Halving Global Poverty[*]

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1 Introduction

The Millennium Development Goals - global targets that the world's leaders set at the Millennium Summit in September 2000 - are an ambitious agenda for improving human welfare. As a central plank, these goals include halving the proportion of people living below a dollar a day from around 30% of the developing world's population in 1990 to 15% by 2015 – a reduction in the absolute number of poor of around one billion.[1]

The sheer magnitude of global poverty makes the search for workable solutions all the more pressing. The latest World Bank estimates (for 1998) suggest that 1.21 billion people are below the dollar a day poverty line. However you cut things these are big numbers. And though the fraction of humanity in poverty is falling, absolute numbers in poverty show little change.[2] Global poverty represents one of the key challenges facing humanity in the 21st century. Its salience has also been increased by the events surrounding September 11 2001 which make it clear how extreme poverty can generate dangerous discontents. As a result poverty reduction is seen as an important ingredient in maintaining political stability around the world.

Being able to say something useful and intelligent about achieving these objectives presents an enormous challenge to the economics profession. In many ways working

[1]Other targets include achieving universal primary education and gender equity, reducing under-five mortality and maternal mortality by two-thirds and three-quarters respectively, reversing the spread of HIV/AIDS, halving the proportion of people without access to safe drinking water and ensuring environmental sustainability. All of these global targets use 1990 as a benchmark and are to be achieved by 2015 (see http://www.developmentgoals.org/ for details).

[2]See Deaton (2002) for the debate on this issue.

out ways to improve human welfare is what unifies development economics. However, there has been a sense in which economists may be losing ground in the policy debate. The 1970s and 80s, where economics was the dominant discipline for thinking about development, have been followed by a period of fragmentation with a wider and more diverse set of players entering the scene. Most visible have been the non-government organizations who have grabbed newspaper headlines with their concerns about globalization, the environment and human rights. These groups have challenged the traditional economic focus on broad based macro-stability, steady growth and asset accumulation and given much more weight to powerlessness and exploitation as root causes of poverty.[3] With an agenda arising which focuses increasingly on social and political forces that perpetuate poverty it is natural to ask – what does economics have to offer?

Reducing world poverty belongs with motherhood and apple pie – pretty much nobody doubts that it is a laudable objective. What is at issue are the means for achieving this objective. And here there is limited agreement. The approach we adopt in this paper emphasizes institutional and political fabric as having a central bearing on policy effectiveness. This in turn raises questions about what are the concrete building blocks of that fabric – leading us into questions of institutional design and incentives. Questions of policy formation and choice via the political process also loom large in this context. Whether economics can rise to the challenge of taking on board these institutional realities in order to generate concrete and effective pathways to global poverty reduction is an open and important question.

When we begin to look at the world through this lens it is transparent that domestic institutional and policy reforms are going to have to do the lions share of the work. Reforms which directly affect the political and institutional fabrics of countries must take center stage. In particular, reforms which expand opportunities for households, improve the accountability of elected officials and improve the climate for doing business. Responsibility for achieving the Millennium Goals thus lies firmly with domestic governments who are accountable to their citizens via the electoral process. The possibility of external assistance playing a major role is remote. First, there is the obvious problem of accountability. International development objectives rarely figure in domestic elections in the developed world. Also most non-governmental organizations who lobby for greater attention being paid to these issues face lines of accountability that are obscure to say the least. Second, the resources on offer are woefully inadequate relative to the task at hand. Quite apart from the skepticism about whether aid is effective, the appetite is weak and almost all countries of the

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[3]Based on his experience as Director of the 2000/2001 World Development Report "Attacking Poverty" Ravi Kanbur identifies three ways in which the NGO community and mainstream economic approaches fail to connect – (i) NGOs pay less attention to changes in aggregate poverty and more to the pattern of winners and losers. (ii) NGOs tend to have a shorter time horizon. (iii) NGOs do not view markets as being fully competitive and therefore emphasize redistribution as a key means of reducing poverty (see Kanbur, 2001).

north fall short of the UN target of delivering 0.7% of GDP in aid. To put this in perspective, using the 0.7% UN target for international aid as a percentage of GDP, then the G7 would generate $142 billion versus the cost of giving everyone living below dollar a day a transfer of a dollar per day which would cost $443 billion. Thus, even effectively targeted aid is unlikely to yield a solution without a considerable change in the global political climate. Cancelling debt repayments from the World's poorest countries would yield only around $1 billion per year.

The paper is organized as follows. The next section discusses some background on the evolution of our approach to tacking global poverty. We then discuss what it means to be poor in a global sense, where the poor are located in the world and how their numbers have been changing over time. Section three examines the role of growth, why it is central to poverty reduction, but also why it is not sufficient to meet the Millennium Goals. In section five, we emphasize that distribution matters – countries with less measured inequality have less poverty ceteris paribus. Section six pulls together an evidence-based agenda for poverty reduction in the developing world and section seven concludes.

2   Background

The incomes of the poor comprise returns from land, labor and capital. The need to improve access to each of these resources has therefore always been at the heart of economic approaches to poverty reduction in the developing world. This can be effected by general improvements in resources or specific measures to target the poor.

As far as general economic progress goes, the neo-classical growth model particularly emphasizes capital accumulation in explaining differences in income per capita. However, later developments in growth theory have placed greater weight on human capital and endogenous technological change as factors. A constant in debates about economic development is the need to improve economic performance by bringing about major structural change in the economy. However, who should be the agent of such change is open to debate. The period 1950 to 1980 saw large parts of the developing world pursuing state lead development strategies. These proved not to be an engine of economic progress in many parts of the world and this has lead a general shift in opinion towards greater reliance on market incentives and restructuring the state to make it less susceptible to corruption and inefficiency.

The role of the state in the development process has been down-graded, not only in promoting growth, but also in the provision of public goods. The concomitant rise of non-governmental organizations in providing public goods is symptomatic of the latter. There is also a movement towards a greater focus on decentralized state action as means of allowing the state to be more effective in fulfilling its obligations.

Economists now think much less technocratically about economic development. Themes such as institution design which have long been a staple theme in economic history are now reflected in mainstream economic thinking. This has been taken up

in the cross-country growth literature – see, for example, Hall and Jones (1999) and Acemoglu, Johnson and Robinson (2001). However, this yields only broad-brush conclusions and limited policy insights. The challenge is now on to look at these issues "below" the cross country level and to understand how these studies can inform the debate about global poverty reduction. This paper asks how far we have got and builds an agenda for confronting global poverty.

There is ample evidence discussed below that (on the whole) the poor share in aggregate economic gains. However, this leaves open the purposeful use of redistributive policies. Large scale redistribution of key assets such as land or capital are likely to come about only if there is a strong and legitimate pro-poor democratic state or under autocratic rulers who support such ends. The large scale land reforms observed in East Asia seized post-colonial opportunities and would be difficult to replicate elsewhere.

The recent trend towards marginalizing the state in the development process makes this even less likely. Moreover, there are few examples of governments implementing widespread redistribution towards the poor in the developing world. More rife are states in which the state uses its coercive power to favor elites and its political constituency. As we discuss below, the current redistributive agenda focuses much more on specific policies – particularly education, credit and property rights which can be shifted in a pro-poor direction. There is increasing evidence on the effectiveness of this kind of agenda. Below, we discuss how this is yielding lessons that can give a focused economic agenda for achieving the Millennium Goals.

3 Quantifying the Problem

The question of how we monitor progress towards the Millennium Poverty Reduction Goals is a real and important one. Obtaining reliable measures of poverty requires information about the distribution of income or consumption within a country. This requires household surveys the design of which have to be similar to allow comparability across countries. The World Bank has played a major role in expanding collection of such data. At the latest count there was comparable distributional data on around 82 out of a total of 158 low and middle income countries representing about 88 per cent of the total population of the developing world (Chen and Ravallion, 2001). Our picture of poverty is therefore, by definition, partial and may be biased by the fact that selection into the sample is unlikely to be random. It nonetheless represents a dramatic improvement over the situation in the mid-1980s when survey data was only available for 22 countries. Comparability problems remain, however, improvements in poverty monitoring represents one of the key achievements of the World Bank Research Department over the past twenty years.[4]

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[4]The latest poverty data from around the world can be found at http://www.worldbank.org/research/povmonitor/.

Chen and Ravallion (2001) use World Bank 1993 Purchasing Power Parity (PPP) exchange rates for consumption to construct an international poverty line of $1.08 per day. This line commonly known as the dollar a day line is representative of poverty lines found in low income countries and allows comparison of poverty across countries (see Ravallion, Datt and van de Walle, 1991 for the original methodology).[5] This line is converted to prices prevailing at each survey date using the country-specific official Consumer Price Index to allow comparisons across time. To obtain regional estimates it is assumed that the average poverty rate for countries without distributional data equalled that for countries with such data at the regional level.

It is the poverty rates obtained using this method for 1990 that are used as the baseline against which fulfillment of the Millennium Development Goals will be measured. They represent our best estimates of global poverty. Table 1 gives estimates for both the proportion and number of people living below the $1.08 day (at 1993 PPP) for different developing regions of the world in 1987, 1990, 1993, 1996 and 1998.[6] In 1990 the headcount index – which measures the proportion of people below the dollar a day line – is 29.32% which corresponds to 1.29 billion people. These headline poverty figures, however, mask a significant amount of regional variation. The bulk of the poor in the world in 1990 are situated in three regions – East Asia, South Asia and sub-Saharan Africa. These account for 92% of the total number. In terms of both the proportion and numbers in poverty these three regions dwarf Eastern Europe and Central Asia, Latin America and the Caribbean and the Middle East and North Africa.

In 1990 East Asia has 27.58% of its population living in poverty, which is just below the developing world average, but still contributes 452 million, over a third of the global tally. The vast majority (83%) of these come from China. South Asia and sub-Saharan Africa in contrast have much higher than average proportions of their populations in poverty in 1990 – 44.01% and 47.67% respectively. South Asia with 495 million (38% of the 1990 total) is the greatest net contributor to global poverty with the bulk coming from India. A further 242 million of the worlds poor in 1990 were located in sub-Saharan Africa comprising roughly a fifth of the global total. The picture that emerges from the cross-section is of a highly uneven distribution of poverty across the globe. This perception of heterogeneity is reinforced if we look at the national poverty rates which underlie the regional estimates. For example, in South Asia the headcount for Sri Lanka lies well below that for Nepal or India. Even within India we see pronounced variation across states (see Datt and Ravallion, 2002). Thinking about poverty as having an even global reach thus makes little sense.

The Millennium Development Goals refer specifically to poverty reduction from 1990. It thus makes sense to look at changes in poverty over time from this date (see

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[5]Given that it is based on poverty lines in the poorest countries, poverty rates based on this method should be viewed as conservative for middle income countries.

[6]These developing regions comprise countries which are classified as low or middle income by the World Bank. High income countries are not considered.

Table 1 and Figure 1). Between 1990 and the latest estimates for 1998 we see that the headcount index has fallen from 29.32% to 24.27% – roughly a five percentage point fall in the proportion of people in poverty. The decline in numbers in poverty is more modest, falling from 1.29 billion to 1.21 billion, corresponding to roughly 80 million people exiting poverty as defined by the dollar a day line. These figures are sensitive to the data used and time period chosen and need to be approached with caution (see Deaton, 2002).[7] What does seem robust in the survey based data is that though the proportion in poverty is falling the actual numbers in poverty show limited change.[8]

What is even more interesting from a policy perspective is the fact that we observe such different poverty trajectories across regions in the 1990-1998 period (see Figure 1 and Table 1). Over this period the poverty rate in East Asia drops from 27.58% to 15.32% and numbers in poverty fall from 452 to 278 million. These correspond to 44% and 38% reductions respectively. The bulk of the changes are accounted for by dramatic reductions in poverty in China. These figures are startling – over eight years the region has come close to halving the proportion in poverty. That is the region is on course to achieving the Millennium poverty reduction targets fifteen or so years ahead of schedule. The reductions observed in this data continue trends seen in historical data of dramatic and rapid reductions in poverty (see Ahuja et al, 1997). They represent the largest fall in poverty ever witnessed in history and have led to reference to a 'miracle' taking place in East Asia.

This pattern over time is in strict contrast to what we observe in sub-Saharan Africa. There poverty rates have remained stagnant, moving from 47.67% in 1990 to 46.30% in 1998, and numbers in poverty have increased from 242 to 291 million corresponding to roughly 50 million entering poverty. There is thus no sense in which sub-Saharan Africa is on route to achieving the Millennium Poverty Reduction Goals. If anything it is threatening to go in the opposite direction.[9] This African tragedy contrasts with the East Asian miracle.

The situation in South Asia is intermediate between East Asia and sub-Saharan Africa. Though poverty rates dropped from 44.01% to 39.99% numbers in poverty

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[7]For example if we take 1987 as a starting point we see that the numbers in poverty had actually *increased* by around 17 million in 1998 (see Table 1). This point was emphasised in the World Development Report 2000/2001: Attacking Poverty (World Bank,2001a). Deaton (2002), however, points outs that another key World Bank document published in the same year, Globalization, Growth and Poverty (World Bank, 2001b) shows the numbers in poverty falling by 200 million between 1980 and 1998 with no trace of increase between 1987 and 1998. The reason for the discrepancy is that the latter report uses historical data up to 1993 from Bourguignon and Morrisson (2002) and then switches to using survey based data thus missing out the 1987 – 1993 period where numbers in poverty were seen to be rising (see Table 1).

[8]Due to their greater reliability and comparability across time we only use survey based estimates in the poverty analysis carried out in this paper.

[9]This is precisely what is happening in Eastern Europe and Central Asia. The poverty situation in terms of proportions and numbers in poverty has also been somewhat stagnant in Latin America and the Carribean (see Figure 1).

increased from 495 million to 522 million between 1990 and 1998. The share of the worlds poor in South Asia and sub-Saharan Africa and has thus increased from 57% to 67% between 1990 and 1998 whereas the East Asian share has declined from 35% to 23%. Based on this evidence, South Asia which has the largest concentration of poor people, cannot be deemed to be "on track" in terms of halving the proportion in poverty by 2015.

Using the best available data we have managed to build up a picture about what has been happening to poverty around the globe in the 1990s. Though measurement issues still loom large we understand better than ever before what the global distribution of poverty looks like. This exercise helps to draw attention to enormity of the problem we are facing. In many ways the numbers make for depressing reading. In 1998 1214 million humans were still living on less than a dollar a day. With the exception of East Asia and Middle East and North Africa the numbers of people in poverty has been increasing in all the developing regions between 1990 and 1998. And it is really the massive fall in poverty in East Asia, and specifically China, that has prevented the global count from rising (see Table 1). When we look at proportions in poverty the fact that the developing world as a whole looks like it is on track to halving global poverty by 2015 is again driven by East Asia – four of the other six regions are clearly off track (see Figure 1). This raises issues about whether dramatic reductions in East Asia can compensate for a lack of progress in regions such as sub-Saharan Africa.

However it is precisely the marked regional differences in levels and changes that should make us more optimistic about our ability to confront global poverty. Poverty historically has been a highly persistent and slow moving process. Large changes in poverty are really a feature of the modern period (Lipton and Ravallion, 1995). As we have illustrated these changes can go in opposite directions. The intensity of poverty varies strongly over space and time which in turn suggests that the factors which affect poverty are also time and space varying. This pattern is difficult to square with some fixed effect argument whether this has to do with resource endowments, disease burden, geography or societal norms. Political and social factors are clearly at work. And these institutional factors affect not only affect the rate of capital accumulation but also the willingness and power to redistribute towards the poor. Divergent trends in, for example, East Asia and sub-Saharan Africa, are a function of the policy and institutional reforms implemented in the countries that make up those regions.[10] And the role of economics is precisely to identify policy and institutional reforms that are capable of attacking poverty. Or put differently, as the argument cuts both ways, we want to identify policy and institutional choices that keep countries or regions poor. Backwardness and poverty are not facts of life. There is real scope to confront them and over reasonable time periods.

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[10]Appropriate reforms are likely to vary across regions and countries depending on institutional evolution. It thus makes sense to think in terms of regional or national strategies as opposed to global solutions.

4   The Role of Growth

A key issue in the debate about poverty reduction is how much poverty is reduced by economic growth. Alongside redistribution growth promotion stands out as one of the main avenues open to us for attacking global poverty. The main sources of growth are accumulating human and physical capital and technological change. These affect the poor both directly and indirectly. The most obvious direct effect is probably for human capital - whence the returns may accrue directly to the poor who become educated. However, there is also much discussion about whether certain agricultural technologies, such as Higher Yielding Varieties (HYV) are useful to the poor. Various forms of capital constraint (due to imperfect capital markets) may also inhibit the income sources of the poor. Hence, increased capital intensity may yield a direct advantage to the poor if relaxed (see Banerjee and Newman (1993) for a model in this direction).

Growth may also generate "indirect" general equilibrium effects which affect the poor. For example, technological change may expand the demand for factors owned predominantly by the poor (such as raw labor input) raising wages of households with low levels of land and physical and human capital. There may also be important complementarities between physical capital and labor.

The relationship between economic growth and poverty is ultimately a task in quantification. Here, we analyze cross country poverty and income data from the World Bank to see what it tells us.[11] A key magnitude in assessing the anti-poverty effectiveness of growth is the *elasticity of poverty with respect to income per-capita* which we denote by η.[12] Estimates of this elasticity can be obtained in a variety of

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[11]Income here refers to a national accounts entity such as Gross National Product (GNP) and not household income.

[12]The current poverty targets are framed in terms of the headcount index. This is most easily approached by supposing that we can write household income as $y = \alpha\mu$ where μ is mean income and α is therefore interpreted as the proportion of mean income enjoyed by a particular measurement unit. Then if the poverty line is z and α is distributed on some interval $[0, A]$ with density $f(\alpha, t)$ at date t then

$$\text{headcount} = \int_0^{z/\mu} f(\alpha) \, d\alpha = F(z/\mu)$$

The effect of a change in log national income on poverty is now easily seen to be

$$-\frac{z}{\mu} f\left(\frac{z}{\mu}\right).$$

Now notice that it is easy to compute the annualized growth rate that will reduce poverty by one half over 25 years from

$$\frac{1}{2} = \int_0^T e^{-g\eta(t)t} dt$$

where $\eta(t) = \left(\frac{z}{\mu(t)} \frac{f\left(\frac{z}{\mu(t)}, t\right)}{F\left(\frac{z}{\mu(t)}, t\right)}\right)$ is the elasticity of poverty with respect to income. This elasticity can change over space and time depending on how μ changes and on how the distribution of income

ways. Here, we focus on running regressions of the form:

$$\log\left(P_{it}\left(0,z\right)\right) = \theta_i + \eta \log \mu_{it} + \varepsilon_{it}$$

where $P_{it}\left(0,z\right)$ is the headcount poverty rate based on the dollar a day poverty line (see Chen and Ravallion, 2001), θ_i is a country fixed effect, μ_{it} is real per capita national income. This method of estimation only works if there is more than one observation on poverty in the data. In effect, all countries that appear only once are eliminated from the data set.[13] In Table 2 we see that β is negative and significant confirming that increases in income per capita are associated with reductions in poverty. This is in line with a growing body of evidence on this issue.

Using estimates of η, it is straightforward to derive the (annual) per capita rate of economic growth that will halve poverty in a period of twenty five years as:

$$g_{half} = \frac{\log\left(\frac{1}{2}\right)}{25\eta}$$

In Table 2 we see that for the whole sample $\eta = -0.76$ which corresponds to g_{half} being 3.6%.[14] This can be compared to a historical per capita growth rate of 1.7% for the 1960 to 1990 period. Thus halving the proportion of people living below a dollar a day would require more than a doubling in the rate of per capita economic growth. Or expressed differently real GNP per capita would have to increase by a total of 91% between 1990 to 2015 to achieve the Millennium Poverty Reduction Target. This is a fairly tall order.

We should, however, be careful in treating these types of estimates as being anything more than illustrative. There are serious issues regarding comparability of data across countries and the coverage of countries within regions is partial. The authors were struck by the wide variety of estimates of η that can be obtained depending on the method and data used (see also Atkinson and Brandolini, 2001). One key finding is that is that the elasticity of poverty with respect to national income is much smaller than with respect to household consumption (or income) implying the need for higher growth rates in order to halve world poverty. This is because increases in national income only partly translate into increases in household consumption or in-

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changes. If we assume that income distribution is log normal, then it is straightforward to obtain the following analytical classification of the elasticity:

$$\eta = -\frac{1}{\sigma} \frac{\frac{1}{(2\pi)^{1/2}} \exp -\frac{1}{2}\left\{\frac{\log z - \log \mu + \frac{1}{2}\sigma^2}{\sigma}\right\}^2}{\int_{-\infty}^{\frac{\log z - \log \mu + \frac{1}{2}\sigma^2}{\sigma}} \frac{1}{(2\pi)^{1/2}} \exp -\frac{1}{2}\left\{x\right\} dx}.$$

[13]Sixty of the countries in our sample have data for more than one year.
[14]This effect is significant at the 1% level.

come.[15] We are also not controlling for factors like income inequality and population growth in the regressions which might affect how growth in national income maps onto poverty reduction.

Another limitation is that we might expect the relationship between national income and poverty to vary across countries. We can relax the assumption that η is uniform by running the regression for different sub-groups of countries (such as different geographical regions). In this case, there are too few observations for a fixed effects regression. However, we allow the intercept to vary across countries. Growth elasticity estimates shown in columns (2) - (7) of Table 2 vary markedly across regions. In all regions there is a negative relationship between growth and poverty.[16] There are two regions where growth has had an above average impact on poverty (East Asia and Pacific and Eastern Europe and Central Asia), three where it has been about average (Latin America and Caribbean, Middle East and North Africa, and South Asia) and one where it has had a markedly lower impact on poverty (Sub-Saharan Africa).

In East Asia the fact that each unit of income growth exerts a larger than average impact on poverty implies that the annual growth rate need halve poverty is below average (2.7% compared to 3.6% in the whole sample). If we take the growth rate 1960-1990 as guidance for future performance we see that East Asia had a historical growth rate of 3.3%. The region thus stands out as one where the prospects for more than halving poverty by 2015 are good. This is important as it is home to a large fraction of the world's poor.

In Eastern Europe and Central Asia the growth rate needed to halve world poverty of 2.4% may be compared to an historical growth rate of 2.0%. This would suggest that it is in a strong position relative to other regions in terms of achieving its target. Dramatic institutional changes and collapses in output which have accompanied transition, however, are likely to complicate matters and indeed poverty has been rising in the region in recent years (see Figure 1 and Table 1).

In the three regions where elasticities are close to the global average only the Middle East and North Africa is distinguished by having a historical growth rate which is above that needed to halve poverty (4.3% compared to 3.9%). In Latin America and South Asia the historical growth rate is considerably below that needed to halve poverty (see columns (4) and (6)) as is the case in the whole sample (column (1)). This is the central problem that we have to confront - economic performance in these regions up to 1990 was only a third or a half of what our crude estimates suggest is needed to halve poverty between 1990 and 2015. That this state of affairs persists in South Asia is of particular concern as it is home to a large and increasing

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[15]This suggests that if researchers are trying to look at the effect of changes in national income on poverty, then they should be using much lower elasticities than if they are looking at the effect of consumption changes on poverty (see Collier and Dollar, 2001).

[16]Despite small sample sizes these effects are significant that the 5% level or below in all regions except Eastern Europe and South Asia.

fraction of the worlds poor.

In Table 2 we see that in Sub-Saharan Africa is an outlier in terms of growth having a limited impact on poverty (it has an elasticity of 0.49 relative to 0.76 for the whole sample). As a consequence the annual per capita growth rate required to halve poverty is high (5.6% compared to 3.6% in the whole sample).[17] And this rate of growth appears even more daunting when taken alongside the historical average of 0.2% per annum for the 1960 to 1990 period. The growth rate needed to halve poverty in Sub-Saharan Africa between 1990 and 2015 is thus 28 times its historical average. Such observations lead one to seriously question the feasibility of achieving the Millennium Poverty Reduction Goals in sub-Saharan Africa.

Though crude and based on imperfect data these estimates help to underline the centrality of growth for poverty reduction efforts. In the aggregate and at the regional level higher growth does translate into reductions in poverty – the debate about growth promotion simply cannot be marginalized. This said it also clear that amount of growth that is needed to halve poverty is large relative to historical averages. This has two main implications.

First, understanding what drives growth is key to achieving the Millennium targets. Economists should be able to make central contribution in this regard at the macro and micro levels. In particular uncovering specific institutional and other drivers of growth at the local level in different parts of the world represents an enormous challenge to the economics profession. The microeconomics of growth deserves to one of the main research frontiers within development economics over the next decade or so.

Second, growth is not enough. Identification of the policy and institutional changes which can directly reduce poverty (holding growth constant) or which can improve the mapping of growth onto poverty (i.e. η increasing measures) must be viewed as the second plank of the global poverty reduction strategy. Themes of redistribution and empowerment loom large here and the question of whether economics can help us identify appropriate measures needs to be addressed.

5   Distribution Matters

When it comes to aggregate evidence, we know a lot more about changes in income per capita that we do about movements in the distribution of income. As with poverty we need to rely on household surveys for the latter and we only have a short, incomplete and often unreliable global time series. Income distribution can be characterized in simple ways with a one parameter family such as a Gini coefficient or the standard deviation of the income distribution in logs, or from some more complete description like a Lorenz curve or the cumulative density function of the whole distribution.

The available cross-country inequality data are typically rather crude with simple

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[17]The total growth needed to halve poverty in the region about twice that in East Asia.

characterizations of distribution inevitably dominating the debate. This can have important consequences for research method and results. For example, imposing a log normal income distribution implies that only two parameters are needed to completely describe the distribution. As shown by Dollar and Kraay (2000), this implies a mechanical relationship between the income of the poor and the Gini coefficient (by assumption). Hence, changes in distribution are then forced to work their way via changes in the Gini with all the potential that has for missing important underlying changes in distribution.

There are two well-known stylized facts about the cross-country distributional data. First, changes in inequality are not significantly correlated with changes in income per capita. Second, changes in absolute poverty are significantly negatively correlated with changes in income per capita. How much economic significance can be read into this is moot. Most of the variation in inequality measures is well known to be cross-sectional (see Li, Squire and Zou (1998)). This could be either because structural features of the economy (ownership and social relations) change only slowly or because the design of survey instruments gives small differences over time while giving larger differences between countries. Either way, it is not too surprising to find that changes in inequality are not strongly correlated with changes in income per capita. Equally, the fact that stable measures of inequality suggest a fairly stable share of national income going to the poor, suggests that their share should be mirrored rather well by aggregate output, hence the negative correlation with aggregate income.

Here we uses the available data on distribution of income from the World Bank to examine whether inequality is related to poverty. We begin by examining whether countries in our data differ in their underlying income distributions. Some idea of this at the regional level can be gleaned from Table 3 which uses the standard deviation of the income distribution (in logs) as the measure of inequality. These data confirm what is widely believed – Latin America is the most unequal part of the developing world. Second is sub-Saharan Africa. Inequality is lowest in South Asia – this block of countries is also relatively homogenous as reflected in the small standard deviation.

We now ask how these variations in inequality map into poverty differences (controlling for income per capita). Hence, we run regressions of the following form:

$$\log\left(P_{it}\left(0, z\right)\right) = \theta_i + \eta \log \mu_{it} + \beta \sigma_{it} + \varepsilon_{it}$$

where σ_{it} is the standard deviation in logs of the income distribution. When this is estimated, we get that β is equal to 2.77 with a (robust) standard error of 0.72. This suggests that there is positive and significant association between inequality and the level of poverty within a country.

To get a "back of the envelope" feeling for the order of magnitude of this effect, we conducted the following thought experiment. Suppose that in each region of

the world, we could lower the level of inequality by one standard deviation (for that region).[18] Then how much would poverty fall? The answer is given in Table 3.

The striking thing to observe is that a one standard deviation change in inequality meets the Millennium target in sub-Saharan Africa. It gets close in Latin America. It makes least impact in South Asia. Overall these results suggest that some focus on inequality reduction is not unreasonable. Moreover, increases in income per capita that lead to increases in inequality might be expected to have some significant dampening effect on poverty reduction. The bottom line is clear – in these data inequality in the underlying distribution matters.

Quite what one learns about policy from this is moot – especially in view of the quality of the data. Even if the message is that inequality reduction could have a significant impact on poverty, there are two major concerns. First, the usual question arises about whether there is some kind of equity-efficiency trade-off. By comparing the coefficients η and β some sense of this can be attained. A country that experiences a 5% increase in inequality (starting at the world average) requires an increase in income per capita of 14% to restore it to the same level of poverty. The recent literature, however, has called into question the theoretical validity of this trade-off (see Benabou (1996)) though there is, as yet, little evidence to back this view. The second concern is with choosing policies that can affect distribution. When discussing redistribution, one should not be thinking of conventional tax and transfer schemes (see Burgess and Stern (1993)). As we discuss in the next section, there are a variety of schemes that transform production relations and enhance the political power of the poor that have some power to affect the distribution of income.

6 The Agenda

The emerging evidence on empirical determinants of growth is first port of call for insights about what works in reducing poverty via raising income per capita. This approach uses cross-country evidence to explore the determinants of income per capita. The early literature generated relatively few insights about the policy environment that provided the pre-conditions for growth with many results found to be unrobust to the sample of countries and the set of controls used. However, robust lessons do seem to have emerged suggesting, for example, that finance and quality of government are robustly correlated with output per capita. These findings can be used to calibrate how far the Millennium goals can be met by a change in the policy regime.

To illustrate, we take two recent papers from the growth literature and illustrate how they predict how policy will affect growth and thence poverty. Acemoglu, Johnson and Robinson (2001) examine the relationship between income per capita and

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[18]The motivation for proceeding this way is that there may be underlying structural features of these economies which allow us to benchmark how much inequality reduction it is reasonable to look at.

security of property rights in a cross-section of countries. Using their estimated co-efficient, an increase in protection of property rights across the globe of half of one standard deviation would be sufficient to halve global poverty (see Table 4). Alternatively, we can look at the recent paper by Hall and Jones (1999) which compares measures of social infrastructure across countries and argues that this is an important determinant of growth. Using their estimate, an increase in social infrastructure of just over one standard deviation would be sufficient to reduce global poverty by one half (see Table 4).[19]

These numbers are encouraging — institutional differences across countries that are correlated with income per capita do appear to put the Millennium goals in sight. On the other hand, how to map from these findings into concrete policy suggestions is not clear. Moreover, there a host of possible theoretical effects at work which are hard to disentangle. Nonetheless, it is clear that the agenda suggested by these recent contributions points to more than just policy reform. It is now widely appreciated that reforming the political, legal and social institutions that shape policy are the only guarantee that appropriate policies be selected and maintained.

What precisely are the building blocks of a favorable institutional fabric, however, is still very much an open question. Whereas macro work can point us in the right direction, for example, in suggesting how to create a better investment climate, microeconomic analysis will be needed to look at the impacts of specific institutions and incentive schemes. Only in this way can institutional and policy reforms be tailored to the needs of a specific country. Also distributional data will be required to think through how growth affects the poor and to think through ways in which growth can be made more pro-poor.

The main value of the broad approach from cross-country data is thus in providing the sign posts for more focused work. A consistent picture is now emerging in which

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[19]The basis of this calculation is as follows. Suppose that:

$$\log \mu_{it} = \delta_i + \phi p_{it} + \eta_{it}$$

where μ_{it} is real per capita national income and p_{it} represents some policy or institutional variable. We can use estimates of ϕ from the literature to work out what magnitude of policy and institutional change would be needed to halve poverty. This then allows us to equate the change in national income needed to halve poverty with the change in policy needed to effect that change in income. Then

$$g_{total} = \frac{\log\left(\frac{1}{2}\right)}{\eta} = (\log \mu_{2015} - \log \mu_{1990}) = \phi(p_{2015} - p_{1990})$$

From Table 2 we see that for the whole sample $g_{total} = 91\%$. That is national income would have to increase by 91% between 1990 and 2015 in order to halve poverty. Acemoglu, Johnson and Robinson (2001) use a measure of property rights from the International Country Risk Guide for p_{it} and obtain $\phi = 0.94$. Their property rights measure has a mean of 6.5 in 1990 and a standard deviation of 2. Hall and Jones (1999) choose a measure of what they call "social infrastructure" for p_{it} which has a mean of 0.46 and a standard deviation of 0.25. Their estimate of ϕ is 3.38.

the broader evidence based macro-economic picture matches the findings from sub-national studies. The latter provide a means of modeling the incentives at work on the ground and hence to supplement the kind of knowledge available in the aggregate. We will argue below, that clear lessons are emerging.

Much less is known about policy and distribution at the cross-country level. Moreover, given data issues, this is unlikely to yield to convincing empirical analysis. Comparability problems imply that it is seldom, if ever, possible to derive specific policy lessons from cross-country analysis. Progress here is more or less exclusively in sub-national analysis and particularly micro-data. It seems clear that the potential for redistribution via the tax system will be very limited in low income countries. However, there be other means through which redistribution might be accomplished, for example, via asset redistribution and education or credit expansion. For example, Besley and Burgess (2000) look at the impact of land reform legislation in Indian states on poverty at the state level. They find that poverty was reduced by land reform, particularly tenancy reform, even though there is no evidence that it increased income per capita. This evidence flies in the face of the general pessimism that surrounds efforts to redistribute towards the poor. Besley and Burgess (2000) estimate that the sum total of land reform legislation in India since 1958 can account for one tenth of the poverty reduction witnessed during that period. Reforms which directly address how the political and other rights of the poor can be enhanced in order to improve their power and position in society are also back on the agenda.

We now turn to a specific evidence-based poverty reduction agenda. There are two main intellectual aspects of the approach. First, we emphasize the importance of firm theoretical foundations. Having a more or less unified approach to assessing the validity of theoretical arguments has set economics apart from other parts of the social sciences for more than fifty years. How theory should be accommodated in empirical analyses is still an issue of debate. However, the importance of reasoning about the evidence using a well-defined theoretical structure is not. Moreover, it is only by looking for consistency between models and facts that progress can be made.

Second, we emphasize the need to square macro and micro facts. A good example of the productive exchanges that can take place when this is done is the recent paper by Krueger and Lindhal (2001). Their starting point is the apparent inconsistency between the robust evidence on the returns to education in micro-data compared to the more mixed findings from macro-data. They argue that measurement error in education helps to explain why a number of macro studies fail to find a significant relationship between education and income. In addition, they point out that even where we see a significant relationship it is impossible to ascertain whether differences across countries can be taken as a cause of income as opposed to a result of current or anticipated income growth.

This kind of debate is important. Few would doubt that investment in human capital is an important feature of the anti-poverty agenda. To be able to demonstrate convincingly that educational expansion will make a significant impact on measured

poverty rates is then of paramount importance in focusing attention on this. This means ironing out inconsistencies in existing data as well as providing new evidence. We will argue below that micro and macro evidence do point in the same direction in a variety of ways.

We now discuss specific policy areas, emphasizing the insights available from subnational studies and the emerging consensus on what matters.

6.1   Human Capital

The need to promote human capital accumulation in developing countries is beyond doubt. The best estimates for developing countries, from micro-econometric studies that take endogeneity and measurement errors issues seriously, line up with those for developed countries – each additional year of schooling is associated with a 6-10% increase in earnings (Duflo, 2001; Krueger and Lindhal, 2001). This evidence appears robust across both methods and locations. This suggests an agenda where investment in education is used as a means of attacking poverty.

But choosing the appropriate mechanism for expanding education is important. New work in the area is paying much more attention to this, specifically – the market conditions under which it is provided and the incentives faced by education providers. This is critical to understanding *how* education expansion will be achieved. The fact of the matter is that literacy and other indicators remain woefully low across much of the developing world.

One strand of research focuses on policy design – randomized intervention has been used in Western Kenya, for example, to evaluate whether increasing the supply of textbooks and improving child health affect attendance and attainment (see Glewwe, Kremer and Moulin, 2000; Kremer and Miguel, 2002). Another strand focuses on whether there needs to be changes in the organization of how policy is delivered. Political representation, decentralization and involvement of non-government organizations and the private sector are major issues here (see e.g. Chattopadhyay and Duflo, 2001; Hsieh and Urquiola, 2002). The question of how social relations between ethnic groups affects delivery is also a central theme here (see Miguel and Gugerty (2002)).

Policy thinking on the way to expand human capital typifies a change in the way that economists now think about development. There is general support for the idea that institutions for delivery matter and should be the object of reform. Moreover, only good micro-evidence will enlighten the processes at work. The link between the micro and macro picture can then be formed.

6.2   Credit

The large cross-country literature on credit shows a strong correlation between financial depth and growth (see, for example, King and Levine, 1993). In the context of

poverty reduction, one observation from the field is that the poor tend not to have access to banks and other formal financial institutions. Thus aggregate credit expansion may not necessarily deliver benefits to the most disadvantaged groups. A recent theoretical literature emphasizes links between inequality and development via the operation of credit markets. Even if the poor have access to investment opportunities, it may be difficult for them to exploit them (see Banerjee and Newman, 1993; Aghion and Bolton, 1997). This suggests that expansion of access to credit may be critical to getting people out of poverty traps.

As in the case of schooling, the prevailing view has now shifted firmly towards an appreciation of the fact that mechanisms of expansion and delivery matter. One line of attack on this issue has been to look at the functioning of informal institutions which, to some extent, have filled the void left by market and state failure to reach the poor (see Besley, 1995a). Another line has been to look at whether changing the way that formal credit institutions deliver credit can affect outcomes (see Burgess and Pande, 2002).

One much heralded innovation in this respect has been micro-finance institutions like the Grameen Bank which target the poor and rely on peer selection and peer monitoring to overcome the need for collateral. These schemes are typically operated by non-government organizations. But assessing their effectiveness requires policy evaluation. In the case of the Grameen Bank, there are recent studies that shed light on the ability of credit to affect livelihoods and poverty (Pitt and Khandker, 1998, Morduch, 1998). A central concern in this literature is whether changes in institutional design can overcome the problems of elite and political capture which have plagued formal credit. And this micro evaluation literature is capable of generating specific directions for policy and institutional reform which cannot be gleaned from the cross-country finance and development literature.

There remains a gulf between the broad macro results which link credit and output and those that look at the micro level. A key part of the agenda is to see whether (consistent with the theory) credit expansions lower inequality and raise output simultaneously. The theory suggests that this is likely to be true when innovative mechanisms are used for delivery which increase access by the poor.

6.3 Property Rights and Contracts

The importance of well-defined property rights has been a staple issue in the economic development literature. As we discussed above, the recent macro literature has revisited this theme and shows robust links between income per capita and effective property rights protection in cross-country data. This suggests a strong mechanism for property rights reform working through increases in aggregate output.

It seems sometimes to be suggested that improving property rights are primarily a reform to favor the rich, conjuring up the image of rich owners of capital securing the rents from their ownership rights. However, there is increasing evidence that secure

land rights, in particular, are an important vehicle for the poor that may promote both equity and efficiency. Lin (1992), for example, showed that the move from collective to household farming in China starting in 1978 led to large productivity increases in agriculture. In a similar vein Banerjee, Gertler and Ghatak, (2001) show that increases in tenurial security in West Bengal also had large positive effects on agricultural output. In all cases, these reforms yielded gains for low income groups. This is in line with Besley and Burgess (2000)'s results that there was significant redistribution effected by Indian land tenure reforms.

The literature also makes clear that the political economy of property rights makes the implementation of reforms important. Besley (1995b) suggests that in Ghana land rights are like to respond endogenously to investment decisions because of the social and political process surrounding the establishment of rights. Banerjee, Gertler and Ghatak, (2001) discuss the fact that improvements in tenurial security are likely to lead some tenants being fired as a preemptive measure.

Recent literature has also begun to steady contracting in non-agricultural situations to understand the underpinnings of investment decisions in firms. Banerjee and Duflo (2000) emphasize the importance of reputations in enforcing contracts in the Indian software sector. McMillan and Woodruff (1999) use survey data on firms in Vietnam to study the importance of social networks in access to credit and investment decisions. These studies share in common an emphasis on the role of social networks in promoting business development. They provide an important context for policy measures focusing on improvements in business climate to promote investment and the development of firms.

6.4 Regulation

The post-war model of economic development followed in many countries saw the state as the main actor in promoting growth. To this end, a huge variety of regulations were put in place to influence private actors. In some countries, these regulatory structures still remain, while there has been deregulation in certain spheres in others.

One view of regulation is that it is implemented by benevolent governments intent on fixing market failures. In so far as such market failures underpin the failures of the poor to access higher incomes, this could be thought of as a pro-poor agenda. However, there is increasing empirical evidence that (noble as the intentions of the architects of regulation may have been), regulation has not been either an engine of economic development nor a boon for the poor.[20]

With many developing countries having passed through long periods of central planning, deregulation of the economy to improve the climate for investment and entrepreneurship is increasingly emphasized. Obviously claims about the impact of regulation can only be assessed on a case-by-case basis. Economic analysis is

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[20]This comes as no surprise to students of the political economy of regulation – see, for example, Stigler, (1971) and Shleifer and Vishny, (1998).

increasingly playing a role in putting some structure on this problem and in identifying specific directions for reform. Djankov et al (2002) for example collect data on the time and number of procedures an entrepreneur must complete to officially open a business in 85 developing countries. They find that heavy entry regulation is associated with less democratic governments, greater corruption and larger unofficial economies giving support to the idea that entry regulations are not in the public interest. In a similar vein Besley and Burgess (2002a) use Indian state level panel data to look at differences across states and time in legislation concerning workers rights in industrial disputes. They find that state level pro-worker amendments to the Industrial Disputes Act are associated with lower investment, productivity and output in registered manufacturing and higher urban poverty.

The alternative to regulatory action is to promote better access to courts for legal remedy, especially for the poor. Access to justice so that the poor can get equal access justice may have both powerful equity and efficiency consequences.

6.5 Responsiveness and Accountability of Government

The problem of poverty cannot be addressed without strengthening the state. The recent agenda puts much more emphasis on private substitutes such as non-governmental organizations to step in where the state has failed. While it is evident that this may fill an important short run need, it is not clear who such organizations represent or to whom they are answerable to. Hence, it is unlikely that they can form a long-run basis for social action in developing countries. However, a central problem is that many states in the developing world are democratic only in a formalistic sense. For example, they may hold elections, but the disadvantaged are poorly represented and, in any case, are uninformed.

Recent research has begun to look at how governments can be made more responsive and accountable for their actions. Even if we accept that politicians are self interested then mechanisms have to be put in place that keep politicians in check and prevent abuse of power by informing citizens about the behavior of their leaders. The role of the media in this regard, for example, has been emphasized both in cross-country (Djankov et al, 2001; Besley and Prat, 2001) and subnational analysis in India (Besley and Burgess, 2002b).

Another key theme is how the interests of disadvantaged groups is represented in the policy process. India, for example, has mandated representation of women and low caste groups in different levels of government. Chattopadhyay and Duflo (2001) argue convincingly that this has changed policy priorities in local governments in West Bengal. Pande (2002) analyses data from Indian states and finds that representation for low caste groups increases transfer programs towards them.

7 Concluding Comments

The recent development literature has both bolstered traditional themes as well as putting a fresh gloss on them. The overarching theme is the centrality of the institutional context in which policy and accumulation decisions are made. Reading this literature suggests that the gap between the agendas of the global NGOs and the economics profession is not that large. It also seems at odds with the common portrayal of economists as seeing (free) markets and unfettered growth as being the only routes out of poverty. Indeed, it is hard to square such perceptions with any reading of the modern development economics literature.

That analysis below the national level offers the main hope for identifying effective anti-poverty policies is beyond doubt. The evidence based approach to policy has proven effective in a range of industrialised countries and its expansion into the developing world is long overdue. Portability of lessons from specific studies is, of course, an issue. For example in the debate about peer monitoring in credit, it is important to test whether it is this aspect of program design (for which the Grameen Bank is famous) which is really the driving factor in its success, rather than the dynamic incentives or simply the time spent on monitoring by the bank. Only then, does it make sense to replicate such projects. The ideal is to be able to run studies in all countries of the developing world and to use these to inform the policy debate. The urgency of the Millenium goals makes such an enterprise infeasible. Building up bodies of evidence based on various countries and tying studies to particular theoretical accounts, however, does greatly assist in providing generalizability.

Economics has many contributions to make to the debate about the way to achieve global poverty reduction. First, unique among the social sciences, it provides a consistent and common theoretical framework within which we can evaluate policy and institutional reforms. Second, and again this is unique, it is in a position to provide some quantification of the effects of various measures. Third, advances in theoretical and empirical political economy provide a basis for encompassing an agenda that puts more weight on institutions, empowerment and redistribution. Fourth, it has something to say about the determinants of growth and there is real promise that we can, in future, deliver a better understanding of the micro-economic processes that generate income growth.

In terms of the Millennium goals, the development literature gives no magic bullet. However, the themes that are emerging give important and useful underpinnings for the debate about effective policy. The imaginative use of data and theory by economists that characterizes recent research may still lack simple answers, but as a credible guide to policy making, it is the only show in town.
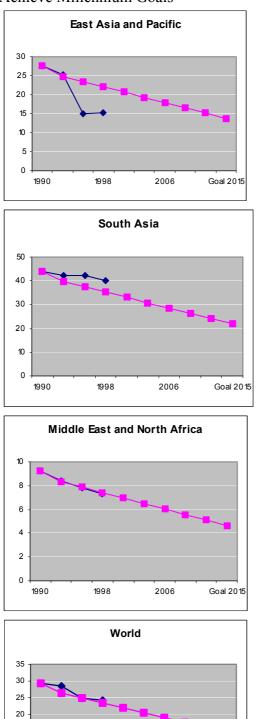
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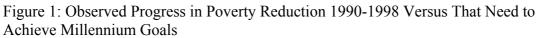
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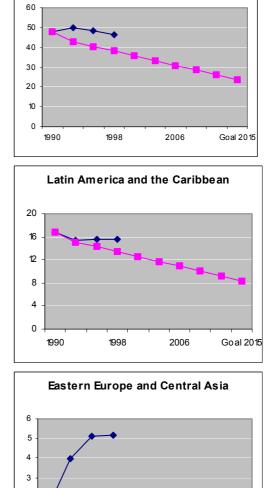[26] Dollar, David and Art Kraay, [2000], "Growth is Good for the Poor,", typescript, the World Bank.

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Figure 1: Observed Progress in Poverty Reduction 1990-1998 Versus That Need to Achieve Millennium Goals

East Asia and Pacific

Sub-Saharan Africa

South Asia

Latin America and the Caribbean

Middle East and North Africa

Eastern Europe and Central Asia

World

y-axis: poverty rate (% below $1.08 a day)
Blue line: progress made between 1990 and 1998
Pink line: rate of progress needed to meet goals by 2015

Table 1: Poverty Across the Globe

Population Living Below $1.08 a day (1993 purchasing power parity)										
	Poverty rate (% below $1.08)					Number of poor (1,000,000)				
	1987	1990	1993	1996	1998	1987	1990	1993	1996	1998
East Asia &	26.60	27.58	25.24	14.93	15.32	415.13	452.45	431.91	265.13	278.32
(exclude China)	22.91	15.04	12.37	8.05	9.61	109.22	75.99	65.96	45.17	55.59
East Europe & Central Asia	0.24	1.56	3.95	5.12	5.14	1.07	7.14	18.26	23.82	23.98
Latin America	15.33	16.80	15.31	15.63	15.57	63.66	73.76	70.79	75.99	78.16
Middle East & North Africa	11.53	9.28	8.41	7.81	7.32	24.99	21.99	21.54	21.35	20.85
South Asia	44.94	44.01	42.39	42.26	39.99	474.41	495.11	505.08	531.65	522.00
sub-Saharan Africa	46.61	47.67	49.68	48.53	46.30	217.22	242.31	273.29	288.97	290.87
Total	28.69	29.32	28.50	24.86	24.27	1196.48	1292.74	1320.88	1206.92	1214.18
Total (exclude China)	29.56	29.34	28.47	28.15	27.30	890.57	916.29	954.92	986.95	991.46

Table extracted from http://www.worldbank.org/research/povmonitor/ on July 08, 2002.

Table 2: Growth and Poverty Across the Globe 1990-2015

	Whole sample	East Asia and Pacific	Eastern Europe and Central Asia	Latin America and Carribean	Middle East and North Africa	South Asia	Sub-Saharan Africa
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Elasticity of poverty with respect to income per capita	-0.76 (0.25)	-1.01 (0.14)	-1.14 (1.04)	-0.73 (0.29)	-0.72 (0.64)	-0.72 (0.35)	-0.49 (0.23)
Annual growth rate needed to halve world poverty by 2015	3.6%	2.7%	2.4%	3.8%	3.8%	3.9%	5.6%
Historical growth 1960 – 1990	1.7%	3.3%	2.0%	1.3%	4.3%	1.9%	0.2%
Total growth needed to halve world poverty by 2015	91%	68%	61%	94%	95%	96%	141%

Source: Authors' Calculations – see web address for details.
Notes: Robust standard errors in parenthesis.

Table 3: Inequality and Poverty Reduction

	Whole sample	East Asia and Pacific	Eastern Europe and Central Asia	Latin America and Carribean	Middle East and North Africa	South Asia	Sub-Saharan Africa
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Standard deviation of income distribution in logs	0.76 (0.23)	0.72 (0.11)	0.54 (0.15)	0.98 (0.16)	0.67 (0.12)	0.59 (0.06)	0.86 (0.22)
Poverty after a one standard deviation reduction in inequality	73%	69%	58%	56%	67%	83%	39%

Source: Authors' Calculations – see web address for details.
Notes: Standard deviation in parenthesis.

Table 4: Social Infrastructure, Expropriation Risk and Poverty Reduction

	Whole sample	East Asia and Pacific	Eastern Europe and Central Asia	Latin America and Carribean	Middle East and North Africa	South Asia	Sub-Saharan Africa
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Percentage of required poverty reduction achieved by a one standard deviation change in risk of expropriation	240%	294%	240%	213%	250%	210%	118%
Percentage of required poverty reduction achieved by a one standard deviation change in social infrastructure	52%	114%	28%	36%	61%	39%	22%

Source: Authors' Calculations – see web address for details