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How (not) to measure global poverty and inequality

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Introduction

Amartya Sen (2002) has made the sensible point that the extent of global poverty and inequality are in themselves more than enough reason for indignation and protests, independent of the question whether they have increased or not over the last few decades.[1] However, views on the *development* of the global poverty rate and global inequality are important because they influence the assessment and design of policies that have effects on the daily lives of billions of people. As Sen and Himanshu (2003: 55) for example argue in a debate in India about the outcome of the 55th round of the National Sample Survey: 'This is not just an intellectual matter. Poverty counts influence fiscal allocation, determine interstate distribution of anti-poverty funds, and fix the number of households entitled to Below Poverty Line benefits (access to food subsidy, anti-poverty schemes, and increasingly to subsidised health care and education).'

So has contemporary globalization since the end of the 1970s fostered or reduced global poverty and global economic inequality? This rather straightforward question seems difficult to answer, for responses diverge substantially and are heavily contested (see e.g. *The Economist* 2004). Martin Wolf of the *Financial Times* claims for example that 'the 1980s and 1990's were decades of declining global inequality and reductions in the proportion of the world's population in extreme poverty', and argues that globalization improves global income distribution.[2] The often aired claim that global poverty has declined is based on data provided by the World Bank. But Pogge and Reddy severely criticize the methods the Bank uses to count the number of poor in the world, and argue that 'growth in incomes of the non-poor throughout the world may have led to mistaken inferences that global income poverty has fallen' (Pogge and Reddy 2002: 4). Statements that true world income differences have improved are often made based on the work of Sala-i-Martin (2002a and 2002b), which has been reported in many papers and magazines.[3] But Milanovic (2002b: 25-26) argues that 'Sala-i-Martin has succumbed to the temptation of piling one assumption upon another with

[1] 'In order to rebel against the appalling poverty and the staggering inequalities that characterize the contemporary world – or to protest against the unfair sharing of benefits of global cooperation – it is not necessary to show that the massive inequality or distributional unfairness is also getting marginally larger' (Sen 2002).

[2] Quoted in Wade 2003.

[3] Bhagwati refers for example to Sala-i-Martin in a book in defense of globalization (2004), and so does Labohm in an article claiming that global income differences have decreased (*Financieel Dagblad*, November 21, 2002).

the result that neither the author nor the reader can any longer tell which is the part of each assumption, individually or together, in deriving the final result', to conclude: '"(N)ever was so much calculated with so little." And unfortunately, it shows.'

The overview of these controversies in this paper shows that contradictory assertions about the development of global poverty and world income inequality are not primarily caused by data problems – which surely exist – but depend above all on value judgements and methodological choices made by their claimants. These claims have an impact on how the world is interpreted and on the choice of resource priorities, but most readers of the popular press and websites reporting on these issues 'do not see the embedded value judgements in the facts presented to them' (Ravallion 2004: 22). It is therefore important to clarify the assumptions, methodology and value judgements that underpin them. In addition, proposals for more genuine measurements of global poverty and inequality should be taken into serious consideration by policy makers, NGO's and researchers.[4]

Counting the poor

The World Bank is the sole producer of comprehensive global income poverty estimates, and has since 1990 regularly come up with new headcounts of the number of poor in the world. The Bank's counts of the number of 'extreme poor', living on less than $1 a day, and poor, living on less than $2 a day,[5] get a lot of attention in the press and from policy makers and

[4] As Wade (2004: 583) argues: 'Concerns about global warming gave rise to a coordinated worldwide project to get better climatological data: the same is needed to get better data on poverty and inequality.'

[5] This distinction, which is of course arbitrary, is among others challenged by UNCTAD (2002: 44): 'The consensus has focused international and national efforts to eradicate extreme poverty on the $1-a-day poor. However, it may reasonably be asked whether the $2-a-day poverty line could also be said to identify a situation of "extreme poverty" in a global context. Confirming this judgement ideally entails finding out what level of consumption a person can actually achieve given $2 a day (in 1985 PPP terms). But some notion of the austerity of these poverty lines in global terms can be gained by knowing that at current prices and official exchange rates, the $1-a-day poverty line in 1985 international prices translates into 51 cents a day for an average African LDC [Least Developed Country], and 31 cents a day of the average Asian LDC.' A footnote (p. 65) adds that empirical work in Latin America on the relationship between the $1-a-day and $2-a-day poverty lines and the cost of differently defined minimally acceptable baskets of goods and services shows that in that context the $1-a-day poverty line '"has no meaning" since, given the costs of securing the bare prerequisites for physical survival, "people with this level of income would be technically dead".'

NGO's, and are very influential. Thus the latest count, which was presented in April 2004 (World Bank 2004; see tables 1 and 2), was widely interpreted as proof that global poverty rates are improving substantially, and that the Millennium goal of halving global poverty by 2015 is well within reach.[6]

Table 1: People living on less than 1 dollar a day

With continuing growth the number of people living in extreme poverty will fall								
People living on less than $1 a day (millions)								
Region	**1981**	**1984**	**1987**	**1990**	**1993**	**1996**	**1999**	**2001**
East Asia & Pacific	767	558	424	472	416	287	282	284
China	606	421	308	377	336	212	224	212
Europe & Central Asia	1	1	2	2	17	20	30	18
Latin America & Caribbean	36	46	45	49	52	52	54	50
Middle East & North Africa	9	8	7	6	4	5	8	7
South Asia	475	460	473	462	476	441	453	428
Sub-Saharan Africa	164	198	219	227	241	269	292	314
Total	**1,451**	**1,272**	**1,169**	**1,219**	**1,206**	**1,075**	**1,117**	**1,101**
Excluding China	845	850	861	841	870	863	894	888

Source: World Bank 2004, p. 3

Table 2 People living on less than 2 dollars a day

But more than 2 billion people will live on less than $2 a day								
People living on less than $2 a day (millions)								
Region	**1981**	**1984**	**1987**	**1990**	**1993**	**1996**	**1999**	**2001**
East Asia & Pacific	1,151	1,104	1,024	1,117	1,080	922	900	868
China	858	809	732	830	807	650	630	596
Europe & Central Asia	8	9	8	58	78	97	111	93
Latin America & Caribbean	99	119	115	125	136	117	127	128
Middle East & North Africa	52	50	53	51	52	61	70	70
South Asia	821	859	911	958	1,005	1,022	1,034	1,059
Sub-Saharan Africa	288	326	355	382	409	445	487	514
Total	**2,419**	**2,466**	**2,466**	**2,689**	**2,759**	**2,665**	**2,730**	**2,733**
Excluding China	1,561	1,657	1,734	1,858	1,952	2,015	2,101	2,137

Source: World Bank 2004, p. 3

The exactness of these figures – '"precise" to six digits and very widely used in academic publications and popular media all over the world' (Reddy and Pogge 2002a: 32) – should be taken with a grain of salt. It is often not clear how many people exactly live in a country,[7] and

[6] See e.g. 'Wereldarmoede gehalveerd, maar Afrika blijft ver achter bij Azië' (*De Volkskrant*, April 24, 2004), or 'Wereldbank ziet gestage afname extreme armoede' (*NRC Handelsblad*, April 24, 2004).

[7] In fact the margin can be rather big, as the following example shows. During a presentation by this author at the Globalization Festival in Amsterdam (June 2004), a journalist from the Dutch daily *De Volkskrant* recounted that a couple of days earlier at the African Energy Forum the secretary of energy of Nigeria had indicated that he did not know how many inhabitants his country has. It may be 110 million, but it may be 130 million, he said.

the World Bank has regularly changed its headcounts on the basis of new calculations and approximations. A paper that was published in June 2004 by Chen and Ravallion (2004), who work for the World Bank's Development Research Group (Chen and Ravallion 2004), indicates that the latest World Bank count is not its last word. It contains even newer estimates, which slightly differ from the ones presented by the World Bank two months earlier (see table 3).[8]

Table 3 Numbers of poor people

	Number of people living below $1.08 per day (million)							
	1981	1984	1987	1990	1993	1996	1999	2001
East Asia	795.6	562.2	425.6	472.2	415.4	286.7	281.7	271.3
Of which China	633.7	425.0	308.4	374.8	334.2	211.6	222.8	211.6
Eastern Europe and Central Asia	3.1	2.4	1.7	2.3	17.5	20.1	30.1	17.0
Latin America and Caribbean	35.6	46.0	45.1	49.3	52.0	52.2	53.6	49.8
Middle East and North Africa	9.1	7.6	6.9	5.5	4.0	5.5	7.7	7.1
South Asia	474.8	460.3	473.3	462.3	476.2	461.3	428.5	431.1
Of which India	382.4	373.5	369.8	357.4	380.0	399.5	352.4	358.6
Sub-Saharan Africa	163.6	198.3	218.6	226.8	242.3	271.4	294.3	312.7
Total	**1481.8**	**1276.8**	**1171.2**	**1218.5**	**1207.5**	**1097.2**	**1095.7**	**1089.0**
	Number of people living below $2.15 per day (million)							
	1981	1984	1987	1990	1993	1996	1999	2001
East Asia	1169.8	1108.6	1028.3	1116.3	1079.3	922.2	899.6	864.3
Of which China	875.8	813.8	730.8	824.6	802.9	649.6	627.5	593.6
Eastern Europe and Central Asia	20.2	18.3	14.7	22.9	81.3	97.8	113.0	93.3
Latin America and Caribbean	98.9	118.9	115.4	124.6	136.1	117.2	127.4	128.2
Middle East and North Africa	51.9	49.8	52.5	50.9	51.8	60.9	70.4	69.8
South Asia	821.1	858.6	911.4	957.5	1004.8	1029.1	1039.0	1063.7
Of which India	630.0	661.4	697.1	731.4	769.5	805.7	804.4	826.0
Sub-Saharan Africa	287.9	326.0	355.2	381.6	410.4	446.8	489.3	516.0
Total	**2450.0**	**2480.1**	**2477.5**	**2653.8**	**2763.6**	**2674.1**	**2738.8**	**2735.4**

Source: Chen and Ravallion 2004, p. 31.

So how does the Bank determine these numbers? Using purchasing power parity conversion factors (PPPs)[9] the World Bank defines a global poverty line for a given base year by

[8] A notable feature of this new count is that the authors go back to the early 1980s, but they themselves cast doubt on the reliability of these data: 'Naturally, the further we go back, the fewer the number of surveys. (…) A simple but useful guide to the reliability of our estimates is to count the number of surveys by year. (…) By this measure, our estimates around the mid to the late 1990's are the most reliable while our estimate for 1981 is clearly the least reliable. We have only 15 surveys up to 1983, though it rises sharply to a total of 32 surveys for the period up to 1985. By contract we have 86 surveys during 1986-90' (Chen and Ravallion 2004: 7-8).

[9] The 2004 Handbook of the International Comparison Program (ICP), available at www.worldbank.org, defines PPP as follows (chapter 1, p. 5): 'The PPP between two countries is defined as the rate at which the currency of one country needs to be converted into that of a second country to ensure that a given amount of the first

converting the purchasing power of a set of official national poverty lines of a set of low-income countries into the US dollar amount needed to have the same purchasing power in the United States in the same year. For the World Bank's first global poverty assessment in 1990, domestic poverty lines for 33 countries that had been surveyed during the mid 1980s were 'scaled upward or downward by changes in the national consumer price index to their "equivalent" in 1985 national currency units. These 1985 currency units were then converted into common units of a "real purchasing power" equivalence using the 1985 purchasing power parity conversion factors for consumption (expressed in US dollars) calculated by Summers and Heston (1988a). A global poverty line of $31 per month was chosen on the basis that the official domestic poverty lines of eight of the poorer countries in the sample, converted into dollars in this way, were very close to it. This "most typical" poverty line became the "$1 (PPP 1985) a day" (actually $1.02 PPP 1985) global poverty line. (…) This uniform poverty line was then converted to the national currency units of different countries using the Penn World Tables (Summers and Heston) PPP conversion factors for 1985. The resulting poverty line was then inflated or deflated as appropriate by changes in the national consumer price index and applied to household survey data to create a measure of the number of poor persons in a country and in a particular year. For the 2000 poverty estimation exercise, the Bank established a new poverty line. For the same list of 33 countries used earlier the Bank identified the ten countries with the now lowest poverty lines when converted to $ PPP 1993 using conversion factors for consumption, and chose the median of these poverty lines – $ 1.08 1993 per day – as its new poverty line. No justification has been offered for this change' (Reddy and Pogge 2002: 5-6).

Many people will not realize what it means that the poverty lines of $1 or $2 a day are defined as *equivalent* purchasing power and are not measured in nominal exchange rate terms.[10] As a discussant after a presentation by Reddy commented, 'like many people she had believed that the Bank's $1 a day measure was defined in nominal exchange rate terms. In other words, one US dollar in a developing country would go much further there than in the United States. She was shocked, however, to learn from Professor Reddy's presentation that

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country's currency will purchase the same volume of goods and services in the second country as it does in the first.'

[10] For popular use the World Bank (2004) speaks about $1 dollar and $2 dollar a day, arguing that a 'poverty line of $1 a day ($1.08 in 1993 purchasing power parity terms) has been accepted as the working definition of extreme poverty in low-income countries. In middle-income countries a poverty line of $2 a day ($2.15 in 1993 purchasing power parity terms) is closer to a practical minimum.'

this measure is in fact a *relative* income estimate, meaning that one must imagine a person living each day on one US dollar *in* the United States, and relate that level of poverty to other poor people around the world to understand what the Bank's poverty figures actually mean. The participant suggested that if the poverty line in the United States is drawn at an income of $10,000 a year, for example, then a person who falls below the Bank's $1 a day line would be living on an income of $365 a year.'[11]

The methodology used by the World Bank to establish global poverty rates has come under severe attack from Reddy and Pogge,[12] who argue 'that the "$1/day" concept should be abandoned because of the deep and irremediable problems attached to it' (Reddy and Pogge 2002b). Their most damaging critique, which undermines the credibility of the whole World Bank counting exercise, is that the international poverty line the Bank uses 'does not correspond to any single underlying conception of poverty, defined in human needs or elementary capabilities.' Following Sen, they argue that poverty (and in particular absolute poverty) should be looked at in terms of deprivation of specific elementary capabilities (or even basic needs), rather than in utilitarian 'welfarist' terms. The dollar a day poverty line of the World Bank was chosen in an ad hoc way, and does not correspond to an idea about inadequacy of resources to meet basic human needs or requirements or capabilities, such as requirements of nutrition and shelter.[13]

Reddy and Pogge (2003) argue that an acceptable approach to monitoring global poverty must adopt a criterion for identifying the poor that should at least have (i) an interpretation in terms of the most basic requirements of human beings, (ii) the same meaning everywhere, and (iii) the same meaning at every point in time. Since the current World Bank approach fails all these three minimum requirements (Reddy and Pogge 2003), an alternative, more accurate

[11] Quoted in the analytical summary of a presentation by Sanjay Reddy at the Carnegie Council on Ethics and International Affairs, New York, November 18, 2002.

[12] In various works, see references. See also Wade 2003, 2004a en 2004b.

[13] Reddy and Pogge (2002b: 6) calculated what happens to national poverty lines in poor countries if the existing World Bank poverty line of $1/day (PPP) is translated into national currencies by using food-based PPPs (food accounts for roughly 70% of the expenses of the poor in poor countries) instead of general consumption PPPs, to conclude that 'national poverty lines in poor countries would invariably be higher than suggested by the Bank'. Also, they reported (Reddy and Pogge 2002a: 29) for a set of poor countries for which they had sufficient data: 'The effect of using all-food rather than general-consumption PPPs is to raise the average headcount from 32.84 to 44.66 percent. The effect of using bread-and-cereals rather than general-consumption PPPs is to raise the average headcount from 32.84 to 59.34 per cent.'

measurement must be developed (see section 3). Reddy recounts that even economists regularly say to him, 'Don't we all know that the global poverty estimates and the one dollar a day line are nonsense anyway? Surely, none of us ever believed in them!' But while economists may not believe the World Bank's figures, many others in the world do and policy conclusions are based on these counts.

In addition to this fundamental criticism of the methodology the World Bank uses, different authors have raised serious doubts about the numbers the Bank has come up with and the trend these data supposedly show. Wade (2004a) recapitulates a number of these problems:

- The poverty headcount is very sensitive to the precise level of the international poverty lines because of the shape of income distribution near the poverty line: 'Recent research in China suggests that a 10% increase in the line brings a roughly 20% increase in the poverty headcount.'
- The poverty headcount is very sensitive to the reliability of household surveys of income and expenditure, which are of widely varying quality and many of which do not follow a standard template. There are no other sources that are more reliable (for example, national income accounts), but it has to be noted that household surveys do contain a large margin or error.[14]
- The main sources of PPP income figures are based on large-scale international price benchmarking exercises in 1985 and 1993 for calculating PPP exchange rates. However, China did not participate in either one and India did not participate in the 1993 exercise.[15] China and India, the two most important countries for the overall trend in global poverty rates,[16] have therefore PPP-adjusted income figures that contain an even bigger component of guesswork than for most other significant countries.[17]

[14] 'For example, the length of the recall period makes a big difference to the rate of reported expenditure – the shorter the recall period the higher the expenditure. A recent study in India suggests that a switch from the standard 30-day reporting period to a seven-day reporting period lifts 175 million people from poverty, a nearly 50% drop' (Wade 2004a: 572).

[15] 'The purchasing power parity exchange rate for China is based on guestimates for small, *ad hoc* price surveys in a few cities, adjusted by rules if thumb to take account of price differences between urban and rural areas and between eastern and western regions.' (Wade 2004a: 572)

[16] Remember (see tables 1 and 3) that according to the World Bank the reduction in the number of people living on less than $1 a day from 1981 to 2001 is to a large extent accounted for by China.

[17] Dowrick (2002: 234-5) writes that a major limitation of the International Comparison Program (ICP), on which calculations of PPP are based, has been its limited coverage of countries. 'Outside the OECD, many

- The often-cited comparison between 1980 and 1998 is not valid, because the Bank has introduced a new methodology (including a change in the international poverty line from $PPP 1 per day to $PPP 1.08 per day), which makes the figures non-comparable.[18]
- The Bank's international poverty line refers to an average consumption bundle and not to a basket of goods and services that makes sense for measuring poverty, and thus underestimates the number of poor people.[19] '(A) recent study for Latin America shows that national extreme poverty rates, using poverty lines based on calorific and demographic characteristics, may be more than *twice* as high as those based on the World Bank's $1/day line. For example, the World Bank estimates Brazil's extreme poverty rate (using its international poverty line) at 5%, while the Economic Commission for Latin America, using a calories-and-demography poverty line, estimates the rate at 14%' (Wade 2004a: 573).
- Future 'updating' of the international poverty line will continue artificially to lower the true numbers, because average consumption patterns on which the international poverty line is based are shifting towards services whose prices relative to food and shelter are

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countries have never participated in the international surveys, whilst others have participated only occasionally. (…) Where ICP data have not been collected, the authors of the Penn World Tables and organizations such as the World Bank have had to resort to various methods of estimating real (PPP-adjusted) GDP for the non-participating countries. These estimates for the non-benchmark countries are liable to be inaccurate and misleading.' Incidentally, Ahmad (2003) argues that a big problem for the comparability and representativeness of data on prices is where in countries they are collected. Dowrick (2002: 235) suggests conducting such surveys in countries as large as Russia, India and China, with uneven economic development across regions, at the regional level.

[18] The revision of the international poverty line in 2000 from $1/day PPP 1985 to $1.08/day PPP 1993 has 'lowered national poverty lines in 77 countries containing 82% of the total population, and raised national poverty lines in only 15 countries (…) (T)he redefinition has reduced the 1993 global poverty count by 4.25% or 58 million. This is rather a substantial achievement compared to the reported *actual* reduction in the number of very poor people: Over the entire 1987-1998 period, the number of persons living on less than $1.08/day PPP 1993 reportedly declined by only 0.7% or 8.05 million: from 1183.19 to 1175.14 million (Pogge and Reddy 2003: 6-7).

[19] As Pogge and Reddy (2002a: 10-18) argue: 'In short, currently available PPPs are inappropriate for measuring absolute poverty because they draw *too much* on information that is irrelevant and *too little* on information that is relevant to this particular task.' PPP's as calculated by the World Bank are also influenced by prices of goods not consumed by the poor: 'An increase in the price of luxury automobiles in a rich country will lower the PPP (and therefore the povery line deemed equivalent to a global standerd) of a poor country, and a decrease in the price of commodities consumed only by the wealthy in a poor country (such as the same luxury automobile) will have the same effect.'

lower in poor than in rich countries. This will give the false impression that the cost of the basic consumption goods required by the poor is falling.

The conclusion that follows from the fundamental critique of the World Bank's methodology is that 'the poverty statistics regularly calculated and published by the Bank are entirely useless for the purpose they are officially to serve' (Reddy and Pogge 2002a: 31). This problem cannot be solved without recognizing that the World Bank uses an arbitrary poverty line that is unrelated to any clear conception of what poverty is, for there are also many problems with the way the Bank calculates its self-defined poverty headcounts. The least one can say is that these counts therefore contain a large margin of error. As Wade (2004a: 574) argues, the Bank's probably substantially underestimates the *absolute* numbers of the world's population living in extreme poverty, and presents too positive a trend over the years. Only the *proportion* of the world's population living in extreme poverty has probably fallen over the past 20 years, for world population has increased so much over the last 20 years that the Bank's poverty counts would have to underestimate the world poverty rate immensely for it not to have fallen. 'Any more precise statement about the absolute number of the world's people living in extreme poverty and the change over time currently rests on quicksand.'

Measuring income inequality

Even more controversial than the development of the number of poor people in the world is the trend in income inequality. The difficulty here is that there exists 'no single "best" coefficient of inequality since there are a number of distinct aspects of inequality in which one might be interested and some coefficients are more suited to reflect one aspect and some another' (Champernowne 1974: 787). The answer to the question what the trend and magnitude is in income distribution depends to a large extent on the particular combination of measures, samples, and data sets one chooses.[20]

A first choice one has to make is whether to look at incomes measured at market exchange rates or at incomes in terms of PPP. It is often argued that only calculations in terms of PPP make sense, but that depends on what wants to know. It is for example entirely sensible to look at income in terms of exchange rates if one wants to measure the relative

[20] I rely considerably on Wade 2004b for the listing of choices that follows.

position of countries in the global economy and their weight in international organizations. Some countries for example have more problems than others in finding the money to fund delegations with negotiators and juridical experts in Geneva to negotiate in the WTO, to use an understatement. Developing countries also cannot pay off their debts with PPP dollars, which would drastically reduce the amount to be paid.

The second choice that researchers of the development of global inequality have to make is whether to look at absolute or relative income differences. If incomes of $100 increase by 10 percent and incomes of $100.000 do too, the relative difference between the two does not change. But the absolute difference increases from 99,900 to 109,890, that is by 10 percent. As Ravallion (2004:8) argues, 'There is no economic theory that tells us that inequality is relative, or absolute. It is not that one concept is right and one wrong. Nor are they two ways of measuring the same thing. Rather, they are two different concepts. The revealed preferences for one concept over another reflect implicit value judgments about what constitutes a fair division of the gains from growth.'

There is also a third choice to be made, between measuring inequality in terms of average country incomes — so-called 'between-country' or 'concept 1' distribution — or in terms of both 'between-country' and 'within-country' distributions, that is the distribution between all individuals or households in the world regardless of where they live ('concept 3' inequality). While it may sometimes be useful to look at between-country distribution, e.g. as an indicator of how various growth or trade strategies work out, only the combination of between-country and within-country inequality can give a true world income distribution.

Fourth, there is the option of counting each country as one, unweighted, or to take into account the size of different countries' population. A choice for the first implies that China and Luxemburg get the same weight in your calculation, while in the second case countries are weighted by their number of inhabitants.

The fifth choice is related to the difference between social inequality and social polarization. The first can be judged by measuring inequality as an average across the distribution, for example with the well-known Gini coefficient, the second by measuring the ratio of top to bottom, such as the top to bottom decile or twenty percent in the distribution of income.

Finally there is also a choice to be made between calculating national income distributions from household surveys (micro-data), which exclude most benefits people get from publicly provided goods and services but are generally considered the least bad approximation of household expenses and incomes, or from private consumption expenditure

per capita from national accounts (macro-data), which among other things include spending on goods and services by unincorporated businesses and non-profit organizations such as charities, religious groups, clubs, trade unions and political parties (Ravallion 2001: 7).

Which combination one picks depends on what one wants to know and on one's judgments about what the problem is to be examined. Many combinations are thus possible, and they can give divergent conclusions about trends in and magnitudes of the development of global income differences.

Based on a range of studies with all kinds of indicators, Wade (2004a and 2004b) formulates a number of propositions about which we can be reasonably confident. Firstly, no one disputes that world income distribution has rapidly become more unequal when incomes are measured at market exchange rates and expressed in US dollars. Secondly, polarization of world income has increased when we look at PPP-adjusted incomes and use the richest to poorest decile as measure.[21] Thirdly, between-country (or 'concept 1') inequality has increased since at least 1980 if we look at PPP incomes, use GDP per capita, count all countries as one (without weighing them for the size of their populations), and use a coefficient like the Gini index. Fourthly, a number of serious studies that take between-country inequality as well as within-country inequality into account (and thus measure 'concept 3' inequality) conclude that world PPP income inequality has increased over the past two or three decades. Fifthly, only one combination has as very likely outcome that world inequality fell in 1980-2000. It uses a Gini index or other average coefficient (and thus not a measurement of polarization between 'top' and 'bottom'), GDP per country in PPP, and weighs countries for the size of their population ('concept 2' inequality). Proponents of contemporary globalization who argue that the current neoliberal world order decreases social differences often refer to (variants of) this indicator.

However, this indicator has two important drawbacks. Firstly, if China is left out the indicator no longer falls, and if India is also left out this indicator points like many others to increasing income differences. Secondly this combination ignores the income distribution within countries. The first problem is relevant because it indicates that, contrary to what is often claimed, decreasing inequality is not a generalized feature of today's world economy.

[21] 'The broad result is hardly surprising: the top 10% is comprised almost entirely of people living in the core countries of North America, western Europe, and Japan, where incomes have grown over the past 20-30 years, while a large chunck of the bottom 10% is comprised of African countries where incomes have stagnated or fallen' (Wade 2004a: 576).

To this should be added that China and India have not implemented the policies that are generally prescribed to developing countries, which often summarized as 'the Washington Consensus' (see e.g. Rodrik 2002). The second problem is important because it makes this indicator very uninteresting. Leaving out inequality within countries, and thus assuming that all Chinese earn the same average GDP (in PPP) income, all Russians earn the same average GDP (in PPP) income, etc., distorts the overall picture enormously.[22]

Milanovic (2002a) has shown this by calculating Gini coefficients for different years for the states in the US. As can be seen from the table reproduced below (see table 4) the three indicators show a different trend and magnitude. The picture one gets can be very misleading, for while the coefficients based on unweighted (concept 1) and population-weighed (concept 2) GDP per capita per state have as their outcome that income inequality in the US in 1989 is less than in 1959, the calculation based on between-state and within-state inequality (concept 3) shows that the reverse is true and that income differences in fact increased from 1959 to 1989.

Table 4 Three concepts applied to US data: Gini coefficients 1959-1989

	Concept 1	Concept 2	Concept 3
	Unweighted inter-state inequality	Population-weighted inter-state inequality	Interhousehold inequality
1959	11.4	10.7	36.1
1969	9.1	8.1	34.9
1979	7.6	5.8	36.5
1989	9.8	8.3	40.1

Source: Milanovic 2002a, p. 7.

Why the outcome of measurements according to these three concepts can easily diverge can be grasped from the comparison among them, which is reproduced from Milanovic (2000a: 6) in table 5.

[22] Capéau and Decoster (2004: 16) therefore conclude that 'concept II inequality' should not be used.

Table 5 Comparison among three concepts on inequality

	Concept 1: unweighted inter-national inequality	Concept 2: Weighted inter-national inequality	Concept 3: "true" world inequality
Main source of data	National accounts	National accounts	Household surveys
Unit of observation	Country	Country (weighted by its population)	Individual
Welfare concept	GDP or GNP per capita	GDP or GNP per capita	Mean per capita disposable income or expenditures
National currency conversion	Market exchange rate or PPP exchange rate		
Within-country distribution (inequality)	Ignored	Ignored	Included

Source: Milanovic 2002a, p. 6.

If income data for all households in the USA are available, nobody will of course propose to calculate income inequality by taking the average income for each state weighted for the size of its population. It seems hard to argue that the same should not hold for the calculation of world inequality. Thus serious attempts to calculate 'true world inequality' are to be welcomed. Based on household income and expenditure data for more than 85 percent of the world population, which have only existed for a limited number of years, Milanovic comes to the conclusion that world income inequality increased from 1988 to 1993, when measured in either PPP ('international dollars') or market exchange rates (reproduced in table 6).[23] He has also been working on data for 1998; his first calculations suggest a slight drop in global inequality between 1993 and 1998, leaving a large rise over 1988-1998.

[23] For 91 countries he collected household survey data for both years: these are called 'the common-sample'. The 'full sample' is larger 'because there are countries included in one year, but not included in another. Thus the full sample for 1988 consists of 101 countries, and in 1993 of 117 countries. The increase in the sample size in 1993 is due principally to the much better coverage of Africa. For many of the African countries, the data on income distribution have become available in the early 1990's only' (Milanovic 2002a: 82).

Table 6 World inequality in 1988 and 1993

	Full sample		Common sample	
	1988	1993	1988	1993
International dollars				
Gini index	62.5	65.9	62.8	66.0
	(3.1)	(2.6)	(3.1)	(2.7)
Theil index	75.8	86.4	76.5	87.3
Dollars				
Gini index	77.8	80.7	78.2	80.5
	(2.3)	(2.0)	(2.3)	(2.2)

Gini standard errors given between brackets

Source: Milanovic 2002a, p. 83.

The outcome of these calculations[24] has been challenged by Sala-i-Martin in two papers (2002a; 2002b), which have been widely quoted in the popular and professional press. In these papers he claims to have derived a distribution of income across world individuals ('concept 3 inequality') for each of the last 30 years, and argues that these calculations show that world inequality has *de*creased. However, Milanovic (2002b) has demolished Sala-i-martin's findings as 'unsound, both on methodological and empirical grounds', noting the following problems with his calculations:

- 'A strange omission of countries with "disturbing rises" in inequality';
- The use of only 'five data points to approximate entire distributions';
- 'When these five data points are not available (84 percent of the time), extrapolate backward and forward in time. When only one observation is available; assume distribution stays the same for 30 years; when there is no observation at all, assume everybody in the country has the same income';
- 'Treat distributions of household income across households as if they were distributions of per capita income across individuals';
- 'Mix National accounts data (GDP per capita) and household survey data';
- 'Mix expenditure and income data.'

[24] Milanovic's data are also used by www.globalrichlist.com, a website that 'wanted to do something which would help people understand, in real terms, where they stand globally'. Visitors to this site can enter their annual income and press a button to find out to which percentage of the richest people in the world they belong, and how many people are poorer.

In sum, only one not very useful indicator shows a fall in global inequality over the last decades. In light of the fact that a host of other indicators points to a more unequal global income distribution, Wade's (2003: 40) statement that it is 'simply disingenuous to keep repeating that world income distribution has become more equal as undeniable fact' seems warranted.

Conclusion: the need for better data

Our overview of a number of current controversies about global poverty rates and world income inequality has shown that claims about the level or trend in the number of poor people and global inequality should not be accepted at face value. Because such assertions depend to a large extent on value judgements and methodological choices by their claimants, it is necessary to look at the assumptions and methodology that underpin these claims and to ask what has been measured, how it was done, and why this is what we should be interested in. In addition, there is an urgent need to work towards better measurements of global poverty and inequality. This is obviously not an easy thing to do, but there exist feasible proposals that merit attention and support from NGO's, policy makers, and researchers. By way of conclusion, two of these alternatives will be briefly presented.

On poverty headcounts, Reddy and Pogge (2002a: 3) argue that the authors of World Bank studies on global poverty 'must be credited with laboring valiantly against the odds of limited data and resources to produce the first estimates of global income poverty. It is only because of the existence of this extensive effort that we are able to argue today that it is necessary to move beyond it.' Their rejection of the Bank's procedures does not lead them to the sceptical conclusion that we should not try to develop a standard of income poverty that is comparable in space and time. On the contrary, they suggest that a much better procedure exists, which can be easily implemented: 'This alternative procedure would construct a reference basket of commodities containing relevant characteristics (for example, calorific content) that enable them to meet the elementary consumption needs (or capabilities) of individuals. It then defines the international poverty line as the amount of national currency minimally necessary in each country or more specific locality to purchase this reference basket. This procedure focuses on whether the incomes of poor people are sufficient not in relation to all prices everywhere but rather in relation to the local prices of goods that are

relevant to meeting their elementary requirements. The reference basket employed in the proposed alternative procedure should be composed of commodities that are defined in a suitably abstract way so as to take reasonable account of local variations in tastes, while also possessing the characteristics that enable elementary requirements to be met' (Reddy and Pogge 2002a: 31).[25] Since the number of poor people is politically sensitive and the World Bank, which is criticized from the left and the right, has an interest in showing that its policies work, this should not be done by the World Bank but by a genuine independent organization.

To obtain better data on true world income inequality, Milanovic (2002a: 100) proposes to 'undertake a world-wide household income or expenditure survey. Technical obstacles to conducting such a survey are minimal. The sampling, design, the enumerators – all these problems are solvable. The obstacles are, of course, the cost of such a survey (and the agency that would conduct it), and more important the political problems. (…) In conjunction with a world-wide survey, one would need to move toward a derivation of country-specific equivalence scales with which (as we currently do with PPP exchange rates) incomes of people in different countries of the world would be "equivalized".'

Milanovic expects that there will be political resistance from a large part of the political spectrum (including oppressive regimes, rich countries' governments, neoliberals and nationalist, right-wing forces) to his proposal for a world-wide survey by an international organization. Reddy and Pogge see the lack of significant attention for the massive flaws in the World Bank's poverty headcounts as indicative of the low priority that has so far been given to the global problem of persistent poverty.[26] The main obstacle to the implementation of these (or similar) proposals is not technical but political, and whether this will change depends thus to a large extent on the future development of global social movements and political forces that campaign against poverty and support income redistribution on a world scale.

[25] Poverty statistics based on this method cannot be objective and there are differences of opinion about (for instance) the relative significance of various basic needs and the appropriate degree of deference to cultural norms and values, Reddy and Pogge (2002a: 31) recognize, but 'such disagreements can be narrowed through reasonable debate to a sufficient degree to permit a workable framework for action'.

[26] Pogge (2002: 6-9) identifies four 'easy assumptions' used to excuse ignoring world poverty: preventing deaths is counterproductive because it will lead to overpopulation and hence to more poverty deaths in the future; world poverty is so gigantic a problem that it simply cannot be eradicated in a few years, at least not at a cost that would be bearable for the rich societies; as the history of failed attempts at development assistance illustrates, world poverty cannot be eradicated by 'throwing money at the problem'; world poverty is disappearing anyway.

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