 82–99.

Kakwani, N., and Silber, J. (eds.) (2008) *Quantitative Approaches to Multidimensional Poverty Measurement*. London: Palgrave Macmillan.

Kakwani, N., and Son, H. (2006) *New Global Poverty Counts*. Working Paper # 29. Brasilia: International Poverty Centre.

Kamanou, G., and Morduch, J. (2004) Measuring Vulnerability to Poverty. In S. Dercon (ed.) *Insurance Against Poverty*. UNU-WIDER Studies in Development Economics. Oxford: Oxford University Press, pp. 155–75.

Lignon, E., and Schechter, L. (2003) Measuring Vulnerability. *Economic Journal* 113 (486), C95–C102.

Maddison, A. (1995) *Monitoring the World Economy*. Paris: OECD.

Malthus, T. (1992 [1803]) *An Essay on the Principle of Population*. Reprint, D. Winch (ed.). Cambridge: Cambridge University Press.

Marx, K. (1872) *Das Kapital*. London: Lawrence and Wishart.

date: 14 May 2018

Nissanke, M., and Thorbecke, E. (2006) Channels and Policy Debate in the Globalization–Inequality–Poverty Nexus. *World Development* 34 (8), 1338–60.

Orshansky, M. (1965) Counting the Poor: Another Look at the Poverty Profile. *Social Security Bulletin* 28 (1), 3–29.

Pritchett, L. (2003) *One World, One World Bank, One Poverty Line: Proposing a New Standard for Poverty Reduction*. Mimeograph, Center for Global Development.

Ravallion, M. (1996) Issues in Measuring and Modelling Poverty. *Economic Journal* 106 (438), 1328–43.

Ravallion, M. (2002) Have We Already Met the Millennium Development Goals? *Economic and Political Weekly* 37 (4), 16–22.

Ravallion, M., and Bidani, B. (1994) How Robust Is a Poverty Profile? *World Bank Economic Review* 8 (1), 75–102.

Ravallion, M., Chen, S., and Sangraula, P. (2008) *Dollar a Day Revisited*. World Bank Policy Research Working Paper 4620. Washington: World Bank.

Ravallion, M., Datt, G., and van de Walle, D. (1991) Quantifying Absolute Poverty in the Developing World. *Review of Income and Wealth* 37 (4), 345–61.

Reddy, S., and Pogge, T. (2008) How Not to Count the Poor. In S. Anand, P. Segal, and J. Stiglitz (eds.) *Debates on the Measurement of Poverty*. Oxford: Oxford University Press.

Rowntree, S. (1901) *Poverty. A Study of Town Life*. London: Macmillan.

Sala-i-Martin, X. (2002) *The World Distribution of Income (estimated from Individual Country Distributions)*. NBER Working Paper 8933. Cambridge: National Bureau of Economic Research.

Sala-i-Martin, X. (2006) The World Distribution of Income: Falling Poverty and…Convergence, Period. *Quarterly Journal of Economics* 121 (2), 351–97.

Sen, A. (1976) Poverty: An Ordinal Approach to Measurement. *Econometrica* 44, 219–31.

Sen, A. (1993) Capability and Well-Being. In A. Sen and M. Nussbaum (eds.) *The Quality of Life*. Oxford: Clarendon Press, pp. 30–53.

Smith, A. (1976 [1759]) *The Theory of Moral Sentiments*. D. Raphael and A. Macfie (eds.). Oxford: Oxford University Press.

Smith, A. (1978 [1776]) *An Inquiry into the Nature and Causes of the Wealth of Nations*. R. Campbell and A. Skinner (eds.). Oxford: Oxford University Press.

Summers, R., and Heston, A. (1991) The Penn World Table: An Extended Set of International Comparisons, 1950–1988. *Quarterly Journal of Economics* 106, 327–68.

Townsend, P. (1954) The Meaning of Poverty. *British Journal of Sociology* 13 (3), 210–27.

Watts, H. (1969) An Economic Definition of Poverty. In D. Moynihan (ed.) *On Understanding Poverty*. New York: Basic Books, pp. 316–29.

date: 14 May 2018

Links to Digital Materials

Chronic Poverty Research Centre. At **www.chronicpoverty.org/index.php**, accessed July 3, 2009. The Chronic Poverty Research Centre (CPRC) is an international partnership of universities, research institutes, and NGOs which was established in 2000. The CPRC has so far published two Chronic Poverty Reports, the first in 2004 and the second in 2008.

Demographic and Health Surveys. At **www.measuredhs.com/start.cfm**, accessed July 3, 2009. The Measure DHS project has collected, analyzed, and disseminated data on fertility, family planning, health, HIV/AIDS, and nutrition through more than 200 surveys in 75 developing countries. Measure DHS is funded by USAID and provides data free of cost for legitimate academic research.

Global Poverty Reports. At **www.adb.org/Documents/Reports/Global_Poverty/**, accessed July 3, 2009. The Global Poverty Report is compiled by the Asian Development Bank, African Development Bank, the European Bank for Reconstruction and Development, the Inter-American Bank for Development, the World Bank, and the International Monetary Fund with the aim of informing key issues in poverty reduction to developed nations.

Human Development Reports. At **http:/hdr.undp.org/en/**, accessed July 3, 2009. Since 1990, the United Nations Development Program (UNDP) has published global Human Development Reports. Human development is about expanding people's choices in order to lead a better quality life. The website contains annual reports and interactive estimates of various indicators, as well as videos and graphs on human development.

Living Standards Measurement Study. At **http:/go.worldbank.org/IPLXWMCNJ0**, accessed July 3, 2009. The Living Standards Measurement Study (LSMS) was launched by the World Bank to improve the quality of household data collected in developing countries. The website provides tools to help researchers design new surveys. It also contains household data surveys, some of which is panel data, on more than 30 countries.

PovcalNet. At **http:/go.worldbank.org/NT2A1XUWP0**, accessed July 3, 2009. PovcalNet is an interactive computational tool useful to replicate calculations made by the World Bank's researchers in estimating the extent of global poverty. PovcalNet also allows researchers to calculate poverty measures under different assumptions and to assemble the estimates using alternative country groupings or for any set of individual countries.

PovertyNet. At **www.worldbank.org/poverty**, accessed July 3, 2009. PovertyNet provides an overview of key issues such as poverty measurement, monitoring, analysis, and poverty reduction strategies for researchers and practitioners. The website provides links for new estimates of poverty, conferences, and World Bank publications in poverty research.

United Nations Millennium Development Goals. At **www.un.org/millenniumgoals/**, accessed July 3, 2009. The United Nations Millennium Declaration was adopted by world leaders in 2000. This led to nations committing themselves to strive to achieve eight Millennium Development Goals (MDGs) by 2015. This website is dedicated to informing the public and tracking the progress made by countries toward attaining these MDGs.

date: 14 May 2018

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World Bank Poverty Manual. At **http:/go.worldbank.org/UVD0DBDGC0**, accessed July 3, 2009. The World Bank's Poverty Manual contains detailed discussion of introductory concepts in poverty analysis. It is a useful guide for researchers and policy analysts using survey data from less-developed countries. It includes exercises and tips for using STATA software to compute poverty measures.

World Development Reports. At **http:/go.worldbank.org/LOTTGBE9I0**, accessed July 3, 2009. The World Development Report (WDR) is published annually by the World Bank. Each WDR focuses on a particular aspect of development selected by the Bank's president. The WDRs contain data on various economic indicators such as economic growth rates, composition of gross domestic product, volume of exports and imports.

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