

Pro-Poor Growth: Measurement and Results*

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Introduction

The development community has changed its language from talking about growth to talking about “pro-poor” growth. There are no meetings, no pronouncements, and hardly any publications which emerge from the international aid community which do not have the “politically correct” adjective attached to growth; the pro-poor aspects presumably give growth a human face. The topic of growth and its impact on poverty reduction is not new; what is “new” is the emphasis on different growth strategies in order that the reduction in poverty be maximized. Towards this end, aid organizations like the World Bank and the Asian Development Bank have set up “filters” to weed out projects that do not conform to a pro-poor strategy.

Given its policy relevance, it is important to establish a measure for “pro-poor” growth. Existing measures essentially rely on an assessment of whether inequality has improved or not. If it has, then growth was pro-poor. But this simple indicator is inadequate because it will show a growth process to be pro-poor even if the poor suffered a decline in their absolute income (as long as the non-poor suffered an even bigger decline in their per-capita income). Further inadequacy is indicated by this index in the case of countries like China; such countries show a large increase in inequality (hence growth is not pro-poor) but also a very large increase in the incomes of the poor (very pro-poor growth).

It was recognition of such inadequacies that led me to offer a straightforward definition of pro-poor growth in Bhalla(2002), *Imagine there's no country: poverty, inequality and growth in an era of globalization* (hereafter referred to as *Imagine*). On an aggregate basis, the suggested measure was to evaluate the growth in expenditures of the poor *relative* to the growth in expenditures of the non-poor. “Propoor growth is identified as such when the growth in incomes of the poor people exceeds the growth in incomes of non-poor people” (*Imagine*, p. 153). It was observed that for the period 1980-2000, each 10 percent growth of the non-poor in the developing world was accompanied by an 18 percent increase in expenditures of the non-poor – thus, growth in the developing world was pro-poor. This index was meant for comparison of any *aggregate* change for any unit of observation, whether state, country, or world. By definition, this index is equivalent to the nature of inequality change that has occurred; the difference between this index, and the traditional inequality measure, is small but not irrelevant. The measured inequality change is different than that yielded by an aggregate measure like

the Gini in that it is centered on the relative change in not all the incomes but just in the incomes of the poor.

But this index is not that useful for cross-country comparisons because one country (e.g. China) can have higher absolute growth of the poor compared to another, yet have the within country incomes of the poor grow at a lower rate than the within country non-poor. This problem was acknowledged in *Imagine* and it was conjectured that all that should matter is the absolute growth in incomes of the poor: “Ultimately, concern is (or should be) with poor people’s incomes, and whether such an increase comes about through increasing inequality should not be a concern of those who are concerned about improving the lives of poor people” (*Imagine*, p.152).

But even this simple definition of pro-poor growth – growth in incomes of the poor - has its drawbacks. If concern is with poverty (head count ratio) reduction, then the magnitude of reduction in poverty might be of greater interest than the growth in incomes of the poor e.g. if 20 percent of the population is poor and living below a \$ a day, and if most of the poor are centered around 75 cents, then a large 10 percent increase in incomes of the poor might make very little dent on the aggregate measure of poverty. So one might argue that the arithmetic decline in the head-count ratio of poverty is an adequate index of pro-poor growth – larger the decline, larger the index of pro-poor growth.

The most popular approach to the measurement of pro-poor growth has been via the examination of the *elasticity* of poverty reduction with respect to growth – the higher this elasticity the more “favorable” the growth process to poverty reduction. However, (as emphasized in *Imagine*), this measure is severely deficient. Declines in poverty are in large part a function of the clustering or congestion of the poor who are close to the poverty line in the *initial* period. Thus, the same amount of growth in incomes of the poor can have a large, or a small, impact on poverty reduction. The higher the congestion of the poor near the poverty line, the less the growth effort needed to push the poor over the line. Hence, a poverty reduction measure which merely recorded the magnitude of growth of the poor would “penalize” countries who had a low congestion of the poor around the poverty line.

Bhalla(2002, 2003a,2003b) and Bhalla et. al. (2003) discuss methods which adjust the observed poverty reduction to the congestion near the poverty line. Bhalla(2004c) extends the analysis presented in *Imagine* on “pro-poor math” and relates pro-poor growth to its determinants like inequality change, growth etc. This paper tests the various available indices of pro-poor growth for the developing world for the period 1980-2002. The data used are more than six hundred household surveys conducted in the developing world between 1950-2002.¹ This period is also the one of maximum interest because apart from data availability, it has been contended (especially see Chen-Ravallion(2001)) that these years witnessed poverty decline which was not commensurate with the high per capita income growth i.e. these so-called globalization years did not yield “pro-poor” growth.

The plan of the paper is as follows. Section 2 discusses the intellectual history, and the math, behind the discussion of pro-poor growth. Section 3 discusses several different measures of pro-poor growth, including a few “new” indices. Section 4 discusses the results and concludes.

Section 2: *Pro-Poor Growth – History and Math*

It is informative to evaluate the history of thought behind the advocacy of pro-poor measures and pro-poor growth. The term, “pro-poor growth”, did not form a major part of the policy maker’s vocabulary prior to the nineties. However, with the publication of the World Bank results on high developing country growth and very little poverty reduction for the period 1987-1998 (Chen-Ravallion(2001)), policy makers and academics alike worried about how growth could be made more favorable for the poor i.e. how could one “increase” the growth *elasticity* of poverty reduction. The argument was made that emphasis on agricultural growth, rural growth, infrastructure investments etc. would decrease poverty faster than if the growth strategy was “neutral”.

If concern is with the head-count ratio of poverty (as it is in this paper), then by definition poverty at a point in time is only a function of the poverty line, the mean and the distribution of per-capita expenditures. Changes in poverty are therefore exclusively a function of the change in the mean and change in the distribution. In this regard, it is

¹ See Deininger-Squire(1996), WIDER(2000), Bhalla and Associates (2003) and *Imagine* for details regarding the data and their usage.

unclear what Srinivasan(2003) means when he sets up a simultaneous equation framework with income as a function of poverty, time, and other exogenous variables and poverty as a function of income, time, and other exogenous variables. As just stated, there is no independent role of time in the poverty equation and there are only two exogenous variables determining poverty (head-count ratio) besides per capita expenditures (or income): the distribution of income and the magnitude of the poverty line. Analogously, it is unclear what role does the *level* of poverty play in explaining *contemporaneous* income, as suggested by Srinivasan.

Formally, the elasticity of poverty reduction with respect to economic growth and inequality change is given by the formulae (see *Imagine* and Bhalla(2004c) for details:

$$\begin{aligned}
 (1) \quad H'/Y' &= -(1 + X_P 'Y') * SDE_{t-1}/H_{t-1} \\
 (2) \quad H'/Y' &= \hat{\alpha}_H = - (SDE_{t-1}/H_{t-1}) + (X_P 'Y') * SDE_{t-1}/H_{t-1} \\
 (3) \quad SDE_{t-1} &= P * f(Y_{p,t-1}) \\
 (4) \quad H'/Y' &= \zeta_H = -(Y') * SDE_{t-1}/H_{t-1}
 \end{aligned}$$

where primes indicate log change, H and Y represent the fraction of poor (head-count ratio) and mean expenditures (or income), X represents the share in expenditures of the poor near the poverty line, and SDE_{t-1} the **“shape of the distribution” elasticity** in the initial time-period –*SDE yields the total(arithmetic) change in poverty that can be expected with a (log) unit change in mean expenditures of individuals clustered around the poverty line.* This is equal to the product of the density f(Y) in the initial period evaluated at the poverty line, P. $\hat{\alpha}_H$ is the growth poverty elasticity evaluated at the poverty line, P, and for a given value of head-count ratio equal to H_{t-1} or H_0 .

The major difference between the conventionally measured elasticity, ζ_H , (equation 4) and the elasticity relevant for deduction about the pro-poor nature of growth, $\hat{\alpha}_H$, (equation 2) is that the former is concerned with mean expenditure growth Y' while the latter is concerned about mean expenditure growth of individuals *at the poverty line*, P. The two elasticities are *not* equal but are related - they are equal to each other when there is no change in inequality at the poverty line i.e. $X_P '$ is equal to zero.

Two other equations are implicit in the calculations above. First, that the growth in expenditures of the poor is *identically* equal to the sum of the change in average expenditures and the change in the share of expenditures accruing to the pre-defined poor population :

$$(5) \quad Y'_P = Y' + X_P'$$

Second, that the change in poverty (head-count ratio) in percentage points is equal to

$$(6) \quad dH = -(Y'_P) * SDE_{t-1} = -(Y' + X_P') * SDE_{t-1}$$

The arithmetic change “elasticity”², SDE in equation 3 and 6, addresses *the* policy question – if there is Y'_P amount of growth in expenditures of the poor, then the amount of poverty reduction one should expect is lagged SDE times this growth. And lagged SDE is equal to the product of the poverty line with the density function evaluated at the poverty line P.

Equation (6) is exact *at* the poverty line P, and quite exact for reasonably large changes in consumption Y' around the poverty line. For non-small changes in expenditure, equation (6) does not hold exactly, for the simple reason that these changes in expenditures most likely traverse a large portion of the density function and the arc elasticity estimated by SDE is an average of several “arcs”. However, the approximation for even large changes is very close.³

The above equations involving a statistical parameter, SDE, show that growth can, and does, affect poverty *differentially* SDE i.e. the same amount of growth can often lead to a higher, or lower, reduction in poverty, even after assuming no changes in inequality. This fact has not been appreciated enough in the literature and has led many to conclude from “normal” differences in outcomes of poverty decline that what is required is a change in policy and/or that non-growth instruments are needed. Several research documents (e.g. WDR 1990, WDR 2000/01) highlight the important role of “initial

² Defined as the percent growth that is needed to obtain a given percentage point decline in poverty, dH in equation 7.

³ See *Imagine* (2002) and Bhalla(2004c) for details.

conditions”, “initial inequality”, non-farm growth, infrastructure investments etc. to explain why the overall growth poverty relationship was observed to be weak in the nineties. As the above equations convincingly demonstrate, such “popular” determinants do not play any role in translating growth into poverty reduction.⁴

Equations 2 and 4 put into perspective the determinants of the growth poverty elasticity, $\hat{\alpha}$, and how it might have been mismeasured and mis-interpreted. One of the presumed determinants of $\hat{\alpha}$ is the inequality in the *initial* distribution of expenditures (or income). As equation (2) makes clear, initial inequality has no direct role; it is the change in inequality of the poor (not overall) that can affect $\hat{\alpha}$; the level of initial inequality does enter through the density, $f(P)$, but it is *inequality of the cluster of individuals at the poverty line*; and it is unclear *a priori* what its effect can be – it can be positive or negative, it all depends. Thus, *the magnitude of the growth poverty elasticity is not a monotonic function of either the poverty line or initial aggregate inequality.*

The reason the poverty reducing effect of growth varies, unpredictably and paradoxically to some, is because of the simple fact that *where* the poverty line cuts the distribution of consumption is an important component of how much poverty decline can be expected with growth, *ceteris paribus*. The following heuristic example is illustrative. Assume the poverty line is 100 and the mean income of the poor is 50 and the standard deviation is 10. An increase in mean consumption of 10 percent will have a zero impact on the head count ratio. Now assume that the mean income of the poor was 99. Now a 10 percent increase in mean consumption will lead to a very large decline in the head count ratio – so the elasticity has changed from zero to infinity with virtually no change in the underlying reality – except the change in the location of where the poverty line cuts the distribution of income.

Analysts have ignored variations in SDE and instead decomposed the growth poverty elasticity into changes in mean expenditures and changes in average or overall inequality (e.g. the Gini index). If there is no inequality change, then the calculation is correct i.e. growth in expenditures of the people around the poverty line is equal to growth in mean expenditures. But when there is inequality change, then it matters *where*

⁴ See Bhalla(2004c) for a detailed evaluation of the importance of these determinants in poverty reduction.

the inequality change occurs, and use of an index (e.g. Gini or Theil) representing “average” inequality change, is inappropriate. For most countries and time-periods, a reasonable approximation to inequality change at the poverty line is provided by the change in share of the expenditures of the entire poor population (not just at the poverty line) whose magnitude is fixed at some initial level e.g. the percent poor in a nearby year in the country, e.g. 1980 (this paper) or 1987 (Bhalla(2004b), Bhalla(2004c)).

Knowledge of SDE can help in the formulation of a pro-poor measure that adjusts for the effect of the congestion of the poor near the poverty line. The following two steps lead to an improved definition and evaluation of pro-poor growth defined with respect to decline in poverty. Since the problem is one of differing values of SDE, then the adjustment required is to compare the poverty reduction that would have occurred if all the countries had the *same* SDE, e.g. unity. The proposed index of poverty reduction is to divide the actual poverty decline that occurs (dH in percentage points) by the country specific SDE in the previous period. This conversion creates a “level playing field” and provides an estimate of how much poverty reduction took place according to a common standard. For example, if country A had 10 percent poor in the initial period, and had an SDE value of 0.5, and poverty reduced by 5 percentage points, then the “standard” poverty reduction was equal to 5 divided by SDE or 10 percentage points. This is deemed equivalent to another country which reduced its poverty by 10 percentage points, but whose initial SDE was equal to unity.

Elasticity of poverty reduction

The conventional approach to measuring pro-poor growth has been through estimates of the growth-poverty elasticity (e.g. see Datt-Ravallion, Kakwani and Bourguignon). There are two important differences between our and traditional formulations of the growth poverty elasticity. First, that the traditional analysis is conducted in terms of mean expenditure growth and not in terms of expenditure growth of the *poor* population. Second, and following from the first assumption, traditional measures employ aggregate inequality measures (instead of inequality near the poverty line).

While appropriate for the average person, these calculations are inappropriate for the poor population. A simple example will help illustrate why such concentration on change in average inequality can be misleading. Assume the poverty population in the initial

period is 20 percent and due to “pro-poor” growth, the share (in total expenditures) of the first quintile increases, along with the share of the third and fifth quintiles. For reasonable values of changes in shares, an aggregate index of inequality might well show a worsening in the aggregate distribution and therefore a pro-poor growth process would be erroneously dubbed as anti-poor.

A more accurate description of the pro-poor growth process is to compare the growth in the expenditure levels of the poor with the growth in *average* expenditures (see *Imagine*)⁵. The ratio between the two can be termed the pro-poor elasticity – if the ratio is equal to 1 then growth was neutral since the incomes of the poor increased at the same rate as the general population. If incomes of the poor grow at a faster rate (ratio greater than unity) then growth is pro-poor, and if less than unity, then growth is definitely anti-poor.⁶

Further, (see Bhalla(2004c)), the traditional elasticity of poverty reduction measure changes with exogenous parameters like the poverty line, the initial head count ratio, and the congestion of the poor near the poverty line (see equations 1-6). This elasticity is higher if the initial level of poverty is lower. So interpreting pro-poor growth from elasticity levels is erroneous. Further, the elasticity is a function of the poverty line itself and the density of the poor near the poverty line.

Section 3: Towards a new measure of pro-poor growth

The above theoretical discussion provides a basis for a rigorous definition of pro-poor growth and its measurement. The existing definitions have drawbacks. Growth *per se* is inadequate because inequality change is ignored; inequality change is inadequate because absolute growth is ignored. If instead of average growth, growth which occurs among individuals close to poverty line is calculated, then one obtains improved pro-poor indices.

Summarizing, there are nine possible measures of pro-poor growth. First, the growth rate in average consumption. There are two possible measures of such growth – that

⁵ Since the poverty ratio is a constantly changing number, there remains the problem as to which fraction are defined as the poor. *Imagine* suggests that this fraction be taken as that prevailing in the initial time-period, where initial period is the benchmark year, say 1980 or 1987.

⁶ One has to be careful about the signs, and the order reverses when average growth is negative.

measured from survey data and that measured from national accounts data. While the two sources revealed similar growth till the late seventies, the period eighties onwards was witness to a sharp decline in the survey growth rate (relative to the national accounts growth rate). What has been argued in *Imagine* (and Bhalla(2003b, 2004b) is that analysts should be consistent – growth and poverty reduction should be derived from the same growth definition. The third measure of growth is the growth experienced by the poor population (as argued in *Imagine* and Chen-Ravallion(2003).

Change in inequality can be measured in four different ways: first, as the change in an overall index of inequality e.g. Gini or variance in logs; second as the change in the share of expenditures of the first quintile of the population (e.g. the definition used by Dollar-Kraay); third, as the ratio of growth in incomes of the poor relative to growth in incomes of the non-poor; fourth, as the change in the share of expenditures of not any arbitrary quintile, but rather as the change in the share of the poor – with this fraction being kept constant at the level prevailing in some base year (Bhalla(2002) chooses 1987 as the base year while this paper chooses 1980⁷.)

In addition to these seven measures, pro-poor growth is proxied by two poverty decline measures - the unadjusted decline in the head-count ratio of poverty, and the decline in poverty adjusted for SDE.

Section 4: Results

Tables 1 and 2 report the nine measures of pro-poor growth and the ranks for these indices for countries of the developing world for the period 1980-2000. The poverty line chosen is the national poverty line prevailing in each country in 1993 PPP prices – for example, this line was identical to the commonly used \$ 1.08 per capita per day line in India, was equal to \$0.90 in China, equal to 1.10 in Indonesia.

Table 3 reports the correlations. The results indicate that economic growth is the most important determinant of poverty change, with inequality change a very distant second. Further, virtually all income growth measures (including the most common measure –

⁷ As is standard practice, inequality data from the most recent preceding year (failing which, the most recent following year) to 1980 is taken as proxy for 1980 when no household survey was conducted in 1980. Countries with data for only one survey year were dropped from the analysis.

growth in average income) yield near identical results, and results which are not at all dissimilar from those obtained via the index of adjusted poverty decline. Some specific results:

1. The inequality change indicators are very weakly correlated with both growth in average expenditures (whether measured by survey or national accounts growth), and poverty decline (whether measured by actual poverty decline or adjusted (by SDE) poverty decline. The most significant inequality change variable is the change in shares of the bottom 40 percent – about 0.1 with respect to average income growth and 0.11 with respect to adjusted poverty decline. The correlation drops to only 0.04 with unadjusted poverty decline. These low correlations are somewhat of a surprise given the contention by some (e.g. Bourguignon(2004)) that inequality change is an important contributor to poverty decline “It is important to consider growth and income distribution *simultaneously* and to recognize that income distribution matters as much as growth for poverty reduction” (emphasis in original, 2004, p. 11).
2. Expenditure growth per se gives almost identical results to both expenditure growth for the poor and poverty decline. China emerges as the country with the most pro-poor growth (and Indonesia as second) according to all the expenditure growth variables, as well as poverty reduction. Only for unadjusted poverty reduction does China emerge in second place with Indonesia as first.
3. The difference that the level of SDE makes is indicated by the columns for actual and “adjusted” poverty decline. For example, China’s actual poverty decline between 1980 and 2000 was “only” 41 percentage points, only a few percentage points more than India. But the adjusted declines for the two countries was 70 percentage points (China) vs. 42 percentage points (India) i.e. the “adjusted” or “equivalent” poverty decline in China was considerably more than India.
4. The country with the largest improvement in inequality is Tanzania. The consumption Gini improved by a large 44 (log) percent, from 59.5 in 1991 to 38.4 in 1993; the expenditure shares of the poor increased by 50 percent. With average expenditure growth of only 33 percent between 1980 and 2000, the inequality change allowed Tanzania to show large (above 80 percent) gains in real expenditures for the poor. Its pro-poor rank among all countries is 5th

5. Sub-Saharan Africa has four countries – Guinea, Tanzania, Uganda and Kenya in the top half of countries showing pro-poor growth. Both India and Pakistan are among the top ten – this ranking is not sensitive to the index used.

Table 1: Growth, Poverty and Inequality, Developing world, 1980-2002

Country	Region	Poverty line	<u>(log) Growth in expenditure (%)</u>			<u>Poverty decline (percentage points)</u>		<u>Change in Inequality</u>			
			NA	Survey	Poor	Actual	Adjusted	Gini	Share of bottom 20 percent	Share in expenditures of poor	Ratio of growth of poor to non-poor
China	EA	0.9	144.9	132.6	122.4	-42	-115.6	-31.8	-29.2	-22.5	0.8
Indonesia	EA	1.1	110.9	78.1	117.5	-57.4	-99.8	9.6	20.9	6.6	1.1
Guinea	SSA	2	61.5	61.5	83.9	-32.3	-73.8	15.7	75.8	22.4	1.6
Thailand	EA	2	79.5	73.2	73.9	-33.1	-73.6	-1.6	-12.2	-5.6	0.9
Tanzania	SSA	0.9	33	42.8	84.2	-31.3	-63.5	44	104.1	50.2	8.6
Vietnam	EA	2	58.3	58.3	52.6	-35	-57.1	-9.1	-18.2	-5.8	0.8
Uganda	SSA	1.7	47.1	35.7	60.7	-29.2	-55.9	17.4	37.1	13.6	1.6
Pakistan	SA	1.8	49.9	34.9	50.9	-37.2	-54.7	-0.5	3.4	1	1
India	SA	1.1	52.6	18.3	54.1	-36.2	-53.4	0	5	1.5	1
Israel	EMENA	6	41.1	19.3	41.1	-16.9	-49.3	0	0	0	1
Turkey	EMENA	4.6	36.2	9.7	40.2	-23.7	-43.1	4.9	-1.7	4	1.2
Sri Lanka	SA	1.7	45.8	33.6	40.2	-29.3	-42.7	-6.7	-7.8	-5.6	0.8
Lao	EA	1.5	47.3	47.3	40.3	-32.8	-40.9	-13.4	-12.7	-7	0.8
Malaysia	EA	1.8	39	-2.3	49.5	-12.9	-38.6	4	17.3	10.5	1.3
Bolivia	LAC	3.3	7.3	18.7	7.8	-11.1	-31.4	-5	-61.1	1.4	1.1
Brazil	LAC	2.3	4.7	-3.7	26.1	-8.4	-28.4	10.6	18.8	21.6	7.4
Tunisia	EMENA	2.6	30.5	41.9	31	-8.5	-21.6	1.9	0	0.4	1
Philippines	EA	3.4	22.2	49.4	31.2	-9.1	-21.1	9.4	46	9	1.7
Dominican Republic	LAC	2.8	28.5	37.6	22	-8.2	-20.3	-11.2	-5.7	-6.6	0.8
Egypt	EMENA	3.1	21.8	40.9	8	-10.9	-17.3	-20.6	-26.1	-13.8	0.3
Bangladesh	SA	1.1	31	17.3	16.6	-10.9	-14.2	-26.4	-12	-14.5	0.5
Mexico	LAC	3.3	4.2	-42.8	17.8	-5.5	-13	8	25.5	13.5	16.2
Kenya	SSA	1.5	-23.9	-8.2	14.4	-5.7	-12.9	25.7	38.6	38.2	-0.5
Cambodia	EA	2.1	24.8	-15.9	5.3	-9.1	-11.7	-17.6	-28.2	-19.5	0.2
Chile	LAC	3.6	40.8	42.1	10.8	-5	-11.5	-19.1	-23.5	-30	0.2

Table 1: Growth, Poverty and Inequality, Developing world, 1980-2002 (continued)

Country	Region	Poverty line	<u>(log) Growth in expenditure (%)</u>			<u>Poverty decline (percentage points)</u>		<u>Change in Inequality</u>			
			NA	Survey	Poor	Actual	Adjusted	Gini	Share of bottom 20 percent	Share in expenditures of poor	Ratio of growth of poor to non-poor
Hong Kong	EA	2.5	56.8	75.4	19.7	-2.5	-8.6	-26.5	-34.3	-37.1	0.3
Jordan	EMENA	2.9	-19.7	-18	7.3	-3.9	-7.8	20.6	27	27	-0.3
Colombia	LAC	6.3	3	17.6	-1.4	-1.6	-5.8	-3.8	-3.3	-4.3	-0.2
Senegal	SSA	1.7	2.4	-18	4.4	-1.1	-3.2	0.6	-12.1	2	3.2
Algeria	EMENA	3.5	-7.6	-19.3	-0.5	-0.1	-0.3	12.3	7.4	7.1	0.1
South Africa	SSA	4.5	0.1	0.1	0.1	0	-0.1	.	0	.	1
Morocco	EMENA	2.3	5.3	14.9	5.2	0.5	1.1	-2.3	-1.5	-0.7	1
Ecuador	LAC	3.9	-0.6	23.2	-1.6	0.7	2.7	0.1	20.5	-1	-1.3
Papua New Guinea	EA	1.8	-37.5	-37.5	-56.8	1.5	3.2	-42.2	-48.4	-17.9	-2.1
Honduras	LAC	2	-12.5	-5.5	0.8	1.2	3.3	5.6	.	13.3	-0.1
Guatemala	LAC	3	-7.2	14.9	-4.9	3.2	14.7	4	30.5	2.3	0.5
Burkina Faso	SSA	1.3	-14.1	-22.9	-14.6	6.7	16	-0.9	-1.8	-0.5	1.1
Ghana	SSA	1.2	-13.4	-7.8	-27.2	12.2	19.1	-11.5	-17.1	-13.7	2.6
Ethiopia	SSA	1.1	-8.6	17.3	-26.3	16.1	23.8	-21.3	-17.8	-17.6	3.4
Niger	SSA	1.3	-39.9	-16.3	-62.7	8.7	24.1	-33.6	-105.9	-22.8	2.9
El-Salvador	LAC	3.1	-25.1	-30.7	-27.2	9.7	24.9	-5.6	-30.1	-2.1	1.1
Zambia	SSA	0.9	-16.3	-35.2	-17.8	10.4	27.3	-7.3	-3	-1.7	1.1
Mali	SSA	1.2	8.3	-90.9	-32.7	13.2	28.2	-32.4	-42	-41	-3.3
Coted'Ivoire	SSA	2	-57.9	-71.8	-31.2	18.8	39.2	11.6	22	26.6	0.5
Madagascar	SSA	1.4	-47.9	-47.5	-46.7	15.5	55.2	1.7	7.7	1.3	1
Burundi	SSA	1.7	-88.9	-88.9	-88.9	34.2	80.6	.	0	.	1
Venezuela	LAC	2.8	-59.9	-99.7	-90.4	36.7	83.3	-24.8	-30.1	-30.1	1.5
Peru	LAC	3	-77.4	-77.4	-75.6	28.7	97.6	2	0	1.8	1
Nigeria	SSA	0.8	-89.5	-77.6	-119	51.9	101.1	-25.4	-31	-29.5	1.4
Paraguay	LAC	6.4	-12.4	21.3	-34.3	.	.	-37.4	-113.3	-20.8	-1.2

Table 2: Ranks: Growth, Poverty and Inequality, Developing world, 1980-2002

Country	Region	<u>(log) Growth in expenditure (%)</u>			<u>Poverty decline (percentage points)</u>		Gini	<u>Change in Inequality</u>		
		NA	Survey	Poor	Actual	Adjusted		Share of bottom 20 percent	Share in expenditures of poor	Ratio of growth of poor to non-poor
China	EA	1	1	1	2	1	44	40	42	32
Indonesia	EA	2	2	2	1	2	9	10	13	18
Guinea	SSA	4	5	4	8	3	5	2	5	10
Thailand	EA	3	4	5	6	4	25	32	31	29
Tanzania	SSA	16	9	3	9	5	1	1	1	2
Vietnam	EA	5	6	8	5	6	32	36	32	31
Uganda	SSA	10	14	6	11	7	4	5	7	9
Pakistan	SA	8	15	9	3	8	23	17	21	21
India	SA	7	21	7	4	9	22	16	18	20
Israel	EMENA	12	19	11	13	10	21	18	23	23
Turkey	EMENA	15	27	13	12	11	13	24	14	14
Sri Lanka	SA	11	16	14	10	12	30	29	30	30
Lao	EA	9	8	12	7	13	35	33	34	33
Malaysia	EA	14	29	10	14	14	15	13	10	13
Bolivia	LAC	24	20	25	15	15	28	47	19	15
Brazil	LAC	26	30	17	21	16	8	12	6	3
Tunisia	EMENA	18	11	16	20	17	17	21	22	22
Philippines	EA	21	7	15	19	18	10	3	11	8
Dominican Republic	LAC	19	13	18	22	19	33	28	33	34
Egypt	EMENA	22	12	24	16	20	38	38	36	39
Bangladesh	SA	17	23	21	17	21	42	30	37	37
Mexico	LAC	27	43	20	24	22	11	8	8	1
Kenya	SSA	41	33	22	23	23	2	4	2	46

Table 2: Rankings in Growth, Poverty and Inequality, Developing world, 1980-2002 (continued)

Country	Region	<u>(log) Growth in expenditure (%)</u>			<u>Poverty decline (percentage points)</u>		<u>Change in Inequality</u>			
		NA	Survey	Poor	Actual	Adjusted	Gini	Share of bottom 20 percent	Share in expenditure s of poor	Ratio of growth of poor to non-poor
Cambodia	EA	20	34	27	18	24	36	39	40	41
Chile	LAC	13	10	23	25	25	37	37	45	40
Hong Kong	EA	6	3	19	27	26	43	44	47	38
Jordan	EMENA	40	36	26	26	27	3	7	3	45
Colombia	LAC	28	22	33	28	28	27	27	29	44
Senegal	SSA	29	37	29	29	29	19	31	16	5
Algeria	EMENA	33	38	32	30	30	6	15	12	42
South Africa	SSA	30	28	31	31	31	.	19	.	25
Morocco	EMENA	25	26	28	32	32	26	23	25	27
Ecuador	LAC	31	17	34	33	33	20	11	26	48
Papua New Guinea	EA	43	42	45	35	34	48	46	39	49
Honduras	LAC	36	31	30	34	35	12	.	9	43
Guatemala	LAC	32	25	35	36	36	14	6	15	35
Burkina Faso	SSA	38	39	36	37	37	24	25	24	19
Ghana	SSA	37	32	39	41	38	34	34	35	7
Ethiopia	SSA	34	24	38	44	39	39	35	38	4
Niger	SSA	44	35	46	38	40	46	48	43	6
El-Salvador	LAC	42	40	40	39	41	29	41	28	17
Zambia	SSA	39	41	37	40	42	31	26	27	16
Mali	SSA	23	49	42	42	43	45	45	48	50
Coted'Ivoire	SSA	46	45	41	45	44	7	9	4	36
Madagascar	SSA	45	44	44	43	45	18	14	20	28
Burundi	SSA	49	48	48	47	46	.	20	.	24
Venezuela	LAC	47	50	49	48	47	40	42	46	11
Peru	LAC	48	46	47	46	48	16	22	17	26
Nigeria	SSA	50	47	50	49	49	41	43	44	12
Paraguay	LAC	35	18	43	.	.	47	49	41	47

Table 3a Correlations: levels of Growth, Poverty and Inequality, developing world, 1980-2002

	Growth in expenditure			Poverty decline		Inequality Change			
	NA	Survey	Poor	Actual	Adjusted	Gini	Bottom 20 %	Share of exp (poor)	Poor/non-poor (growth)
Growth in exp(NA)	1								
Growth in exp (Survey)	0.87	1							
Growth in exp (Poor)	0.93	0.83	1						
Poverty, Actual	-0.90	-0.80	-0.94	1					
Poverty, estimated	-0.92	-0.84	-0.96	0.97	1				
Gini	0.05	0.09	0.40	-0.29	-0.27	1			
Bottom 20 %	0.16	0.18	0.45	-0.31	-0.29	0.85	1		
Share of exp (poor)	0.00	0.07	0.38	-0.30	-0.29	0.93	0.80	1	
Poor/non-poor (growth)	0.00	-0.03	0.14	-0.06	-0.09	0.34	0.31	0.36	1

Table 3b Correlations: - Ranks of Growth, Poverty and Inequality, 1980-2002

	Growth in expenditure			Poverty decline		Inequality Change			
	NA	Survey	Poor	Actual	Adjusted	Gini	Share, Bottom 20 %	Share in exp (poor)	Poor/non-poor (growth)
Growth in exp(NA)	1								
Growth in exp (Survey)	0.84	1							
Growth in exp (Poor)	0.91	0.81	1						
Poverty, Actual	0.89	0.78	0.95	1					
Poverty, estimated	0.89	0.80	0.97	0.98	1				
Gini	0.04	0.05	0.35	0.23	0.29	1			
Bottom 20 %	0.10	0.13	0.38	0.24	0.29	0.91	1		
Share of exp (poor)	0.01	0.00	0.34	0.25	0.30	0.96	0.88	1	
Poor/non-poor (growth)	0.00	-0.02	0.14	0.04	0.11	0.22	0.15	0.27	1

Notes for Tables 1,2 and 3:

1. The region abbreviations are as follows: - EA – East Asia, EMENA – Middle East and North Africa, LAC – Latin America, SA – South Africa and SSA – Sub Saharan Africa.
2. The poverty line is country specific and defined in per capita per day terms, 1993 consumption PPP prices.
3. *Expenditure growth*: NA and Survey data refer to (log) growth rates as derived from national accounts and household survey data. “Poor” refers to the fraction of the poor observed for each country in 1980; this fraction is kept constant in consumptions involving growth in their expenditure.
4. *Poverty*: Actual and Adjusted. These columns report the arithmetic change in the head count ratio 1980-2002. The “adjusted” decline column reports the actual change divided by the average “Shape of distribution” elasticity observed during 1980-2002.
5. *Inequality*: (log) change in the expenditure share of the poor – the poor are defined above; share refers to the share of the poor in total expenditure; Ratio of poor to non poor growth is the ratio of the growth experienced by the poor in 1980-2002 to the growth experienced by the non-poor.
6. The sign for inequality change (Gini) has been reversed i.e. an increase in inequality results in a negative value for the (log) change in the Gini.

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