Chapter 1

# Global Inequality Fades as the Global Economy Grows

## Xavier Sala-i-Martin

*In this "age of globalization," countless studies offer conflicting conclusions about overall poverty rates and income inequality worldwide. All observers agree that the rapid integration of international economies is one of the dominant experiences of the post–Cold War world.*

*Many critics have assailed globalization as a form of extreme capitalism that is leaving the world's poor behind. At a conference in the fall of 2001, for example, Noam Chomsky declared that "Inequality is soaring through the globalization period—within countries and across countries."[1] To substantiate their claims, however, such anti-globalization activists rely on the United Nations Development Programme's* Human Development Report *for 1999, which claims that:*

> *Gaps in income between the poorest and richest countries have continued to widen. In 1960, the 20% of the world's*

*people in the richest countries had 30 times the income of the poorest 20%— in 1997, 74 times as much.[2]*

*How could it be true that globalization has helped rather than hurt the world's poor?*

*Xavier Sala-i-Martin, a professor of economics at Columbia University, is a renowned expert on economic growth who in recent years has published authoritative research on global incomes. Here, in his own words, he reviews the latest evidence. He notes that the confusion about growing global inequality among individuals is based on a logical misunderstanding. Comparing countries and comparing individuals within those countries is akin to the classic problem of mixing apples and oranges. The correct analysis is to integrate apples and apple trees, and that is what Professor Sala-i-Martin does with powerful lessons for all of us.*

*— The Editors*

1    Virginia Postrel, "The Rich Get Rich and Poor Get Poorer. Right? Let's Take Another Look," *The New York Times*, August 15, 2002.

2    United Nations Development Programme, *Human Development Report 1999*, at *http://hdr.undp. org/reports/global/1999/en/*.

Looking at the planet as a whole, never in history has poverty been eradicated so rapidly as it has been during our lifetimes. Moreover, individual income inequalities have been falling, and this is the first time they have fallen since the eve of the Industrial Revolution. The aggregate numbers have never looked better. Looking at the world distribution of income (WDI), the world is a better place.

Poverty and inequality are, of course, difficult to measure because of the arduousness of collecting data, the ambiguity of the definition of poverty, and debate concerning the proper unit of measures of both poverty and inequality. However, the mounting empirical evidence points to significant improvements in these two dimensions over the past two to three decades.

Although this is certainly good news, the analysis presented in this discussion also shows that, alongside these positive global trends, the continued deterioration of the economic situation of African countries is pushing up our measures of poverty rates and head counts in that continent. The positive economic income growth experienced by billions of Asian citizens, along with the negative growth experienced by the majority of Africans, has turned poverty, which used to be an essentially Asian phenomenon, into an essentially African problem.

## MEASURING POVERTY

The empirical literature on cross-country convergence shows that the dispersion of incomes per capita across countries tends to increase over time, a phenomenon that Robert Barro and I have called σ-divergence.[3] Countries are useful units if we want to test growth theories because many of the policies or institutions considered by the theories are country-wide.

If we are interested in whether poor people's standards of living improve more rapidly than rich people's, however, then the correct unit is a person rather than a country: The evolution of China's per capita income is more important than the evolution of Lesotho's because China has a lot more people. In fact, China has almost twice as many citizens as all African countries combined, even though Africa has around 35 independent states. There is no reason to downweight the well-being of a Chinese peasant relative to a Senegalese farmer just because China's population is larger than Senegal's. The country analysis of the traditional convergence literature does not help to answer such questions as how many people in the world live in poverty, how poverty rates have changed over the past few decades, or whether inequalities across citizens are growing over time.

A better measure of the evolution of personal inequality is the population-weighted variance of the log of income per capita, as opposed to the simple variance of the log of income per capita, which gives the same weight to all countries regardless of population. The striking result is that the weighted variance does *not* increase monotonically over time. As shown by T. Paul Schultz and by Steve Dowrick and Muhammad Akmal,[4] the weighted variance increases for most of the 1960s and 1970s but peaks in 1978. After that, the weighted variance declines, and this is rooted in the fact that China, with 20 percent of the world's population, has experienced large increases in per capita income. This effect was reinforced in the 1990s when India, with another 1 billion inhabitants, started its process of rapid growth.

Using population-weighted distributions of per capita income (from national accounts) is a step in the right direction, but it is not sufficient to provide accurate estimates of concepts like poverty rates or indexes of income inequality. These measures still miss within-country dispersion, a factor that needs to be included if sensible estimates of the WDI are to be constructed.

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3    Robert J. Barro and Xavier Sala-i-Martin, "Convergence," *Journal of Political Economy*, Vol. 100, No. 2 (April 1992), pp. 223–251.

4    T. Paul Schultz, "Inequality and the Distribution of Personal Income in the World: How It Is Changing and Why," *Journal of Population Economics*, Vol. 11, No. 3 (1998), pp. 307–344; Steve Dowrick and Muhammad Akmal, "Contradictory Trends in Global Income Inequality: A Tale of Two Biases," mimeographed, Australian National University, March 2003.

By using population weights, researchers recognize that different countries have different population sizes, but this alone is insufficient because it still implicitly assumes that all citizens of a country have the same level of income. This can yield misleading results. If the per capita income in a country were a couple of dollars above the poverty line, for example, researchers would conclude that no poor citizens lived in that country. Similarly, they would tend to find dramatic declines in poverty rates as the income per capita of very populated countries grew from a few dollars below to a few dollars above the poverty line. Additionally, in terms of inequality, population-weighted indexes of inequality could show a decline in overall global inequality, while the true individual inequalities could be rising if within-country inequalities increased sufficiently.

Incorporating information about within-country income dispersion is problematic, however, because such information is not readily available—but there is hope. Klaus Deininger and Lyn Squire, for example, collected data from a large number of microeconomic surveys conducted in a variety of countries over a period of 30 years,[5] and the United Nations University's World Institute for Development Research (UNU-WIDER) keeps an update of this collection. Although these surveys contain a large amount of information about the distribution of income (or expenditure) within many countries, however, they are still incomplete. Surveys do not exist for a number of economies, and for the countries for which surveys do exist, many years are missing. Nevertheless, this information can and should be used to complement the population-weighted national accounts and to construct estimates of the WDI.

## MEASURING THE WORLD DISTRIBUTION OF INCOME

I construct a WDI by estimating an annual income distribution for each of 138 countries and then integrating these country distributions for all levels of income.[6] The starting point of the analysis is the population-weighted income per capita, which we will use as the mean of each country's distribution. As a measure of income, I use the purchasing power parity–adjusted GDP per capita from the Penn World Tables.[7] One could anchor the country distributions to other measures of average income, such as the mean income from surveys. I choose not to do so for a variety of reasons, including (but not limited to) the lack of survey data for many countries and time periods. Since surveys are not available every year, if one used the mean income of those surveys to anchor the mean of the distribution, then one would have to "forecast" the means for missing years. National accounts data, on the other hand, are reported by the Penn World Tables for all countries during our sample period.

The mean of the distribution can be complemented by adding within-country information on income distribution contained in microeconomic income surveys reported by Deininger and Squire[8] and extended with UNU-WIDER compilation. Non-parametric kernel density analysis is used to determine annual income distribution data for the various countries.

Once a distribution of income has been estimated for each country/year, I construct an annual world distribution of income by integrating all of the country distributions.[9] Charts 1 and 2 report the estimates of the density function for some of the largest countries as well as WDI for 1970 and 2000, respectively. For convenience, the charts also include a vertical line representing the equivalent annual income of $1 per day, a widely used measure of poverty that will be discussed below.

5    Klaus Deininger and Lyn Squire, "A New Data Set Measuring Income Inequality," World Bank *Economic Review*, Vol. 10 (1996), pp. 565–591.

6    Xavier Sala-i-Martin, "The World Distribution of Income: Falling Poverty and…Convergence, Period," *Quarterly Journal of Economics*, Vol. 121, No. 2 (May 2006), pp. 351–397.
7    Allan Heston, Robert Summers, and Bettina Aten, Penn World Table Version 6.1, Center for International Comparisons at the University of Pennsylvania, December 2002.
8    Deininger and Squire, "A New Data Set Measuring Income Inequality."
9    Sala-i-Martin, "The World Distribution of Income."

**Chart 1: World and Country Income Distributions in 1970**
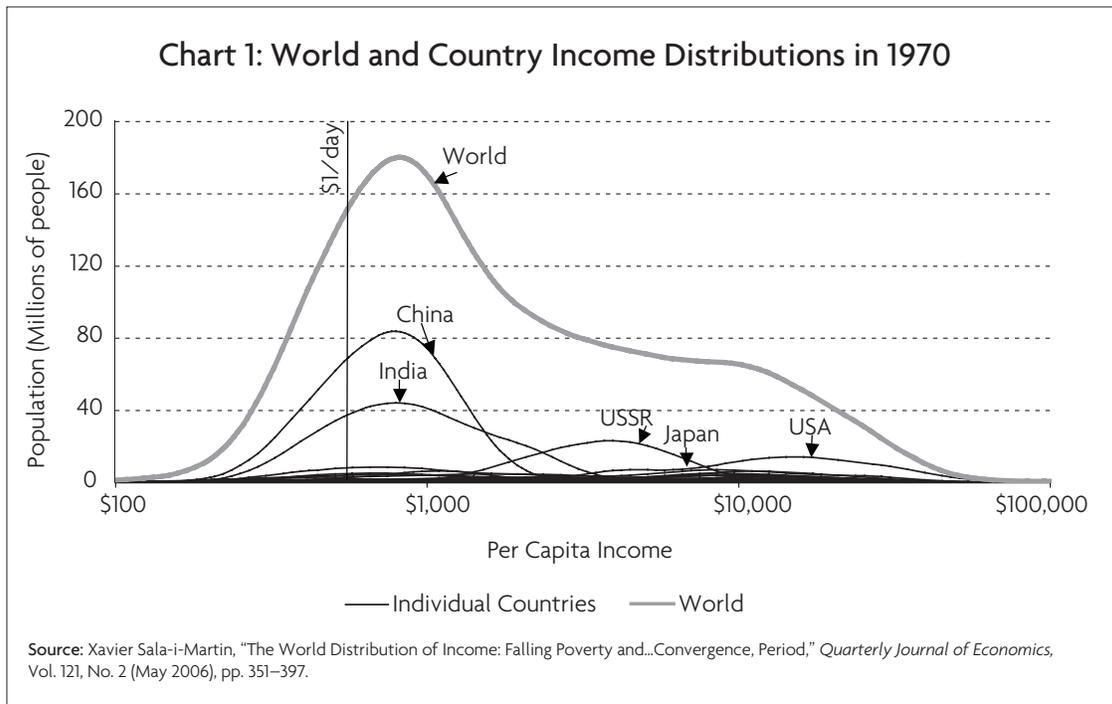
An interesting aspect of the charts is that one can visually appreciate that a substantial part of individual income inequality across the world comes from differences in per capita incomes across countries rather than differences within countries. In other words, the distance between country distributions (say, the difference between the mean of the United States and China) seems to be much larger than the differences between rich and poor Americans or rich and poor Chinese.

A quick comparison of Chart 1 and Chart 2 reveals the following features. First, the WDI has shifted to the right. This, of course, reflects the fact that per capita GDP is much larger in 2000 than in 1970. Second, it is not visually evident whether the WDI is more dispersed in 1970 than in 2000. Third, if we analyze the reasons for the WDI's change in shape, we observe that a major change occurs in China, whose distribution both shifts dramatically to the right (China is getting richer) and increases in dispersion (China is becoming more unequal).

To see the evolution of the WDI over time, Chart 3 plots together the global distributions (without individual country functions) for 1970, 1980, 1990, and 2000. It is now apparent that the distribution shifts rightward, implying that the incomes of the majority of the world's citizens increased over time. It is also clear that the fraction of the overall area that lies to the left of the poverty line declines, which indicates a reduction in poverty rates, and that the absolute area to the left of the poverty line also diminishes, which indicates an overall reduction in the number of poor citizens in the world. Again, the chart does not show clearly whether world income inequality increased or decreased, so precise measures of income inequality will have to be used if we want to discuss the evolution of inequality over the last three decades.

## DEFINING POVERTY

Once we have a good estimate of the WDI, we can use it to estimate poverty rates and head counts. The first problem we encounter, however, is defining what we mean by poverty. For a long time, analysts identified poverty with the lack of physical means for survival. Thus, some attempted to define poverty in terms of a minimum required caloric intake. Other analysts define poverty in monetary terms: Poor people are those whose income (or consumption) is less than a specified amount. Some attempts have been made to reconcile the two

**Chart 2: World and Country Income Distributions in 2000**



Source: Xavier Sala-i-Martin, "The World Distribution of Income: Falling Poverty and...Convergence, Period," *Quarterly Journal of Economics*, Vol. 121, No. 2 (May 2006), pp. 351–397.
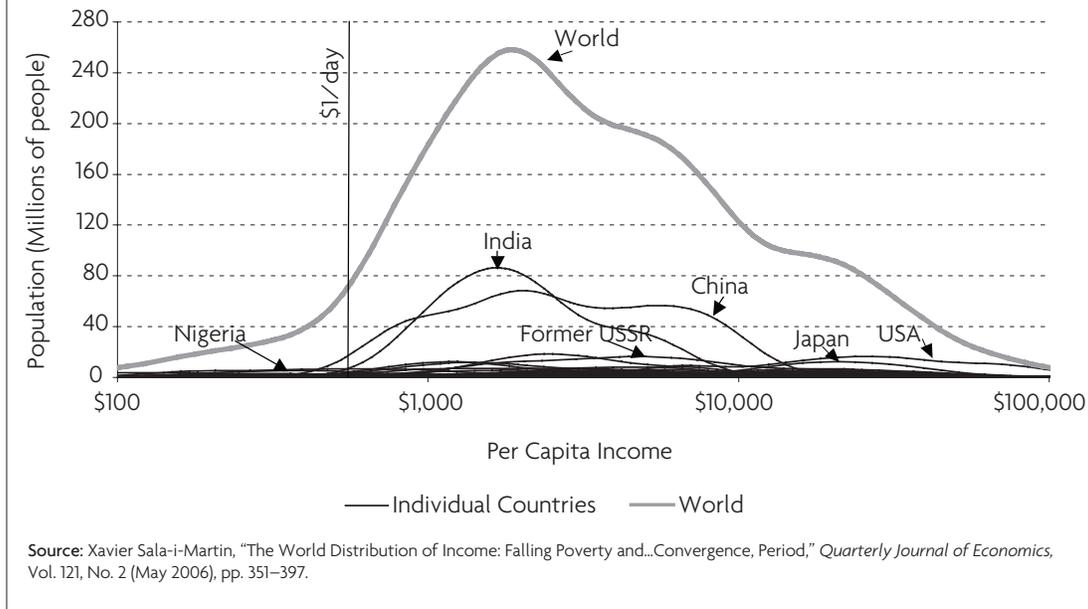
definitions by putting a monetary value on the minimum caloric intake.

Even if we agree that poverty should be defined in monetary terms, however, we would define a poverty threshold. In other words, at what level of income (or consumption) do we say that a person is poor? For example, the poverty line used by the United Nations when it first proposed the Millennium Goals was $1 a day. The World Bank uses both $1-a-day and $2-a-day lines. Surjit Bhalla settles in the middle and prefers $1.50 per day.[10] Lant Pritchett is more extreme and argues that the poverty line should be put at $15 per day.[11]

An additional problem concerns the "baseline year." If we are to compare poverty rates over time, we need to specify a particular poverty line in constant prices—but with which baseline? The lack of precision as to what baseline year a particular definition applies has enormous implications for estimates of pov-

erty rates and head counts and their evolution over time; the difference between the number of people who live with less than $340 and the number who live with less than $495 is in the hundreds of millions.

The fundamental problem is that the answers to all these questions deliver many possible definitions. All of them are reasonable and, to some extent, arbitrary. If we settle on a poverty line, then the number of poor people in the world can be readily estimated by integrating the estimated WDI from minus infinity to a predetermined income threshold, known as the poverty line. Poverty rates can then be computed by dividing the total number of poor by the overall population.

## POVERTY ESTIMATES

Since, as explained above, there is no agreement on the level of income below which people are poor, we use four different lines. The first is the most widely publicized poverty line: the World Bank's $1-a-day line. Since the World Bank's original poverty line was expressed in 1985 prices, and given that our baseline year is 1996, the corresponding annual income in our analysis is $495.

The survey data used to construct our WDI

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10   Surjit S. Bhalla, *Imagine There Is No Country* (Washington, D.C.: Institute for International Economics, 2002).
11   Lant Pritchett, "One World, One World Bank, One Poverty Line: Proposing A New Standard for Poverty Reduction," mimeographed, Center for Global Development, 2003.

**Chart 3: World Income Distribution Improves Every Decade**
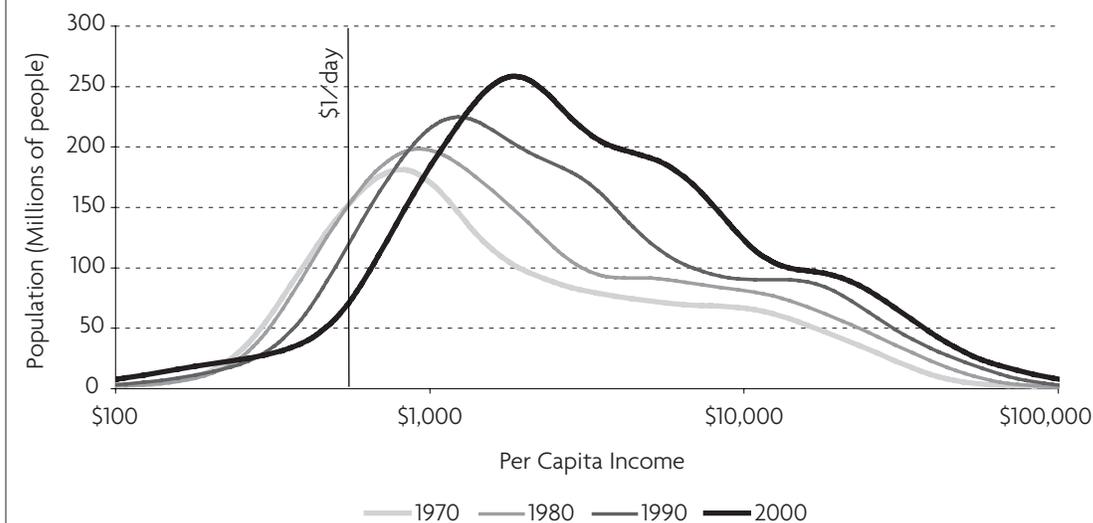


Source: Xavier Sala-i-Martin, "The World Distribution of Income: Falling Poverty and...Convergence, Period," *Quarterly Journal of Economics*, Vol. 121, No. 2 (May 2006), pp. 351–397.

are said to include systematic errors. In particular, it is believed that the rich tend to underreport their income relatively more than the poor do. If this is the case, then reanchoring the survey mean to the national accounts mean, as we do here, biases poverty estimates downwards, although it is not clear whether there are biases in the trend. Bhalla argues that this bias is best corrected not by using survey means, as done by the World Bank, but by adjusting the poverty line by roughly 15 percent.[12] If we increase the $495 poverty line by 15 percent, we get an annual income of $570.

We finally report two additional poverty lines: an annual income of $730 (roughly $2 a day in 1996 prices) and $1,140 per year (which is twice $570; since $570 was labeled the $1.50-a-day line, we call this the $3-a-day line).

Using the original World Bank definition ($495 annual income), the poverty rate declined from 15.4 percent of the world population in 1970 to 5.7 percent in 2000, a decline of a factor of almost three. This is especially impressive given that, during the same period, world population increased by almost 50 percent, from 3.5

billion to 5.5 billion. The implication is that the total number of poor citizens went from 534 million to 322 million, a decline of 50 percent. It is interesting to note that the total number of people whose income is less than $1 a day is nowhere near the widely cited number of 1.2 billion. Our estimates of $1 a day are between 33 percent and 40 percent lower.

Using the $1.50-a-day line, we see a similar picture. The poverty rate fell from 20 percent to 7 percent, a decline of a factor close to 3. The poverty head count declined by about 300 million people, from 700 million to a little less than 400 million. In other words, the total number of poor people declined by about 56 percent in a period during which world population increased by 50 percent.

With the $2-a-day definition ($730 a year), the poverty rate was close to 30 percent in 1970 and a little below 11 percent in 2000. Again, the poverty rate declined by a factor close to 3. The number of people whose income was less than $2 a day was just above 1 billion in 1970 and about 600 million in 2000, a decline of 400 million, or 54 percent.

Finally, using the $3-a-day definition ($1,140 a year), the poverty rate was 47 percent in

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12   Bhalla, *Imagine There Is No Country*.

1970 and 21 percent in 2000—again, a healthy decline over the past 30 years. The overall poverty head count declined by more than 400 million people, from 1.6 billion in 1970 to 1.2 billion in 2000.

## REGIONAL TRENDS IN POVERTY RATES

Despite the overall decline of global poverty rates, regional trends vary. With over 1.7 billion people in 2000, East Asia is the world's most populous region, accounting for 30 percent of world population. Poverty rates in East Asia were close to one-third in 1970. By 2000, poverty rates had declined to a little less than 2.4 percent. In other words, poverty rates in East Asia were cut by a factor of 10. The poverty head count was reduced by over 300 million, from 350 million in 1970 to 41 million in 2000. In 1970, 54 percent of the world's poor lived in East Asia; by 2000, this fraction had fallen to only 9.4 percent.

The exact growth of income per capita in China is a key determinant of the reduction of worldwide poverty, given its large size and the remarkable rate at which it has reduced poverty. Using only survey data, the World Bank estimates that $1-a-day consumption poverty in China fell from 53 percent in 1980 to 8 percent in 2000.[13]

Although China is an important part of this success story with a decline in the poverty rate from 32 percent in 1970 to 3.1 percent in 2000, which accounts for 251 million people escaping poverty, it is by no means the whole story. Indonesia's poverty rate declined from 35 percent in 1970 to 0.1 percent in 2000. Thailand, with a poverty rate over 23 percent in 1970, had practically eliminated poverty by 2000. In fact, with one exception, all of the countries in this region experienced reduction in poverty rates; the only country in which the poverty head count increased was Papua New Guinea.

South Asia is the second most populous region in the world, with 1.3 billion people in 2000, or 24 percent of the world's popula-

tion. The evolution of poverty in South Asia is similar to that in East Asia; the poverty rate fell from 30 percent in 1970 to 2.5 percent in 2000. Most of the decline in the poverty head count can be attributed to the success of the post-1980 Indian economy; between 1970 and 1980, the total number of poor Indians actually increased by 15 million. This is not to say that the other countries in the region did not improve. With the exception of Nepal, all of the other countries also experienced a positive evolution of overall poverty.

The great Asian success contrasts dramatically with the African tragedy. With a total population of just over 608 million, sub-Saharan Africa is the third most populated region in our data set. In all, 41 countries are analyzed. Most of them had such dismal growth performances that poverty increased throughout the continent. Overall, poverty rates in 1970 were similar to those in South Asia and East Asia at 35 percent. By 2000, poverty rates in Africa had reached close to 50 percent, while those in Asia had declined to less than 3 percent. The three decades have been almost equally terrible; the poverty rate increased from 35.1 percent to 37.2 percent in the 1970s, 43.7 percent in 1990, and 48.8 percent in 2000. Within Africa, poverty head counts increased in all countries with the exception of Botswana, the Republic of Congo, and the islands of Mauritius, Cape Verde, and the Seychelles.

This disappointing performance, together with the great success of the other two poor regions of the world (East Asia and South Asia) means that the majority of the world's poor now live in Africa. Indeed, Africa accounted for only 14.5 percent of the world's poor in 1970. Today, despite the fact that Africa accounts for only 10 percent of the world's population, it accounts for 67.8 percent of the world's poor. As noted, poverty, once an essentially Asian phenomenon, has become an essentially African phenomenon.

With close to 500 million people—about 9 percent of the world's population—Latin America has had a mixed performance over the past three decades. Poverty rates were cut by more than one-half between 1970 (poverty

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13   Shaoua Chen and Martin Ravallion, "How Did the World's Poorest Fare Since the Early 1980s?" World Bank *Research Observer,* Vol. 19, No. 2 (2004), pp. 141–170.

rate of 10.3 percent) and 2000 (poverty rate of 4.2 percent). This would be an optimistic picture were it not for the fact that all of the gains occurred during the first decade. Little progress has been achieved since then. Indeed, the poverty rate in Latin America grew from 3 percent in 1980 to 4.1 percent in 1990. This mixed performance has meant that, although Latin America started from a superior position relative to both East Asia and South Asia, where poverty rates were well above 30 percent in 1970, we see that poverty rates were larger in Latin America than in both Asian regions by 2000. The fraction of the world's poor that live in Latin America declined from 4.3 percent in 1970 to 1.7 percent in 1980. It then increased to 3.7 percent in 1990 and 4.8 percent by 2000.

Our sample of Middle Eastern and North African (MENA) countries has 220 million people, or 7.7 percent of the world's sampled population in 2000. Poverty rates in MENA countries have declined over the past three decades. Although the starting point was better than those for East Asia, South Asia, and sub-Saharan Africa, MENA has nevertheless managed to reduce those rates even further.

Our final region is Eastern Europe and Central Asia, which includes the USSR and (after 1990) the former Soviet Republics. About 436 million people inhabited this region in 2000. A lot has been written about the deterioration of living conditions in this region after the fall of Communism. The fact, however, is that, although poverty has increased since 1990, the level of income in this region was so high to begin with that poverty rates were a lot smaller than they were in any of the regions analyzed up until now. The rate, which was at the already low level of 1.3 percent in 1970, had declined to 0.4 percent by 1980. It did not change at all during the 1980s and then more than doubled during the decade that followed the fall of Communism. The increase in poverty was the result of both a decline in per capita income and an increase in inequality within countries, but the starting level was so small in magnitude that, despite its doubling, the rate remained at 0.1 percent in 2000.

## CONVERGENCE, PERIOD!

Researchers have long worried about world income inequality. Recently, policymakers have joined the debate. For example, in its 2001 *Human Development Report*, the United Nations Development Programme (UNDP) argues that global income inequality has risen based on the following logic:[14]

• Claim 1: "Income inequalities within countries have increased."
• Claim 2: "Income inequalities across countries have increased."
• Conclusion: "Global income inequalities have also increased."

To document Claim 1, analysts collect the Gini coefficients, which measure inequality, for a number of countries. They notice that the Gini "increased in 45 countries and fell in 16." To document the second claim, analysts go to the convergence/divergence literature and show that the Gini coefficient of per capita GDP across countries has been increasing unambiguously over the past 30 years. This increasing difference in per capita income across countries is a well-known phenomenon that empirical growth economists call "absolute divergence."

Although it is true that within-country inequalities are increasing on average, and although it is also true that income per capita across countries has been diverging, the conclusion that global income inequality has risen does not follow logically from these premises. The reason is that Claim 1 refers to the income of "individuals" and Claim 2 refers to per capita incomes of "countries." By adding two different concepts of inequality to analyze the evolution of world income inequality, the UNDP falls into the fallacy of comparing apples to oranges.

The argument would be correct if the concept of inequality implicit in Claim 2 was not the level of income inequality across *countries* but, instead, the inequality across *individuals* that would exist in the world if all citizens in

14   United Nations Development Programme, *Human Development Report 2001*, at *http://hdr.undp. org/reports/global/2001/en/*.

each country had the same level of income but different countries had different levels of per capita income. The difference is that the correct statement would recognize that there are four Chinese citizens for every American so that the income per capita of China is assigned four times the weight. In other words, instead of using a measure of inequality in which each country's income per capita is one data point, the correct measure would weight by the size of the country. The problem for the UNDP is that population-weighted measures of income inequality show a downward trend over the past 20 years. The question, then, is whether the decline in across-country individual inequality, correctly weighted by population, more than offsets the population-weighted average increase in within-country individual inequality.

Since we have estimated the WDI, we are well equipped to answer this question. Our analysis shows that, after having stagnated during the 1970s, global income inequality started a two-decades-long process of decline. This change in trend is surprising because, according to François Bourguignon and Christian Morrison, world income inequality had increased continuously over the preceding century and a half.[15] What caused this reversal? The answer is the growth rate of some of the largest yet poorest countries: China, India, and the rest of Asia. We could say that in 1820, the whole world was poor. Slowly, the incomes of the 1 billion people (in population size in 2000) in what is today the Organisation for Economic Co-operation and Development (OECD) grew and diverged away from the incomes of the 5 billion people in the developing world. The dramatic growth rates of China, India, and the rest of Asia from the 1970s meant that the incomes of 3 billion to 4 billion people started to converge with those of the OECD. This reduced worldwide income inequality for the first time in centuries because it more than offset the divergent incomes of 608 million Africans.

In sum, the correct decomposition of inequality into "within-country" and "across-country" components reflects that within-country inequality increased over the sample period, as suggested by the UNDP reports. However, the decline in the correct measure of across-country inequality more than offset the first effect and delivered an overall reduction in global income inequality.

In 1997, Lant Pritchett famously described the evolution of income per capita across countries with the expression "divergence, big time."[16] Using a similarly spirited expression, we could say that our analysis shows that, if rather than considering GDP per capita across countries we analyze the incomes of individual citizens, the past two decades have witnessed an unambiguous process of "convergence, period!"

## IS IT ALL ABOUT CHINA?

Critics have argued that the above results are all driven by China. They argue that when China is excluded from the analysis, worldwide individual income inequalities increase. This is true: They increase by 4.4 percent. However, eliminating 22 percent of the data points (that is, excluding 1.58 billion citizens out of 5.66 billion) in any empirical analysis can overturn *any* result. Moreover, this is not an exception: If we exclude the incomes of 22 percent of the citizens that have converged, the remaining incomes have obviously diverged.

We should not conclude, however, that all of our results are driven solely by China. They are driven by China—and all of the other people of the world. For example, if we exclude the United States (5 percent of the data points) from the analysis, the tendency for incomes to converge is reinforced. If we instead exclude the people of Africa (Africa has a total of 41 countries but, with 608 million people, only half as many people as China and thus accounts for 11 percent of the data points), the decline in inequality is also reinforced. Finally, if we exclude

15   François Bourguignon and Christian Morrison, "Inequality Among World Citizens: 1820–1992," *American Economic Review*, Vol. 92, No. 4 (2002), pp. 727–744.

16   Lant Pritchett, "Divergence, Big Time," *Journal of Economic Perspectives,* Vol. 11, No. 3 (Summer 1997), pp. 3–17.

## TABLE I: Poverty Rates and Headcounts for Various Poverty Lines

### Poverty Rates

| Poverty Line Definition | 1970 | 1975 | 1980 | 1985 | 1990 | 1995 | 2000 | Change, 1970–2000 |
|---|---|---|---|---|---|---|---|---|
| $495 ($1/day)* | 15.4% | 14.0% | 11.9% | 8.8% | 7.3% | 6.2% | 5.7% | -0.01 |
| $570 ($1.5/day) | 20.2% | 18.5% | 15.9% | 12.1% | 10.0% | 8.0% | 7.0% | -0.13 |
| $730 ($2/day) | 29.6% | 27.5% | 24.2% | 19.3% | 16.2% | 12.6% | 10.6% | -0.19 |
| $1,140 ($3/day) | 46.6% | 44.2% | 40.3% | 34.7% | 30.7% | 25.0% | 21.1% | -0.25 |

### Poverty Headcounts (thousands of people)

| | 1970 | 1975 | 1980 | 1985 | 1990 | 1995 | 2000 | Change, 1970–2000 |
|---|---|---|---|---|---|---|---|---|
| World Population | 3,472,485 | 3,830,514 | 4,175,420 | 4,539,477 | 4,938,177 | 5,305,563 | 5,660,343 | 2,187,858 |
| **Poverty Line Definition** | | | | | | | | |
| $495 ($1/day)* | 533,861 | 536,379 | 498,032 | 399,527 | 362,902 | 327,943 | 321,518 | -212,343 |
| $570 ($1.5/day) | 699,896 | 708,825 | 665,781 | 548,533 | 495,221 | 424,627 | 398,403 | -301,493 |
| $730 ($2/day) | 1,028,532 | 1,052,761 | 1,008,789 | 874,115 | 798,945 | 671,069 | 600,275 | -428,257 |
| $1,140 ($3/day) | 1,616,772 | 1,691,184 | 1,681,712 | 1,575,415 | 1,517,778 | 1,327,635 | 1,197,080 | -419,691 |

\* World Bank poverty line.

**Source:** Xavier Sala-i-Martin, "The World Distribution of Income: Falling Poverty and...Convergence, Period," *Quarterly Journal of Economics,* Vol. 121, No. 2 (May 2006), pp. 351–397.

China, the United States, and Africa (which overall account for 2.1 billion people or 38 percent of the data points), the Gini coefficient still declines by 1.32 percent. In other words, if we exclude the "main convergers" (namely China) and the "main divergers" (Africa and the United States), we still reach the conclusion that world income inequality has decreased over the past three decades.

The problem, therefore, is that unless the incomes of these African citizens begin to grow, and grow rapidly, world income inequality will start to rise again in a few years' time.

## THE WORLD IS A BETTER PLACE

The estimates of a WDI for the 1970–2000 period result in a number of interesting lessons.

*First,* global poverty rates, defined as the fraction of the WDI below a certain poverty line, declined significantly over the past three decades. We have documented this claim for the four most widely used poverty thresholds.

Poverty rates were cut by a factor of almost three, according to all four poverty lines, and the total decline in poverty head counts was between 212 million and 428 million people. We have shown that this is also true for all conceivable poverty lines. (See Table 1.)

*Second,* the spectacular reduction of worldwide poverty hides the uneven performance of various regions in the world. East and South Asia account for a large fraction of this success. Africa, on the other hand, seems to have moved in the opposite direction.

*Third,* after remaining constant during the 1970s, inequality declined substantially during the past two decades. The main reason is that incomes of some of the world's poorest and most populated countries (most notably China and India, but also many other countries in Asia) converged rapidly with the incomes of OECD citizens. This force has been larger than the divergence effect caused by the dismal performance of African countries.

*Fourth,* the decomposition of inequality into

"within-country" and "across-country" components reflects that within-country inequality increased over the sample period. However, the decline in across-country inequality more than offset the first effect and delivered an overall reduction in global income inequality.

In 2000, the United Nations established the Millennium Development Goals. Kofi Annan challenged national leaders around the world to adopt the target "of halving the proportion of people living in extreme poverty, and so lifting more than 1 billion people out of it, by 2015."[17] Table I shows that the $1.50 per day poverty rate in 1990 was 10 percent. The Millennium Development Goals will be achieved, therefore, when poverty rates are 5 percent, and we have seen that the poverty rate in 2000 was 7 percent. Thus, when the goal was established in 2000, the world was already 60 percent of the way toward achieving it. The world might just be in better shape than many of our leaders believe.

17   See United Nations Web site at *www.un.org/ millennium/sg/report/ch2.pdf*.