Public Disclosure Authorized

Public Disclosure Authorized

WPS6700

Policy Research Working Paper 6700

Shared Prosperity and the Mitigation of Poverty

In Practice and in Precept

Kaushik Basu

The World Bank
Development Economics Vice Presidency
Office of the Chief Economist
November 2013

Policy Research Working Paper 6700

Abstract

The World Bank Group recently adopted two overarching goals—the end of extreme, chronic poverty in the world by 2030 and the promotion of shared prosperity in every society. The paper examines the normative properties of these goals, their strengths and weaknesses, and their implications for actual policymaking, especially in the presence of globalization. This is closely related to the age-old debate on growth versus direct welfare interventions as instruments for countering poverty. The paper analyzes past trends on poverty and tries to shed new light on this old debate.

This paper is a product of the Office of the Chief Economist, Development Economics Vice Presidency. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The author may be contacted at kbasu@worldbank.org.

The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

Produced by the Research Support Team

Shared Prosperity and the Mitigation of Poverty: In Practice and in Precept

Kaushik Basu

Senior Vice President and Chief Economist
The World Bank
Washington, DC 20433
and
C. Marks Professor
Department of Economics
Cornell University
Ithaca, New York 14853
For correspondence: kbasu@worldbank.org

Acknowledgements and disclaimer: The paper is written in my individual capacity and should not be read as an official statement of the World Bank. In working on this paper I have benefited from discussions with a large number of people and, at the risk of omission, would like to thank Alaka Basu, Shaohua Chen, Tito Cordella, Vivian Hon, Pete Lanjouw, Tamara McGavock, Richard Morgan, Ambar Narayan, Gunilla Olsson, David Rosenblatt, Jaime Saavedra, Jan Svejnar, and Eric Verhoogen. I would also like to thank Sandra Gain and Merrell Tuck-Primdahl for valuable editorial suggestions. Earlier versions of the paper were presented as the President's Invited Lecture at the ISI World Statistical Congress in Hong Kong, August 30, 2013, and as a plenary lecture at the Human Development and Capabilities Association Congress in Nicaragua, September 10, 2013. On 11 November, 2013, it was presented in New York, at UNICEF and as the Global Economic Governance Lecture at Columbia University, New York on 11 November 2013. I am grateful to the participants for the many useful comments, suggestions and some loaded questions.

1. Introduction

The growth v. inequality debate attracts such widespread participation because, at one level, it makes such minimal demands on the human intellect. Yet, at another level, it raises some intricate questions pertaining to development policy. Moreover, as people weigh in on one side or the other of the debate, it begins to slant and constrain actual economic policies since these are crafted by political leaders invariably with an eye on the ballot box. So the debate can influence policy making on the ground and, through that, have deep consequences for human well-being. The World Bank Group recently declared a new set of goals that will guide its mission. Though these goals were not meant to be a matter for academic engagement, but a simple statement to give direction and galvanize action in a large organization, by touching on growth, poverty and inequality, the World Bank's mission statement cannot remain totally aloof from the larger debate on growth and distribution. In fact, judging from various commentaries that have appeared in the media, it has already been brought into this debate. As such, the aim of this paper is to lend some clarity to this debate and to do so from a special angle—the Bank's newly-declared twin mission goals.

Early in 2013, the World Bank Group adopted two overarching goals to guide its work and in April 2013 these were endorsed by the Group's Board of Governors. The goals, stated briefly, consist of the following: (i) to end extreme, chronic poverty in the world by 2030 and (ii) to promote shared prosperity in every society. To give these goals the concrete shape essential to drive a large organization and gauge success and failure, they had to have measurable forms. These are explained in the next two paragraphs.

It was decided to define extreme poverty as living on less than $1.25 (ppp-adjusted) per person per day. Since the aim is to end *chronic* poverty and since frictional poverty—stemming from unexpected economic fluctuations in poor countries, political conflict and war—cannot as yet be brought to an end, the first goal is formalized as a target of bringing the number of people living below this 'poverty line' to less than 3% of the world's population.

The second goal, with its oblique reference to growth and distribution, is defined, formally, as the aim of fostering the per capita income growth of the poorest 40% of people in each country.

Since these targets were set not as goal posts to be touched and retreated from, it is implicit that the goals must be pursued in ways that are environmentally, socially and economically sustainable over time. In other words, achieving these goals through a blend of higher economic growth and improved social programs should not create a liability for future generations—through excessive fiscal burden, social strife or environmental damage. In brief, prosperity should be shared not just across space, but also across generations. This sustainability target is not as easy as it may seem at first sight. It has practical and political challenges galore, as documented, for instance, in Stern (2007). In addition, there are some intricate conceptual challenges.

Consider two standard welfare axioms. The anonymity axiom says that if one person has x dollars and another y dollars, then if these persons interchanged their places (that is, the first persons gets to have $y and the second person $x), this should not alter our welfare assessment of this society. The Pareto axiom says that if everybody in a society becomes better off, the society must be considered better off. Basu and Mitra (2003) prove a theorem that shows that if we are interested in making inter-temporal decisions, as we must in entertaining questions of the environment and sustainability, there is no welfare function that satisfies these two axioms. This intriguing result compels us to think about inter-temporal welfare in ways that are quite complex (Basu and Mitra 2007; Roemer and Suzumura 2008). In any serious evaluation of intergenerational equity, it will be necessary to go into this complex matter, but in the present paper, I shall brush this problem aside.

This paper discusses the conceptual foundation of each of the two goals and the implications for the policies that arise from them. The paper also enters the larger terrain of debate between the 'growth school' and those in favor of targeted interventions.

2. Extreme Poverty

The definition of extreme poverty by drawing a 'poverty line' at $1.25 (ppp-adjusted) is familiar and well established. It has been enshrined in the United Nations-led commitment to the Millennium Development Goals. What is new, however, is the World Bank's analysis and conclusion that it is ambitious but feasible to end chronic poverty by 2030. But before going into that, it is useful to take stock of where we stand today and how we got here. A summary view of this for some major emerging economies is shown in Table 1.

Table 1: Headcount Extreme Poverty Rates for Selected Countries (%)
($1.25 day PPP)

	c1980	c1990	c2000	c2010
Congo, Dem. Rep				87.7
Ethiopia	66.2		60.5	30.7
Nigeria	53.9	61.9	63.1	54.4
South Africa		24.3	26.2	13.8
Bangladesh	60.6	70.2	58.6	43.3
China	84.0	60.2	35.6	11.8
India	55.5	49.4		32.7
Indonesia	62.8	54.3	47.7	18.1
Brazil	13.6	17.2	11.8	6.1
Colombia		6.3	17.9	8.1
Mexico	12.8	4.0	5.5	0.7

Source: World Bank (PovcalNet).

For the world as a whole, poverty as a percentage of population has declined over the three decades displayed in Table 1 from just below 50% to 17.7% and this decline has been remarkably monotonic over time (Ravallion and Chen 2012). Many nations mirrored the global trend by seeing a steady decline

over this 30-year period. This includes China, India[1] and Indonesia. However, for several individual nations, including Nigeria, Bangladesh and Brazil, poverty rose between 1980 and 1990. Global poverty dropped because China's and Mexico's poverty dropped very sharply during this period. The overall global poverty rate of 17.7% in 2010 hides the fact that in some countries, like Democratic Republic of Congo and Nigeria, it is extremely high, with a majority of people still living below the poverty line.

With this as backdrop, let me begin by addressing three criticisms that were encountered even while the final contours of this goal were being decided and that continue to be leveled now. First, many question the use of a poverty line as low as $1.25.[2] There are two responses to this. In measuring and tracking poverty over time, it is best not to change the yardstick since that would make comparisons and the analysis of trends opaque and confusing. Despite this, we could decide to change the yardstick if it were sufficiently outdated. That would be the case if $1.25 were so low that very few people were below this line. Unfortunately, as is on full display in Table 1 above, that is not the case. It is a regrettable fact of our world today that a shockingly large number of people are still below this line. In terms of the latest available formal count (which pertains to 2010), the number is approximately 1.2 billion, that is, as mentioned above, around 18% of the world's population. Further, 408 million children are extremely poor, implying that a disproportionately large number of the poor are children, which has implications for child labor and gives rise to vicious cycles of intergenerational poverty (Banerjee and Newman 1993; Galor and Zeira 1993; Basu and Van 1998; Emerson and Souza 2002).

Subsequent piecemeal data and projections suggest the percentage of people below the poverty line globally may be down to 15% in 2013. Either way, what is evident is that even with this low line there is still a large task at hand.

[1] India's poverty has declined very sharply for two years since 2010.

[2] There is the additional question of using this "head-count" method whereby we simply count the number of people below a certain line, wherever it is. This is a matter that has been much debated (see, for instance, Sen 1976b, 1981; Foster, Greer and Thorbecke 1984; Basu 1985; Fields, 2001).

And while we may want to use different poverty lines for different parts of the world, for instance, to count not just the poor but also the vulnerable (see, for instance, Ravallion and Chen 2011), in formulating policy for the world as a whole there is not a compelling case yet to alter the yardstick that we have used for a while and enables us to track trends over time. A corollary criticism that is more compelling is that a constant yardstick can be constant in different ways, in terms of functionings, calorie needs or commodity bundles, and it does not have to be in terms of absolute real income. Subramanian (2013) points this out and goes on to suggest that some of this criticism is attenuated by focusing attention on some constant fraction of the poorest people in society. Such a perspective provides a nice segue into the second mission goal of the World Bank, namely that of shared prosperity, which is the subject matter of the next section.

The second criticism pertains to the use of a single global target of 3%. It is rightly feared that this could result in attention being directed to the most populous countries of the world, where large numbers of the poor reside. At one level, this is not a problem because we do want attention to be focused on countries where there are many poor people. However, this could mean that in some poor countries there will not only be extremely poor people, but those who are chronically so; and that would be a violation of the goal for 2030. This is a fair criticism and the line taken by the World Bank is that, while to galvanize action by political leaders it is important to keep the target simple and maybe even simplistic, the World Bank will monitor the performance of all individual countries and make sure that chronic poverty is vastly reduced in all countries. So while there is no separate statement of targets for small and fragile states, this will be kept in the foreground of World Bank research and policy. There is one target for the world, but effort has to be made so that no country is left behind.

This will not be easy. If all countries grow at the rates they achieved during the first decade of this century and income distribution remains unchanged, then, in 2030, 17 countries will have more than 30% of their people living in poverty. If we are even more optimistic and assume that each country will be able to grow from here on at the best rates it has achieved in the recent past, even then there

will be 7 countries with poverty greater than 30%. These are: Demcratic Republic of Congo 73.9%, Haiti 58.2%, Burundi 54.5%, Comoros 37%, Nigeria 33.3%, Congo Brazzaville 33%, and Benin 33%.[3] In brief, relying on growth alone, virtually no scenario gets us to the goal of no country left behind. Other kinds of policy interventions will be necessary. I shall discuss some of these later.

The third criticism pertains to the use of a money metric measure of poverty, instead of a multidimensional measure. The latter would take into account not just income, but also health, nutrition, education and other critical dimensions of what constitute the minimal requirements of the good life (Stiglitz, Sen and Fitoussi 2010; Alkire and Foster 2011; Pattanaik, Reddy and Xu 2012; Ray and Mishra 2012).

This is an important criticism; however, before discussing it, it is important to remove one potential misunderstanding. The goals are ends to pursue but if, in addition, they are viewed as a statement on what the World Bank will not pursue—namely, anything that is not a mission goal will not be studied and deemed worthy of pursuit—that would be a mistake. That is not what the statement of mission goals is meant to do. It is right to expect that the Bank Group will work with countries to promote the individual components of the typical constituents of multidimensional poverty reduction.

Keeping the above clarification in mind, which hopefully will temper some of the criticisms, it is worth pointing out that the use of a money metric measure is not without some advantages. To see this, note first that there is no universal set of *all* constituents of the good life. One can always think of additional dimensions to describe a decent standard of living. Hence, wherever one draws the line, there will be criticism of why an *even more* multidimensional measure was not used.

[3] The numbers quoted here and elsewhere, whenever they appear without a source citation, are based on estimates by the World Bank's Poverty and Inequality group in the Research Department.

With that in mind, let us turn to income or expenditure. While, through familiarity, we now think of income as unidimensional, it is important to point out that it is in reality a highly multidimensional metric. Since, by income, we mean real income, it is an aggregation of food, clothing, housing, and a variety of other goods consumed by the person whose income we are discussing. Hence, income is itself a multidimensional measure.

Viewed in this manner, it is evident that the controversy between an income or expenditure measure and a multidimensional measure is not between two totally different categories, but between degrees of multidimensionality. Moreover, since there is no well-defined notion of full multidimensionality, we will invariably have to face the question about where to stop. In the spirit of Sen (1967), it is arguable that there may be no 'ultimate' notion of welfare, but provisional ones with which we have to be reconciled to work, at any point of time.

Finally, it is arguable that the rich in poor societies have attributes of standards of living that are close to those prevailing for the average person in rich countries. Developing economies look so different, with inadequate nutrition, low life expectancy and high infant mortality, because the poor people in these countries fare so poorly on these indicators. This suggests that income automatically picks up many of these other dimensions. If poverty declined in poor countries, their status in terms of the standard multidimensional poverty criteria would also rise.

3. Shared Prosperity

The shared prosperity goal focuses on the promotion of a combination of growth and greater equality and, as such, is meant to complement the poverty-mitigation target. I take the view that the extent of inequality that prevails in the world today is intolerably high (see Milanovic 2013 for a comprehensive study of the state of income inequality in the world; see also Anand and Segal 2008; Bourguignon and Morrisson 2002). This being a normative matter, I cannot

compel the reader to accept this view. I state this upfront to clarify the backdrop of the discussion that follows.

There is a large literature in economics on measuring and evaluating inequality,[4] including some that tries to build this into the evaluation of overall GDP or growth (Sen 1976a). However, to have a goal that is used on the ground and is easily comprehensible to practical policy makers, it is essential to keep it simple. One measure that has this property, along with other normative qualities in the spirit of Rawls (1973), is the per capita income of the population below a certain cutoff. There is an early literature on the use of 'quintile income,' that is, the per capita income of the bottom 20% of the population, to evaluate a society, but the general concept behind the World Bank's new goal of shared prosperity is to evaluate a society in terms of how the more disadvantaged sections fare.[5]

Where we place the cutoff will always be questionable. If it is placed too high, the per capita income will get very close to the per capita GDP and hence it will be a case of information duplication. The data on the poorest people tend to get somewhat blurred, because for the very poor there is often no steady source of income and because the income they have comes from multiple, informal sources, which are not always easy to document. Hence, instead using a cutoff of 20%, the World Bank goal of shared prosperity places the cutoff at 40% of the poorest people in the nation. For full clarity, it may be mentioned that when, by this criterion, we study the growth rate of income of the bottom 40%, it is not as if we first locate the bottom 40% of people and then study the income growth rate of this group by seeing how the group does from one period to the next. Instead, what we have to do is to locate the poorest 40% of people in each period and see what the growth rate of income of this (possibly changing) group of

[4] See, for instance, Atkinson (1970); Rothschild and Stiglitz (1973); Osmani (1982); Shorrocks (1983); Foster, Greer and Thorbecke (1984); Sen (1997); Ray and Mishra (2011); Bourguignon and Morrisson (2002); Deaton and Dreze (2002); Dutta (2002); Deaton and Kozel (2005); Himanshu and Sen (2005); Stewart (2005); Subramanian (2006); Genicot and Ray (2009); Milanovic (2012); Foster, Seth, Lokshin and Sajaia (2013).

[5] For a discussion of this concept, see Basu (2001, 2010, Chapter 8); Virmani (2008); Subramanian (2011); Jayaraj and Subramanian (2012); Subramanian and Jayaraj (2012); Rosenblatt and McGavock (2013); Narayan, Saavedra and Tiwari (2013).

people happens to be. The goal of shared prosperity aims to hasten this growth rate.

Focusing on the per capita income and growth of the bottom 40% has several advantages. Treating this as an overall welfare goal satisfies the standard axioms of anonymity and weak Pareto. This welfare criterion also has the attractive property that while it focusses on the poorest 40%, it does not lose sight of those above altogether. This is because if the policy maker puts all attention, single-mindedly on the poorest 40%, those above the 40% mark could fall below it in the next period and will automatically come into the policy maker's focus of attention. For example, the poorest 40% of people could become better off because of government intervention and the rest could be ignored so much that those originally above the 40% cutoff become worse off than those who were originally below the 40% mark. In this case, the growth rate of the per capita income of the poorest 40% of the population will be negative. In other words, such a policy would be deemed to be a failure.

There has been some criticism that the focus on the growth rate of the per capita income of the poorest 40% ignores inequality. This criticism is misplaced. Since each nation already tracks the growth rate of the per capita income of its entire population and these data are widely available, as soon as we see the growth rate of the bottom 40% next to this figure, it will be immediately obvious as to whether the poorest 40% is falling off from the rest or catching up. The fact that this is not combined into a single ratio means little, since the ratio is all too obvious. Moreover, there is some literature showing that what the poorest 40% loses goes largely to the top 10% of the population (Palma 2011; Green 2012). Hence, the shared prosperity criterion of the World Bank has some interesting connections to the idea of polarization in society (see, for example, Esteban and Ray 1991; Kanbur and Zhang 2001).

All this is not to deny that, as with most welfare criteria, the shared prosperity criterion also has weaknesses. As Rosenblatt and McGavock (2013) note, two nations with the same per capita income and with Lorenz curves that

intersect at the 40% population mark will be judged identical by this criterion, no matter what the income distributions look like elsewhere. Indeed, this criticism can be taken a step further. It is possible to think of two nations, 1 and 2, with the same per capita income such that nation 1 weakly Lorenz dominates nation 2 and yet, by our criterion, the two societies are adjudged identical. In other words, the Lorenz curves do not intersect at the 40% population mark but connect there with one curve lying above the other everywhere else. Given the importance of Lorenz dominance as a concept (see, for instance, Atkinson 1970; Sheshinski 1972; Sen 1997; Anand 1983; Moyes 1987), this is indeed an observation of some significance.

This is easy to demonstrate. Consider two societies, each having a population of 5 and national income of 100. The incomes of all five individuals in the two societies are as shown in Table 2.

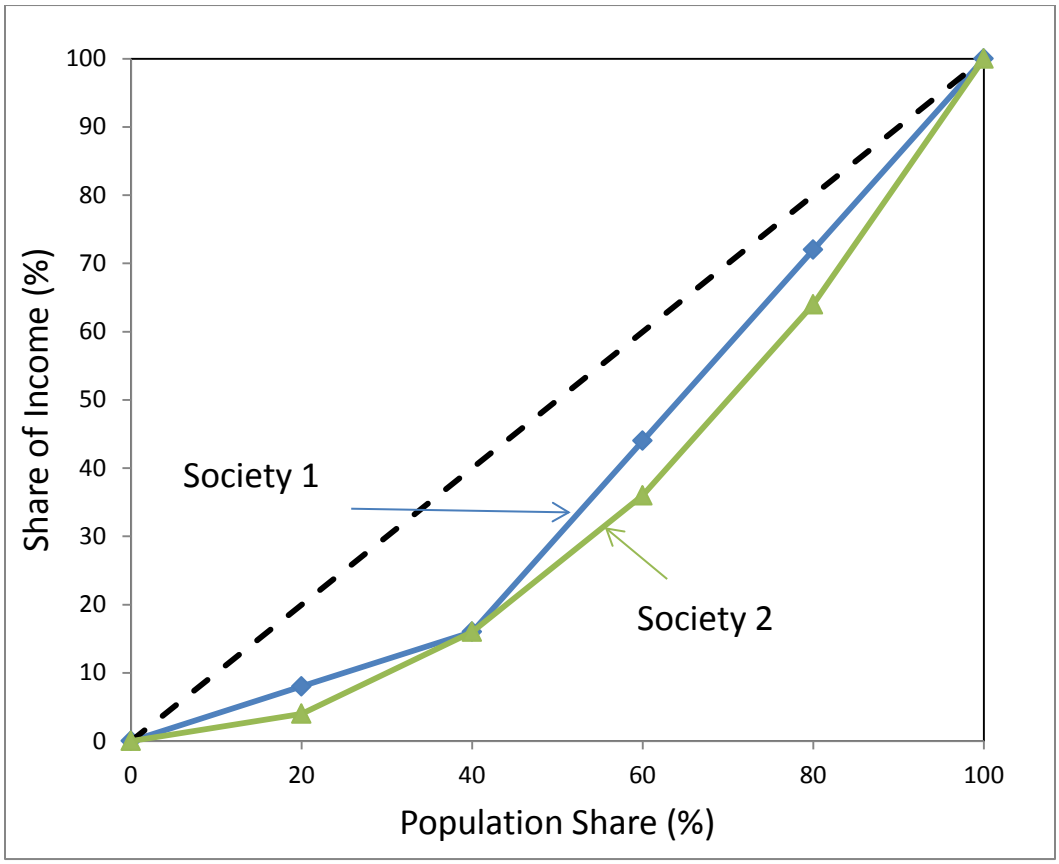
Table 2: Hypothetical Income Distributions

Individuals	Incomes	
	Society 1	Society 2
1	8	4
2	8	12
3	28	20
4	28	28
5	28	36

Note that both societies have the same per capita income, namely 20; and the per capita income of the poorest 40% people in both societies is 8. Hence, by the criterion of shared prosperity, both societies are identical. However, if we plot the Lorenz curves of the two societies, as is done in Figure 1, it is immediately

obvious that society 1 weakly Lorenz dominates society 2. Indeed, society 1 strictly Lorenz dominates society 2 almost everywhere.

Figure 1: Hypothetical Income Distributions and Lorenz Dominance



This is a valid criticism; but to counterbalance this critique one has simply to keep in mind that to have a criterion that is understood by most people and easily applicable, simplicity is an important prerequisite and, further, shared prosperity is not being proposed as the sole objective of a society. It is treated as a desirable direction to pursue, unless there are other compelling grounds that come to light.

4. Growth and Other Instruments

I now turn to the policies that emanate from having these goals. The first question that one is forced to grapple with is an age-old one.[6] Can growth alone do it or do we need specially targeted policy interventions by government?

To begin, some relatively mechanical exercises can help us form an opinion on this. One such exercise is to assume that each nation will grow at the rates that it did on average during the past two decades and the distribution of income will remain unchanged. If this happens over the next 17 years, it is easy to calculate that global poverty will decline to 7.7%. In other words, we will not make the target of less than 3% poor.

Table 3 describes the global breakdown of where we will be in terms of poverty in 2030 if there is growth of the above kind.

Table 3: Poverty in 2030 at $1.25 per day PPP

(Assuming country-specific National Accounts-based growth rates over the past 20 years)

Region	Headcount Poverty (%)	Number of Poor (millions)
East Asia and Pacific	0.6	12.0
Europe and Central Asia	0.7	3.5
Latin America and the Caribbean	4.4	30.3
Middle East and North Africa	1.7	7.2
South Asia	4.4	91.3
Sub-Saharan Africa	36.5	492.0
Total Developing World	**8.8**	**636.3**
World	**7.7**	**636.3**

Source: World Bank Poverty and Inequality Research Group staff estimates.

During the first decade of this century, growth in most nations was, however, faster than in the decade preceding that. What happens if we assume

[6] The literature debating this is large; see, for instance, Rodrik (2005); Himanshu (2008); Lopez-Calva and Lustig (2010); Dercon (2011); Bhagwati and Panagariya (2013); Dreze and Sen (2013); Rieff (2013).

that all countries will grow at that faster rate from now until 2030? Table 4 gives the regional breakdown of where the world will be if this more optimistic scenario prevails over the next 13 years. Unfortunately, even with this rosier projection, global poverty will reach 5.5% and so we will still be far away from our target. Table 4 gives the regional breakdown of where the world will be if this more optimistic scenario prevails over the next 13 years.

Table 4: Poverty in 2030 at $1.25 per day PPP

(Assuming country-specific National Accounts-based growth rates over the past 10 years)

Region	Headcount Poverty (%)	Number of Poor (millions)
East Asia and Pacific	0.2	3.5
Europe and Central Asia	0.1	0.6
Latin America and the Caribbean	3.9	27.3
Middle East and North Africa	3.8	16.4
South Asia	2.5	52.0
Sub-Saharan Africa	26.4	356.1
Total Developing World	**6.3**	**455.9**
World	**5.5**	**455.9**

Source: World Bank Poverty and Inequality Research Group staff estimates.

Certainty about the economic future is the province of the foolish and I have no intention to go down that path. It is possible that growth over the next decade and a half will be much faster than what we have seen or that growth will naturally become more munificent toward the poor. However, if the past is any indicator of what is to come, these scenarios must be discounted as unlikely. In brief, based on the simple projections done above, it appears reasonable to assert that reliance on growth alone is unlikely to get us to the target. We need policy interventions, from well-designed micro-interventions targeted at the poor (Banerjee and Duflo 2011), through reasonable taxation policy, to a stable macroeconomic environment. Further, it is arguable that even if growth alone will do the job, why not step on the other pedals to move faster toward the target of ending chronic poverty and mitigating the great and shameful inequalities that prevail in the world today?

With this in mind, I will in the next section talk about taxation strategies. Here I briefly touch on some other policy alternatives. The simple argument put forward is that there is a lot that we know and there is reason to believe that there is much more to be known in terms of exactly how to design interventions. From the broad sweep of history, the experience of countries as diverse as China, Brazil and India, we know that direct interventions by the state to mitigate malnutrition, provide health services and provide education can make a difference; and indeed it is arguable that instead of waiting for growth to do this, interventions on these fronts can actually step up the growth rates of economies (Dreze and Sen 2013).

There is also a lot of new research in economics that draws on methodology used very successfully in epidemiology, in particular, randomized trials and carefully-selected instrumental variables, which has given us many insights we did not have earlier about which policies work and which ones do not. Among the most celebrated are the findings concerning the efficacy of deworming in groups of school children and having women local leaders in improving the provision of public goods (Miguel and Kremer 2004; Chattapadhaya and Duflo 2004); but there are many more illustrations of what works and what does not in this new literature (Banerjee and Duflo 2011; Mullainathan and Shafir 2013). We need to draw on these studies and conduct more to take further our understanding of the determinants of development and economic well-being and develop actual policies for implementation. Is it more cost efficient to lower the student-teacher ratio in schools or to subsidize textbooks? How should we incentivize teachers so they teach more effectively? How do we incentivize people so they get themselves immunized against certain infections? It is interesting to see how much we already know.

But there are three words of caution. First, the method of randomization is a powerful one but it is easy to fall into the trap of believing that it gives us insights into causality. It does not. What it does is provide descriptions of large populations (Basu 2010, 2013). It can be put to very effective use if this reservation is kept in mind.

Second, we have to be prepared to innovate on existing methods. Usually, once we have tried an intervention for a while, we become committed to precisely that. The discussion then becomes one of whether to persist with it or abandon it. What we do not adequately talk about is modifying the existing broad idea in novel ways. Consider an example. In India, there are efforts to get basic food to the poor by providing government subsidies. The way this is currently done is that the government buys the food cheap from the farmers and then supplies it to around 500,000 stores—'ration shops'—around India. The ration shops are instructed to sell the food at a prespecified, below-market price to households carrying cards that identify them as poor. The system has worked inadequately with large amounts of leakage and consequent fiscal load on the government. Regrettably, this has led to a polarization in India with some arguing that the system should persist and others in favor of abandoning any effort at subsidizing the food that the poor buy.

What gets minimal attention is the effort to alter the system while keeping intact the underlying intent. One change, which would almost certainly make this more effective, would be to give the subsidy directly to the poor in the form of cash, smart cards, or a transfer based on biometric identification, instead of giving it to the ration shops (and hoping that they will transfer it to the poor). Of course, such a subsidy would have to be inflation indexed, but once that is done, the subsidy is likely to have a much larger impact on poverty eradication, with benefits flowing to the poor instead of being pilfered en route by the ration shop owners.

Third, these micro interventions often have macro implications that elude the policy maker and some researchers. Suppose, for the sake of argument, a certain welfare intervention, like a rural employment program, is operated by the government by resorting to printing money. If it is run well, this will create jobs and improve nutrition among those who are employed. However, this will almost certainly create an upward pressure on prices, which would leave people in faraway places, who have nothing to do with the program, to be worse off. In

brief, the net effect on society can be negative. This does not have to happen but it can. What this alerts us to is that microeconomic programs have macroeconomic implications. These can work through intricate channels and this is where there is need for economic theory. Most of these channels will be very difficult, if not impossible, to test empirically. Hence, one will have to use a combination of economic theory and intuition to get at these; but to ignore them, as we so often do, is folly. This is the primary reason why so many micro experiments over the years have yielded so few results and swaths of poverty persist in the world. Economics has reached the standing it has today because of major strides in theoretical analysis, starting from the late eighteenth century and gathering steam from the end of the nineteenth century with the rise of neoclassical economics. It is heartening that there has been a surge in empirical work over the past four or five decades that has given us a view into economic reality of the kind we did not have before. The big risk now is that in celebrating this empirical success we will abandon the theoretical advantage that gave economics the strength and foundation it has acquired. I give some examples of how to combine theory with evidence in this paper, but this is not an easy task and the hope is that there will be much more research along these lines. If the World Bank's new goals can provoke research in the effort to harness these goals to actual policies, they will have served an important purpose.

The next section presents a specific example of how theory can be used to analyze the effects of taxation policy on poverty.

5. Targets and Policies: Domestic and Global

The aim of this section is to illustrate how targets matter in shaping domestic policy and in laying out a global policy agenda. The latter makes it relevant to multilateral development banks and international organizations. The discussion here is conducted in terms of fiscal policy and, in particular, taxation. This is purely for reasons of convenience, to illustrate in the simplest way the kinds of concerns that arise from the new goals.

The model, which draws on some of my earlier work (Basu 2006, 2010), is presented in a threadbare fashion, to show how shifting targets, from overall growth, through growth of the poorest people, to an exclusive focus on inequality mitigation, leads to different policies on the ground and also to raise some interesting questions pertaining to the challenges of policy making in a globalized world.

Consider a society in which half the population is skilled and half unskilled. This is a static exercise and so what led to this predicament is unimportant for our current investigation. It will be assumed that the skilled people will be the rich ones and the unskilled the poor (I am aware that this is often not the case in reality). Hence, the World Bank's goal of shared prosperity, focusing on the bottom 40% of the population, will, in this model, translate to focusing on the income growth of the unskilled.

Suppose, if the tax rates are zero, each skilled person earns $A and each unskilled person earns 0. Now I introduce a simple system of proportional income tax, t, which is used by the government as a mechanism for redistribution. Remember this is no more than an illustrative exercise and, as such, this is an economy with no public goods, no defense expenditure, no security challenges, no political conflict. I will assume that as the government increases the tax rate, the skilled people choose to work less. In particular, if the income tax rate is $t \varepsilon [0, I]$, the skilled person, it will be assumed here, earns an income of $A(I - t)^2$. Hence, this person's post-tax income is $A(I - t)^2(I - t) = A(I - t)^3$. I shall denote this, in brief, as:

$$Y(t) = A(I - t)^3 \qquad (1)$$

Since the unskilled people earn their income from the transfer via the tax collection and the number of unskilled people is the same as the number of skilled people, if the income tax rate is t, the income earned by each unskilled person, y(t), will be given by:

$$y(t) = At(I - t)^2 \qquad (2)$$

It is easy to illustrate the (post-tax) incomes of the skilled and unskilled workers in one graph. This is done in Figure 2, where the horizontal axis shows the tax rate, t, and the vertical axis the incomes earned by the two groups of people. The relation between what we take to be our target or goal and the policy we choose (in this model, the only policy variable is the tax rate) is now easy to illustrate.

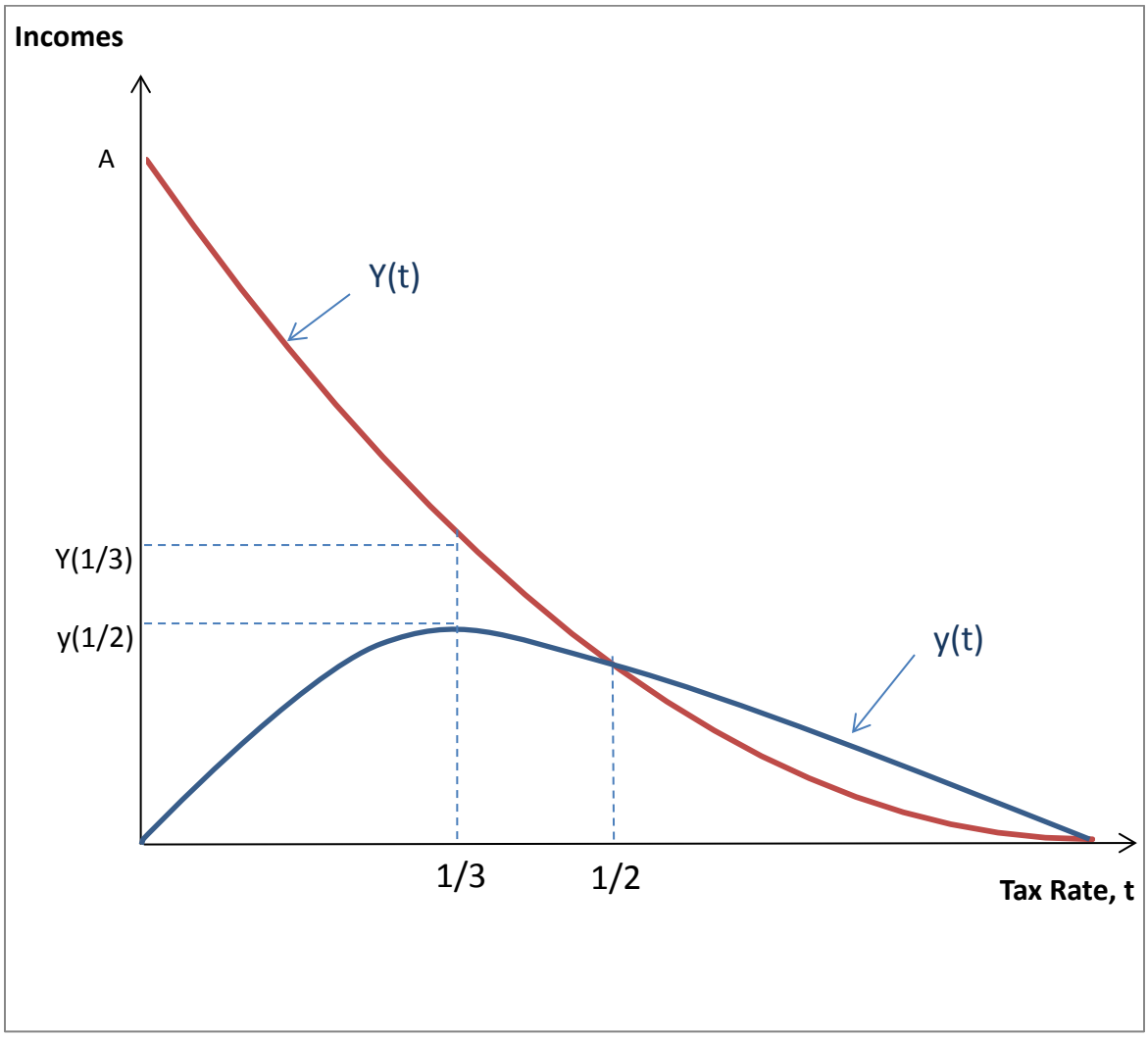
If we are utilitarian and focused on aggregate income and overall growth, with no special attention to poverty eradication or inequality mitigation, we will be maximizing $A(I - t)^2$. This will lead to an income tax rate of 0. The rich will earn A and the poor 0.

Next suppose we focus on the poor and want them to do as well as possible. In other words, we want to maximize y(t). More strictly, our aim will be to maximize min {Y(t), y(t)}, in the spirit of Rawls (1971). In the present case, this distinction does not make any difference. This leads to setting the tax rate at approximately 33% or, more precisely, t=⅓. Note from the figure that when t= ⅓ unskilled people are as well off as they can be but the rich are richer than the unskilled.

If we now aim not for overall welfare maximization, nor for the enhancement of the welfare of the poor, but solely on promoting equality, we will set an even higher tax rate to wit, t= ½.[7]

[7] Total equality is also achieved by setting t=I, but I will not expend effort explaining why this is not a good idea.

Figure 2: A Stylized Model of the Potential Trade-off between Maximizing the Income of the Poor and Minimizing Inequality



The model illustrates nicely how there can be situations (as the one illustrated in Figure 2) where the only way to achieve total equality is by hurting the poor. In this model, as we raise the tax rate from ⅓ to ½, we will get greater equality but with the poor people becoming worse off.

Hence, the new goals announced by the World Bank Group would, in this model, suggest a tax rate of 33%, which is very distinct from what would be recommended if our focus were solely on overall welfare or solely on equality. The model illustrates this with the case of taxation policy but, as already

discussed in this paper, similar logic would extend to other kinds of policies, from the provision of education, health services and other benefits, to trade and monetary policy. For reasons of full disclosure, it should be pointed out that the model was constructed without specifying the micro-foundations. In a fully-founded model, we would derive the behavior of people (who choose to work less when the tax rate goes up) from utility-maximizing behavior. And in such a model, we may want the planner to be attentive not just to people's incomes but leisure as well. I believe that it is possible with a little effort and algebra to write down a model with fully-specified micro-foundations but the present paper may not be the right occasion for such an enterprise.

Globalization has placed special challenges on national policy makers today because decisions in one nation have positive or negative fall-outs on others at a level rarely seen in history, thanks to new technology, easier transport and expanding global institutions (Basu 2010; Green 2012). This model can be used to illustrate an interesting connection between policy making in a single country and the interconnectedness of policy making in a globalized world, thereby emphasizing the role of multilateral organizations like the World Bank, International Labour Organization and World Trade Organization.

To see this, suppose there are several nations, each of which looks like the one illustrated in Figure 2. Assume also that each nation has decided to go along with the objective of shared prosperity.

To start, each government would be tempted to set the tax rate at ⅓, for the reasons discussed above. But it will soon strike a government that it can do better, in terms of the shared prosperity goal for its citizens, by the following maneuver: If it lowers the tax rate, unilaterally, a little, it will attract some of the skilled people from other nations. This will enable it to transfer more income to its own poor people, since despite the tax rate being lower there will be more people to tax. Hence, it would have furthered its shared prosperity target. I am implicitly assuming that there are some transactions costs involved with moving

and different people value this differently. Hence, as the tax rate is lowered, some but not all skilled people will move to the low-tax economy.

However, if all countries do this, they will all be worse off (in terms of their own goals). The only way to beat this is for the government to cut the tax rate further. But the same reasoning will prompt others to do the same. This reasoning, used repeatedly, would lead governments to a race-to-the-bottom exercise and they will end up setting their tax rates at 0. In other words, in a globalized world with skilled worker mobility, each government will end up behaving like a utilitarian who is interested only in overall income maximization (with no attention to poverty mitigation), although that is not the real preference of each of the governments.

To illustrate this with numbers, consider a world with two nations, A and B, where each government has to choose a tax rate and is interested in the welfare of its own poor. The game, described below, which loosely draws some numbers from the above model, illustrates the problem. Suppose the two governments have to choose their respective tax rates and the welfare or payoff depends on the choice of both countries' tax rates. The payoff matrix of the 'Taxation Game' describes the problem.

If both choose tax rate 1/3, each gets a welfare payoff of 3. If Country A chooses 1/6 and B chooses 1/3, A gets a payoff of 4, B gets 1. And so on. All this can be read from the payoff matrix of the game.

In this game, the ideal outcome, (⅓, ⅓), cannot be sustained as an equilibrium because if the other country sets a tax rate of ⅓, you are better off lowering your tax rate to 1/6. Indeed, the only equilibrium in this game is where the two countries choose the lowest tax option ($^{1}/_{12}$, $^{1}/_{12}$). Although both governments are committed to shared prosperity and this requires the tax rate to be set at ⅓, that outcome is not sustainable in equilibrium, thanks to the pressures of globalization.

The Taxation Game

		Country B (Tax Rates)		
		1/12	1/6	1/3
Country A (Tax Rates)	1/12	1, 1	3, ½	3, 0
	1/6	½, 3	2, 2	4, 1
	1/3	0, 3	1, 4	3, 3

This example underlines the need for a modicum of coordination in terms of global fiscal policy. Unilateralism in terms of taxation and other fiscal policies was fine until a few decades ago when the global economy was largely balkanized, with respective national boundaries marking out each economy. As *The Economist* magazine's cover story in the issue on February 16, 2013 illustrated, we no longer have that luxury.

In promoting shared prosperity and moving to end extreme and chronic poverty, there is a lot that each country needs to do but, at the same time, there is a lot of cross-country coordination and global regulation that is needed (Stiglitz 2010, Chapter 8). This is a relatively recent phenomenon, a feature of our new globalized world. The exact contours of how such coordination can be managed is still virgin territory (see the discussion in Basu 2010); this places a special responsibility on international organizations and multilateral authorities that was not there earlier, certainly not in the urgent form it takes today.

This paper does not go into matters of global inequality, but only within-nation inequality, and hence the above model was concerned with global policy coordination to the extent that this has an impact on within-nation inequality. However, before moving to another topic, it should be mentioned that global inequality should be a matter of concern and the extreme form that it takes in today's world is a matter of collective embarrassment and a reflection of an important moral failure. Although this lies beyond the scope of the present paper, it is deserving of future attention.

6. Growth and the 'Tradicine' Fallacy

Over the years, economics has improved vastly in terms of the use of statistics and facts and the founding of economic policy on data and evidence, which is not to deny that there are still great distances to go on these fronts. Where economic policy making can do with some immediate bolstering is in the use of reason. The ubiquity of unreason is rather worrying. Having prior unbending categories and convictions can be a stumbling block to reasoning right. I have heard ideologues remark on how openness of the economy is desirable "because there is no economy in the world that is totally closed and has grown." This entails two mistakes. First, it uses past evidence and induction improperly. I shall below discuss similar mistakes more directly in the context of growth and poverty. Second, it involves misreading evidence. In reality, there is a stark example of an economy that is totally closed and has grown very well. The example is the earth. The mistake occurs as a consequence of the categories in which people think about an economy.

I should clarify, before moving on, that I believe openness in general—for goods, services, capital and labor—is a desirable trait for economies; and I believe that governments have a natural proclivity toward excessive protectionism, especially vis-à-vis labor, that does need to be countered. There are situations where there may be a legitimate case for putting some brakes on the flow of goods and especially capital, but that does not detract from the general point.

What I object to is the use of the word "because." That demonstrates a mistake in reasoning, which is my concern in this section.

Let me now, in keeping with the focus of this paper, turn to the more specific matter concerning anti-poverty policies and growth. This is best posed in terms of the recent paper by Dollar, Kleineberg and Kraay (2013), who empirically analyze the relation between growth and poverty. This is a remarkable study because it draws on high-quality survey-based data from 118 countries and brings in state-of-the-art statistics to analyze this challenge.[8] And it reaches an important conclusion, namely, that the bulk of poverty eradication that took place over the past decades was driven by the overall income growth of economies. More specifically, by using the method of standard variance decomposition, the authors find that 77% of the cross-country variation in growth in the incomes of the poorest 40% of the population is explained by the growth of average incomes.

Unfortunately, the policy takeaway that many have read into this important empirical finding is that to eradicate poverty, we have no choice but to rely on economic growth and that direct policy interventions in the market to eradicate poverty are not worth it. So if we want to have pro-poor policies or promote shared prosperity, we have to rely on the benefits of growth to trickle down to the poor.

What I argue here is that the empirical finding referred to above is valid; the policy conclusion stated in the previous paragraph is wrong. It is an illustration of an interesting and, at the same time, common lapse in deductive reasoning. Given that many fall into this trap, this is a point worth explaining.[9] I shall do so using a parable.

[8] This new paper revisits an earlier debate on the subject of growth and poverty (see, for instance, Datt and Ravallion 2002; Dollar and Kraay 2002).

[9] A part of this section was published as an article entitled "Reason and the End of Poverty" in Project Syndicate (7 October, 2013): http://www.project-syndicate.org/commentary/the-logical-flaw-that-keeps-people-poor-by-kaushik-basu.

I need a name for all non-antibiotic medicines and shall, henceforth, refer to them as “tradicines,” which is a nice reminder that this includes virtually all the traditional medicines of various schools (and also modern medicines that are not antibiotics). Suppose in 1930 an economist does an empirical study of what cures infectious illnesses. After collecting masses of data from previous years and subjecting them to careful regression analysis, she concludes that 98% of all illnesses cured were because of the use of tradicines. This would in all likelihood be a valid finding since Alexander Flemming discovered penicillin only in 1928 and so the uses of antibiotics at that time were few and far between and mostly inadvertent. If the economist went on to argue that, therefore, if someone were ill it would be silly to give this person penicillin since we know that 98% of all previous cures were because of tradicines and penicillin is not a tradicine, she would be making a mistake.

Interestingly, this is a common mistake and has two possible sources. First, the past, no matter how carefully studied, does not give us a surefire rule for what will work in the future. This “induction principle” has been a matter of long philosophical dispute and I point this out only as something to be aware of when we take such a step, as indeed we often have to do. But for now I will go along with the ‘induction principle’; my main criticism is the next one.

The second source is the more important and blatant source of the mistake. What the economist doing the study in 1930 showed is that, of the cases solved, 98% were due to tradicines. Our minds trip this up and read this as showing that penicillin (which is not a tradicine) therefore does not work. That is a wrong deduction, based on evidence that does not exist, since penicillin was rarely tried before this date.

Interestingly, this is a common mistake. Thus we often assert that in creating more jobs we have to rely on the private sector because studies show that, say, 90% of past jobs were created by the private sector. This assertion sounds plausible, but the use of the “because” is wrong. If that was not the case, then we would have to accept someone in the USSR doing a study in the late

1980s and asserting that in creating jobs we have to rely on the state because studies show that 90% of past jobs were created in the state sector. And, by this logic, Alexander Flemming's penicillin would be laughed out of court on grounds of the weight of past evidence. Indeed, there would be a tendency to reject any new policy innovation on the ground that it does not have a long track record of success.

The lure of getting to good ends by doing nothing is so great that we hear variants of such arguments all the time. A similar mistake, like those above, occurs in the context of the openness of an economy. In today's volatile global climate, emerging economies have to grapple with important questions about how much freedom there should be for capital to flow in and out of countries and whether trade should be managed to counter hemorrhaging current account deficits. The ideologue has it easy, arguing for total openness, buttressing the argument by pointing out that there is no economy in the world that is totally closed and has had rapid growth. This leap from an irrelevant past experience to a firm recommendation for future policy amounts to the same mistake as with growth and poverty, and the private sector and employment, as we saw above. In this case, however, there is an additional mistake. It pertains to the claim that there is no closed economy that has grown, because it overlooks the fact that the earth is a totally closed economy and it has grown very well.

Let us suppose that we do not make the above mistake and carry out the induction from past experience correctly. Suppose we have evidence that overall growth works very effectively in eradicating poverty, whereas giving children deworming medication works, but less effectively. From this can we conclude that we should expend our effort on promoting overall growth instead of giving children deworming medication? The answer is no, because for that we need one more piece of information, to wit, whether we are more effective in promoting overall growth or in making policy interventions to administer deworming medicine.

To see this more starkly, replace the words “overall growth” with “lunar eclipse” in the above paragraph. Since we have no idea how to promote a lunar eclipse, it will be immediately obvious that expending energy trying to do so will be a poor use of our effort.

Let me now move away from these relatively abstract matters to actual policy making. Where does this leave us in terms of actual policies? On jobs, I believe, there is reason to assert that the private sector has a critical role to play. In expanding employment in ways that expand economy-wide employment and are sustainable, it is essential to rely on the private sector (though we may have to tweak policies to make the private sector more employment friendly). But the reason for this is not that 90% of jobs in the past were created by the private sector. There are other reasons, which lie beyond the scope of this paper.

On poverty, as already argued in this paper, there is a case for using special anti-poverty policy interventions. Some of these already exist and have been used. Some are novel ones or variants of existing policies that have to be crafted, using a combination of evidence and theoretical reasoning. This paper went into some of these, but one of the aims of the new goals announced by the World Bank is to open up research and experimentation to find the right policies to enhance these goals, economy-wide and globally.

And as for growth, there is good reason for low-income nations and developing and emerging economies to push harder on this pedal. Most of these nations function much below their capacity. Indeed, for most of these nations the trade-off between equality and growth is largely a myth. They can have both, neither, or either one. That being the case, there is no reason not to go for both. For industrialized and rich nations, the aim should be to keep growth steady but moderate, unless there is a major technical breakthrough that makes high growth environmentally sustainable. The world could be heading toward an *environmental* Malthusian trap. Unless there is technological innovation that removes this constraint, we may have to do some rebalancing of the distribution of consumption, across time and across space.

In closing, I want to emphasize that there are no easy solutions to the problem of poverty and the high levels of inequality that we see in the world today. To say, “These are easy; we simply have to change peoples’ mindsets,” reflects a gross underestimation of the difficulty of altering 7 billion mindsets. The problem stems from the fact that the economy is a highly inter-connected organism. Have a single-minded focus on one region or one problem and solve it, and you are likely to exacerbate another problem in another region. Run there quickly and do damage control, you are likely to open up a sore elsewhere. This does not make the problem of development unsolvable, but it means that we will need to bring both the best evidence and the best reasoning to bear on our problems and, as this paper tried to show, we have been especially deficient with the latter. In addition, we have to be prepared to innovate and seek out new policies and interventions and not confine our efforts to what has already been tried.

References

Alkire, Sabina and Foster, James (2011), "Counting and Multidimensional Poverty Measurement," *Journal of Public Economics*, vol. 95.

Anand, Sudhir (1983), *Inequality and Poverty in Malaysia: Measurement and Decomposition*, Oxford University Press: Oxford.

Anand, Sudhir, and Paul Segal. 2008. "What Do We Know about Global Income Inequality?" *Journal of Economic Literature*, 46(1): 57-94.

Atkinson, Anthony (1970), "On the measurement of inequality," *Journal of Economic Theory*, Vol. 2, pp. 244-63.

Banerjee, Abhijit and Duflo, Esther (2011) *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty*, Public Affairs Books: New York.

Banerjee, Abhijit and Newman, Andy (1993), 'Occupational Choice and the Process of Development,' *Journal of Political Economy*, 101.

Basu, Kaushik (1985) 'Poverty Measurement: A Decomposition of the Normalization Axiom,' *Econometrica*, vol. 53.

Basu, Kaushik (2001), "On the Goals of Development," in Meier, G.M. and J. E. Stiglitz, eds., *Frontiers of Development Economics*, World Bank: Washington D.C.

Basu, Kaushik (2006), "Globalization, poverty, and inequality: What is the relationship? What can be done?" *World Development*, Vol. 34 (8).

Basu, Kaushik (2010), *Beyond the Invisible Hand: Groundwork for a New Economics*, Princeton University Press.

Basu, Kaushik (2013), 'Randomization, Economic Policy and the Role of Reasoned Intuition,' Albert Hirschman Lecture, 31 October, LACEA-LAMES, Mexico City.

Basu, Kaushik and Mitra, Tapan (2003), 'Aggregating Infinite Utility Streams with Inter-generational Equity, *Econometrica*, vol. 71.

Basu, Kaushik and Mitra, Tapan (2007), 'Utilitarianism for Infinite Utility Streams: A New Welfare Criterion and Its Axiomatic Characterization,' *Journal of Economic Theory*, vol. 133.

Basu, Kaushik and Van, Pham Hoang (1998), "The Economics of Child Labor," American Economic Review, Vol. 88(3).

Bhagwati, Jagdish and Panagariya, Arvind (2013), *Why Growth Matters: How Economic Growth in India Reduced Poverty and Lessons for Other Developing Countries*, Public Affairs.

Bourguignon, François and Christian Morrisson (2002), "Inequality among World Citizens: 1820-1992," *American Economic Review*, Vol. 92(4).

Chattopadhaya, Raghabendra and Esther Duflo (2004), "Women as Policy Makers: Evidence from a Randomized Policy Experiment in India," *Econometrica*, Vol. 72(5), pp. 1409-1443.

Chen, Shaohua and Ravallion, Martin (2010), "The Developing World is Poorer Than We Thought but No Less Successful in the Fight against Poverty," *Quarterly Journal of Economics*, Vol. 125(4), pp. 1577-1625.

Datt, Gaurav and Ravallion, Martin (2002), "Is India's Economic Growth Leaving the Poor Behind?," *Journal of Economic Perspectives*, Vol. 16(3), pp. 89-108.

Deaton, Angus and Kozel, Valerie (2005), "Data and Dogma: The Great Indian Poverty Debate," *World Bank Research Observer*, Vol. 20(2), pp. 177-199.

Deaton, Angus and Dreze, Jean (2002), "Poverty and Inequality in India," *Economic and Political Weekly*, vol. 37, September 7.

Dercon, Stefan (2011), 'Growth and Chronic Poverty: Evidence from Rural Communities in Rural Ethiopia,' mimeo: University of Oxford http://www.economics.ox.ac.uk/index.php/centre-for-the-study-of-african-economies-series/growth-and-chronic-poverty-evidence-from-rural-communities-in-ethiopia

Dollar, David, Tatjana Kleineberg and Kraay, Aart (2013) "Growth Still Is Good for the Poor," World Bank Policy Research Working Paper 6568. World Bank: Washington D.C.

Dollar, David and Aart Kraay (2002), "Growth is Good for the Poor," *Journal of Economic Growth*, Vol. 7, pp. 195-225.

Dreze, Jean and Sen, Amartya (2013), *An Uncertain Glory: India and its Contradictions*, Princeton University Press.

Dutta, Bhaskar (2002), 'Poverty, Inequality and Welfare,' in Arrow, K., Sen, A. and Suzumura, K. (eds.), *Handbook of Social Choice Theory*, Amsterdam: North-Holland.

Emerson, Patrick and Souza, Andre Portela (2002), 'Is There a Child Labor Trap? Intergenerational Persistence of Child Labor in Brazil,' *Economic Development and Cultural Change*, vol. 52.

Esteban, Juan and Ray, Debraj (1991), 'On the Measurement of Polarization,' *Econometrica*, vol. 62.

Fields, Gary (2001), *Distribution and Development: A New Look at the Developing World*, Cambridge, MA: MIT Press.

Foster, James, Seth, Suman, Lokshin, Michael and Sajaia, Zurab (2013), *A Unified Approach to Measuring Poverty and Inequality--Theory and Practice : Streamlined Analysis with ADePT Software*, Washington, DC: World Bank.

Foster, James, Joel Greer and Erik Thorbecke (1984), "A Class of Decomposable Poverty Measures," *Econometrica*, Vol. 52(3), pp. 761-766.

Galor, Oded and Joseph Zeira (1993), "Income Distribution and Macroeconomics," *The Review of Economic Studies*, Vol. 60(1), pp. 35-52.

Genicot, Garance and Ray, Debraj (2009), 'Aspirations, Inequality, Investment and Mobility,' Mimeo: New York University. http://www.nyu.edu/econ/user/debraj/Courses/Readings/GenicotRayAspirations.pdf

Green, Duncan (2012), *From Poverty to Power: How Active Citizens and Effective States can Change the World*, Oxford: OXFAM International.

Himanshu (2008), 'Growth, Employment and Poverty Reduction: Post-Reform Indian Experience,' LSE Asia Research Centre, Working Paper.

Himanshu and Sen, Abhijit (2005), "Poverty and Inequality in India: Getting Closer to the Truth," in Deaton, A. and Kozel. V. (eds.), *The Great Indian Poverty Debate*, Macmillan India.

Jayaraj, D. and Subramanian, S. (2012), 'On the Interpersonal Inclusiveness of India's Consumption Expenditure Growth,' *Economic and Political Weekly*, vol. 57, No. 45.

Kanbur, Ravi and Zhang, Xiaobo (2001), 'What Difference Do Polarization Measures Make?' *Journal of Development Studies*, vol. 37.

Lanjouw, Peter and Murgai, Rinku (2009), 'Poverty Decline, Agricultural Wages, and Non-Farm Employment in Rural India: 1983-2004,' *Agricultural Economics,* vol. 40.

Lopez-Calva, Luis-Felipe and Lustig, Nora (2010), "Explaining the Decline in Inequality in Latin America: Technological Change, Educational Upgrading and Democracy" in L.-F Lopez-Calva and N. Lustig (eds.), *Declining Inequality in Latin America: a Decade of Progress?*, Brookings Institution Press and UNDP.

Miguel, Edward and Kremer, Michael (2004), 'Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities,' *Econometrica*, vol. 72.

Milanovic, Branko (2012), "Global Inequality by the Numbers: In History and Now," World Bank Policy Research Working Paper 6259. November 2012.

Moyes, Patrick (1987), 'A New Concept of Lorenz Curve,' *Economics Letters*, vol. 23.

Mullainathan, Sendhil and Shafir, Eldar (2013), *Scarcity: Why Having Too Little Means So Much*, Times Books: New York.

Narayan, Ambar, Jaime Saavedra-Chanduvi and Sailesh Tiwari (2013), "Shared Prosperity: Links to Growth, Inequality and Inequality of Opportunity," World Bank Policy Research Working Paper 6649. World Bank: Washington D.C.

Osmani, Siddiqur (1982), *Economic Inequality and Group Welfare*, Clarendon Press, Oxford.

Palma, Gabriel (2011), 'Homogeneous Middles vs. Heterogeneous Tails, and the End of the Inverted U: It's All About the Share of the Rich,' *Development and Change,* vol. 42.

Pattanaik, Prasanta, Reddy, Sanjay and Xu, Yongsheng (2012), 'On Measuring Deprivation and Living Standards of Societies in a Multi-attributive Framework, *Oxford Economic Papers*, vol. 64.

Ravallion, Martin and Chen, Shaohua (2012), "Absolute Poverty Measures for the Developing World," in *Measuring the Real Size of the World Economy—The Framework, Methodology, and Results of the International Comparison Program (ICP),* Washington: World Bank.

Ravallion, Martin and Chen, Shaohua (2011), 'Weakly Relative Poverty,' *Review of Economics and Statistics*, vol. 93.

Rawls, John (1971), *Theory of Justice*, Belknap Press of Harvard University Press.

Ray, Ranjan and Mishra, Ankita, (2011). Prices, inequality and poverty: Methodology and Indian evidence. *The Review of Income and Wealth, vol. 57.*

Ray, Ranjan and Mishra, Ankita (2012), 'Multi-dimensional Deprivation in the Awakening Giants: A Comparison of India and China on Micro Data,' *Journal of Asian Economics*, vol. 23.

Reddy, Sanjay and Pogge, Thomas (2010), 'How Not to Count the Poor,' in Anand, S., Segal, P., and Stiglitz, J.E. (eds.), *Debates on the Measurement of Global Poverty*, Oxford University Press.

Rieff, David (2013), 'A Battle for the Soul of India,' *The National Interest*, September 4.

Rodrik, Dani (2005), 'Rethinking Growth Strategies,' in *WIDER Perspectives on Global Development*, Palgrave Macmillan.

Roemer, John and Suzumura, Kotaro (eds.) (2008), *Intergenerational Equity and Sustainability*, Palgrave.

Rosenblatt, David and McGavock, Tamara (2013) "A Note on the Simple Algebra of the Shared Prosperity Indicator," World Bank Policy Research Working Paper 6645, World Bank: Washington D.C.

Rothschild, Michael and Stiglitz, Joseph (1973), 'Some Further Results on the Measurement of Inequality,' *Journal of Economic Theory*, vol. 6.

Sen, Amartya (1967) "The Nature and Classes of Prescriptive Judgments", Philosophical Quarterly, Vol. 17.

Sen, Amartya (1976a), "Real National Income," *Review of Economic Studies*, Vol. 43(1), pp. 19-39.

Sen, Amartya (1976b), "Poverty: An Ordinal Approach to Measurement," *Econometrica*, Vol. 44(2), pp. 219-31.

Sen, Amartya (1981), *Poverty and Famines: An Essay on Entitlements and Deprivation,* Oxford: Clarendon Press.

Sen, Amartya (1997), *On Economic Inequality* [Expanded edition, with James Foster], Oxford: Clarendon.

Sheshinski, Eytan (1972), "Relation between a Social Welfare Function and the Gini Index of Income Inequality," *Journal of Economic Theory,* Vol. 4(1), pp. 98-100.

Shorrocks**,** Anthony F. **(**1983**)**, "Ranking Income Distributions," *Economica*, 50 (February), pp. 3-17.

Stern, Nicholas (2007), *The Economics of Climate Change: The Stern Review*, Cambridge University Press.

Stewart, Frances (2005), 'Horizontal Inequalities: A Neglected Dimension of Development,' in *WIDER Perspectives on Global Development*, Palgrave Macmillan.

Stiglitz, Joseph (2010), *Freefall: America, Free Markets and the Sinking of the World Economy,* Norton.

Stiglitz, Joseph, Sen, Amartya and Fitoussi, Jean-Paul (2010), *Mismeasuring Our Lives: Why GDP Doesn't Add Up*, The New Press.

Subramanian, S. (2006), *Rights, Deprivation, and Disparity: Essays in Concepts and Measurement* (Collected Essays Series), Oxford University Press: Delhi.

Subramanian, S. (2011), "'Inclusive Development' and the Quintile Income Statistic," *Economic & Political Weekly*, Vol. XLVI, No. 4, pp. 69-72.

Subramanian, S. (2013), 'Poverty and Inclusive Growth in the Light of the Quintile Income Statistic,' mimeo.

Subramanian, S. and Jayaraj, D. (2012), 'The Evolution and Consumption and Wealth Inequality in India: A Quantitative Assessment,' mimeo: Madras Institute of Development Studies, Chennai.

Virmani, Arvind (2008), "Growth and Poverty: Policy Implications for Lagging States," Economic and Political Weekly, Vol. XLIII, No. 2, January 12-18.