

# Global Income Inequality

## A review

*Branko Milanovic*

### 1. What is global inequality?

Global inequality is a relatively recent topic. It was not until the early 1980s that the first calculations of inequality across world citizens were done.<sup>1</sup> This is because in order to calculate global inequality, one needs to have data on (within-) national income distributions for most of the countries in the world, or at least for most of the populous and rich countries. But it is only from the early- to mid-1980s that such data became available for China,<sup>2</sup> the Soviet Union and its constituent republics and large parts of Africa. Before we move to an analysis of global inequality, however, it is useful to set the stage by delineating what topics we shall be concerned with and what not. This is necessary precisely because of the relative underdevelopment of the topic, reflected in the fact that the same or similar terms are often used in the literature to mean different things. We need to distinguish between inequality among countries' mean incomes (inter-country inequality or *Concept 1* inequality as dubbed by Milanovic, 2005), inequality among countries' mean incomes weighted by countries' populations (*Concept 2* inequality), and inequality between world individuals (global or *Concept 3* inequality).

Concept 1 inequality deals with convergence and divergence of countries' incomes, and although at first this line of work was couched in inequality terms (see Baumol, 1986), most of the later work used cross-

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<sup>1</sup> By Berry, Bourguignon and Morrisson (1983); and Grosh and Nafziger (1986).

<sup>2</sup> The first post-Cultural Revolution household survey in China was conducted in 1978. The first available rural and urban surveys are from respectively 1980 and 1981 (see Ravallion and Chen, 2006, forthcoming, p. 3).

country regressions and  $\beta$  convergence.<sup>3</sup> In such regressions each country/year is one observation. This line of research, which has generated a huge literature, is interesting for a number of reasons but it has very little to tell us about income inequality among world citizens. This is basically because countries are of unequal population size. Thus a fast increase in income of a small poor country will not have the same effect on global inequality as the same per capita increase in a poor and populous country.

Concept 2 inequality tries to take this into account by weighing each country by its population. It is a natural and low-cost approach since it requires the knowledge of only two variables: mean income, which is approximated by GDI per capita, and population size. The first such calculations were done by Kuznets in 1954 (see Kuznets, 1965, pp. 162ff).<sup>4</sup> Some thirteen years later, Kravis, Heston and Summers (1978), as part of their first study of purchasing power parity, calculated Concept 2 inequality for the non-socialist world. There are two reasons for the enduring popularity of this approach (for recent examples, see Schultz, 1998; Boltho and Toniolo, 1999; Firebaugh, 2003). First, the data requirements for the calculation of Concept 2 inequality are modest. We need only countries' GDI per capita and population. Second, Concept 2 inequality is the largest component of global inequality. Global inequality is by definition composed of population-weighted international inequality (Concept 2 or between-inequality), and inequality due to income differences within countries. Since the between component is by far the larger, accounting for two-thirds and three-quarters of global inequality (depending on inequality measure), Concept 2 inequality can be used as a lower-bound proxy for global inequality. Moreover, its movements can be supposed to track changes in global inequality.

What Concept 2 inequality does not take into account are within-national inequalities. In calculating Concept 2 inequality, we implicitly assume that each individual within a country has the same per capita income. This last assumption needs to be abandoned if we want to calculate "true" global inequality across individuals. But in order to abandon it, one must have access to national income distributions which are available only from household surveys. It is this "jump" that makes such a big

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<sup>3</sup> Some of the initial emphasis on inequality rather than on the  $\beta$  coefficients can still be seen in the use of the sigma convergence where sigma is the standard deviation of income logs.

<sup>4</sup> For the year 1949, Kuznets calculated a Concept 2 inequality that covered around a third of world population.

difference in data requirements between Concept 2 and Concept 3. From being “modest”, the data requirements now become huge since, ideally, we should have access to nationally-representative household surveys from all the countries in the world.

This review will deal only with studies of global or Concept 3 income inequality.<sup>5</sup> The easiest point of departure for an estimate of global inequality is to calculate Concept 2 inequality using GDI per capita and population for as many countries as possible, and combine it with the empirical observation that within-national income distributions tend to follow a log-normal pattern. Then, the only additional piece of information needed is a Gini coefficient or some other summary inequality statistic describing national income distributions. They are published in various compendia of the Gini coefficients such as WIDER, the Deininger–Squire database, etc.<sup>6</sup> Under the assumption of lognormal distribution of income, the inequality statistics allow us to retrieve an estimate of the variance of each national distribution. Once we know the variance and the mean, and given the assumption of log-normality, we can estimate the entire distribution of each country, that is, each fractile’s income. It is then a relatively simple task to combine these national distributions into a single world-wide income distribution, particularly so if one uses an exactly decomposable measure of inequality like the Theil index or the variance of logs. This was precisely the approach followed by many early and some recent studies of global inequality (Berry, Bourguignon and Morrison, 1983; Grosh and Nafziger, 1986; Quah, 1999; Shultze, 1998; Chotikapanich *et al.*, 1997). At times this approach can be refined by using a bit more information than what is contained in a Gini or Theil index. Sala-i-Martin and Bhalla have used quintiles of income distribution to get a better handle on national distributions and thus a more precise estimate of global distribution. All these methods can be considered *tâtonnements*, groping for the global distribution.

These methods are quite ingenious given their rather minimal information requirements. But they are also very “costly” because it is often the numerous assumptions, piled up one upon another, that drive the results

<sup>5</sup> And with global inequality conventionally defined as inequality in relative, not absolute, incomes and using the conventional measures of inequality like the Lorenz curve, Gini coefficient or Theil index. The focus on absolute inequality, however, has its own uses (see Atkinson and Brandolini, 2004; Svedberg, 2003; Ravallion, 2004). Similarly, relative income inequality with the use of different inequality aversion parameters (reflecting in principle different welfare judgments) will produce ambiguous results even where conventional statistics yield a clear outcome (see Capeau and Decoster, 2004, Table 5).

<sup>6</sup> Available at <<http://www.wider.unu.edu/wiid/wiid.htm>> and <<http://econ.worldbank.org>>.

rather than the underlying data. A lot of assumptions are made simultaneously and it is almost impossible to tell the impact which each of the assumptions separately has on the results. Further, since even the minimal data requirements (national Ginis) are not satisfied annually, authors are led to make additional assumptions (for example, that national inequality does not change or changes in an assumed fashion), so that at the end, the part of the results driven by various assumptions may vastly outstrip the part based on actual data. The best recent examples of such approaches, which are often thinly disguised Concept 2 inequality calculations, are Bhalla (2002) and Sala-i-Martin (2002). In Bhalla's (2002) calculations of global inequality only one out of every 24 distributions is based on actual data and 23 are "derived" through assumptions; in Sala-i-Martin's (2002) paper, the ratio is 1 actual to 4 "derived" distributions.<sup>7</sup>

The quantum leap compared to this method is to use directly household surveys from as many (ideally all) countries of the world. This was done by Milanovic (2002; 2005) and World Bank (2005). Here, in principle, global inequality is calculated the same way as one calculates within-country inequality, using not National accounts data, but surveys. Another quantum leap in this line of research will occur when these, so far disparate, national surveys are standardized or a single world-wide household survey is conducted.

## 2. Some methodological issues

We start with the simplest question of all: what is "income" in the calculations of global inequality? As we have seen, most of the early work used national accounts data, that is GDI per capita expressed in the same currency (international or PPP dollars). This is because household survey data for many countries of the world were simply unavailable (and even when they existed, researchers could not get them because the statistical agencies refused to release them).<sup>8</sup> There are currently three main sources of

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<sup>7</sup> For a critique, see Milanovic (2002a; and 2005, pp. 119–127).

<sup>8</sup> This is still the case with many countries that refuse to release micro data to any institution or individual. Such countries are quite diverse, ranging from Japan to Algeria. There is thus a paradoxical situation that a number of expensive instruments like household surveys exist in the world, yet they cannot be used because of misplaced policies of some countries' statistical offices. The issue of confidentiality with which they sometimes defend their practice is clearly bogus, since no researcher can ever identify the participating households. Are we to believe that a researcher at (say) Cornell University in 2005 is going to identify the Japanese households that took part in a survey conducted in 1973?

world wide data on GDI per capita across time and across countries. They are World Bank data available in World Bank World Development Indicators (WDI), Penn World Tables, and Angus Maddison's data. The advantage of using GDI per capita as "income" is that these numbers, even if the three sources do not always agree among themselves, are relatively uncontroversial. We know what is meant by GDI per capita and we know that these values do give some generally accepted mean incomes of all nations.<sup>9</sup>

The main drawback of this approach is that GDI per capita is not "income" in any recognizable sense to any individual or household. Gross domestic income includes components such as corporate investment from retained profits, build-up of stocks, government spending on administration, defense, etc., which are not part of an even broadly defined household disposable income. In addition, publicly-financed health and education are part of GDI per capita but not included in household per capita disposable income unless one is able to impute—which is almost impossible in a multi-country context—these values back to individual households based on survey data on their school attendance and use of medical services. Accordingly, GDI per capita will be by definition greater than household survey mean.

Another drawback is that the combination of GDI per capita with distributional statistics derived from household surveys is not distribution-neutral.<sup>10</sup> We know that surveys tend to underrepresent capital income or undersurvey rich people (see Mistiaen and Ravallion, 2003).<sup>11</sup> Thus, a simple upscaling of all survey incomes by a given parameter (ratio between GDI per capita and household survey mean) will reduce poverty below what it really is and underestimate inequality.<sup>12</sup> This procedure implicitly

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<sup>9</sup> It has not always been like that. Consider the problems of converting Communist countries' national accounts methodology into NAS system, and of course the issue of deliberate falsification of national accounts.

<sup>10</sup> "The difference in coverage and definition between [National accounts] and survey means that, even if everything were perfectly measured, it would be incorrect to apply inequality or distributional measures, which are derived from surveys which measure one thing, to means which are derived from national accounts, which measure another" (Deaton, 2003, p. 35).

<sup>11</sup> Income from property is notoriously underestimated in household surveys (even leaving aside the fact that most surveys do not include capital gains at all). Concialdi (1997, p. 261) claims that the best available French household surveys underestimate capital incomes by about 40 percent. Wagner and Grabka (1999) estimate German property income to be underestimated by almost one-half compared to National Accounts data. In Japan, according to Ishizaki (1985) only 12 percent of property income is "captured" by household surveys (quoted in Bauer and Mason, 1992, p. 407).

<sup>12</sup> We speak of upscaling rather than downscaling because GDI per capita is normally greater than household per capita disposable income.

allocates the difference between GDI per capita and survey mean across all households (more exactly, in proportion to reported household income). Poor people's income is increased in the same proportion as rich people's income. But if most of the difference between the two concepts is due to unreported income of the rich, then this approach artificially inflates incomes of the poor.

The income of the rich which accounts for the bulk of the difference between GDI and disposable income is of two types: first, the definitionally-different part which consists of publicly-financed health and education, undisbursed corporate profits, etc. that are received by the rich but also by the middle-classes and some poor in *rich* countries;<sup>13</sup> second, income of rich people in each individual country that is missed out by surveys (for example, property incomes). All actual recipients of these incomes are globally-rich because the middle-class and even the poor from the rich countries are in the top quintile of global income distribution, but the difference between the two aggregates is spread much more widely: some of it is imputed to the poor in the poor countries which, we know, receive none of it.

Consider the following example. Let the poverty line be \$PPP1 per capita per day. Let average per capita disposable income from surveys of several groups of the poor in India be \$0.75, \$0.80, \$0.85. Now, suppose (very realistically) that India's GDI is some 35 percent higher than disposable income. We know that most of these 35 percent is received by the rich, either because they benefit from publicly-funded education or because they fail to report their property incomes. What the authors (in particular, Sala-i-Martin, 2002 and Bhalla, 2002) do is to multiply incomes of the poor by the factor of 1.35. Then, suddenly, none of them is any longer poor: they have all crossed the poverty threshold!<sup>14</sup> In addition, by imputing non-existing income to the globally poor, global inequality is underestimated. The important point to realize is that the procedure that allocates the difference between GDI and survey mean in proportion to income recorded in surveys—even if it leaves national inequalities unchanged—affects global inequality.

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<sup>13</sup> Disposable household income retrieved from surveys in West European nations amounts to about 60 percent of GDI. A bulk of that difference is explained by health and education consumption. Publicly-financed health and education as share of GDI is much less in poor countries.

<sup>14</sup> On the additional pitfalls caused by the use of averages from national accounts and distributions from household surveys, see Ravallion (2000), Deaton and Drèze (2002), and Deaton (2003).

But if we decide that “income” in global studies should be the same concept as in national studies of inequality—that is, household per capita disposable income—the problem is not solved yet. This is because national definitions of survey income are very different, and the more countries we include, the more different they become. A huge effort, conducted by the Luxembourg Income Study, has gone into standardization of national definitions. A similar project is underway at the World Bank using Living Standards Measurement Surveys (LSMS). Yet the standardization covers only a small portion of all countries and surveys. The main differences arise in the treatment of self-employed income (what are business expenditures for the self-employed?), valuation of home-consumption including owner-occupied housing,<sup>15</sup> treatment of publicly-provided health and education benefits, and the use of top-coding of high incomes (where all incomes above a certain ceiling are coded as equal to that ceiling).<sup>16</sup> For different countries and at different levels of development, differences in the treatment of these categories are not equally important. For poor countries, it is the problems of valuation of own consumption and self-employed income that are the most difficult and that can make individual incomes often move up by a factor of 2 or more; for the rich countries, it is the treatment of publicly-provided health and education benefits that is of most concern. Swedish disposable income with them or without them is quite different. For countries with extravagantly rich individuals it is the underestimation of capital incomes which is of concern.

But there is no agreement that “income” in global inequality studies should be income at all. Many people think that rather than income, one should look at consumption or expenditures as the true indicator of the standard of living. This debate mirrors the debates that are waged in individual countries, since obviously inequality can be measured using either income or consumption. What lends this debate an added importance in the case of global inequality is that in many countries household surveys ask income questions only, while in other countries they ask for both, or for expenditures only. Then, a global study of inequality has to do what all

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<sup>15</sup> For example, in 1990 the Chinese statistical office changed the valuation of grain output produced by rural households from state-mandated to market prices. This generated a large change in the calculated poverty rates and a break in the rural mean income series (see Ravallion and Chen, 2006).

<sup>16</sup> For example, the US Current Population Survey top-codes all very high wage and capital incomes. Similarly, the maximum capital gain that can be recorded in the survey is \$149,999 per household annually.

national studies try to avoid, that is to mix household survey data that use two different concepts of “income”: disposable income and consumption. This introduces an error whose direction and magnitude cannot be estimated. Although in the last few years, there has been a trend toward the use of consumption measures (not the least through the efforts of the World Bank and the influence it exerted on the choice of survey instruments in the former communist countries and Africa), we are still far from unanimity on this issue. In the study of global inequality based on the 1998 benchmark data, Milanovic (2005, p. 104) used 63 consumption instruments and 59 income instruments. This represents a significant increase in the number of consumption instruments compared with ten years before (80 income-based and 22 consumption-based distributions), but for some of the most important countries (like China) one still depends on income data alone.

After the problems of what is the proper welfare indicator, it would seem that other methodological issues should be easier to deal with. This is true. Whatever “income” is, that “income” should be expressed in per capita terms and should be equal across members of a household. This means that the two issues that are often debated in national inequality studies are “solved” here: the issue of equivalence scales, and intra-household inequality. They are “solved” because at the current level of statistical development, there is simply no way to account for economies of scale and size across different countries. The main reason for this is that economies of scale and size depend on relative prices of public and private goods (if housing is very cheap, economies of size will be small) and they systematically differ between poor and rich countries.<sup>17</sup> Until we have a better handle on the relative prices of public and private goods,<sup>18</sup> we cannot adjust internationally for equivalent units. A use of a given equivalence scale across all countries of the world would be much more arbitrary than the use of per capita calculations. Similarly, we lack any information about within-household inequalities.<sup>19</sup>

Another issue on which there is agreement is that whatever “income” is, it needs to be adjusted using a country’s relative price level. In other

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<sup>17</sup> See Lanjouw, Lanjouw, Milanovic and Paternostro (2004).

<sup>18</sup> And also relative prices of children vs. adult goods if we are to adjust for household composition (and not only for household size).

<sup>19</sup> Schultz (1998), however, tries to account for intra-household inequality by using genders gap in schooling (for each country) to estimate gender gaps in income at the household level.

words, we need to use PPP exchange rates to translate domestic currencies into international dollars. Ideally, of course, one would like to move toward a better adjustment where at least for some large countries with less than fully integrated markets, PPP exchange rates would differ between different parts of the country (e.g. the price level in the richest Chinese province is estimated to be 76 percent higher than in the poorest; see Brandt and Holz, 2006). Another concern is that the relative prices faced by different parts of the income distribution are not the same. According to Pogge and Reddy (2002), relative food prices faced by the poor in poor countries are higher than what is implied by the use of a single all-consumption PPP.<sup>20</sup> The food prices are what really matters for the poor, and the use of an overall (lower) price index will artificially boost poor people's income in India or elsewhere in poor countries.<sup>21</sup> Pogge and Reddy advocate a cross-country project akin to the one currently conducted by the World Bank's International Comparison Project which would generate PPPs relevant for the very modest, principally food, basket consumed by the poor across the world. But so long as within-country (provincial) PPPs and PPPs differentiated by income class are not available, we shall be obliged to use a single PPP exchange rate per country.<sup>22</sup>

How about the use of market (rather than PPP) exchange rates in global inequality calculations? This is a useful complement because it gives us a different insight into inequalities. If one is interested in global purchasing power or ability to affect the world economy, then conversion of local incomes into actual US dollars makes sense. But there are relatively few instances where we are interested in this, and most of our interest in global inequality is really based on the desire to compare living standards of different people. For that purpose PPP exchange rates are, of course, better.

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<sup>20</sup> The meaning of this sentence is that the ratio of food prices consumed by the poor in (say) Indonesia to the food prices of the same goods in the US is higher than the ratio between the overall price level in Indonesia and that in the US.

<sup>21</sup> The reason behind income overestimation is as follows. The weights in the "world" consumption basket of goods and services are decisively influenced by the prices and the structure of consumption in rich countries since they are obviously the largest consumers. Then, a relatively high consumption of services in poor countries (which are cheap there) but are assessed at much higher "world" prices tends to show poor countries' (and poor people's) income higher than it "really" is. One possible way to adjust for this is to move from the commonly used Geary-Khamis index which has the just explained property to more "neutral" price indexes (Afriat or EKS) where the weight of rich countries is less (see Dowrick and Akmal, 2001).

<sup>22</sup> The World Bank has recently started a massive project to calculate "poverty PPPs", that is specific PPPs that better reflect differences in price levels faced by the poor in different countries.

### 3. How big is global inequality?

There is a general agreement about the size of global inequality, and there is a general disagreement about the recent direction of change of global inequality. Table 1 shows the results for global inequality obtained by a number of authors using quite different techniques: most of them mix national accounts information (using GDI per capita as mean income) and household survey information, and only a few use household surveys directly. In all the studies, however, the recipients are individuals (inequality is expressed on a per capita basis), and national incomes are converted in international (PPP) dollars although the PPP exchange rates may be drawn from different sources. All Gini values for the 1990s, with the exception of the two extremes (61 and 71), lie within a relatively narrow range between 63 and 68. The similarity in the results is even more remarkable when one realizes that the standard errors of these estimates are between 2 and 3 Gini points,<sup>23</sup> and that consequently most of the estimates are within one standard error of each other.

**Table 1: Global inequality (in Gini points) in 1990s, according to various authors**

Author	Year	Gini value	National mean incomes from:	National income distributions from:
Milanovic (2005)	1993	66	Household surveys	Household surveys
Milanovic (2005)	1998	65	Household surveys	Household surveys
Bourguignon and Morrison (2002)	1990s	66	GDI (Maddison)	Household survey estimates
Sala-i-Martin (2002)	1998	61	GDI (Penn World Tables)	Ginis and quintiles from HS
Bhalla (2002)	2000	65	GDI (Penn World Tables and WDI)	Ginis and quintiles from HS
Dikhanov and Ward (2001)	1999	68	National consumption (WDI)	Ginis and quintiles from HS
Dowrick and Akmal (2001)	1993	71	GDI	Ginis and quintiles from HS
Sutcliffe (2003)	2000	63	GDI (Maddison)	Ginis and quintiles from HS
Chotikapanich <i>et al.</i> (1997)	1990	65	GDI (Penn World Tables)	Ginis for HS

Note: HS = household survey; GDI = Gross Domestic Income; WDI = World Development Indicators (World Bank).

<sup>23</sup> One has to be careful in the interpretation of the standard error. The standard errors are obtained using simple bootstrapping techniques so they basically show how sensitive is the estimated Gini coefficient to any single observation (Milanovic, 2002). These results do not include any information about the reliability of the underlying national income distributions (*viz.*, how correctly incomes are measured).

As for the direction of change—comparison between the 1990s and 1980s—there is no unanimity. Sala-i-Martin and Bhalla, using very similar methodologies, argue that global inequality has declined by between 3 and 4 Gini points. Dikhonov and Ward, and Bourguignon and Morrison find an increase of about 1 Gini point. Sutcliffe concludes that there was no change, and Milanovic finds an increase of 3 Gini points between 1988 and 1993 followed by a decline of 1 Gini point in the next five years.<sup>24</sup> His most recent (and unpublished) calculations for 2002, show another small increase of about 1 Gini point. Thus, according to Milanovic, there are zig-zags. They are explained, in the early 1990s, by the slow growth of rural incomes in India and China and economic collapse of Eastern Europe, both of which contributed to global inequality. When both developments reversed in the next five-year period, global inequality decreased. But these are zig-zags caused by specific economic events in large countries, not a trend.

This lack of unanimity on changes, and disagreement on whether there is any trend at all, stem not only from the differences in methodologies but, paradoxically, also from the very similar results that all authors obtain regarding the overall *level* of inequality. The reason is as follows. Different methodologies yield similar inequality levels, but they do so with quite a lot of noise caused by measurement problems. Mean incomes, whether obtained from surveys or national accounts, are not consistently calculated and key data sources disagree among themselves. The computation of Concept 2 inequality using GDI per capita—a metric on which there is apparently least dispute—from World Bank or Maddison’s data series will differ by several Gini points. This is because, as pointed out by Sutcliffe (2003), Maddison’s data include estimates for a number of war-torn or otherwise “excluded” countries like Sudan, Afghanistan, Somalia, the Congo, Cuba, North Korea, etc. that are almost invariably poor and not included in the World Bank database. In addition, Maddison’s growth rates for China are less than the official rates and those used by the World Bank. It is, then, not surprising that when one superimposes estimates of national distributions on one or another set of GDIs per capita to generate global

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<sup>24</sup> The World Bank’s 2006 *World Development Report* uses mean log deviation as the measure of global inequality. It finds that it has decreased between 1994 and 2000 from 0.87 to 0.82 (see World Bank, 2005, p. 64).

inequality, the choice of the GDI database will clearly influence the end result.<sup>25</sup>

Income distribution data, particularly when extrapolated from quintiles or from the Gini coefficients, are even noisier. Furthermore, due to the absence of income distribution data for many countries, some authors (e.g., Bhalla, and Sala-i-Martin) resort to very dubious assumptions, taking, for example, income distributions that either do not change in time or change in a certain (linear) fashion or even that everyone in a country has the same income. This myriad of assumptions and measurement errors in most cases tends not to bias the results in one direction only, but probably to offset each other, producing relatively similar levels of inequality. But when one re-estimates global inequality for another year, while the level hardly changes, the result is (on the account of the measurement error if nothing else) likely to be slightly different. It is that slight difference that is then interpreted as the evidence of a change, or in some cases even of a trend.

How big is a Gini of around 65? It is larger than inequality found in any single country including South Africa and Brazil, two among most unequal countries in the world, whose Ginis are in the upper fifties or low sixties. The Gini coefficient however does not give an intuitive feeling of how large global inequalities are. A better way to look at it is to consider how the overall pie is distributed across different fractiles of the distribution. Thus, for example, the top 5 percent of individuals in the world receive about one-third of total world (PPP-valued) income, and the top 10 percent one-half. If we take the bottom 5 and 10 percent, they receive respectively 0.2 and 0.7 percent of world total income. This means that the ratio between the average income received by the richest 5 percent and the poorest 5 percent of people in the world is 165 to 1.<sup>26</sup> The richest people earn in about 48 hours as much as the poorest people earn in a year.

Another important question is to ask how much of global inequality is due to differences in mean incomes of countries and how much to income differences within countries. Some 70 percent of global inequality is “explained” by differences in countries’ mean incomes. This is a sharp reversal from a situation which existed around the time of the Industrial

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<sup>25</sup> For example, Concept 2 inequality calculated using World Bank GDI per capita data from 138 countries shows a decrease of some 3 Gini points between 1985 and 2000. The same concept calculated using Maddison’s data over the same period for about 160 countries shows a decline of only 1 Gini point (author’s unpublished calculations).

<sup>26</sup> This is based on Milanovic (2005).

Revolution when more than half of the (admittedly very rough) estimate of global inequality was due to income differences within nations (see Bourguignon and Morrisson, 2002).<sup>27</sup> Then, in contrast to today, the differences between countries' mean incomes were relatively small. For example in 1870, the average (unweighted) GDI per capita of the ten richest countries was 6 times greater than the average (unweighted) GDI per capita of the ten poorest countries. In 2002, the ratio was 42 to 1.<sup>28</sup>

While income inequality between countries is the largest component of global inequality, overlaps between countries' distributions (that is, some people from a poor country being better off than some people from a rich country) are non-negligible either.<sup>29</sup> We illustrate this in Figure 1 which plots the position of each 5 percent (ventile) of different countries' distributions in the global distribution. Consider the line for France. We calculate the mean income (in international dollars) of each French ventile from the lowest (first) to the highest—arrayed on the horizontal axis—and then find their positions in global income distribution. As can be seen, the poorest 5 percent of Frenchmen have a mean income which places them at the 72nd percentile of world income distribution; the richest 5 percent have an income which places them in the top percentile of the world. Hence French income distributions span the range between the 72nd and 100th percentile in the world. Look now at rural Indonesia in the bottom of the figure. Here the span is from the 4th percentile in the world to the 56th percentile. The two distributions (French and rural Indonesian) do not overlap at all.<sup>30</sup> But this is not the case if we compare Brazil and France: more than a third of all Brazilians are richer than the poorest 5 percent of the French.<sup>31</sup>

<sup>27</sup> This is an estimate based on the Theil decomposition between inequality due to the differences in incomes between six country groups, namely (Africa), (Asia), (Japan, Korea and Taiwan), (Latin America), (Eastern Europe), and (Western Europe and its offshoots) and inequality within country groups. Since there are no data on income distributions for most countries in the world prior to 1950, Bourguignon and Morrison use estimates for a few select countries to "impart" the same distributions to other countries in the group. Their between-component accounts for some 30 percent of global inequality. Obviously, if they had data on all countries' distributions, the between component would have been larger. However, it is unlikely to have exceeded one-half of global inequality.

<sup>28</sup> Both calculated from Maddison (2004) data.

<sup>29</sup> Note that in a world of large between-country income differences, and very small within-national inequalities, there would be no overlap at all, and 100% of global inequality would have been "caused" by between-national differences.

<sup>30</sup> This is of course true at the level of ventiles. It is quite possible, even likely, that there are some individuals in rural Indonesia who are richer than some individuals in France. If we conducted the analysis in terms of national percentiles rather than ventiles, there would be some overlap. But it would clearly be minimal.

<sup>31</sup> Even if at each *given* ventile, income of the French is higher than the income of the Brazilians. The last statement means that French income distribution is first-order dominant over the Brazilian distribution (as is, for example, Sri Lankan over the rural Indonesian) even though the French and Brazilian distributions do overlap (unlike the French and rural Indonesian).

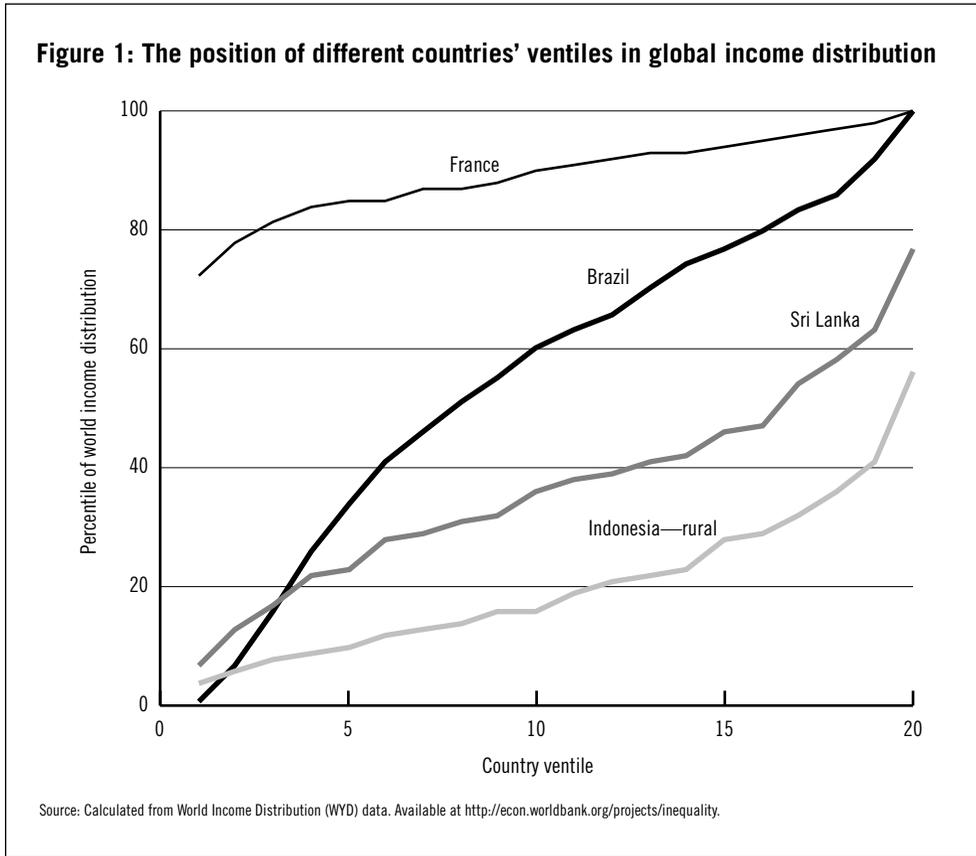


Figure 1 illustrates not only that inequality due to within-national distributions is still significant and that countries are not homogeneous entities composed of either rich and poor people only, but also it will have practical implications when we discuss global transfers (see Section 4). In short, if transfers were to flow from mean-income rich to mean-income poor countries (as they do now), and we do not a priori know who their beneficiaries are, a glance at Figure 1 immediately convinces us of a need to take recipient countries' income distributions seriously. This is because the probability that money raised from a French citizen will end up in the pockets of somebody who is richer than he/she is, is higher if money is transferred from France to Brazil than if it is transferred from France to rural Indonesia. But to this topic we shall return below.

#### 4. Is there a link between globalization and global inequality?

It is often implicitly assumed that the results regarding the change in global inequality can be interpreted as telling us whether globalization leads to widening or shrinking of income differences between individuals in the world.<sup>32</sup> While, in the most abstract way, this is true the causal link between globalization and global inequality is very difficult to make. To see this, consider several ways in which globalization affects inequality among individuals in the world.<sup>33</sup>

The first channel goes through globalization's effects on within-national distributions. As we would expect from economic theory, the effect varies between rich and poor countries. In the simplest Heckscher–Ohlin world, globalization would increase demand for, and wages of, low-skilled labor in poor countries and wages of high-skilled workers in the rich world. Consequently, we would expect income distribution in poor countries to become “better” and that in rich countries to get “worse.” This is not, however, consistent with what was observed over the last twenty years when distributions in poor, middle-income and rich countries have tended to grow more unequal (Cornia and Kiiski, 2001). This is an issue which has recently been studied a lot and is still a subject of intense debate: is openness to blame for increasing wage and income differences in the US?; is openness associated with rising income inequality in poor countries? For example, Milanovic (2005) and Ravallion (2001) find that openness is associated with increased inequality in poor countries, and lower inequality in rich countries, while Dollar and Kraay (2002) argue that there is no systematic effect of openness on inequality.<sup>34</sup>

Then, and this is the second channel, globalization may affect differently *mean* incomes of poor and rich countries: in other words, it might lead to divergence or convergence in country incomes. There is no unanimity on this point either. Most authors agree that openness is positively associated with mean income growth (Balassa, 1985; Edwards, 1998) but some

<sup>32</sup> Most often, globalization is defined in terms of two outcome variables: increased share of trade in GDI and increased share direct foreign investments in GDI. This is quite acceptable when we have income inequality as the dependent variable since inequality moves in response to outcomes (higher or lower trade). But one could also define globalization in terms of policies (e.g., lower trade barriers).

<sup>33</sup> The objective here is not to review the immense literature in any of these areas, but just to give a brief sketch of the issues and what the key agreements and disagreements are.

<sup>34</sup> For a review of the literature see Winters, McCulloch, and McKay (2004), and Milanovic (2005a). The role of trade in increasing wage differentials in rich countries is the subject of voluminous controversy (for some examples see Freeman, 1995; and Slaughter, 1999).

of them (Sachs and Warner, 1997; World Bank, 2002) find the effect stronger for poor countries, while others (DeLong and Dowrick, 2003; Dowrick and Golley, 2004) argue that the openness premium during the last twenty years has been larger for rich than for poor countries.<sup>35</sup> The first group of authors would expect openness to lead to shrinking differences between national mean incomes. Therefore they have to explain away the observed divergence in mean country incomes by the lack of openness among the laggards. According to the second group of authors, the divergence is an indication that the effects of openness might change over time and that openness, even if on balance positive for all, may exacerbate inter-country inequality.

Third, the effects of globalization may vary between populous and small countries. This area has not been much explored except within the context of the rather limited (in scope and number) studies of small island economies. Yet one can imagine that globalization may play out differently in populous countries with large domestic markets, or in small niche economies like Hong Kong, Singapore or Luxembourg, than in middle-size countries.

And finally, and possibly most importantly, the effect of globalization on global inequality will depend on history; that is, on whether populous countries happen to be at a given point in time poor or rich. To see this, assume for a moment that we know that globalization has a strong and positive impact on growth rates of both populous and poor countries and has no effect on within-national income distributions. Let's call this set of assumptions A. It will, in the current constellation of national incomes (see Figure 2), mean that India and China would be expected to grow faster than the rich world while their national distributions will not change. Consequently, global inequality will tend to go down.<sup>36</sup>

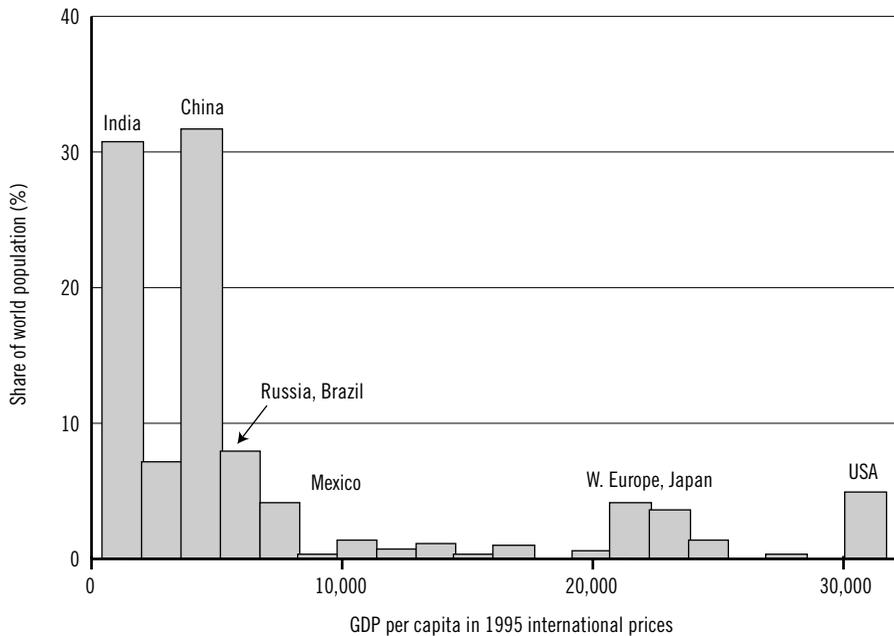
Let us keep our assumption A, but decouple the poor and populous countries; in other words, consider such a constellation of national incomes where the most populous countries are rich, and poor countries are

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<sup>35</sup> According to them, the openness premium was larger for poor countries in the 1960–80 period, but then changed in the last twenty years. For some speculations on what might have triggered that change, see Dowrick and Golley, 2004, p. 53).

<sup>36</sup> We are concerned with effects at one point in time only. Independent changes in population may, by affecting the weights in the inequality statistics, influence on their own changes in global inequality. For example, China's impact on global inequality can be decomposed between income per capita growth and population growth effects. Jiang (2006) finds that one-third of China's contribution to reducing global inequality is due to its population growth.

**Figure 2: Distribution of people according to GDI per capita of the country where they live (year 2000)**



Source: Milanovic (2005, p. 94)

relatively small. Now, mean-income convergence will continue (poor countries will still grow faster than the rich), but populous countries will benefit from the pro-big bias of globalization. Since populous countries are rich, this will contribute to global inequality. The two effects will therefore pull in the opposite directions and global inequality may go down or up.

This illustrates a key point: even if the effects of globalization on (i) within-national inequality, (ii) mean-income convergence, and (iii) populous vs. small countries are unambiguous and do not change over time, globalization's impact on global inequality will vary in function of where along international income distribution countries with different attributes happen to lie at a given point in time. The implication is, of course, that all statements about the relationship between globalization and global inequality are highly time-specific, contingent on past income history, and not general.

## 5. Does global inequality matter?

There are two views on whether global inequality matters (just as there are different views on pretty much everything else discussed here). One group of people believes that global inequality is irrelevant. There are two reasons why it may be so. According to Bhagwati (2004), even a calculation of global inequality is a “lunacy.” It is a mere number. There is no “addressee” to whom this mere number matters because there is no global government and there is no global civil society. According to this view, national inequalities matter because they become the stuff of political discourse; they are used to form political parties, platforms, to organize interest groups. But at the global level none of that exists because there is no global polity. Another reason adduced for the irrelevancy of global (or for that matter, all) inequality is that only changes in absolute income matter to the poor and the rich alike (Krueger, 2002; Feldstein, 1999). In words of Ann Krueger (2002), “Poor people are desperate to improve their material conditions...rather than to march up the income distribution [ladder].”

Thus, even if the absolute income gap between an average American and an average African increases, these authors are unconcerned. After all, they argue, the average African would be a bit less poor. This of course assumes that our income relative to the income of others does not matter. Yet this conclusion is at odds with psychological studies that invariably show that people do not care only about their absolute dollar income but also about where they stand in the social pyramid, and also whether they think this position to be fair (Graham and Felton, 2005; Frank, 2005).<sup>37</sup>

Or—differently—global inequality may matter. On this side of the issue, there are also different approaches. For Pogge and Reddy (2002) and Singer (2002) global poverty and global inequality are ethical issues. Hence the rich world cannot disown all interest in global poverty and inequality: to some extent, the fate of every individual in the world affects us. Distributional justice within a nation and in the world as a whole are, from an ethical perspective, the same thing (see Singer, 2002, Chapter 5).

There are also more pragmatic reasons why global inequality may matter. Kuznets (1965 [first published in 1954], pp. 173–4) formulated it some fifty years ago:

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<sup>37</sup> Not surprisingly, rich people have less aversion to inequality (see, for example, the results reported in World Bank, 2005, p. 84).

Since it is only through contact that recognition and tension are created, one could argue that the reduction of physical misery associated with low income and consumption levels...permit[s] an increase rather than a diminution of political tensions [because] the political misery of the poor, the tension created by the observation of the much greater wealth of other communities...may have only increased.

When people observe each other and interact, it is no longer simply a national yardstick that they have in mind when they compare their income with the income of others, but an international or global one. What globalization may do is to increase the awareness of other people's income and therefore the perception (knowledge) of inequalities among both the poor and the rich. If it does among the poor, then their aspiration level changes: they may no longer be satisfied with small increases in their own real income if they know that other people are gaining much more.<sup>38</sup> Therefore the process of globalization by itself may change the perception of one's position, and even if globalization were to raise everybody's real income, it could exacerbate, rather than moderate, feelings of despondency and deprivation among the poor.

Globalization in that sense is no different from the process which led to the creation of modern nation states out of isolated, and often mutually estranged, hamlets. National income distribution was similarly an abstraction for the people who did not interact with each other, and almost ignored each others' existence and way of life. However, once nation-states came into existence, national inequality became an issue—simply because people were able to compare their own standard of living and to make judgments whether these income differences were deserved or not. If one believes that the process of globalization would slowly lead toward the formation of a global polity, then global inequality will indeed become a relevant issue. For it is difficult to envisage that a fully free exchange of goods, technology and information, transfer of capital, and some freedom in the movement of people can go on for a long time without creating global polity and requiring decision-making processes at the global level.

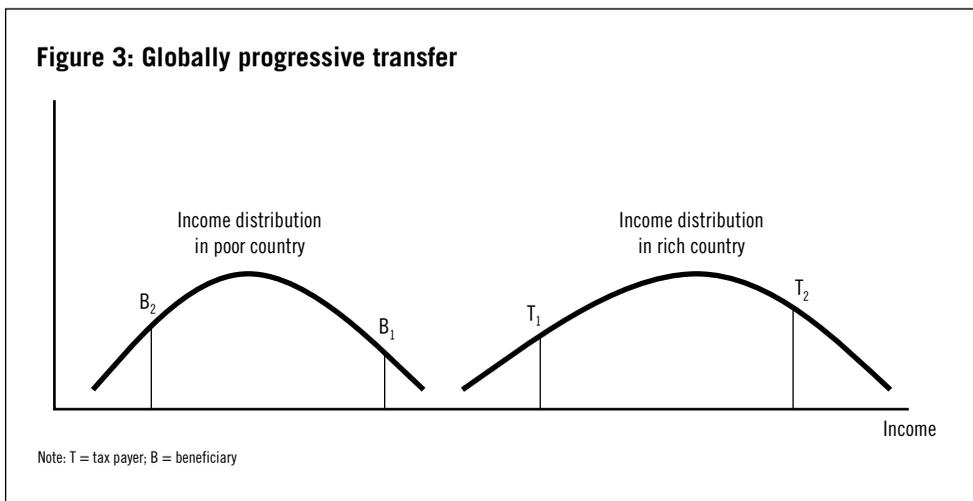
If so, then we need to develop some rules for global redistribution. A *caveat* is in order here. Large income differences in the world are due, as we have seen, mostly to the large differences in countries' mean incomes.

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<sup>38</sup> This is, of course, a conjecture. We do not have, as far as I know, any studies that look at the effect of *international* consumption on domestic perception of well-being. It is an area worth further research.

And since the early 1980s, many countries of the world, and often among the poorest, have witnessed a systematic growth failure. Thus, to reduce income differences among individuals, increasing the growth rate in poor countries is of paramount importance. Granted the paramount importance of growth for poor countries, there may still be a need (desire?) to reduce income disparities through global redistribution. To guide these redistribution policies, we need to define some simple rules.

The first rule which may be called the *Progressivity 1 rule* (a companion to Concept 1 inequality) is that funds should flow from a (mean-income) rich to a (mean-income) poor country. This requirement is easily satisfied. Even today, bilateral aid is given by rich to poor countries. But in a global world, this is not enough. Redistribution needs to be globally progressive—that is, to satisfy the same criteria that we require from redistribution within a nation-state. This means that the tax-payer ought to be richer than the beneficiary of the transfer. But both *Progressivity 1* and *Global Progressivity* may be satisfied (as shown in Figure 3 by points  $B_1$  and  $T_1$ ) while the beneficiary is a relatively rich individual in a poor country and the tax payer a relatively poor individual in a rich country. And it is precisely the perception that many transfers end up in the pockets of the rich elite in poor countries which is fueling the current discontent with multi-lateral and bilateral aid. Thus the third requirement ought to be that transfers be such that inequality decreases in both countries, donor and recipient. This will happen only if the tax payer is relatively rich even



within his/her own country and the beneficiary is relatively poor in his/her country. This situation is illustrated by points such as  $T_2$  and  $B_2$ .

Now, these three requirements regarding global transfers will be more easily satisfied when income distributions of rich and poor nations do not overlap. This is, for example, the case of France and rural Indonesia (illustrated in Figure 1). Even if the distribution of aid money among Indonesian beneficiaries is random, global progressivity will be satisfied since there are practically no people in rural Indonesia who are better off than even the poorest Frenchmen. But this is not the case if we look at a transfer between France and Brazil. There, assuming that the tax payer belongs to the French middle class (say, around the median of French income distribution), a purely random allocation of aid to Brazil will still yield a non-negligible probability of 10 percent for a globally regressive transfer.<sup>39</sup> This means that in the design of global transfers, one needs to take into account national income distributions, and working behind the veil of uncertainty regarding as to who exactly the beneficiaries of aid are, give preference to poor and egalitarian countries, since transfers to them are unlikely to be globally regressive.

This is all, of course, under the assumption that we do not have any information about the distribution of benefits. But one can do better by trying to target the benefits toward the poor in poor countries. How could it be done? By creating a global body (Agency) that would be financed by a tax raised from the rich in rich countries (that is, a tax on goods or activities with very high income elasticity) and which would transfer these funds to poor *individuals* in poor countries. A global redistribution through taxes that would be levied by an international body is an idea that may seem far-fetched today, but which the logic of development we have recently witnessed—away from the nation state—suggests may eventually come to pass. Such a body should not be another inter-governmental organization like the United Nations or the World Bank. Indeed, the new agency should take its cues from globalization. If it is empowered to raise its own funds, it should also eschew dealing with governments that have often wasted foreign aid. Instead, in the spirit of global citizenship, it should deal directly with national NGOs and individual citizens in poor countries and distribute collected funds in the form of cash grants. Notice

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<sup>39</sup> Differently put, 10 percent of Brazilians have higher income than the median Frenchman.

that the Agency introduces a symmetry in its relations with the rich and poor countries. It takes away some of rich countries' sovereignty (since it dilutes their tax-raising power) but also takes away some of poor countries' sovereignty since it helps poor citizens in those countries directly and without requiring an authorization from their governments.

One such opportunity which was missed in the early 1990s may illustrate what I have in mind here. When Russia faced its worst crisis, aid—instead of being given to the corrupt Yeltsin regime—should have been disbursed directly in cash to the most needy citizens (for example, pensioners whose earnings plummeted due to inflation and the general chaos). An international organization, like the one we have in mind here, could have simply used the existing infrastructure of the Russian state, pension rolls, and distributed cash grants to some 20 million Russian pensioners. That would be money much better spent than giving the same amount to the government. And citizens would have fondly remembered receiving cash aid from the international community rather than blaming that same international community for transferring funds to corrupt leaders. Today, the same or similar approach could be applied in many countries, from Angola to Zimbabwe. The approach is simple and powerful. It involves three steps: raise money from the globally rich, do not deal with governments of either rich or poor nations, and transfer funds *in cash* to the poor.

While the supporters of an exclusively private-sector driven globalization may resent the idea of vesting tax-raising authority for the first time in history into a global agency, they cannot fail to notice that the very process they support undercuts, in an ironic twist, their own position. It does so by rendering the gap in wealth more obvious, and the fairness of the existing global distribution, more questionable. They will ultimately realize that their self-interest lies in supporting some form of global action to deal with both poverty...and inequality.

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