Imagine There's No Country: Poverty, Inequality and Growth in the Era of Globalization

By

Surjit S. Bhalla[*]

Enclosed are **Two Policy Briefs** based on the findings of the book:

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[*] Managing Director, Oxus Research & Investments, B-189 Greater Kailash – I, New Delhi 110048, India • Email: ssbhalla@vsnl.com

Policy Brief: Has Growth Been Pro-Poor in the era of Globalization?

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1.   Introduction & Overview

Does growth benefit the poor? This vital question assumes added importance in this new era of globalization, which, some have claimed, has benefited the rich at the expense of the poor. The success or failure of globalization depends, ultimately, not on whether individual countries benefit but rather – and how – *individuals* benefit from this process. In addition to the problem of individuals versus countries, the discussion about the nature or "quality" of growth (i.e., has growth been pro-poor?) has been marred by problems of definition and measurement. New results, presented in *Imagine there's no country: Poverty, inequality and Growth in the era of Globalization* go a long way in addressing these issues, and find that growth has, indeed, been *resoundingly pro-poor* during the 1980s and 1990s.

The *distribution* of benefits from growth between countries raises the issue of individuals versus countries. Whether growth – on a regional or global level – has been pro-poor or not depends on whether it has disproportionately (and positively) impacted poor *individuals*; this matters more than the country of origin of these individuals. Thus, if growth has benefited 90 percent of the world's poor, but has done so in only 10 percent of the world's countries, it would be correct to regard this as being pro-poor. In other words, if poor people in China and India (who have historically constituted a vast majority of the world's poor) have gained from growth, the fact that poor people in some other country (say, Ethiopia) have *not* gained does not indicate that growth has *not* been pro-poor. This conclusion is independent of the possibility that the poor in Ethiopia have not gained because there has not been much growth for anybody to share.

2. Measuring Growth, Inequality and Poverty: The Simple Accounting Procedure

The results presented in *Imagine…* are derived from an important methodological advancement that makes possible the conversion of quintile distribution data on expenditures and/or incomes, into percentile data and, further, the pooling of individual country data to obtain regional or world distributions. While several questions can be answered with existing data sets, this conversion allows analysis at a more disaggregated level, which is absolutely necessary for answering the most important questions pertaining to levels and trend in individual inequality, and levels and trends in absolute poverty. Why is this the case? Because distribution data are not available at a more disaggregated level than quintiles; the best that is possible is quintile data, and even that too for a few countries, and also too aggregated for countries like China where 250 million people (20 percent) are being attributed the *same* level of average quintile income.

What is required is a more disaggregated estimate of intra-country expenditures e.g. a *percentile* distribution for each country-year distribution. This method would attribute the same income to only 12.5 million in China, and the same income to each 2.8 million people in the US, and the same income to each 600,000 people in the United Kingdom. Towards this end, the Simple Accounting Procedure (SAP) of estimating Lorenz curve distributions was developed, a procedure which yields 100 percentiles[1] and therefore means for 100 different and equal (in size) sets of individuals for each distribution year. The difference between SAP and world inequality distributions developed by Berry et. al (1983), Bourguignon-Morrisson (1999), Milanovic (1999), and *Imagine…* (first estimate in June 2000, Bhalla(2000c)) - is that the first three do not construct such detailed distributions of income[2]. The Bourguignon-Morrisson method has an average of 11 means per distribution and Milanovic's combination of rural and urban data for some

Notes:

[1] The developed method allows even greater fine-tuning e.g. a 200 or 400 point distribution. However, the gains from further disaggregation are probably not that great. Such increased precision is unlikely to change the mean income at each percentile level.
[2] In a very recent paper, May 2002, Sala-I-Martin also constructs a world income distribution but exaggerates when he contends that " to our knowledge, this is the first attempt to construct a world income distribution by aggregating individual country distribution" (p.2). That credit should rightfully go to the pioneering work of Berry et. al. in 1983, a work also cited by Sala-I-Martin.

countries yields an average of around 12 different "means" per country year. The SAP method, moreover, is shown to be extremely accurate in "reproducing" percentile means based on unit level data, as well as in reproducing broad indices of inequality like the Gini.

3. The Growth-Poverty Connection

The key to understanding whether the growth process is operating in a neutral manner is whether the poor participate "evenly" in the growth process; and evenly is defined as the elasticity of the incomes of the poor with respect to average growth. If poverty is now defined by not the level of the incomes of the poor, but by the *proportion* of population with incomes below a specific level P (the poverty line), the answer becomes more complex, not least because now there is a non-linear cumulative distribution function (relating the proportion of population that is poor, the head-count ratio, HCR, to income Y) involved. HCR now is censored above at 100 and below at 0 i.e. it ranges between no poor (HCR equal to 0 percent) to the entire population poor (HCR equal to 100 percent).

With HCR as the variable in question, how can one determine if the growth process has been "even" or "neutral" ("equivalent" to an elasticity equal to 1 in the incomes of the poor model), pro-poor (equivalent to an elasticity greater than 1) or pro-rich (equivalent to elasticity less than 1)?

Since we are talking about income poverty, the relationship should be "exhaustive" i.e. the entire growth in income should be accounted for. By definition, changes in HCR are equal to the sum of changes caused by incomes going up (holding the distribution of income, *I = F(Y)* constant) and the changes caused by the distribution of income changing, holding the level of income constant. In terms of first differences in logs, one obtains,

$$d\log(HCR) = \alpha * d\log(y) + \beta * d\log(l) \qquad\qquad \text{(Equation 1)}$$

Where, by definition, $(\alpha+\beta)=1$[3]

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[3] Ravallion-Datt introduce an error here; they suggest that there is a third "residual" term in equation 10.1, when conceptually there isn't one. Kakwani(1997) correctly argues that there is no

This equation has been estimated by several authors, and while intuitive, it yields the wrong answers; it is, in fact, impossible to accurately determine the percentage change in the HCR from the above model. Several authors argue, incorrectly, that the ratio of α to $(\alpha+\beta)$ is indicative of whether the nature of growth is pro-poor, since the shape of the distribution elasticity (a concept elaborated on below) plays an important role in translating (or *not* translating) growth into poverty reduction.

4. Pro-poor Elasticity – With growth it can be infinite, with growth it can be zero

The most prevalent result using the wrong model (Equation 1) is that the pro-poor elasticity, (ratio of α to $(\alpha+\beta)$) this elasticity varies between 1.5 to 3, with the mode around 2[4]. It is not clear, however, as to what meaning one should attach to this estimated elasticity. What the model states is that for each 10 percent increase in incomes, HCR is expected to decline by 20 percent (elasticity of 2). This may seem large, and indicative of the growth process being massively pro-poor. But, of course, the elasticity, whatever its magnitude, is silent on the important question of whether the growth process is pro-poor. Left unanswered is the question of how much *should* HCR have declined by if the growth was "neutral" i.e. one unaccompanied by any change in inequality.

The dependent variable is a percentage change in a ratio. If the initial value of the HCR was 30, then a decline of 20 percent is equivalent to a decrease of only six *percentage points.* Thus, a 10 percent increase in incomes in this example will lead to a 6 percentage point decline in the head-count ratio. But what should have happened? An 8 percent decline, a 10 percent, or perhaps 4 percent? We do not know, unless we know the *shape* of the distribution elasticity.

The problem is caused by the fact that coefficient α in the above equation is *a function of the poverty line P.* The problems this can cause for estimation is explained in heuristic terms as follows. Assume the maximum income of the poor in a society is $0.5 per capita per day, and the poverty line P is double this amount at $ 1. Now if all incomes go

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residual. The problem with both interpretations is that they are defining the left hand side in log first difference terms, rather than arithmetic first difference terms. See below.
[4] See Collier-Dollar, Kakwani, Ravallion.

up by 10 percent, there will obviously be no decline in the HCR from 100 percent; the maximum income goes up to 0.55, still far below the poverty line, P. So the elasticity of HCR with respect to income growth (α in equation 1) is zero. Now assume that the mean (not maximum) income of the poor is 0.5, and that the standard deviation of the incomes of the poor is 0.1. Again a 10 percent increase in income will not make any dent in the HCR i.e. the elasticity is zero. Now assume that *all* the poor have an income equal to 0.99. A 1.1 percent increase in income will now mean that the HCR will move from 100 percent to zero percent in one fell swoop; close to an infinite elasticity, or a equal to infinity.

The above are unrealistic, but informative, examples. What they all point to is the importance of incorporating into the calculations the knowledge of where the mean income of the poor, and the nature of its distribution, is with respect to the poverty line, P. This is a non-linear affair, which perhaps is one reason analysts have not attempted to compute it.

Chart 1 shows the cumulative distribution for the developing world for 1987, as well as the same distribution "shocked" with a 20 percent across the board increase. An increase in income of 20 percent will involve a movement from point A to point B; the difference in the head count ratios is given by the movement from A to C. *The calculation of how much poverty reduction is expected is dependent on the amount of growth, the poverty line, and where the poverty line is at the point of impact or the point of departure.* That these are not simple calculations, and that they definitely do not yield anything even approximating the model that has been traditionally been estimated, is shown by the pro-poor math below.

Chart 1: World Cumulative Distribution of Per Capita Consumption, 1987
(1993 $PPP)
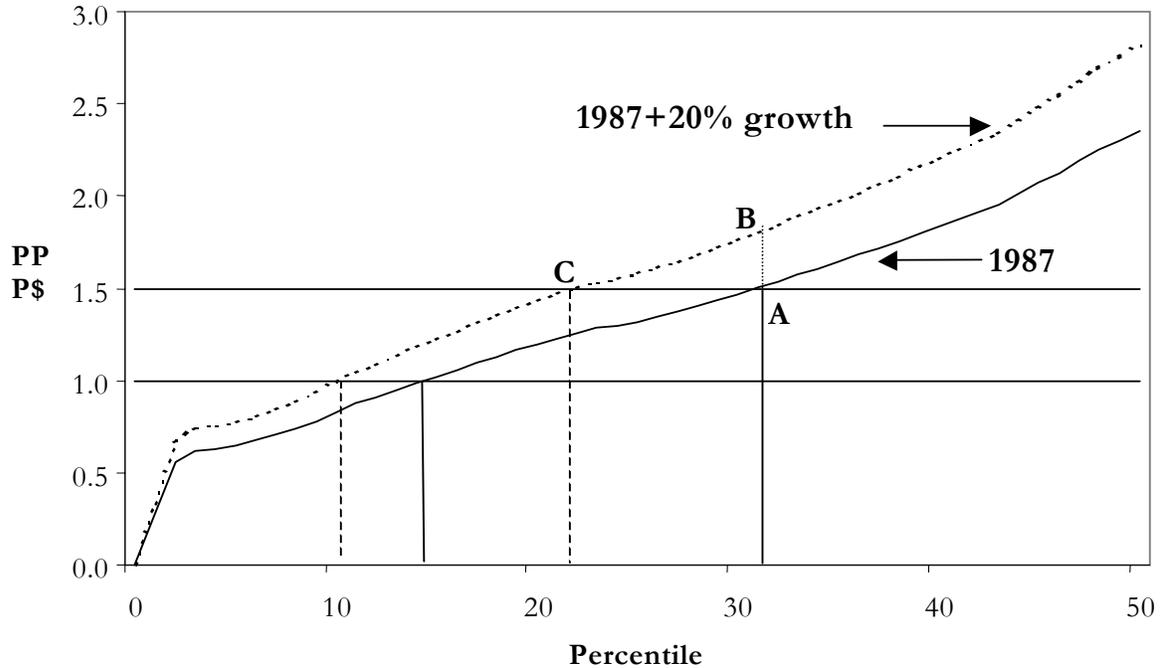
Notes:
1. The solid line indicates the actual cumulative distribution for world consumption in 1987; the dotted line indicates what the distribution would have been with an additional 20 percent of consumption growth at each percentile level.
2. Using a $1.5 a day poverty line, we find that this additional consumption growth would have caused a decline in poverty from point A to point C, or about 10 percent. A $1 a day line suggests a smaller decline.

5. Pro-poor Math

Mathematically, the above relationship between growth and poverty reduction can be shown as follows. The head-count ratio HCR (or H) can be expressed as

$$H = F(P)$$
<div style="text-align:right">(Equation 2)</div>

where *F(P)* is the distribution function evaluated at the poverty line *P*.

Differentiating with respect to *P,* one obtains

$dH = f(p)dP$ (Equation 3)

where *f(P)* is the first derivative of *F(P)* or the density at point *P*. Multiplying the numerator and denominator by *P*, one obtains

$dH = P * f(p) * (dP/P)$ (Equation 4)

where *dH* is the change in HCR in percentage points, not percent, when *incomes at the poverty line* change by (*dP/P*).

Equation 4 relates the arithmetic change in the head count ratio and suggests that it is a non-linear function of the log-change in the poverty line, P, or equivalently, in the log(change) in the incomes of the poor. These changes are computed at the poverty line, and since incomes change, the magnitude of *P*f(P)* will change with growth and/or the poverty line.

Equation 4 is *not* the equation estimated by the authors of the pro-poor literature e.g. Kakwani, Ravallion. These authors estimate equation (1). That equation has log change of the head count ratio on the left hand side. Converting Equation 4 to the same dependent variable as Equation 1, one obtains,

$(dH/H) = (P/H) * f(P) * (dP/P)$ (Equation 5)

Now the dependent variable in equation 4 matches with that in the "original" pro-poor model, but the rest of the equation does not match. Note that there is no separate inequality term on the right-hand side in the above theoretically derived equation. Equation 1 is an artificial reduced form equation, one that has to hold in an identity sense, but one that does not follow from any theoretical model. The separate effects of income change and inequality change *cannot* be isolated by equation 5. What this (and Equation 4) yields is the expected change in poverty given a certain amount of growth *around the poverty line*. Whether growth is pro-poor or not is yielded in an *ex-post* fashion i.e. if actual decline is greater than the expected decline, the growth was pro-poor; if less, it was anti-poor.

Rewriting Equation 4,

$$dH = \gamma * (dY / Y) \hspace{4cm} \text{(Equation 6)}$$

where γ (Gamma) is a function of the income distribution and the poverty line P in the *previous* (lagged) time-period, t-1, and *dY/Y* is the mean growth in incomes from t-1 to time period t, around the poverty line. If income distribution does not change, then a given change in income, "adjusted" or "filtered" by gamma (also called the "shape of the distribution" elasticity, or SDE), will lead to an identical change in the head count ratio. If this elasticity is low e.g. 0.3, then a 10 percent growth in incomes will only lead to a 3 percent decline in the head count ratio, provided that the distribution stays constant.

It should be emphasized that it does not matter how equal the distribution is at an initial point for the predicted decline in poverty to be larger, or smaller. Sometimes, the interaction between a highly unequal distribution and a given poverty line can yield a high gamma; sometimes, the interaction between a highly equal distribution and the poverty line can yield a low gamma. It is the level of gamma that translates a given amount of growth into an "expected" poverty decline.

If interest is in whether growth was pro-poor or not, it can either be observed by noting the change in inequality e.g. quintile shares, or by noting whether the actual decline in poverty was greater than the expected decline. Terming the pro-poor elasticity as the trickle-down elasticity (TDE), it is derived as the ratio between the "predicted" decline in poverty and the actual decline, and where the predicted decline is based on no change in inequality i.e.

$$TDE = dH / dH* = dH / [P * f(P) * (dP / P)] \hspace{2cm} \text{(Equation 7)}$$

If the absolute value of *TDE* is greater than 1, then this indicates that the decline in poverty was greater than expected i.e. growth was pro-poor. If the absolute value of the ratio is less than 1, then growth was anti-poor.

6. Empirical estimates of pro-poor growth

In the above correct formulation, (Equation 6), the expected decline in poverty is equal to the change in *adjusted income* (gamma multiplied by income change). The value of gamma varies with where the poverty line is with respect to the distribution. If income distribution stays the same, and incomes increase (e.g. India, the last twenty years or so) then gamma can decline, increase, or stay the same, even with the same poverty line! On average (and this is a more circumspect average than most) a given amount of neutral growth is consistent with half that amount in decline in poverty; e.g. a 10 % neutral growth is typically associated with a decline in the head count ratio of only 5 percentage points.

Since the discussion is exclusively about income (consumption) poverty, then, *ceteris paribus*, every adjusted income change *has* to translate into an equivalent amount of poverty change. If the coefficient deviates from unity, then this deviation represents the effect of changes in income distribution. This model, therefore, is the appropriate vehicle to examine not only whether income distributional changes are important, but also their magnitude (deviation from unity).

7. Estimation of the pro-poor elasticity

While conceptually simple, estimating Equation 6 is not an easy task. It involves the estimation of the density function around the poverty line, and that too for each survey year, and each poverty line. What can be done, and the approach used here, is that the coefficient gamma is estimated for *each* distribution for each year and for each of the different poverty lines used. The estimation is done by "shocking" the distribution by plus and minus 2.5 percent (for a total of 5 percent) for the distribution *at the particular poverty line* and calculating the resulting change in the head count ratio. This change, divided by 5, is an estimate of the arc elasticity, gamma.[5]

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[5] Deaton-Tarozzi (2000) present estimates of "gamma" for state level consumption distributions in India, 1993-94. In the literature, they are the only ones to present this elasticity. The authors do not translate this computation into a relationship between growth and poverty decline, and/or whether the growth was neutral, pro-poor etc.

The correct model of estimation, therefore, has change in the HCR on the left hand side, and the product of the *lagged* shape of the distribution effect (gamma or SDE) and income growth on the right hand side. The latter (product of lagged SDE and growth) is the "correct measure" of income growth in equations involving the change in the head count ratio and income growth. In the traditional model, the difference in HCR is regressed only on growth.[6]

Table 1 reports on the estimated "shape of distribution" coefficients for three different poverty lines - $1.08, $ 1.50, and $ 2, all in PPP 1993 prices. They all show a consistent pattern – the means are clustered around 0.5, and the 10th and 90th percentile are around 0.25 and 0.75 respectively. This robustness leads to the following two conclusions. First, that a given amount of consumption growth, *ceteris paribus*, and no distribution change, will only lead to a change of about half that amount in the HCR. Thus, the statement should not be that a 20 percent growth in consumption "only" led to a decline of 10 percentage points in the HCR. If this happens, growth has certainly been neutral if not pro poor; second, this result holds at an average level, is highly non-linear, and judgments about whether particular growth episodes have been pro or anti poor have to be filtered by knowledge of what the shape of the distribution function was for that time-period.

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[6] This is the important difference, and non-equivalence, between the income coefficient of the traditionally estimated model and the new formulation. To reiterate, the model estimated by Kakwani, Ravallion etc. simply has the growth term on the right hand side; the correctly specified model has the growth term multiplied by the highly non-linear coefficient gamma.

Table 1: Shape of Distribution Elasticity (SDE), 1960-2000

	Poverty Line		
	$1.08	**$1.50**	**$2.00**
Mean	**0.46**	**0.50**	**0.50**
Standard Deviation	0.20	0.21	0.20
10th Percentile	0.21	0.22	0.24
90th Percentile	0.74	0.79	0.76

Source: Deininger-Squire (1996); WIDER-UN (2001); Asian Development Bank (2002)
Notes:
1. The expected change in poverty, for small changes in mean incomes at the poverty line, is equal to the product of income change and the SDE, keeping the income distribution fixed. For example, using a $1.5 a day poverty line, a 10 percent increase in income will, on average, be associated with a 5.0 percent decline in poverty, given an SDE of 0.50.
2. Figures are derived from consumption and income distributions, 1960-2000

The correct pro-poor or not growth model (Equation 6) can now be estimated for the developing world, and different countries, for any time-period since 1950. Table 2 reports both the traditional model and the new model where consumption growth is filtered by the lagged shape of distribution elasticity. The model is estimated for the developing world for the 1950-2000 period. The dependent variable in the estimated models can either be the first difference in the HCR (the preferred model) or the log percentage change in HCR (the coefficients in this model do not have an easy interpretation). The correct independent variable is "predicted poverty decline" or "'effective growth" which is the observed growth in consumption multiplied by the *lagged* value of gamma, the shape of distribution elasticity. The "traditional" method of estimating such a regression is to regress the percentage change in poverty (head count ratio) on the percentage change in consumption growth, i.e., the specification of both the dependent and independent variables is different!

Table 2: Growth is Sufficient - Developing World, 1950-2000

Poverty Line (1993 PPP$ per day)		Dep. Var. : Arithmetic Difference in HCR		Dep. Var. : Log change in HCR	
		Correct Model	Incorrect Model	Correct Model	Incorrect Model
(Survey Data, 1950-2000)					
$1.08	Coefficient	-1.28	-0.76	-5.01	-3.16
	Std. Error	0.22	0.06	0.96	0.50
	# of Countries	40	41	39	39
$1.30	Coefficient	-1.21	-0.81	-3.38	-2.38
	Std. Error	0.20	0.06	0.79	0.41
	# of Countries	46	48	46	46
$1.50	Coefficient	-1.27	-0.50	-3.30	-2.42
	Std. Error	0.23	0.24	1.13	0.56
	# of Countries	49	51	49	49
$2.00	Coefficient	-1.28	-0.50	-3.56	-2.30
	Std. Error	0.20	0.16	1.22	0.75
	# of Countries	55	55	54	54

Notes:
1. See *Imagine…* and Bhalla (2000) for further details.
2. Developing world is defined to exclude the industrialized world and Eastern Europe.
3. The specification of the correct model involves the product of lagged gamma (shape of the distribution elasticity) and consumption growth; the traditional, and incorrect model simply has consumption growth, unfiltered by gamma, on the right-hand scale.

There are four possible regressions, and results for all four are presented. Data for the developing world suggests an elasticity whose magnitude ranges from -1.2 to –1.3 for all the four poverty lines considered. In no instance, though, is the elasticity significantly different from unity. For all the four poverty lines, the incorrect specification (relating decline in poverty to just the consumption growth i.e. growth not filtered by gamma) is estimated at less than half, and always significantly less than unity. It is this mis-specification that has possibly led to the popular conclusion that growth during the golden age of development (1980-2000) was not pro-poor.

The results for the incorrect and correct specification of the log-log model (log poverty change versus log change in income change or income change adjusted) also underline

the importance of gamma. As modeled by others, the incorrect elasticity is observed to be near 2 – actually around 2.3, with the lowest poverty line yielding this elasticity to be 3.2. In each instance, however, the correct specification yields to an elasticity that is significantly higher, and higher by about 50 percent – centered around 3.4, and equal to 5 for the $1.08 poverty line.

Charts 2a and 2b model the actual and predicted poverty reduction for the developing world according to the $ 1.5 poverty line (national accounts) and the $ 1.3 poverty line (survey data). The fit in both cases is very good. All the results point to the crucial importance of incorporating the shape of the distribution elasticity into the estimation; all models suggest that the entire amount of poverty reduction that has been observed can be accounted for by growth. Indeed, for developing countries as a class, the estimated reduction in poverty has always been observed to be pro-poor, and by a 25 percent plus margin, though the excess margin is not significantly different than zero.

Chart 2a: Growth is Sufficient - Developing World (1950-2000); National Accounts, Poverty Line PPP$ 1.50
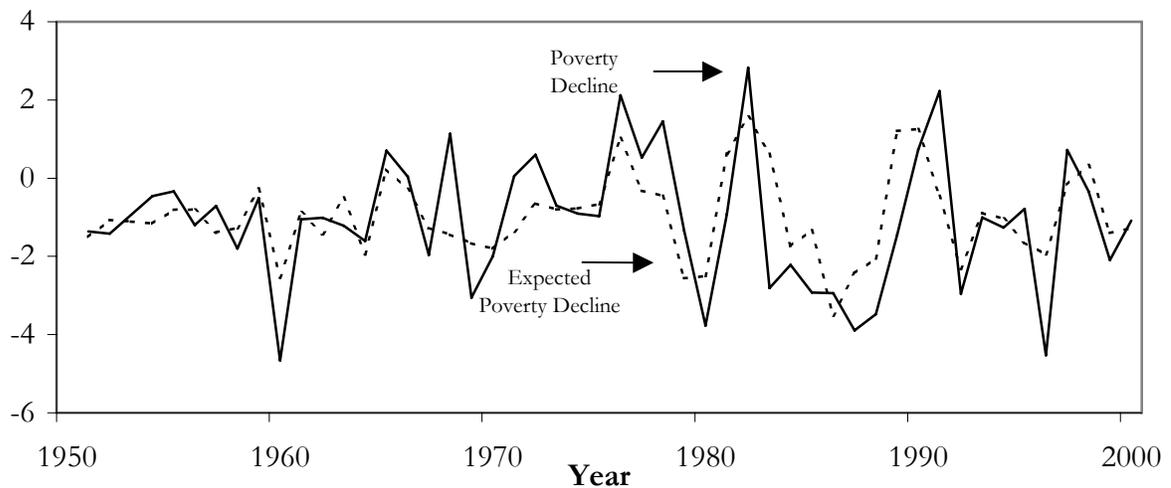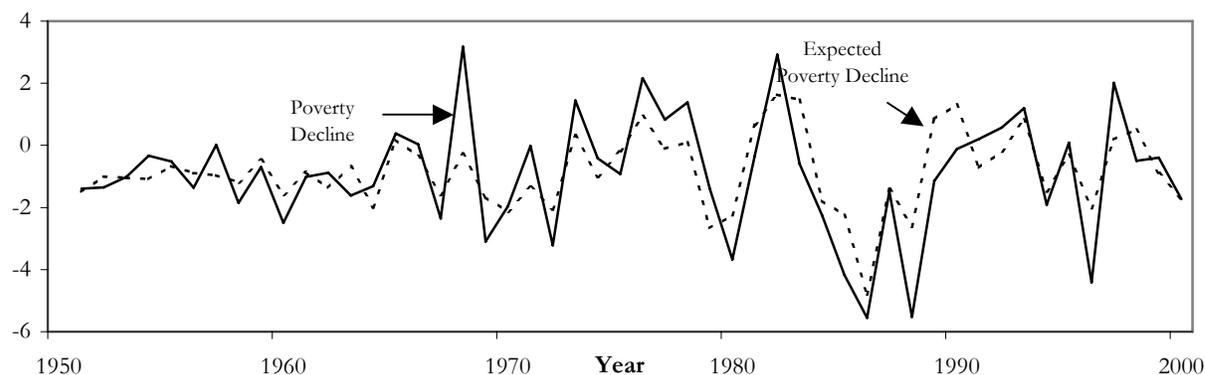
Chart 2b : Growth is Sufficient - Developing World (1950-2000); Household Surveys, Poverty Line PPP$ 1.30

Source: Deininger-Squire (1996); WIDER-UN (2001); Asian Development Bank (2002); World Development Indicators

Notes:
1. Figures for expected poverty decline reflect both income growth and the shape of distribution elasticity (SDE). See Table 10.1 above.
2. Developing world is defined as all countries excluding the industrialized world and Eastern Europe.

8. Conclusions: SAP and Pro-Poor Growth

Conclusions on the quality of growth are impacted by measurement errors. Some previous studies (see, for instance, Dollar-Kraay) included Eastern Europe in their cross-country calculations; doing so would, indeed, yield an income elasticity close to one – indicating, at best, neutral growth. However, Eastern Europe in the early 1990s went through a massive structural break from its past, during which negative income growth was accompanied by increases in inequality, i.e., a 10 percent decline in average incomes led to a 16 percent decline in incomes of the bottom 20 percent. Although this happened due to increasing inequality, one would erroneously be led to conclude that it was a pro-poor relationship, since the elasticity is 1.6, which is greater than one. Leaving out this region, *Imagine…* finds the cross-country elasticity to be about 0.8, indicating that a 10 percent increase in average incomes raises incomes of the poor by a smaller-than-average 8 percent. This is strong evidence of non-pro-poor growth on a *cross-country level*.

Using pooled (percentile) data, however, a very different picture emerges. The availability of SAP data for mean expenditure for different percentiles over different years

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allows a simple test of the hypothesis of pro-poor growth. This method does not involve any pyrotechnics about the availability of the SDE or the position of the poverty line, or about changes in inequality. The method follows definitions; each country is divided into two groups, the poor and non-poor. By keeping the proportion poor, and proportion non-poor, fixed to a level at a particular time (e.g. 1980) the growth of the mean expenditures of the poor group are compared to the mean expenditures of the non-poor group. If the ratio is greater than 1, then the process can be deemed pro-poor; if less than 1, the process can be deemed anti-poor.

Table 3 computes this elasticity for different regions of the world. Taking the developing world as one group, it is observed that the growth process in the last twenty years of globalization has been highly pro-poor; the elasticity is considerably greater than 1 and equal to 2.34, i.e., the poor increased their consumption at twice the rate of the non-poor. Even for the group "developing world excluding India and China" the pro-poor elasticity is a very high 1.72. This is the "purest" test of whether growth was pro-poor or not – observe how the incomes of the poor have fared with respect to the non-poor. The results unambiguously suggest that the globalization period favored the poor – even the non-Indian and non-Chinese poor.

Table 3: Change in Income and Consumption, 1980-2000

	Change in per-capita levels for the period 1980-2000 (%)					
	Income NA	Consumption NA	Consumption Survey	Consumption (Poor)	Consumption (Non-Poor)	Pro-poor Elasticity
East Asia	112.0	104.5	104.0	122.8	96.1	1.28
South Asia	61.1	53.1	31.1	51.6	53.3	0.97
China & India	114.9	102.3	94.2	105.9	100.1	1.06
Sub-Saharan Africa	-14.6	-8.7	-18.2	-13.2	-8	1.65
MENA	-1.4	8.7	-0.7	-27.7	8.8	-3.15
Latin America	-7.9	-9.3	-33.8	-12.2	-9.3	1.31
Developing World	41.5	37.2	21.6	74.4	31.8	2.34
DW excl. China & India	8.9	10.5	-6.8	17.5	10.2	1.72
Eastern Europe	-33.1	-16.8	-36.4			
World	22.6	25.1	17.1	71.8	22.9	3.14

Source: World Development Indicators, CD-ROMs, 1998, 2001; Maddison(2001); Penn WorldTables, different years; Deininger-Squire (1996); WIDER-UN (2001); Asian Development Bank (2002); Milanovic (2001)

Notes:
1. Pro-poor Elasticity is the ratio of change in consumption of poor to the consumption of non-poor.
2. Poor has been defined as the percentage of population below poverty line in 1980 according to the $1.5 poverty line, with national accounts means

Policy Brief: Who has Lost out to Globalization?

*Abstracted from **Imagine There's No Country: Poverty, Inequality and Growth in the era of Globalization**, by Surjit S. Bhalla. Published by the Institute for International Economics, September 2002*

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1. Introduction & Overview

Despite globalization's many benefits, indeed, despite it favoring the developing world by its very nature, there is strong (and vocal) opposition to the process from certain groups. This raises some important questions. What lies at the root of such opposition – reality, or perception? Does globalization favor some groups (or countries) at the cost of others?

Evidence suggests that no one has "lost out" to globalization in an absolute sense. There is, however, strong evidence of convergence during the last twenty-odd years. There is consistent and strong evidence about how globalization is helping to equalize wages for similar productivity levels, and the major beneficiaries here are the residents of the developing world, particularly the two-thirds of the developing world that resides in Asia. There is even stronger evidence that world inequality is in a declining mode for the first time in 200 years. The strongest evidence pertains to the importance of the globalization period for the poor countries, and the poor within these countries. Several indicators of well-being (education, health, political and civil liberties) point to the fact that the golden age of development has just been experienced.

Imagine…presents a strong case that the very success of globalization threatens a single distinct group – the middle classes in the industrialized world – and thereby generates the type (and the *composition*) of opposition to globalization that has been witnessed in the recent past. Very roughly, the world can be divided into two halves: the developing countries, and the industrialized world. Within these halves are three broad income groups: the poor (bottom 30 percent), the middle classes (the 30th to the 80th percentile), and the rich (top 20 percent). It is useful to see how globalization has impacted these groups. Significantly, the developing world in general (and the Asian "elite", or top 10 percent of the population, in particular) has achieved huge gains over the past twenty years both in absolute terms, and especially *relative* to the industrialized

world's middle classes. As a group, the developing world has achieved a 1 percentage point per annum acceleration in growth rates during the globalization era (i.e., 3.1 percent growth per annum during 1980-2000, compared with 2.1 percent annually during the previous twenty years). In stark contrast, the industrialized world has seen a *deceleration* amounting to 1.7 percentage points per annum (1.6 percent per annum growth now, 3.3 percent per annum in the previous twenty years). This, more than any other factor, is responsible for the negative image that "globalization" evokes in some.

The non-Asian third of the developing world was not very globalization-lucky. The globalization *period* was not good for either Latin America or Africa, but the *process* of globalization itself cannot be held responsible for this. (If anything, it may have been a failure to participate fully in globalization that caused Latin America and Africa to experience stagnation.) After almost doubling per-capita income from 1960 to 1980, Latin American economies barely maintained their 1980 levels, and that too over a twenty year period (Table 1). The genuinely tragic story is that of Sub-Saharan Africa, which did worse as per capita incomes declined by 12 percent during the last two decades. (It is little realized, but this region had more than double the per capita income of Asia in 1960; today, the average Asian has double the income of an average African.) The reasons for this stagnation are many, including, prominently, the devastation wreaked by HIV/AIDS. For the world community, this should be the major target of attention. On a positive note, there is no reason why the positive forces of globalization should also not catch up with Africa.

Table 1: Regional Per Capita Income Growth, 1960-2000
(1993 PPP Dollars)

	1960-1980	1980-2000	Change in Annual Growth Rate*
East Asia	2.9	6.1	3.27
South Asia	0.6	3.0	2.45
Asia	2.0	4.9	2.88
China & India	1.7	5.8	4.01
Sub-Saharan Africa	1.3	-0.6	-1.87
Middle East & North Africa	3.2	0.2	-3.06
Latin America	3.1	0.1	-3.05
Developing World	2.1	3.1	0.99
Developing World Excluding China & India	2.5	0.7	-1.82
Eastern Europe	4.0	-1.9	-5.91
Non-Industrialized World	2.3	2.8	0.52
Industrialized World	3.3	1.6	-1.72
World	**2.5**	**2.7**	**0.15**

*Arithmetic change in annual growth rates between the pre-globalization and globalization periods

Source: World Development Indicators, CD-ROMs, 1998, 2001; Maddison (2001); Penn World Tables, different years.
Notes:
1. For classification of regions, see Appendix III.
2. Nominal PPP data, 1993 base, has been converted into constant PPP, 1993 base, using the US GDP deflator, a practice followed in WDI, 1998.
3. Growth rates are in logarithmic terms. Regional averages are population-weighted means of individual country growth rates.

2. Economic Consequences of Globalization

The process of globalization depends on two very potent, and interconnected, factors. First, over the long-term (20-30 years), the "law of one price" and the "law of one wage" (i.e., that prices reflect marginal costs and wages reflect the marginal product of labor) lead to catch-up growth in factor prices, including wages. Second, given the massive investments that developing countries have made in education, and – more importantly – given the willingness of these countries, and especially such populous countries as China and India, to participate in the process of globalization by opening up their economies, there exist, as Arthur Lewis might have said, unlimited supplies of labor at almost every education level. From these factors, incontrovertibly, three results emerge: (1) middle classes in the West (defined as those falling between the 30th percentile and the 80th percentile of incomes, or a daily per capita income of between, approximately, $10 and $40 in 1993 PPP terms) have *relatively* lost out, and are further likely to lose out
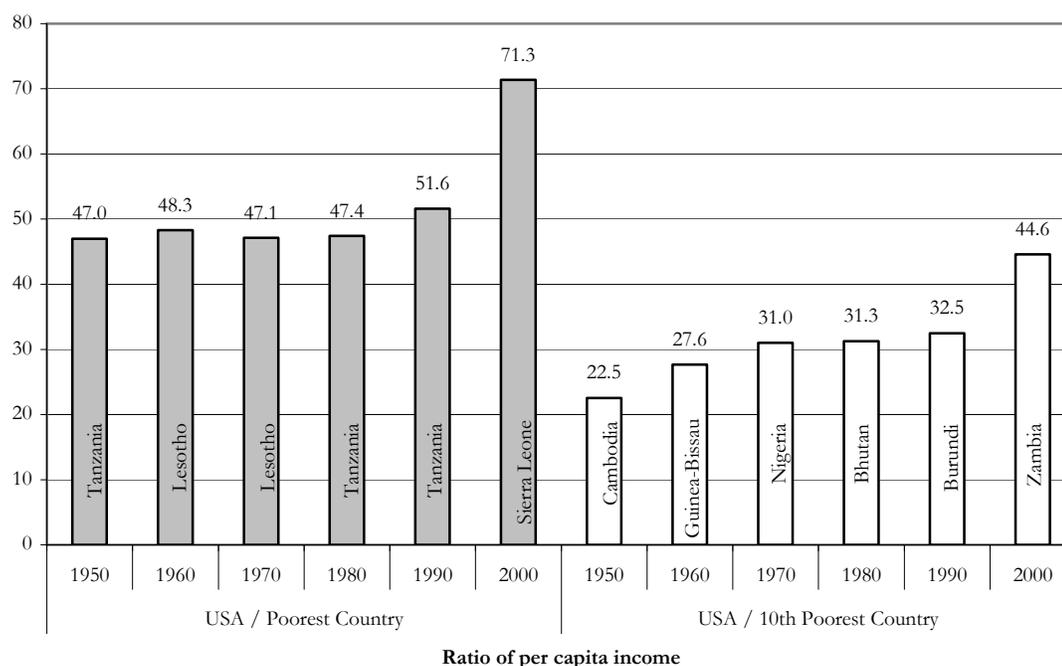
the most to the elite classes in the developing world; (2) world inequality has improved significantly, and will continue to do so; and (3) the poor are also benefiting from globalization. The first result, in particular, explains much of the opposition to globalization.

3. Divergence or Convergence?

Did worldwide individual and country inequality worsen during the period of globalization? The contention of Pritchett, UN, IMF and the World Bank (and others not quoted) was that there was divergence in per capita output; while the simple data on per capita output in developing and developed countries indicated just the opposite, and did so in a convincing fashion. Are the divergent results a function of the time-period chosen? No. Note that if one goes sufficiently back, especially to pre-Industrial Revolution times, one will tautologically define and find divergence. Today, countries are rich and poor; back then, all countries were the same.

The real source of the difference between the distinguished divergence tribe and those that argue that there has been overwhelming convergence is not in terms of the time-period but in the set of statistics chosen. In particular, the divergent calculation is often done in terms of the relative incomes of those residing at the technology frontier (the richest country, typically the US) and those residing in the poorest country (one that is changing continuously over time); this ratio suffers from a severe self-selection bias. (Chart 1 illustrates the type of "evidence" that is often used to support the case for divergence.) The second and equally severe problem with this self-selection analysis is that its unit of analysis is the poorest country rather than the poorest *people*. And even if it were the poorest people, it should be the poorest *fraction* of people.

**Chart 1: Is There Convergence? Questionable Evidence – Ratios of Mean Incomes of USA-Poorest Country**

Chart showing ratios of per capita income. Y-axis from 0 to 80.

USA / Poorest Country:
- 1950: Tanzania — 47.0
- 1960: Lesotho — 48.3
- 1970: Lesotho — 47.1
- 1980: Tanzania — 47.4
- 1990: Tanzania — 51.6
- 2000: Sierra Leone — 71.3

USA / 10th Poorest Country:
- 1950: Cambodia — 22.5
- 1960: Guinea-Bissau — 27.6
- 1970: Nigeria — 31.0
- 1980: Bhutan — 31.3
- 1990: Burundi — 32.5
- 2000: Zambia — 44.6

Ratio of per capita income

Source: World Development Indicators, CD-ROMs, 1998, 2001; Maddison(2001); Penn World Tables, different years.
Notes:
1. Mean incomes in constant PPP dollars, 1993 base.
2. Poorest and 10th poorest country chosen on basis of per capita income, 1993 PPP, for the selected years.

Chart 2 tries to rectify some of these deficiencies by reporting ratios for two different classifications. The non-conventional (but improved) statistics on the trend in convergence is indicated by the trends in income of the 20th and 50th percentile in the US with corresponding percentiles in different regions of the world. The median American earned 40 times the level of his East Asian counterpart in 1950; today that ratio is down to 12 times. For both Latin America and South Asia, the ratio has declined by about 10 percent; not as stark as East Asia, but with a definite trend (at least for the much larger millions in South Asia). Only for sub-Saharan Africa is their divergence – but one does not need complicated convergence calculations to tell us that development in SSA has *not* occurred. Indeed, it is most likely the case that the reason SSA has diverged is because they have not participated in globalization.

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Chart 2: Relative Incomes of the US to Developing Regions, 1960 -2000
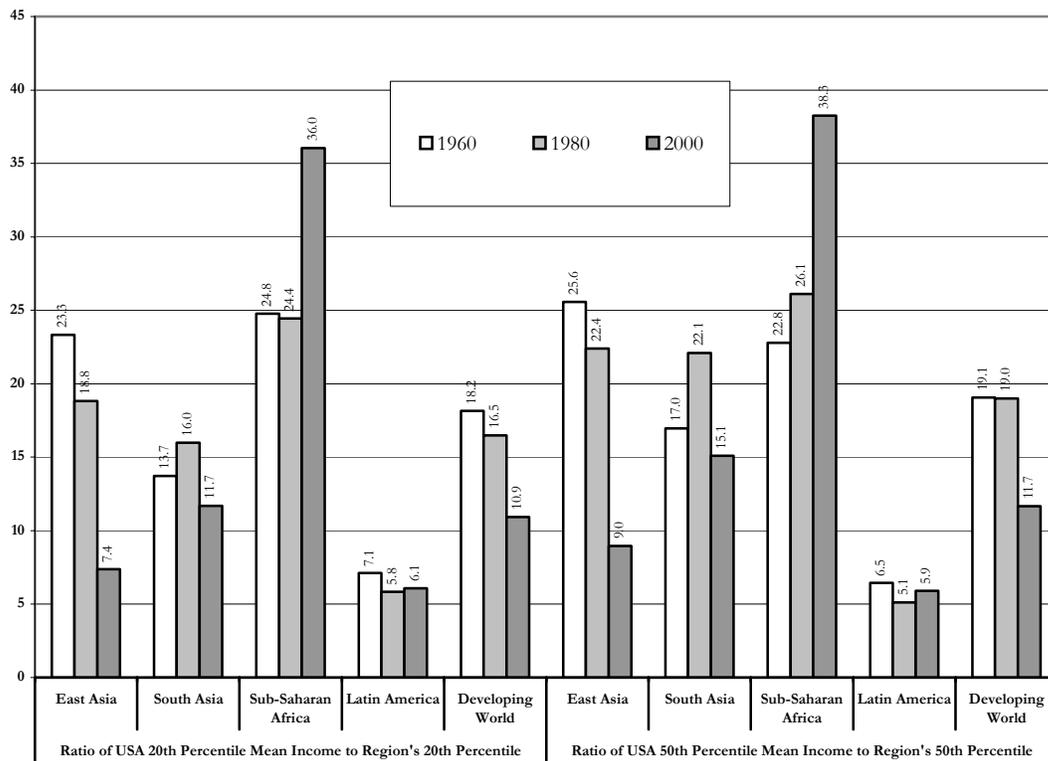
Notes:
1. The figures above represent the ratio of incomes at the 20th and 50th percentiles, respectively, comparing US incomes with incomes in regions of the developing world. Hence, a (20th percentile) ratio of 11.7 for South Asia in 2000 indicates that incomes in the US at the 20th percentile were 11.7 times the incomes at the 20th percentile in South Asia.
2. To obtain the distributions of income across the developing world, country data are pooled using the SAP method.

4. Catch up with Globalization

The tests reported in Chart 2 are better than those in the literature, but only marginally. It is still not a like with like comparison. The *real* test of convergence, and one not published in the literature to date, requires the groups to be chosen on the basis of their skills which should be approximately equal; and their incomes (wages) which are not; in particular, the wages in the catch-up countries should be substantially *below* those of the residents (with similar skills) in the comparator countries at an initial point of time, say 1960 to 1980. If globalization has helped convergence, then the relative gains to the poorer group should be larger in the last 20 years than in the previous twenty.

The top 10 percent of developing countries constitute approximately 500 million people. These are the elite, and it is likely that the elite always had the means to acquire education and training. In a converging world, the developing world elite should witness a narrowing of the gap between their incomes and those of a comparison group. But who are their comparators in the West? The size of this parallel group is known – it should be approximately 500 million. This rules out the top 10 percent (or the richest country!) as the comparator, since the total population in the industrialized countries is less than a billion. Should the top 10 percent in the West be part of the comparator group? Unlikely, though additional data are needed for a precise calculation.

The following procedure was used to identify the comparator group – per capita incomes in the industrialized world were computed for 5 deciles (comprising approximately the population of the elite in the developing world) on a sliding basis from the top e.g. the top 5 deciles, the next five (40th to 90th) and the next five (30th to 80th) This last group was finally chosen as the comparator – approximately the same number of people, and with incomes about 35 percent above the developing world elite (top 10 percent). This group (30th to 80th) has a ring of plausibility. It contains the middle class of the West, and likely a group with the same skills as the elite in the developing countries – at least back in the pre-globalization sixties and seventies.

Some evidence that the skills of these two groups are comparable is yielded by the Barro-Lee data on educational attainment. In 1960, mean school attainment in the developed world (30th to 80th percentile) was approximately 7 to 8 years; that for the developing world elite, 3.5 to 5 years; in 2000, the ranges were 9 to 12 years and 6 to 10.5 years, respectively. Not an exact match but not indicating in-comparables, either.

Chart 3 provides convincing evidence about convergence and the angst of those losing out to globalization. Countries are organized according to the ratio of the incomes of the elite relative to the Western middle class in 1960. A ratio less than one would indicate competitive advantages, ceteris paribus. A ratio greater than one would indicate that there was no benefit to be derived from the competitive forces of globalization i.e. wages were too high (relative to the West) for comparable skills. Indeed, for such countries globalization should mean a *decline in the relative wage*. To an amazing degree, the

forecast that globalization means convergence is accurate – for both countries with ratios less than 1 and those with initial ratios greater than 1.
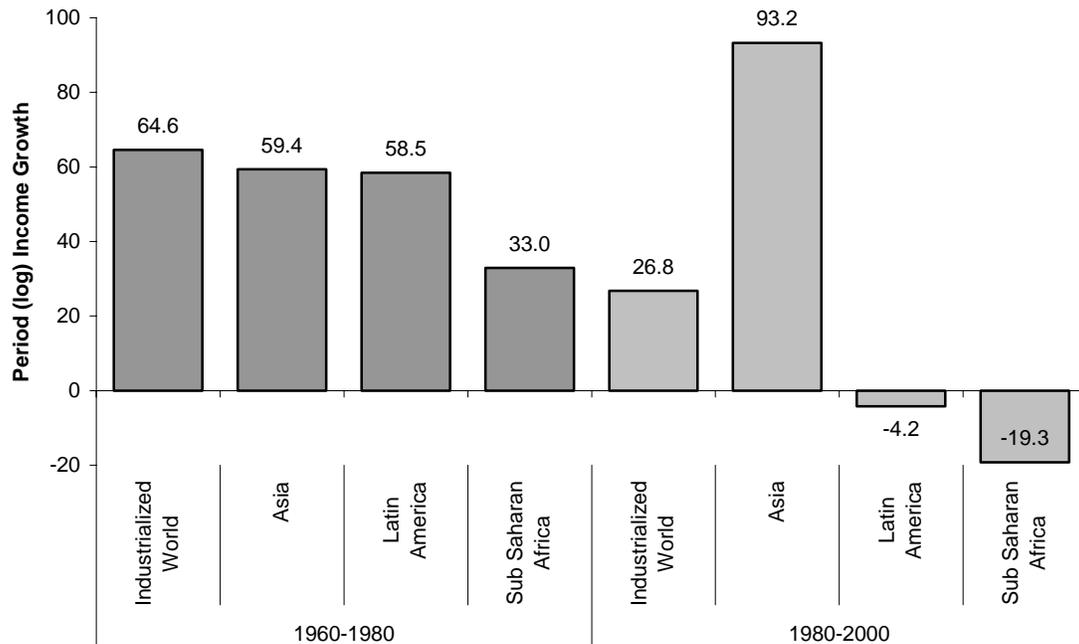
Chart 3: Globalization & Big Time Convergence
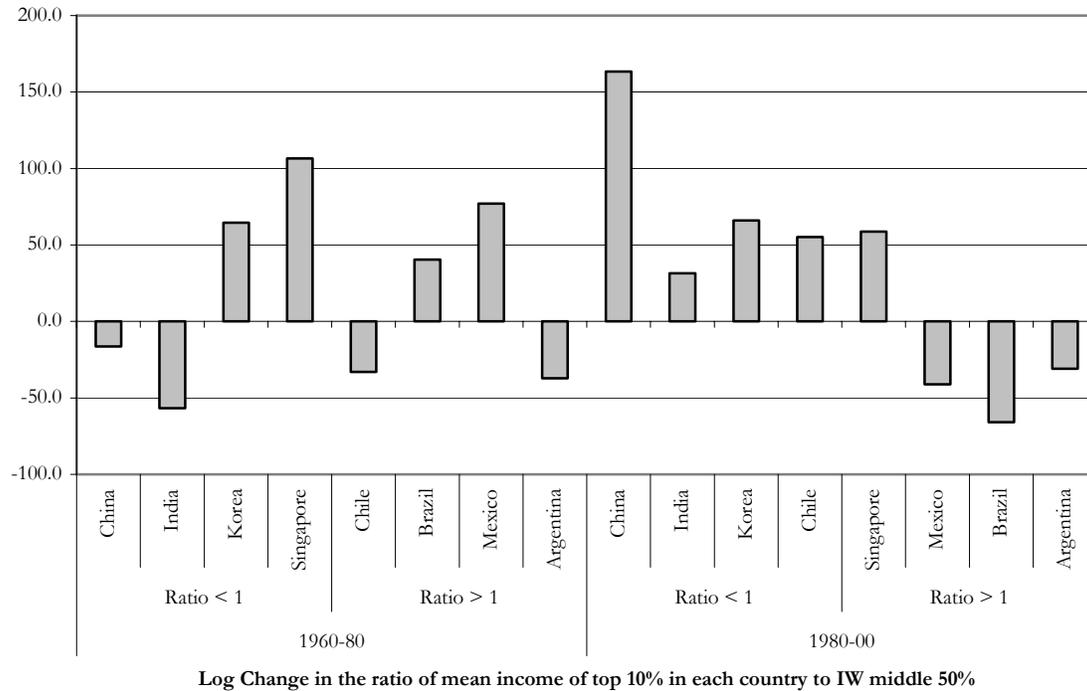
Log Change in the ratio of mean income of top 10% in each country to IW middle 50%

Source: Deininger-Squire (1996); WIDER-UN (2001); Asian Development Bank (2002); World Development Indicators

Notes:
1. For each time period, the chart above presents data for eight developing countries. A "ratio" of less than one indicates that the top 10 percent in each country (90th-100th percentile) was earning less, at the beginning of the period, than the middle 50 percent (30th – 80th percentile) in the industrialized world; a ratio greater than one indicates the opposite.
2. The figures above represent the log change in this ratio for each country. Positive values indicate a convergence between that country's top income earners and the middle 50 percent in the industrialized world; negative values a divergence.
3. The two groups (top 10 percent in the developing world, middle 50 percent in the industrialized world) are chosen for their high level of comparability in terms of many factors, including educational opportunities.
4. To obtain the distributions of income across the developing world, country data are pooled using the SAP method.

From 1960 to 1980, the elite in Asian countries had income (wages) relative to their comparators of approximately 41 percent i.e. the middle class westerners had incomes approximately two and a half times that of the Asian elite. During this golden age of the western middle class, real incomes almost doubled registering an annual growth of 3.2 percent per year. Aspirations are built on experience, and the experience was very good. The Asian elite (constituting about three-fourths of the developing world elite *per se*) also matched the progress of their Western counterparts; their relative income had inched up to 43 percent, from 40 percent earlier. The next twenty years turned out to be the golden age for Asia. While the growth in the absolute incomes of the Western middle class slowed down to a crawl – only 1.3 percent per annum, less than half of that experienced by their parents – that of the Asian elite accelerated – to 4.7 percent per annum, compared with 3 percent in the 1960-80 period, or a 93 percent period increase, compared with 59 percent in the previous twenty years (Chart 4). The relative incomes of the Asian elite (the one of concern for tests of convergence) *accelerated* to 60 percent of their counterpart incomes in 2000. This relative income, as mentioned above, was 43 percent in 1980.

Chart 4: Income Growth of Comparator Groups

Bar chart showing Period (log) Income Growth. For 1960-1980: Industrialized World 64.6, Asia 59.4, Latin America 58.5, Sub Saharan Africa 33.0. For 1980-2000: Industrialized World 26.8, Asia 93.2, Latin America -4.2, Sub Saharan Africa -19.3.

Source: World Development Indicators, CD-ROMs, 1998, 2001; Maddison (2001); Penn World Tables, different years

Notes:
1. This chart compares mean income growth (1993 PPP dollars) among the industrialized world middle classes and the "elite" (top income decile) in Asia, Latin America, and Sub-Saharan Africa. As documented in the text, the total developing world elite is comparable to the industrialized world middle class, in terms of size, productivity, and access to global markets and opportunities.

This *is* the predicted effect of globalization. Firms cannot afford to be nationalistic or racist; if they do so, they will lose out to the competition. The search for lower costs has meant looking for Indians, and Chinese, and Bangladeshis, and Malaysians to do the work, rather than the middle class Dutch, or Dane or Swede or American. This looking has meant a rise in the relative wage of the developing country, particularly Asian, elite. And the firms have gone to wherever the wages are lowest, relative to the skills possessed. Thus, Latin Americans have not witnessed a surge in their relative wage – indeed, their relative incomes today (after globalization) is 70 percent of the pre-globalization value in 1960.

5. Conclusions

There is an explanation for why there is a protest against globalization – only it does not have anything to do with the poor getting poorer, or the rich getting richer faster. The explanation is that because of globalization, the entire middle class in the North has had to lower its expectations of a *better* life. It is the "poor elite" in the South that is getting richer at a faster pace than that experienced by almost any such large group of people (500 million) in history. The middle class in the North feels it is at their expense and they are at least partially right.

Globalization is a democratic force; it is the ultimate leveler; and a force not kind to those "unnaturally" at the top of the heap. It is a very visible process, abruptly changing employment possibilities, challenging social norms etc. Structural adjustment- and conditionality-linked credit from the World Bank or the IMF is linked in popular perception with globalization; so, too, is privatization or the shutting down of often-inefficient state-owned enterprises. Perception (clouded, as it often is, by ideology) says that such externally-imposed changes *must* be bad for the nation, and especially bad for the poor; cold, hard numbers say that, in fact, globalization is very *good*, both for the poor, and for the middle classes and the elite in the developing world.

One should be witnessing Latin Americans as the leaders of the anti-globalization brigade, but one does not. Perhaps they realize that in the uncompetitive world of the sixties, they derived rents from their closeness to Western markets, and that with lower transaction costs (almost zero in the age of the internet and instant communication) these rents have disappeared. One should not be seeing Asians in the anti-globalization camp, and one does not. One should be seeing middle-class Westerners disappointed with what globalization has brought for them – more competition for their skills, a decrease in their rents, and a sharp fall in their expectations for future growth. A collapse from a 3.2 percent annual growth, or a doubling in real incomes in one generation, to an increase of only 1.3 percent a year or a doubling in 55 years (three generations) and perhaps not even in one's working life. To be sure, one does witness non-white intellectuals articulating anti-globalization theses; why this is so is more a question for a psychiatrist to answer, rather than an economist.

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