

Pro-poor growth: a review of what we know (and of what we don't)

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Abstract

Over the past few years pro-poor growth has become a very popular topic among development practitioners. This despite the fact that in many cases we do not even know what other people mean by pro-poor growth. Is it growth that leads to income redistribution or instead growth that leads to poverty reduction? More importantly, what do we know (and what we don't) about how we can achieve it? This paper addresses these questions through a survey of the existing literature. To focus the debate, the paper first reviews the different definitions being used in practice. Then it divides contributions to the pro-poor growth literature into three different groups. First, it considers papers that have explored the relative role played by growth and inequality in reducing poverty. Second, it reviews works that have focused on the growth-inequality relationship paying attention to both directions of causality. The third group of reviewed papers is less related to the mechanics of what Bourguignon (2004) refers to as the poverty-growth-inequality triangle and more to the policies that countries should pursue in a successful poverty reduction strategy.

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I. Introduction

While poverty reduction has become the main goal of development efforts (as evidenced by the adoption of the Poverty Reduction Strategy Paper – PRSP – Approach and of Millennium Development Goals – MDG – frameworks by most international agencies), there has been an ongoing, and admittedly sometimes heated, debate about the elements that should be at the center of any sensible poverty reducing strategy. Should such a strategy have a growth bias or instead mainly concentrate on empowering the poor to benefit from growth? Is inequality affected as a general rule by growth? How does existing inequality affect the impact of growth on poverty, and how does inequality affect growth? More importantly, which policies should be at the center of a poverty reducing strategy? As an indicator of the growing interest generated by this debate, a quick search in Yahoo for the string "Pro-poor Growth" generates about 18,700 hits, up from about 12,000 in late 2003 and about 8,000 in March 2003.

Several factors may have contributed to this interest. First, having poverty (rather than growth) as the main goal of development has complicated matters. It used to be the case that policy makers and the economics profession more generally were already struggling to make growth happen. Now, practitioners need to add a new concern, namely who benefits from growth, as a way to infer its overall impact on poverty. This in turn requires being able to discriminate among the potential different growth patterns associated with different poverty reduction strategies.

A second possible reason is the renewed interest in both the distributional implications of policy reforms and the determinants of inequality. Although inequality and poverty are very different phenomena they are strongly related. In fact, for a given level of mean income, higher inequality will typically imply higher poverty levels. Also, for a given income growth rate, higher inequality will typically imply a lower rate of poverty reduction.

A third possible reason may be the apparent disconnect between how economists at Multilateral Institutions, at least at the World Bank, view the policies they advise and how opinion leaders around the globe view those very same policies. According to the Global Poll (2002), opinion leaders are roughly split between those who think that reforms recommended by the World Bank hurt the poor and those who think that these reforms have a positive impact on poverty¹. Also according to the Global Poll, sizeable minorities of opinion leaders all over the world believe that the Bank's actions have increased the gap between rich and poor people in their countries.²

In any case, one would expect that with such a popular topic development practitioners use a common definition in the pro-poor growth debate. Unfortunately, it is possible to find references to pro-poor growth by organizations as diverse as the GTZ and the Vatican, each defining the concept differently, but each advocating it as an important (or

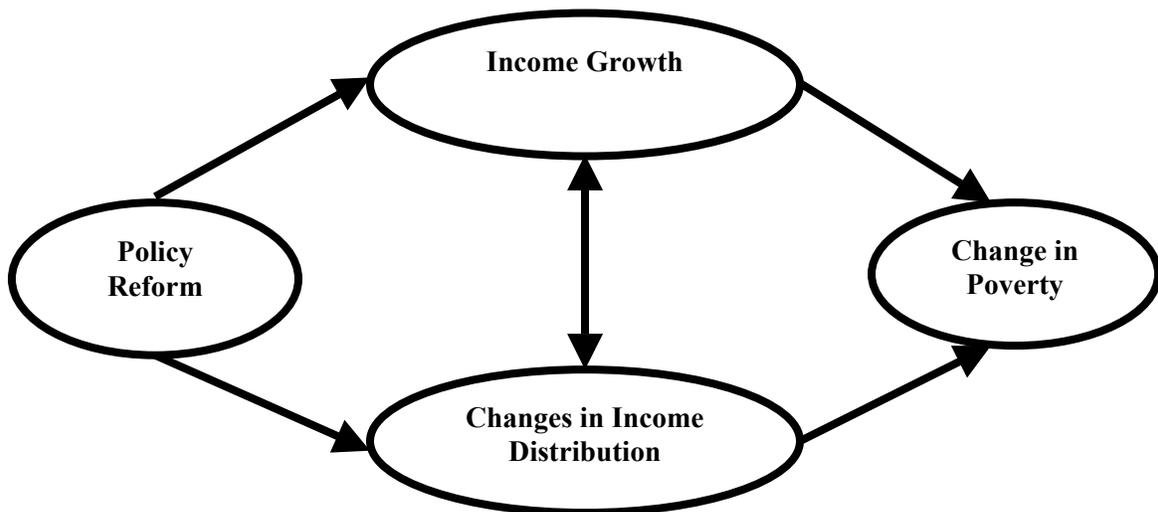
¹ The Global Poll: Multinational Survey of Opinion Leaders 2002, Chart 21.

² The Global Poll: Multinational Survey of Opinion Leaders 2002, Chart 19.

primary) objective of public policy in low-income countries. In this regard, can a concept that “means so many different things” provide a useful guide for public policy? And, if so, how should it be defined and used?

This paper addresses some questions that are central to the policy debate today through a survey of the existing literature, especially the one that has appeared over the past 4 years. To focus the debate we start by reviewing the main definitions that are currently being used by different authors. Then and to facilitate comparison, we divide existing contributions into three different groups. First, we consider papers that have explored the relative contribution of income growth and distributional changes to changes in poverty. The issue is relevant because even if poverty responds to both factors, gaining knowledge about their relative importance may be helpful when trying to strike the right balance between pro-poor and pro-growth interventions. A second group of papers considered below focuses on the growth-inequality relationship, with some paying attention to the potential impact that the growth process has on inequality and others stressing the potential effect of inequality on growth. These papers have largely focused on whether countries will have to face trade-offs between reducing inequality and improving growth performance, or instead whether there exists a virtuous circle in which growth leads to lower inequality, with lower inequality in turn leading to faster growth. The third group of papers we consider is less related to the mechanics of what Bourguignon (2004) refers to as the poverty-growth-inequality triangle and more to the policies that countries should pursue in a successful poverty reduction strategy. Given that poverty outcomes will depend on how a given policy affects growth and inequality, assessing how appropriate a particular policy is for a poverty reduction strategy will require knowledge about the links between policies and growth on the one hand and between those same policies and inequality on the other. Figure 1 graphically presents these potential interrelations in a unified framework.

Figure 1. Policies, growth, distributional change and poverty reduction.



The rest of the paper is organized as follows: Section II surveys the definitional debate on pro-poor growth. Section III examines the relative contribution of growth and changes in inequality to poverty reduction. Section IV focuses on the potential inter-relation between inequality and growth paying attention to both possible causal directions. Section V puts the issue of pro-poor growth in the context of the policies that can be implemented to achieve it. Section VI closes with some conclusions.

II. Pro-poor Growth. The definitional debate.

Pro-poor growth has been broadly defined by a number of international organizations as growth that leads to significant reductions in poverty (OECD, 2001 and UN, 2000). But what is a significant reduction in poverty? How much must the poor benefit for growth to be considered pro-poor? In attempting to give analytical and operational content to the concept two broad definitions have of pro-poor growth have emerged.

The first definition would basically require that the income share of the poor population increases for a growth pattern to be regarded as pro-poor. The simpler version of this definition is based on a relative concept of inequality and would simply state that the growth rate of the income of the poor is greater than the average growth rate (White and Anderson (2000)). Thus (relative) inequality would fall with growth whenever growth is pro-poor. A more radical criterion (also proposed by White and Anderson (2000)) would require that the share of the poor in the income increase is at least as large as their population share. This version is much more difficult to meet in practice, and would require that (absolute) inequality declines.³ A third version of this definition is proposed by Kakwani and Pernia (2000) and it is based on the comparison of the changes in poverty due to growth alone (i.e. holding inequality constant) and changes in poverty that take into account the actual changes in inequality. The authors refer to the ratio of these two elements as the pro-poor growth index, and an episode would be considered as pro-poor when the index is greater than 1 (i.e. when inequality falls).

Although intuitively appealing, this definition of pro-poor growth presents some limitations, particularly when applied in an operational context. First, pro-poor growth under this definition would be equated with inequality reducing growth. However, by focusing so heavily on inequality a policy package seeking an outcome that is consistent with this definition could lead to sub-optimal outcomes for both poor and non-poor households. For example, a society attempting to achieve pro-poor growth under this definition would favor an outcome characterized by average income growth of 2 percent where the income of poor households grew by 3 percent, over an outcome where average growth was 6 percent, but the incomes of poor households grew by only 4 percent. While the distributional pattern of growth favors poor households in the first scenario, both poor and non-poor households are better off in the second scenario. Second, this definition might favor public sector interventions that reduce inequality regardless of their impact on growth. While in principle reductions in inequality may be welcomed and even

³ Given two random variables x and y , we say that relative inequality declines if $x/y \rightarrow 1$, whereas we say that absolute inequality declines if $x-y \rightarrow 0$. Clearly absolute inequality implies relative inequality, but not the other way around.

become a policy objective, it is clear that a disregard for the impact of such actions on growth is likely to be of limited operational use.

The second available definition of pro-poor growth is much less strict and focuses solely on the link between poverty and growth: growth is pro-poor if it reduces poverty (Ravallion and Chen (2003)). Note that this definition would consider a growth episode as pro if poverty falls regardless of the developments on the inequality front. Thus growth will be pro-poor except when the income of the poor is stagnant or decline leading to an increase in the poverty measure (in terms of Kakwani and Pernia (2000) index growth will be pro-poor when the index is greater than 0). Ravallion and Chen (2003) also proposed a measure of pro-poor growth (linked in this case to the Watt's index) which satisfies several desirable axioms.

Clearly, it could be argued that this definition has also some problems on its own. For example an outcome characterized by average growth of say 6 percent with the income of the poor growing at a mere .1 percent would be pro-poor. This clearly could be somewhat disturbing when one takes into account the potential political economy implications of such an outcome especially in high inequality contexts. In practice, however, this is likely to be less of an issue given that in general countries experiencing high growth rates over a sustained period of time have typically reduced poverty dramatically.

Summing up, there are two broad definitions of pro-poor growth and the main distinction between them is whether for a given growth episode they focus on inequality outcomes (White and Anderson (2000), Kakwani and Pernia (2000)) or instead on poverty outcomes (Ravallion and Chen (2003)). The next two sections discuss the different linkages.

III. The poverty-growth-inequality link

There is an identity linking changes in the level of poverty in any given country with changes in the average income level (i.e. growth) and changes in income inequality (i.e. income redistribution). This would suggest that a sensible poverty reduction strategy will have to focus both on growth issues and on the pattern of that growth (i.e. who benefits from growth). But what is the relative importance of these elements?

In a recent paper, Kraay (2004) has explored these issues and identified three potential sources of pro-poor growth (understood as growth that leads to a fall in a given poverty measure). These are: (i) a high growth rate; (ii) a high sensitivity of poverty to growth; and (iii) a poverty reducing pattern of growth. His results suggest that roughly 70 percent of the variation in short-run changes in poverty can be explained by growth in average incomes. In the medium- to long-run, growth would account for an impressive 97 percent of the changes in (headcount) poverty. Virtually all of the remainder of the variance would be due to changes in relative incomes, with the cross country sensitivity of poverty to growth accounting for little of the variation. Kraay (2004) also finds that the relevance of growth for poverty reduction declines as one move from headcount poverty to the squared poverty gap. He explains this finding by noting that more bottom sensitive

poverty measures place more weight on changes in the distribution of income than on growth.

There is, however, a different way to look at this issue – by focusing on the expected change in poverty (rather than on the share of variance explained) that would be associated with a one percent growth rate (i.e. the growth elasticity of poverty⁴), and how this impact is affected by inequality. In this regard, Ravallion (1997) presents a parsimonious empirical model of the relationship between poverty and growth where the rate of poverty reduction associated with a given growth rate depends on a distributional correction (one minus the initial gini index). In Ravallion (2004) the model is improved (in empirical terms) by using an adjustment for possible nonlinearities in the relationship between the growth elasticity of poverty and the initial inequality.⁵ His estimates would suggest that depending on the initial level of inequality a one percent increase in income levels could result in a poverty reduction of as much as 4.3 percent (very low inequality countries) or as little as .6 percent (high inequality countries). Against this background, Ravallion (2004) concludes that "*growth will be quite a blunt instrument against poverty unless that growth comes with falling inequality*".

Bourguignon (2003) also focuses on the impact of growth on poverty reduction. However, he adopts a different approach. Specifically he explores alternative specifications for the relationship between poverty, inequality and growth and concludes that, at least for headcount poverty,⁶ assuming that income follows a log normal distribution may prove satisfactory. This in turn is useful because it allows computing the growth and the changes in inequality elasticities of poverty as a function of per capita income levels (relative to the poverty line) and inequality (as measured by the Gini).

A similar point is made by Lopez and Serven (2004), who using a large cross country dataset on income/expenditure inequality formally test the null hypothesis of log-normality for the size distribution of income/expenditure. Their results suggest a rejection of the null hypothesis for per capita expenditure, but they are unable to reject the null for per capita income. With this functional form it follows that, consistently with Ravallion (1997, 2004), inequality is a break for poverty reduction. However, it also follows that poverty (as measured by low per capita income) is also a barrier to poverty reduction. In particular, both Bourguignon (2003) and Lopez and Serven (2004) illustrate how the impact on poverty of a one percent growth rate declines as per capita income declines relative to the poverty line.

Table 1 (taken from Lopez and Serven (2004)) presents the share of variance in the changes in poverty that would be due to growth as a function of different levels of

⁴ Strictly speaking we should refer to the income elasticity of poverty. We, however, follow the standard practice in the literature and use the term growth elasticity of poverty to refer to how poverty change when income increases by one percent.

⁵ In practice Ravallion (2004) considers a distributional term of the form $(1-gini)^\theta$ with $\theta > 1$.

⁶ Admittedly Bourguignon (2004) also concludes that if one focuses on P1 (the poverty gap) the functional approximation he explores may prove unsatisfactory.

inequality and development.⁷ Thus a high entry (close to 1) in this table would imply that changes in poverty are mainly driven by growth (i.e. a pro-growth strategy will likely be a good poverty reduction strategy), whereas a low entry (close to zero) would imply that changes in poverty are mainly driven by changes in inequality (i.e. a pro-growth strategy that does not take into account potential increases in income inequality may lead to disappointing results on the poverty front). Inspection of table 1 suggests some interesting features. First, for a given inequality level, the poorer a country is the more important that growth becomes in explaining changes in poverty. In other words in poor countries a pro-growth bias will be key to reduce poverty and policy makers might be willing to trade-off slight deteriorations in inequality for faster growth). In contrast, in richer countries (for example with a poverty line equivalent to 33 percent of per capita income) growth explains a much smaller share of changes in poverty: depending on inequality levels this share would be between 17 and 37 percent.

All in all these findings would justify poverty reduction strategies with a pro-growth bias in low income and low inequality countries and policy packages that adequately balance growth and inequality objectives in richer and more unequal countries.

IV. The growth-inequality link

Unlike the papers that focus on the growth-inequality-poverty relationship, which to a large extent have been written over the past couple of years, the analysis of the growth-inequality link has a long tradition in the economics literature. These papers have largely focused on whether countries will have to face trade-offs between reducing inequality and improving growth performance, or instead whether there exists a virtuous circle in which growth leads to lower inequality, with lower inequality in turn leading to faster growth.

Theory

The theoretical literature offers a number of different explanations for a potential link between growth and inequality, with some of them stressing a growth-to-inequality type of causality while others put more stress on an inequality-to-growth direction of causality. On the growth-to-inequality potential causality, the starting point should be the Kuznets hypothesis. This hypothesis suggests that the distribution of income would deteriorate over the initial stages of development as an economy transforms from rural to urban and from agricultural to industrial. Subsequently, inequality would decrease as the labor force in the industrial sector expands and that of the agricultural sector falls.

More recently, however, a number of economic models have argued that technological progress (arguably the major source of economic growth) may lead to higher inequality whenever it is not neutral, or in other words whenever it affects the productivity of different types of labor in different ways. For example if the introduction of new

⁷ Here we exploit the on the basis of cross country data, growth and changes in the log gini would be uncorrelated and have a similar variance. Thus the share of the variance of changes in poverty due to growth or to inequality will just depend on the growth and inequality elasticities.

technologies increases the demand for skilled labor (relative to unskilled labor), one might argue that inequality will likely increase. Admittedly, one also has to consider that if the higher growth associated with technological progress leads to an expansion in the pool of skilled labor (and hence to a reduction in the skills premium), the impact of technological progress on education is likely to be ambiguous.

As for the impact of inequality on growth, the theoretical literature is divided between those who suggest that inequality is detrimental for growth, and those who predict that inequality is conducive to higher growth. There are three main arguments for the detrimental impact of inequality on growth.

The first is the political economy argument (Alesina and Rodrick (1994)), which is based on the following three premises: (i) redistributive government expenditure and taxation are negatively related to growth because of their negative effect on capital accumulation; (ii) taxes are proportional to income but the benefits of public expenditure accrue equally to all individuals, which in turn implies that an individual's preferred levels of taxation and expenditure are inversely related to his income; and (iii) the tax rate selected by the government is the one preferred by the median voter. Taken together, those premises would imply that growth increases as inequality falls.

A second argument for an inequality-to-growth direction of causality relies on the so-called sociopolitical instability approach (Alesina and Perotti (1996)) which can be summarized as follows: (i) highly unequal societies create incentives for individuals to engage in activities outside normal markets, such as crime, etc; and (ii) sociopolitical instability discourages accumulation because of current disruptions and future uncertainty. This approach would also imply that growth increases as inequality falls.

A third argument for the proposition that increases in inequality lead to lower growth is the presence of credit constraints. Galor and Zeira (1993) note that if (i) the process of development is characterized by complementarity between physical and human capital so that growth increases as investment in human capital increases; and (ii) credit constraints prevent poorer individuals from investing in education, then inequality will adversely affect growth prospects by reducing the number of individuals who are able to invest in human capital. Similarly Aghion et al. (1999), show that if (i) there are decreasing returns with respect to individual capital investments; and (ii) credit imperfections mean that individual investments are an increased function of initial endowments, then inequality would be detrimental to growth by concentrating investment in fewer richer people (with a lower marginal return to investment).

It is worth noting here that even if the three arguments above predict that inequality hampers growth, their predictions on the impact of redistribution on growth are different. For example, the political economy argument is based on the premise that progressive distributional change has a negative impact on growth. On this argument, redistribution would negatively affect growth through two different channels. First, it would provide a disincentive to work effort from those on the receiving side. Second, it would discourage investment from those who transfer the bulk of resources. On the other hand, the

sociopolitical and credit constraints arguments would predict that redistribution – by increasing political stability and the associated investment in the first case and by creating investment opportunities with a high marginal return in the second case – would have a positive impact on growth.

Admittedly, there are also models that predict that inequality is likely to be growth enhancing. First, one may consider Kaldor's hypothesis that the marginal propensity to save of rich people is higher than that of poor people. Then if the investment rate is positively related to the saving rate, and growth is positively related to investment, more unequal economies can be expected to grow faster. Bourguignon (1981) builds a more elaborate model and shows that with a convex saving function, aggregate output depends on the initial distribution and is higher the more unequal society is.

A second reason why inequality may lead to faster growth is related to investment indivisibilities. If new investment projects require large initial sums, in the absence of effective capital markets that allow pooling of resources by small investors, wealth concentration would support new investment and therefore lead to faster growth.

A third reason supporting this argument can be based on the potential trade offs between efficiency and equality. For example compressed wage structures that do not reward merit will lead to more equal societies, but it is also likely that they will reduce workers' incentives to put in additional effort or aim at outstanding achievements Mirrlees (1971).

Empirical literature

The previous discussion suggests a clear division of opinion in the theoretical literature, but what does the empirical literature suggest? On the growth to inequality relationship, the results found in the empirical literature are quite unanimous. The results in Deininger and Squire (1996), Chen and Ravallion (1997), Easterly (1999) and more recently Dollar and Kraay (2002) all suggest that growth, as such, does not have an impact on inequality.

Unfortunately, on the inequality to growth link the empirical literature is less unanimous and shows the same division that the theoretical models suggest. Alesina and Rodrik (1994) and Perotti (1996) use one cross section to run a regression of the average yearly growth rate of per capita GDP over 1960-85 on initial inequality (as measured by the Gini coefficient in Alesina and Rodrik (1994) and as measured by the share in income of the third and fourth quintile in Perotti (1996)) and a number of standard control variables. In both works the results suggest that inequality in income is negatively associated with subsequent growth. In Alesina and Perotti (1996), the authors test whether income inequality raises political instability, and whether the latter reduces investment, identifying a potential channel for an inverse relationship between income inequality and growth.

Instead, Li and Zou (1998) and Forbes (2000) review these results using fixed effects estimates arguing that omitted country specific effects will bias the OLS estimates, and that if one is to address how a change in inequality within a given country is related to

growth within that country, a panel framework is more appropriate. The results of Li and Zou (1998) are based on a standard fixed effects estimation whereas those of Forbes (2000) are based on the first differences Generalized Methods of Moments (GMM) estimator proposed by Arellano and Bond (1991). In both papers the conclusion is that income inequality (as measured by the gini coefficient) is positively associated with economic growth.

To introduce even more variability in these results, Barro (2000) uses a three-stage least squares (3SLS) estimator which treats country specific effects as random errors, arguing that the differencing in running fixed effects may exacerbate the biases. In contrast to works reviewed above he finds no relationship between inequality and growth. Barro (2000) also finds that the investment ratio does not depend significantly on inequality. Similarly, Lopez (2004) using also Arellano and Bond (1991) estimator in a growth model that includes a broad number of policies finds no significant evidence of inequality per se affecting growth. Admittedly, his estimates come close to being significant at the 10 percent level, suggesting that higher inequality would lead to lower growth. However, even on the basis of the point estimate the results suggest a very small potential impact with a 1 percent deterioration in the gini being translated into an annual growth decline of .007 percent.

One can find several explanations for this apparent contradictions of results. For example, Forbes (2000) explores the role played by five different factors: (i) use of different variables; (ii) different samples; (iii) data quality issues; (iv) time span; and (v) omitted variable bias in the papers using a cross section. She concludes that that the most likely reasons for the discrepancy are country specific, time-invariant, omitted variable bias and the length of the period under consideration. Banerjee and Duflo (2003), on the other hand, explain the differences arguing that the growth rate is an inverted U-shaped function of net changes in inequality. In addition to being able to explain the discrepancies, they also show that changes in inequality (in either direction) would be associated with lower growth in the next period.

On the impact of redistribution on growth it is worth noting the work by Easterly and Rebelo (1993) and Perotti (1996). Using several measures of redistribution (marginal tax rates, average tax rates, social spending) Easterly and Rebelo (1993) find that redistribution is likely to have a positive impact on growth. Similarly, Perotti (1996) tests whether income inequality has an impact on the marginal tax rate, and whether the latter affects growth. His results suggest that while inequality may play no role in setting the marginal tax rate, higher marginal tax rates will have a positive impact on growth.⁸

These results would suggest a less than conclusive picture regarding the impact that income inequality has on growth. Where there seems to be more consensus is on the potential impact of asset inequality on growth. For example, while Deininger and Squire (1998) find that initial income inequality does not seem to have an impact on growth,

⁸ Admittedly, neither the work of Perotti nor that of Easterly and Rebelo control for fixed effects which, as noted above, seem to be one of the factors responsible for the change in the sign of the impact of inequality on growth.

they find that high inequality in the distribution of land (a possible proxy for asset inequality) had a significant negative effect on future growth. Similarly, Birdsall and Londoño (1997) also find a strong relationship between growth and initial distribution of assets. They also note that once it is accounted for a set of variables measuring initial asset inequality (such as initial land distribution and the initial distribution of human capital) income inequality does not seem to play a role in explaining growth outcomes (in one or another direction) any longer.

All in all the previous discussion suggest that there is some consensus (at least in the cross country empirical literature) on the lack of causality from growth to income distribution in one or the other direction. However, on the potential causality from inequality to growth, views are much more divided, with some studies concluding that inequality leads to faster growth, and others suggesting that inequality is likely to lower growth. All the results are summarized in table 2.

V. The policies-growth-inequality link

The previous two sections have explored what Bourguignon (2004) refers to as the poverty-growth-inequality triangle. However, from a policy perspective, there is another issue that is likely to be more interesting than the existence of empirical regularities or mechanical relationships between growth, inequality, and poverty, namely what kind of policies should a country pursue in a successful poverty reduction strategy. The literature on this topic has followed different strands that we review below.

Cross country based literature

The first strand is based on cross country data regressions and aims at inferring how pro-growth policies affect inequality. Although in principle one might take the result pointing to lack of causality from growth to inequality mentioned above at face value and assess policies on the basis of their expected impact on growth, in practice most pro-growth policies might be expected also to have an impact on inequality, and in some cases even conflict with the growth objective (Lundberg and Squire (2003)). Thus advising on the expected growth impact of policies alone could lead to unpleasant outcomes (as the anti-globalization movement has been pointing out repeatedly over the last few years). Beyond the anti-globalization claims, Easterly (2001) finds that Bank and Fund structural adjustment tends to reduce the growth elasticity of poverty, a result that would be consistent with a positive relationship between increases in inequality and the implementation of adjustment programs. Easterly speculates that this may be due to the poor being ill placed to take advantage of the new opportunities created by structural adjustment reforms. Thus the basic idea of the works that have followed this strand is that knowledge about the links between policies and growth on the one hand, and between those same policies and inequality on the other hand would help us inferring the likely impact on the policies on growth.

Unfortunately, this is likely to be one of the weakest strands of the empirical literature on pro-poor growth, and not only because one has to face the inherent difficulties of linking

a purely micro phenomenon like poverty changes to policies (which are usually in the macro domain), but also because the available empirical work relies on different controls (only a few variables are usually included in all the papers), estimation techniques (some studies use simple OLS, whereas others present more refined estimates based on SURE, IV, and GMM techniques), and even model specifications (in some cases the dependent variable is the level of the gini index whereas in some others it is the change in the gini; similarly, some studies include fixed effects whereas others present pooled estimates) which make comparison and robustness checks difficult to implement. With these caveats in mind, we next review recent work by Barro (2000), Dollar and Kraay (2002), Li and Zou (2002), Lundberg and Squire (2003), Calderón and Servén (2003), Kraay (2004), and Lopez (2004).

The Barro (2000) results are based on a regression (estimated using the SURE technique) of the levels of inequality on a set of controls including (logged) income, primary, secondary and higher education, the rule of law, democracy, and trade. He presents results both with and without fixed effects. His main results suggest that primary and secondary schooling would reduce inequality whereas higher education would lead to greater inequality. He also finds evidence suggesting that better enforcement of the rule of law goes along with less inequality of incomes, and that greater openness to trade would go along with more inequality and be more pronounced in poor countries. Democracy would not be a significant factor.

Dollar and Kraay (2003) results are instead based on a regression of the growth rate of the incomes of the lowest quintile of the population against average growth and a set of regressors to capture the impact of trade, inflation, government consumption, financial development and the rule of law on growth and on distribution. The authors find that more trade and a better rule of law would lead to higher equality, whereas higher inflation, higher government consumption, and additional financial development would lead to higher inequality.

The specification of Li and Zou (2002) is similar to the one in Barro (2000) with the level of the Gini as the dependent variable and controls that include inflation, financial development, government spending, and openness. Their results suggest that higher inflation would lead to higher inequality, whereas higher government spending, financial development, and better education would lower it. They do not find that openness to trade has a significant impact on inequality.

Lundberg and Squire (2003) estimate a system of simultaneous equations for growth and the levels of the Gini coefficient and find that higher education, lower inflation, and land distribution would lead to lower inequality (and lead to faster growth), whereas trade openness (as measured by the Sachs-Warner index) and more civil liberties would likely pose a potential conflict between the goals of faster growth and more equitable distribution.

Calderón and Servén (2003) focus particularly on the influence of infrastructure on growth and income distribution. In addition to a number of controls such as human

capital, inflation, or financial depth, they assess the impact of several indicators of infrastructure. Their findings suggest both the quantity and quality of infrastructure has a significant impact on inequality with more and better infrastructure leading to lower inequality. They also find that education reduces inequality and financial depth increases it. On inflation their results are more mixed; depending on the specification they find that inflation could affect inequality in either way.

Kraay (2004), however, finds little evidence that poverty reducing patterns of growth in relative incomes are significantly correlated with a set of explanatory variables that the empirical growth literature has identified as important determinants of growth in per capita income, and concludes that cross country evidence is unlikely to be very informative about the policies and institutions that are likely to lead to poverty reducing patterns of growth in relative incomes.

Finally, the findings of Lopez (2004) are based on the estimation of a dynamic panel with fixed effects for the change in the Gini coefficient. His results suggest that improvements in education and infrastructure, and lower inflation levels would reduce levels of inequality. On the other hand, financial development, trade openness, and decreases in the size of government would be associated with increases in inequality. When (under the assumption of a log normal income distribution) he simulates the expected impact of progress in these areas on (headcount) poverty levels, Lopez (2004) finds that these policies are likely to be pro-poor in the long run (i.e. the growth effect offsets the increase in inequality) but might also lead to temporary short run increases in poverty in the absence of compensatory measures.

All in all, the above discussion would suggest few intersections of variables. The studies reviewed seem to agree on the fact that higher inflation leads to higher inequality, more and better infrastructure and more human capital to lower inequality but on little else. On trade, three of the studies find that greater openness would lead to higher inequality, one that it would lead to lower inequality, and two find no impact. On financial development, findings are also split with three studies finding a negative impact on income distribution, one a positive impact, and one no impact. On the role of government spending, the results are also mixed with one study finding that public spending increases inequality, two studies finding the opposite result, and a fourth one finding no impact. Table 3 summarizes these results.

Country case based literature

Even the most careful cross-country analysis has to be treated with lots of caution given not only the multiple interacting influences that are at play but also the needed simplifications required to capture in a single comparable indicator the progress that each country is making in a particular area. This has led a second strand of the literature to focus on country specific studies (based on household survey data) to better understand the linkages between policies and pro-poor growth. In some cases as in Ravallion and Datt (2002) or Ravallion and Chen (2004) focusing on the broad determinants of pro-

poor growth at the country level. In some other cases -Chen and Ravallion (2003), Ravallion and Lokshin (2004), or Arbache et al. (2004)- focusing on specific aspects.

Ravallion and Datt (2002) use 20 household surveys for India's major states spanning 1960-94 to explore why economic growth has been more pro-poor in some states than in others. Their findings suggest that the inter-state differences in the impact of a given rate of non-farm economic growth on poverty would reflect observed different initial conditions. Among those, the authors stress the role of low farm productivity, low rural living standards relative to urban areas, greater landlessness in rural areas and poor basic education and health. Thus pro-poor growth seems more likely to happen where initial conditions offer the poor an opportunity to take advantage of growth.

In Ravallion and Chen (2004), the authors focus on China's record against poverty over the period 1980-2001. Among several other findings regarding the impact that the pattern of growth has had on poverty, Ravallion and Chen report how agricultural pricing policies (farmers being obliged until recently to sell fixed quotas to the government at prices below local market prices) and inflation have negatively affected poverty outcomes and how external trade had little short-term impact.

Focusing on more specific aspects, Chen and Ravallion (2003) and Ravallion and Lokshin (2004) study the impact of trade on China and Morocco respectively. Chen and Ravallion (2003) explore the welfare impact of changes in goods and factor prices that might result from WTO accession finding that while at the aggregate level and on average they are likely to have negligible impacts on inequality and poverty, a number of diverse impacts emerge across households and regions (something that in turn may have implications for compensatory policies). Ravallion and Lokshin (2004) also focus on the welfare impacts of price changes but in this case associated with potential different agricultural trade reforms for de-protecting cereals. They find that at the aggregate level and on average the effects are small. However, this does not preclude that there would be winners and losers with the rural poor being worse off after de-protection.

Arabache et al. (2004) focus on the impact of globalization⁹ on the Brazilian labor market. Their findings suggests that (i) wages fell substantially in the traded sector for those in the lower level education groups after trade liberalization, (ii) there was no effect in the wages of those in the top education groups; and (iii) there was an increase in the marginal returns to college education. All these elements lead to Arabache et al. (2004) to conclude that imported technology was skill biased.

Summing up, cross country regression studies provide some results where there is some degree of consensus. Education, macroeconomic stability, and infrastructure seem to be not only good for growth but also for inequality. Unfortunately, these are the areas where one could have the strongest priors. When, however, one tries to use the results of the same studies to infer the potential impact on inequality of trade and financial sector liberalization, or fiscal adjustment the results are much less conclusive and useful. In part

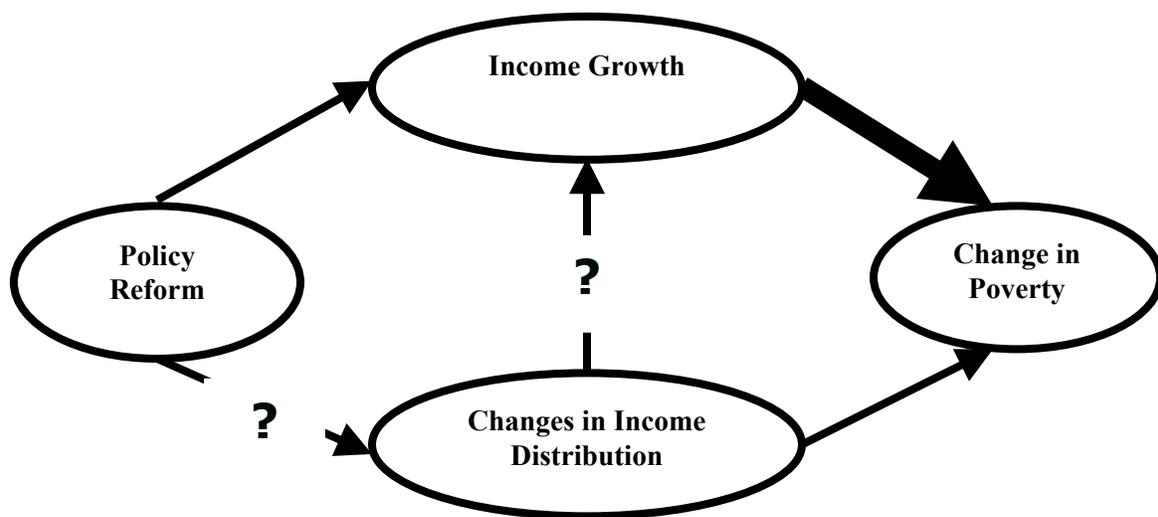
⁹ Understood as the combined effect of trade openness, capita account liberalization, technology transfer, etc.

this can be because as noted above there are still only a few studies (at least in relation to the growth literature) and these are not fully comparable. In part it can be because given the specific nature of some reforms, cross country regression models are not the most appropriate technique. On the other hand, country specific studies seem to suggest that similar reforms may have different impacts on different countries which in turn would suggest that for a number of reforms little advice can be given beyond the need to carefully analyze the problem in the particular country context.

VI. Conclusions

This paper has reviewed recent contributions to the pro-poor growth literature, starting with a number of papers that have put forward alternative definitions for the term pro-poor growth. The conclusions emerging from this review can be summarized as follows. There seems to be some consensus in a few areas: (i) growth is fundamental for poverty reduction, and in principle growth as such does not seem to affect inequality; (ii) growth accompanied by progressive distributional change is better than growth alone; (iii) high initial inequality is a brake on poverty reduction; (iv) poverty itself is also likely to be a barrier for poverty reduction; (v) asset inequality seems to predict lower future growth rates; (vi) education, infrastructure and macroeconomic stability seem to positively affect both growth and the distribution of income. Beyond this, there seems to be little agreement. We still do not know enough about the potential impact of income inequality and redistribution on growth and we know very little about the potential impact that a number of policies (trade, financial sector liberalization, fiscal adjustment among others) have on inequality in general. Figure 2 aims at representing these issues graphically.

**Figure 2. Policies, growth, distributional change and poverty reduction.
What we know and what we don't**



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Table 1. Share of poverty changes variance due to growth 1/

Pov. Line 2/	Gini			
	0.3	0.4	0.5	0.6
.16	0.19	0.16	0.12	0.08
.33	0.37	0.31	0.23	0.17
.50	0.56	0.47	0.34	0.25
.66	0.75	0.64	0.50	0.28
.90	0.92	0.84	0.69	0.50
1.1	0.99	0.98	0.86	0.64

^a Source: Lopez and Serven (2004)

^b Poverty line as a share of per capita GDP

Table 2. The growth-inequality link

Impact of growth on income distribution	
Dollar and Kraay (2002)	no impact
Easterly (1999)	no impact
Chen and Ravallion (1997)	no impact
Deininger and Squire (1996)	no impact
Impact of income inequality on growth	
Forbes (2000)	positive
Li and Zhou (1998)	positive
Barro (2000)	no impact
Lopez (2004)	no impact
Alesina and Rodrik (1994)	negative
Perotti (1996)	negative
Impact of asset inequality on growth	
Deininger and Squire (1998)	negative
Birdsall and Londono (1997)	negative
Impact of redistribution on growth	
Easterly and Rebelo (1993)	positive
Perotti (1996)	positive

Table 3. Policies and Equality^a

	B(2000)	DK(2002)	LZ(2002)	LS(2003)	CS (2003)	K(2004)	L(2004)
Better Education	+		+	+	+		+
More Trade	-	+	o	-		o	-
More Financial Depth		-	+	o	-		-
Less Government Spending		+	-			o	-
Better Rule of Law	+	+				o	
Better Infrastructure					+		+
Lower Inflation		+	+	+	+/-		+

^a Positive entries indicate that that the policy/outcome in the first column contributes to more equality. Negative entries indicate a contribution to higher inequality. o indicates no significance and a blank indicates that the policy was not considered.

B(2000): Barro (2000); DK(2002):Dollar and Kraay (2002); LZ(2002): Li and Zou (2002); LS(2003): Lundberg and Squire (2003); CS(2003): Calderon and Serven (2003); K(2004): Kraay (2004); L(2004):Lopez (2004).