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Shared Prosperity: Concepts, Data, and Some Policy Examples

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ABSTRACT

Shared Prosperity: Concepts, Data, and Some Policy Examples*

“Shared prosperity” has become a common phrase in the development policy discourse. This short paper provides its most widely used operational definition – the growth rate in the average income of the poorest 40 percent of a country’s population – and describes its origins. The paper discusses how this notion relates to well-established concepts and social indicators, including social welfare, poverty, inequality, and mobility, and reviews some of its design shortcomings. The paper then looks at household survey data to assess recent progress in this indicator globally. The analysis finds that during 2008–13, mean incomes for the poorest 40 percent rose in 60 of 83 countries. In 49 of them, accounting for 65 percent of the sampled population, it rose faster than overall average incomes. Finally, the paper briefly reviews a (non-exhaustive) range of ‘pre-distribution’ and ‘redistribution’ policies with a sound empirical track record of raising productivity and well-being among the poor, thus contributing to shared prosperity.

JEL Classification: D30, D63, I30

Keywords: shared prosperity, poverty, inequality

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1. Introduction

Usage of the expression “shared prosperity” in the development policy literature increased sharply around 2013 when the World Bank Group, a multilateral development institution based in Washington, DC, used it to define the second of its “Twin Goals”. In April of that year, the Bank’s Board of Directors endorsed the choice of two overarching objectives for the institution, namely ending extreme poverty, and promoting shared prosperity in its client countries. Extreme poverty, the object of the first goal, was defined as the share of the world’s population living in households with per capita consumption (or income) less than \$1.90/day, at purchasing power parity exchange rates.¹

The second goal was defined for each individual country, rather than for the world as whole. The operational definition adopted for “promoting shared prosperity” was to promote growth in the average income or consumption expenditure of the poorest 40% of the population in each country. No numerical target by a certain year (analogous to 3% by 2030) was set for this second goal. Without employing the expression “shared prosperity”, a similar – but not identical – objective appears as Goal 10.1 in the Sustainable Development Goals, which were adopted by the UN General Assembly in 2015: “By 2030, progressively achieve and sustain income growth of the bottom 40 percent of the population *at a rate higher than the national average*”.²

Inspiration for these goals came, at least in part, from earlier writings by Kaushik Basu, a Cornell University economist who was the World Bank’s Chief Economist at the time. In a relatively little-known essay entitled “On the Goals of Development”, Basu (2000) writes:

“This suggests a natural correction for the way we evaluate different economies. Essentially, it says that in evaluating an economy’s state or progress, we must focus primarily on how the poorest people are faring. A first cut at doing this – and the criterion that I want to advocate in this section – is to look at the economic condition of the poorest 20% of the population. [...] Instead of equating a country’s progress with the growth rate of per capita income in general, we should look at the growth rate of the per capita income of the poorest 20 percent of the population” (Basu, 2000, p.65)

The essay acknowledges, in passing, its obvious debt to John Rawls’ idea that policies should be chosen so as to maximize the well-being of society’s poorest person – an idea often known to economists as “Rawls’ maximin”. In Rawls’ (1971) *A Theory of Justice*, the idea is actually referred to as the *Difference Principle*, which states that “Social and economic inequalities should be arranged so that they are both (a) to the greatest benefit of the least advantaged persons, and (b) attached to offices and positions open to all under conditions of equality of opportunity.”

Because it is difficult to identify the “least advantaged persons”, Basu argues that concentrating on the poorest 20 percent of the population is more “pragmatic”. He was also well aware of the tendency in development economics and philosophy to move away from purely money-metric concepts as

¹ In 2013, the extreme poverty line was \$1.25/day, using 2005 PPP exchange rates. This was subsequently updated to \$1.90/day, using 2011 PPPs. See Ferreira et al. (2016). The same line is used for the United Nations’ Sustainable Development Goal No. 1, although “ending poverty” for the World Bank means reducing incidence to 3% or less by 2030, while the UN actually aims for zero.

² So, whereas the World Bank’s definition of shared prosperity is in a sense “absolute” – what matters is how high growth is for the bottom 40%, regardless of what happens elsewhere along the distribution - the UN’s goal is explicitly relative – growth at the bottom must be higher than for the national average.

development objectives. He cites Amartya Sen’s capability approach approvingly, and argues that growth in the income of the poor should be seen as one objective, alongside a number of other non-monetary indicators. To the extent that one looks at income, however, Basu proposes that one should focus on *quintile income* – defined as the mean income among the poorest 20% of the population – as a measure of the “state” of a society’s development, and on the *quintile growth rate* – the rate of growth of quintile income – as a measure of its “progress”.

In his subsequent tenure as World Bank Chief Economist, he – and the institution – emphasized the progress rather than the state measure. They also doubled the size of the group on which policy efforts should focus to include the bottom 40% of the population in each country.

Yet, despite these recent uses in the policy arena, the concept of “shared prosperity” is not as well-established in economics as, say, “social welfare”, “poverty”, or “inequality”. While various different interpretations of each of these terms certainly exist, there is a long-established literature discussing those conceptual differences, the corresponding approaches to measurement, and related empirical findings. This is not yet true for shared prosperity, although an incipient debate has begun.³

This short paper aims to do three things: (i) provide a brief conceptual discussion of how the above definition of shared prosperity fits into welfare economics; (ii) review the recent empirical evidence on growth rates among the poorest 40 percent in as many developing countries as possible; and (iii) discuss some policy areas that recent evidence suggests are worthy candidates for “promoting shared prosperity”. These are all obviously broad topics, particularly the third. Our discussion aims to be illustrative, rather than comprehensive.

The paper is organized accordingly. Section 2 contains a brief conceptual discussion of the relationship between shared prosperity and more established concepts in welfare economics, including poverty (single- and multi-dimensional), inequality (of outcomes and opportunities), and mobility. Section 3 looks back at the recent evidence, by examining a multi-country data set that permits the computation of shared prosperity statistics and provides estimates of the incidence of growth among 83 countries (accounting for 75% of the world’s population) between circa 2008 and 2013. Finally, building on the scholarly literature about policies that raise incomes and promote greater well-being among the poor, Section 4 briefly reviews a number of interventions with a credible track record of promoting growth among the poor. Section 5 concludes.

2. Shared prosperity, social welfare, poverty, inequality, and mobility

The shared prosperity concept features both in the UN’s SDG 10.1 and as one of the World Bank’s twin goals in its “progress”, rather than “state”, formulation. It seeks to capture changes rather than levels. We can write the growth rate in average incomes (or consumption expenditures) among the poorest 40% of the population in each individual country as follows:

	$g_{40} = \frac{1}{\mu_{40}} \int_0^{0.4} \dot{y}(p) dp$	(1)
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³ See, e.g., Rosenblatt and McGavock (2013) and Dang and Lanjouw (2015).

where $y(p)$ denotes the income level at quantile p of the distribution function $p = F(y)$; a dot over a variable denotes its rate of change (time derivative); and μ_{40} denotes the mean income among the poorest 40% of the distribution.

In essence, the shared prosperity measure g_{40} is the growth rate of a (truncated) average. It is *not* a measure of poverty, inequality or social welfare, since those are all static concepts. They measure properties of states, rather than rates of change or growth. Shared prosperity is probably best thought of as a measure of *change* in a particular notion of **social welfare**, which is sensitive only to the bottom (two-fifths) of the distribution. In fact, most standard social welfare functions (that are additively separable and monotonically increasing functions of individual income levels) can be expressed as functionals of the quantile function $y = F^{-1}(p)$. Shared prosperity, defined as g_{40} , is simply the growth in an average taken over the quantile function, between $p = 0.0$ and $p=0.4$.

Because it is really a measure of changing social welfare, shared prosperity relates to poverty and inequality only indirectly. As far as **poverty** is concerned, shared prosperity is naturally more closely associated with income poverty than with multidimensional poverty. Its informational basis – like that of income poverty – is unidimensional and focuses on income (or consumption) alone. Shared prosperity, defined as g_{40} , is insensitive to improvements in non-income dimensions of well-being, such as longer life-expectancies; better quality of education; a cleaner environment; or greater political freedoms. It would reflect changes in such dimensions only to the extent that they are correlated with changes in incomes among poorer people.⁴ Since there is a growing consensus that poverty (and prosperity) are multi-dimensional phenomena, and that correlations between income and other dimensions are at best imperfect, a broader view of shared prosperity would presumably require augmenting the informational basis of social assessments with information on progress in these other dimensions. Nevertheless, just as a methodologically sound assessment of income poverty is a crucial ingredient of a broader understanding of poverty, so a solid measure of growth in incomes at the bottom of the distribution is an important component of a broader notion of rising prosperity.

Even in terms of income poverty, there are important differences between shared prosperity and a measure of change in poverty. Typical (additively separable) poverty measures can be written as:

	$P_t = \int_0^{F(z)} \pi(y_t(p), z) \cdot dp$	(2)
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Changes in poverty are therefore of the form:

	$\frac{dP_t}{dt} = \int_0^{F(z)} \eta_t(p) \cdot g_t(p) \cdot dp + \pi(z, z) \frac{dF(z)}{dt}$	(3)
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⁴ Indeed, Basu (2000) claims that g_{40} may be better correlated with some of these other, non-monetary desiderata of development than the growth rate in the overall mean. However, he provides no evidence to back this claim.

where $\pi(y, z)$ is an individual poverty indicator, z denotes the poverty line, and η the sensitivity of the measure π to income y at percentile p .⁵ Finally, $g(p) = \frac{\dot{y}(p)}{y(p)}$ denotes the growth incidence curve of Ravallion and Chen (2003), which gives the quantile-specific income growth rate for each quantile along the distribution.

Note that Equation (1) can be re-written as:

	$g_{40} = \int_0^{0.4} \frac{\dot{y}(p)}{y(p)} \frac{y(p)}{\mu_{40}} dp = \int_0^{0.4} g(p) \frac{y(p)}{\mu_{40}} dp$	(4)
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A comparison of Equations (3) and (4) immediately reveals both the commonalities and the differences between shared prosperity and *changes* in poverty. The main common feature is that both concepts are essentially aggregates of growth in individual incomes (as captured by the growth incidence curve) at the bottom of the distribution. There are two key differences. First, they truncate the distribution at different points – shared prosperity at the 40th percentile and poverty at a poverty line (z) which, of course, may in general differ from the 40th percentile. Second, the two concepts place different weights on the income growth along the distribution of income: poverty measures weigh individual growth rates according to weights ($\eta(p)$) that depend on the construction of the specific poverty index (and which differ among different measures such as the headcount index, the poverty gap, FGT2, etc.). Shared prosperity weighs individual growth rates by the ratio of income at each percentile to mean income among the bottom 40%, a weight that is of course increasing up to the cut-off.⁶

Figure 1 illustrates both these differences in a stylized fashion, by plotting the *weights* associated with income growth in different measures against the quantile $p = F(y)$. The red downward sloping curve illustrates the weighting scheme $\eta_t(p)$ from Equation (3) associated with changes in a poverty measure that satisfies the principle of diminishing transfers such as, for example, the Foster-Greer-Thorbecke (1984) poverty indices with sensitivity parameter $\alpha \geq 2$. For such poverty measures, the weights are positive only up to the poverty line (i.e. in $(0, F(z))$), and decline monotonically with income.

The other curve, which is blue and upward-sloping until $p = 0.4$, represents $\frac{y(p)}{\mu_{40}}$, the weights associated with growth at each quantile p , $g(p)$, in equation (4), defining the shared prosperity measure. First of all, it is easy to see that the poverty cut-off $F(z)$ is in general different from 40%. Second, the weights associated with income growth at each quantile can also differ considerably.⁷

It is particularly worth noting that the weights on income growth associated with the shared prosperity measure are upward sloping until $p = 0.4$, then sharply drop to zero for the remainder of the distribution. Both of these features may be deemed objectionable. An upward-sloping blue curve in Figure 1 means that the measure will place greater weight on the proportional gains in the income of someone just below the fourth decile than on the gains of the poorest of the poor. Indeed, provided

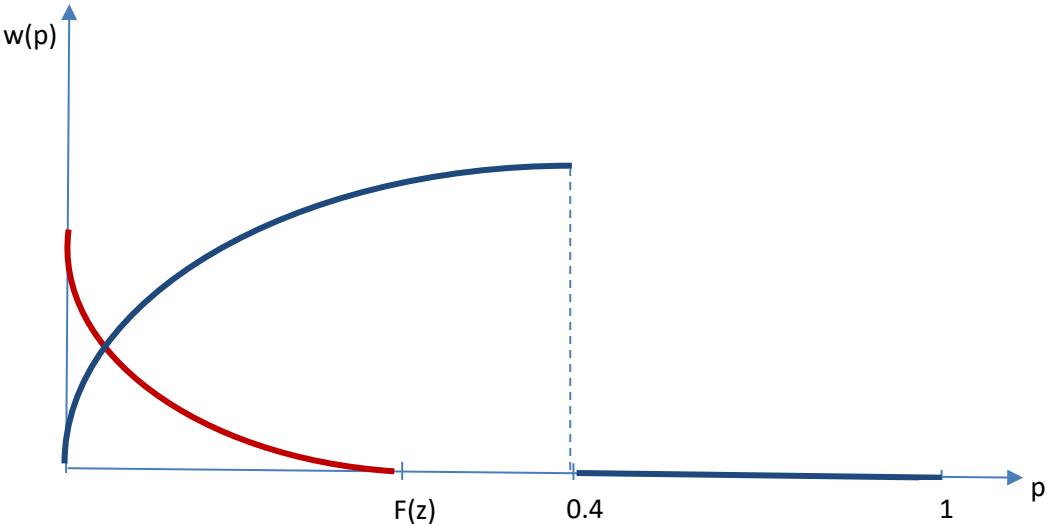
⁵ $\pi(z, z)$ is simply $\pi(y, z)$ evaluated at $y = z$.

⁶ There is a third, smaller difference, which concerns the second term on the right-hand side of Equation (3). That term captures the effect on poverty of the change in the quantile corresponding to the poverty line. For a constant line z , $F(z)$ changes as a distribution shifts to the right with growth. There is no such term in Equation (4), because this is obviously not true of $p = 0.4$.

⁷ The figure is stylized. The areas under each curve should both add up to one.

an individual starts off below the fourth decile, then the poorer she is, the less her growth contributes to the measure – a most un-Rawlsian feature. This property arises, of course, from the fact that shared prosperity is defined as the growth rate in a truncated mean, and means are more sensitive to proportional changes in high than in low incomes.

Figure 1: Weighting schemes for shared prosperity and changes in poverty measures.



The discontinuity at the fourth decile is also problematic. Just as the first problem arises from an underlying violation of the principle of diminishing transfers, this second one arises from a violation of continuity. It implies that two households whose living standards are separated by a minuscule amount ϵ , but who happen to be at either side of the fourth decile, will count very differently in the assessment of their society’s shared prosperity. The weight on the income growth of the one just below the threshold will be higher than anyone else’s in the distribution, whereas the one just above will have a weight of zero.

These axiomatically undesirable properties might have been corrected by replacing the shared prosperity index in Equations (1) or (4), with one from the family given by Equation (5) below.

	$S_\varphi = \int_0^1 \varphi(p)g(p)dp$	(5)
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Here, $\varphi(p) \geq 0$, $\varphi'(p) \leq 0$, $\forall p$ and $\int_0^1 \varphi(p)dp = 1$. The weighting scheme $\varphi(p)$ would be represented in Figure 1 as some smooth downward sloping curve spanning the entire (0, 1) domain on the p-axis. It would not be difficult to propose any one such function, and indeed a number were proposed during the internal discussions that preceded the World Bank’s adoption of the shared prosperity goal. The institution ultimately stuck with the formulation in Equation (4) because of two concerns with the alternative in (5): the arbitrariness in the choice of a functional form for $\varphi(p)$; and the perceived difficulty of communicating (5) as opposed to (4). Whether that was a wise decision is obviously a matter of judgment.

What about **inequality**? Changes in inequality measures – or at least a broad class of inequality measures that includes well-known indices such as the Gini coefficient, and the Generalized Entropy and Atkinson classes – can also be expressed as aggregations of the growth incidence curve. The general formulation is given by Equation (6) below, adapted from Ferreira (2012).

$$\frac{dI_t}{dt} = G(I_t) \int_0^1 h' \left(\frac{y_t(p)}{\mu} \right) \frac{\mu}{y_t(p)} \left[g_t(p) - \frac{\dot{\mu}}{\mu} \right] dp \quad (6)$$

Here $G(I_t)$ is an inequality index-specific constant that does not vary over p , and $h' \left(\frac{y_t(p)}{\mu} \right)$ denotes the sensitivity of the particular inequality index to different parts of the distribution, analogously to $\eta_t(p)$ above. Although all inequality measures concern themselves with income differences, they vary widely in the weight they place on income gaps along the distribution. Some indices, like the Theil-L index (also known as the mean logarithmic deviation) and the higher-order Atkinson indices, are most sensitive to income differences at the bottom of the distribution. Others, such as the coefficient of variation, are more sensitive to the top. Others still, like the Gini coefficient, are most sensitive to what happens around the mean. Naturally, changes in each of these measures of inequality are also most sensitive to the relevant range of the distribution.

The core of the expression on the right-hand side of Equation (6) is the term $\left[g_t(p) - \frac{\dot{\mu}}{\mu} \right]$. Unlike shared prosperity or changes in poverty (Equations 4 and 3 respectively), changes in inequality are *not* weighted aggregates of income growth rates along the distribution. They are, at least for this class of inequality measures, aggregates of *differences* between income growth at each percentile and growth in the overall mean income. There is a concept related to shared prosperity which is more closely analogous to changes in inequality. That concept is *the shared prosperity premium* of Lakner et al. (2014), which is simply defined as the difference in the growth rate in the average incomes among the poorest 40%, and the growth rate in the overall average income: $g_{40} - g_{\mu}$. We will return to this concept in Section 3 below. At this point, we only note that, because it does contrast changes in incomes in a range of percentiles with the change in the mean, the shared prosperity premium is analogous to a measure of change in inequality.⁸

Finally, there is a sense in which shared prosperity also relates to changes in another key concept of inequality, namely **inequality of opportunity**. The latter concept, which has long been intuitively familiar (and appealing) to many in the public debate, is increasingly associated with the scholarly work of philosophers such as Richard Arneson, Ronald Dworkin, and Gerald Cohen, as well as economists such as John Roemer, Dirk van de Gaer, and Marc Fleurbaey. Although there are many differences in nuance, these philosophers and economists broadly think of inequality of opportunity as that component of overall inequality which is caused by differences in circumstances over which individuals have no control, rather than by responsibility factors and effort choices which they can control. In other words, to a first approximation, inequality of opportunity may be assessed as the share of inequality that is explained by differences in factors such as gender, race, ethnicity, place of birth, or parental wealth and background (see, e.g. Checchi and Peragine, 2010; Ferreira and Gignoux, 2011).⁹

⁸ We say “analogous”, rather than identical, because the truncation at the 40th percentile violates the continuity axiom that most axiomatic inequality measures satisfy.

⁹ As with poverty, inequality, and social welfare, there are many different approaches to defining and measuring inequality of opportunity. The version described here is closest to what is often termed the “ex-ante” approach in inequality of opportunity (van de Gaer, 1993). See Ferreira and Peragine (2016) for a survey.

If one thinks of parental income as a key circumstance variable – and in the limit as the only important one – then one might view changes in the incomes of the poorest people in society relative to other incomes (e.g. the shared prosperity premium) as changes in the degree of inequality of opportunity faced by those people’s *children*. Furthermore, many have argued that the optimal policy to promote a fairer distribution of opportunities is to focus on the least advantaged circumstance group (or “type”), and promote its growth (e.g. van de Gaer, 1993; Bourguignon et al., 2007). In that sense, promoting shared prosperity may be seen as consistent with a relatively coarse interpretation of the literature on promoting equality of opportunity – for the children of today’s working generation.¹⁰

Finally, shared prosperity also relates to notions of economic **mobility**, in at least two ways. Economic mobility means different things to different people, and there are at least six clearly distinct concepts of mobility that are identified and contrasted in the literature (Fields, 2000). One such concept interprets mobility as origin independence: a highly mobile society is one in which a child’s income level or relative rank is independent from her parent’s income level or relative rank. This concept is both intuitively and formally related to the notion of equality of opportunity discussed above and, if a larger shared prosperity premium can, with a certain amount of ‘squinting’, be seen as analogous to promoting a fairer distribution of opportunities, it will also be related to greater intergenerational mobility (in the sense of origin independence).

A second concept of mobility sees it as basically the aggregation of income movements along the distribution. In this view, a highly mobile society is one in which there is a lot of income growth, and shared prosperity is clearly consistent with this view of mobility.¹¹ One important difference between the two is that existing measures of mobility as income movement follow the same individual incomes over time, whereas shared prosperity is calculated by comparing the incomes of those in the bottom 40% today with the people in those same relative positions at some point in the past even if, to a large extent, they are not the same people. This is, of course, what makes shared prosperity a measure of change in social welfare (where the so-called anonymity axiom holds) rather than a measure of mobility.¹² Still, the two are, once again, clearly related.

Having briefly described the relationship between the relatively novel notion of shared prosperity, as currently embodied in the development goals agreed upon by the international community, and the more established concepts of social welfare, poverty, inequality and mobility, we now turn to an empirical assessment of recent trends in shared prosperity in developing countries.

3. Recent shared prosperity trends

It is useful to note, at the outset, that any study of shared prosperity trends across multiple countries is concerned with potentially very different people. Because the concept of shared prosperity is deliberately couched in national – rather than global – terms, the people whose growth rates contribute to the measure have very different living standards across countries. Consider, for example,

¹⁰ The interpretation is coarse, and requires some ‘squinting’, because it ignores other circumstance variables that are clearly important in most countries, such as gender and race.

¹¹ We gloss over the distinction between directional and non-directional income movement here but, as defined, shared prosperity would be analogous to directional income movement.

¹² Formally, shared prosperity relies on an anonymous growth incidence curve, whereas mobility measures typically rely on a non-anonymous growth incidence curve (Grimm, 2007; Bourguignon, 2011).

three large countries, namely lower middle-income India; upper middle-income Brazil; and high-income United States. The poorest 40% of the populations in these three countries enjoy very different income levels; the mean income for that group in Brazil is equivalent to the ninth decile in India, roughly, and an analogous comparison holds between the United States and Brazil. Whereas the annual mean income among the poorest 40% of US citizens is \$8,861 (in 2011 PPP), it is \$1,819 in Brazil, and \$664 in India – about 13 times less than in the richer country.¹³

Our summary description of shared prosperity trends focuses on the 2008-2013 period, and draws on a World Bank data set known as the Global Shared Prosperity Database (GSPD). This data set consists of growth spells for the income or consumption aggregate for the bottom 40% and for the mean, obtained from intertemporally comparable national household surveys. A first round of data included spells circa 2006-11 and was described in World Bank (2015a) and World Bank (2015b). The second and third rounds focused on spells circa 2007-12 and 2008-13 and were reported in World Bank (2016a and 2016b).

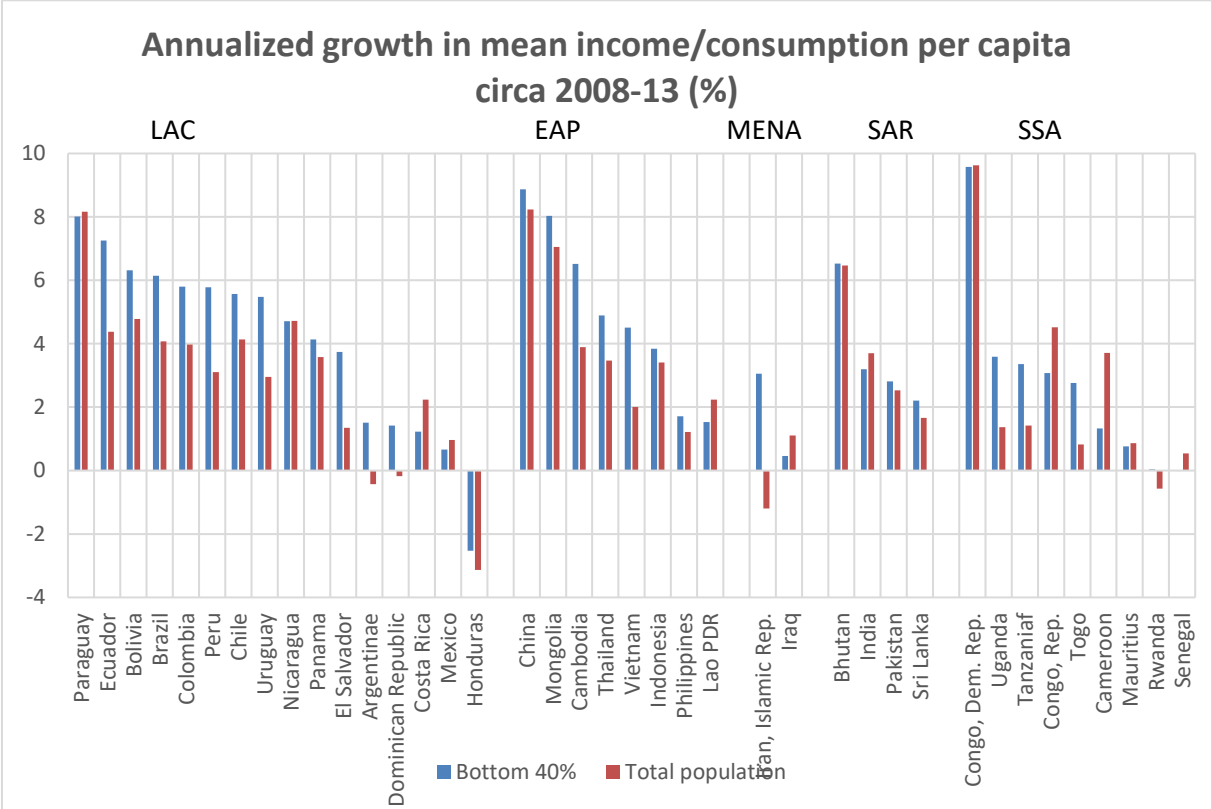
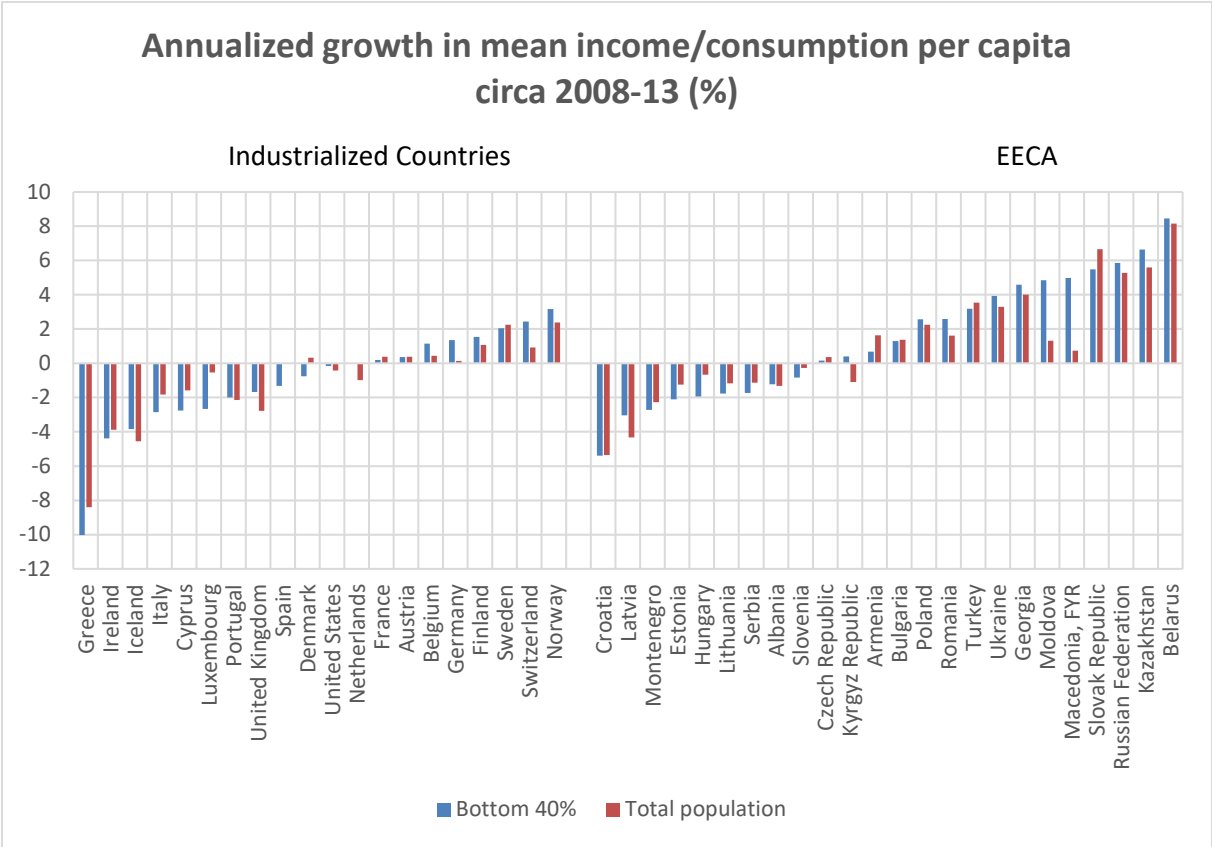
The latest available wave of the GSPD covers 83 countries and provides these two annualized growth rates (for the bottom 40% and the overall mean) for a five-year period circa 2008-13.¹⁴ Though this sample includes fewer than half of the world's countries, it does nevertheless cover 75% of the world's population in 2013. The geographical coverage across regions is unbalanced: of these 83 countries, 24 belong to one single region, Eastern Europe and Central Asia (EECA), while Industrialized countries and Latin America and the Caribbean (LAC) follow in the regional contribution to the sample with 20 and 16 countries, respectively. The sample coverage also differs across regions in terms of population. At the high end, coverage is 94% for East Asia and Pacific (EAP) and 89% for EECA. The coverage rates in the South Asia region (SAR) and LAC are somewhat lower at 87% and 86%, respectively, while the database covers a significantly lower proportion of the population in the Middle East and North Africa region (MENA) - 32% - and Sub-Saharan Africa (SSA) - 23%.

Growth rates for the bottom 40% and for the overall mean are shown in figure 2. During 2008-2013, g_{40} was positive in only 8 of the 20 industrialized countries. In sharp contrast, however, in all other regions most countries had positive growth rates for the bottom 40%. In fact, that is the case for all countries in Asia (EAP and SAR). Overall, 60 countries - representing 72% of the sample - experienced positive average income growth for the bottom 40%. In terms of population, this means that 89% of the population captured by the GSPD (67% of the world's population) lived in countries where the bottom 40% saw their incomes grow during the period circa 2008-13.

¹³ An immediate consequence of this heterogeneity in absolute income levels among people in the bottom 40% across different countries is that the group of people on whom the shared prosperity goal focuses is not the same group as the extreme poor globally. Indeed, in the poorest countries (like Togo or the Democratic Republic of Congo), the incidence of extreme poverty (at \$1.90/day) exceeds 40%, whereas in richer countries, such as Thailand or the Russian Federation, that incidence is close to zero.

¹⁴ As noted in World Bank (2016b), "growth rates are computed as annualized average growth rates in per capita real household income (or consumption) over a five-year period roughly circa 2008–13, where only those countries with surveys that meet the following criteria are included: for the latest household survey year for a country (T1), the most recent survey available between 2011 and 2015 is used. Only surveys collected between three and seven years before the most recent survey are considered for the earlier survey (T0), and of those, the one nearest year T1 – 5 is selected."

Figure 2: Shared prosperity in 83 countries, 2008-13



Source: World Bank calculations based on GSPD 2015. Own elaboration.¹⁵

The simple average of g_{40} across all 83 countries was 2.0%; the population-weighted average was even higher, at 4.3%, mainly driven by the strong performances of larger countries such as Brazil, China, India, and Indonesia. Regionally, EAP, LAC, and SAR attain the best average growth performances with rates of 5.0%, 4.1%, and 3.7% for the bottom 40%, respectively. They are followed by SSA (2.7%), MENA (1.8%) and EECA (1.5%). Industrialized countries experienced, on average, an income contraction of 1.0%.

Industrialized countries and EECA had the largest number of negative bottom 40% growth rates – more than half (12) of the 20 industrialized countries in the sample, most with rates between -1% and -3%. The negative performances of industrialized countries and Eastern Europe and Central Asia reflect the fact that this period includes both the Great Recession of 2008-09 and the European debt crisis that followed it. There is, nevertheless, considerable heterogeneity across countries in the way they fared during the crisis. It is perhaps worth noting that in a majority of those that experienced overall contractions, the bottom 40% was disproportionately hit.

As noted in Section 2, the definition of shared prosperity given by equation (1) – simply the absolute rate of growth of the bottom 40% (g_{40}) – can be usefully complemented by its difference vis-à-vis the growth rate in the overall mean, $g_{40} - g_{\mu}$, the shared prosperity premium. Shared prosperity premia can be observed directly in Figure 2 as the differences between the blue and red bars for each country.

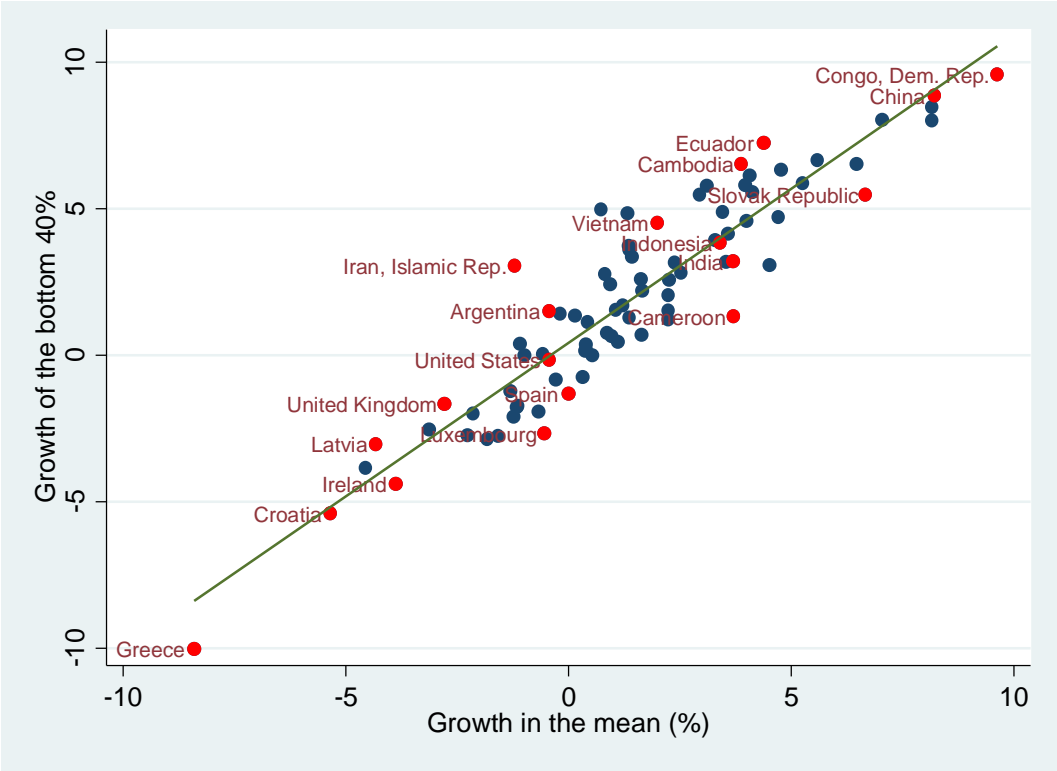
Figure 3 provides an alternative way of depicting information on the relationship between g_{40} and g_{μ} , by plotting one against the other. The fact that a majority of countries lie above the dashed 45-degree line is a rather positive distributional result: of the 83 countries in our sample, income growth was higher for the bottom 40% than for the mean in 49 of them, while in 34 the bottom 40% fared worse than the rest. Of the 75% of the world population, or 5.4 billion people, who are covered by this country sample, 3.5 billion (65%) live in those countries where the shared prosperity premium was positive, i.e. the bottom 40% grew faster than average, while 1.9 billion (35%) experienced the opposite. The population-weighted average of the shared prosperity premium for the sample has a value of 0.4 percentage points.

But **Figure 3** also clearly shows a strong positive association between growth in the mean and in the bottom 40%, with a correlation coefficient of 0.86. On average, higher overall economic growth is strongly associated with growth for the poorest 40% (see also Dollar et al., 2014). Yet, looking beyond the averages, there are potentially significant differences in the kind of growth that takes place and in the link between that growth and the rate at which prosperity is shared. Consider, for example, Cambodia and Cameroon: these two countries grew at a relatively similar rate, 3.9% and 3.7% respectively, but while in Cambodia the bottom 40% grew at 6.5%, in Cameroon they grew at only 1.3%. Another stark comparison is that of the Islamic Republic of Iran and Spain, two countries with poor average growth (-1.2% and 0%, respectively) and very different growth rates among the bottom 40% (+3.1% in the Islamic Republic of Iran, and -1.3% in Spain). Such differences produce contrasting effects on inequality. In the first case, Cambodia decreased its Gini coefficient by 1.1pp per year, whereas Cameroon saw it increase by 0.5pp annually. In the second case, despite an initial difference

¹⁵ As noted in World Bank (2015b), “the comparability of numbers on shared prosperity across countries is strictly around time periods; comparability is limited because household surveys are infrequent in most countries and are not aligned across countries in terms of timing. Consequently, comparisons across countries or over time should be made with a high degree of caution.”

in the Gini coefficient of 8pp, this gap narrowed to 1pp during this period, with the Islamic Republic of Iran experiencing an annual decrease of 1.2pp and Spain an increase of 0.4pp per year.

Figure 3: Growth of the bottom 40% vs. that of the mean, circa 2008-13



Source: World Bank - GSPD 2016. Own elaboration.

In sum, the shared prosperity trends for our sample of countries with available data for 2008-13 are positive, both in terms of the headline indicator of growth in the average income of the poorest 40% (g_{40}) and in terms of the shared prosperity premium ($g_{40} - g_{\mu}$). g_{40} was positive in 60 of the 83 countries, accounting for 89% of the population covered in this sample of countries, despite the fact that this period was marked by a global financial crisis, the magnitude of which had not been seen since the Great Depression of the 1930s. Nevertheless, the fact that 11% of the population in the sample lived in countries where average incomes for the bottom four deciles fell is obviously a source of concern and reinforces the need for micro- and macroeconomic policies that protect the most vulnerable during downturns, as well as promote income growth for the poor in the long run.

4. Policies that explore the efficient redistribution space

The intent behind Kaushik Basu’s (2000) proposal of the quintile growth rate as a development objective, as well as of the subsequent adoption of expanded versions of this “shared prosperity” objective by the World Bank and the United Nations, was to re-shape policy. The implicit presumption is that a focus on growth at the bottom of the distribution would lead to materially different policy choices than the ‘old’ objective of (distribution neutral) growth in the mean.

Yet, inspection of Figure 3 and notice of the 0.86 correlation between g_{40} and g_{μ} might suggest that there is little point in re-orienting policy to promote gains among the poor. After all, if growth among the poorest 40% is so closely associated with growth in the mean, would not distribution-neutral policies that establish favorable conditions for investment and growth suffice? Indeed, is there not a danger that any attempt to redistribute opportunity might generate inefficiency and harm future growth? Forty years ago, Arthur Okun famously hypothesized that redistributive policies that moved resources from the well-off to the poor implied a “big trade-off” between equity and efficiency (the ‘leaky buckets hypothesis’ of Okun, 1975). This assumed trade-off rested on the premise that, in the absence of lump-sum taxes and transfers, any redistribution would distort incentives for production and thus inherently reduce the overall pool of resources in the economy.

However, the literature has since evolved to acknowledge that, in the presence of market failures, this general equity-efficiency trade-off does not necessarily hold. There is space for redistribution policies that also increase aggregate efficiency. Greenwald and Stiglitz (1986), for example, provide one of the seminal theoretical contributions proving the existence of such an efficient redistribution space. They show that, in the presence of market imperfections, there are always policies that can make some groups better off without making anyone worse off. In a world with market imperfections, initial endowments and opportunities matter for individual income growth, and short-term interventions may have long-term impact on welfare.

In this section, we provide some empirical illustrations of policies in this efficient redistribution space. We briefly describe two policy domains that exemplify these Pareto-improving policies, which may foster investments in the poor that are efficient (in the sense that they generate positive social returns net of costs) and equitable. The first is what James Heckman and co-authors call “pre-distribution”, while the second consists of specific examples of more old-fashioned “re-distribution”. Both areas have generated large bodies of evidence in the literature and we do not survey them comprehensively. The intent here is merely to provide examples of a policy space capable of contributing both to greater shared prosperity and to a greater shared prosperity premium.

4.1. Pre-distribution

The large literature on the economics and biology of human development provides an important contribution for our understanding of the determinants of income inequality, inequality of opportunity, and intergenerational mobility (Heckman, 2006). There is compelling evidence that socio-economic gaps in skills open up in early ages for both cognitive and non-cognitive skills, and this persistent disadvantage shapes socioeconomic outcomes later in life.¹⁶ As a consequence, the *timing* of interventions along the life-cycle (early life *versus* remediation) has important implications for the discussion of trade-offs in terms of efficiency *versus* equity. What Heckman calls ‘pre-distribution’ interventions that target children in disadvantaged families are socially optimal (Heckman and Mosso 2014).

¹⁶ The result follows from the fact that early skills allow attainment of more skills at a later stage (self-productivity) and that skills at one point in time make later investment more productive (dynamic complementarity) in the language of Cunha and Heckman (2007). Another aspect of this complementarity is that early investments are not productive if not followed by later investments. These two features of the technology of skills formation are such that the equity-efficient trade-off is not binding for early investments: returns to investing early are high, and later remediation is more difficult and costly.

One example includes health, nutrition, and early childhood interventions that seek to affect the role of early environments in shaping long-term inequalities. In developing countries, policies targeted at promoting survival, nutrition, and early stimulation during the first years of life have the highest potential returns on long-term outcomes. Providing access to antenatal care and ensuring that births are managed by skilled professionals reduce the odds of maternal and child mortality (Campbell et al., 2006). While most successful interventions start before the age of two, investment during the critical prenatal period has significant long-term consequences on outcomes: cohorts who were affected by large extreme shocks when in the womb, such as famines, influenzas, and droughts, have long-term consequences on schooling, income, and health problems (Almond and Currie, 2011). Even less extreme events during pregnancy, such as exposure to stress and pollution or lack of key micronutrients, can have sizable long-term negative consequences.

Beyond birth and survival, the socioeconomic gaps in child outcomes reflect important differences in the quality of early environments. Supporting parents and early mentors such as preschool teachers can promote skill development, attenuate the negative impact of economic adversities, bridge early gaps, and lay the foundations for improvements of long-term outcomes in terms of reduced crime, greater education and earnings, and improved adult health (Heckman et al., 2010, Campbell et al., 2014, Gertler et al., 2014).

However, given the technology of skills formation, early investments need to be reinforced by subsequent investments in high-quality education during primary and secondary schooling. Attending better schools boosts academic performance (and eventually earnings), especially among families at the bottom of the income distribution. Research on measuring the impact of teachers on long-term outcomes (in the U.S. and the Americas)¹⁷ suggests that policies aimed at recruiting better teachers or helping them to improve their skills and teaching practices, as well as policies that provide incentives to motivate teachers for better performance, have high payoffs (World Bank, 2018).

Nor is it all about children and cognitive skills. The fact that non-cognitive skills are malleable up to late adolescence opens the window for interventions targeted at disadvantaged groups and tailored to their needs. Personalized counseling to disadvantaged youth in Chicago and in Liberia translated into improved schooling and reduced violent crime and behavior (Heller et al., 2017; Blattman, Jamison and Sheridan, 2017). Approaches that integrate vocational training for out-of-school adolescent girls with life-skills training to foster non-cognitive skills hold equal promise to break the intergenerational transmission of poverty (Bandiera et al., 2015). The question of whether these adolescent interventions have sustained impacts on the beneficiaries' wellbeing beyond the short one-year effect and in other settings is an open and fertile area for future investigation.

4.2. Re-distribution

¹⁷ Chetty, Friedman, and Rockoff (2014) find that students assigned to better teachers in 3rd grade are more likely to attend college and earn higher salaries when adults. The importance of the quality of teachers and classroom practices on children's learning outcomes has been recently confirmed in Ecuador (Araujo et al, 2016) and Romania (Pop-Eleches and Urquiola, 2013). See Bruns and Luque (2014) for a comprehensive overview of the evidence in Latin America, and the most recent World Development Report on learning (World Bank, 2018).

Crucial though pre-distribution policies are in promoting efficiency gains among the poor, there may still be a useful role for some more standard re-distribution policies, so long as they are well designed and implemented. Safety nets that are targeted to the poor may have dynamic efficiency effects if they help overcome constraints to productive investments in human capital or self-employment activities. A large literature on conditional cash transfers (CCTs), the early part of which was summarized by Fiszbein et al. (2009), has documented gains in terms of access to education and health services, with larger effects on improved access among the poorest. Yet, conditional cash transfers have shown mixed evidence on nutrition and learning outcomes, limiting their stated role in promoting equality of opportunity in the long run.

Going forward, there are important avenues that exploit the efficient redistribution space and that may enhance the medium- and long-term returns to short-term social protection interventions targeted at the poor. As mentioned above, *aligning the timing of the targeted transfers to the critical and sensitive periods of human capital accumulation* has the potential for achieving long-term efficiency and equity gains. Reducing exposure and costly ex-post responses to large weather shocks, especially in settings with limited access to formal and informal coping mechanisms, has important protective effects on long-term human capital accumulation.

A CCT in Nicaragua showed long-term improvements in cognitive skills after having stopped operating, but only for boys who were exposed to the program during the first two years of life (Barham, Macours and Maluccio, 2013). A recent long-term follow-up of the CCT program in Mexico (Parker and Vogl, 2018) finds that greater exposure to the program before the age of 12 improves educational attainment, labor market attachment, and household economic outcomes in adulthood, with effects more pronounced for women. These results echo evidence on the long-term benefits of access to food stamps in the US. Exposure to the intervention *in utero* or during the first years of life showed sustained long-term effects on birth outcomes, adult metabolic outcomes, and long-term economic well-being (Hoynes, Shanzenbach and Almond, 2016; Hoynes and Shanzenbach, 2018).

Beyond the role that safety nets may play in raising the human capital of *future* generations, there is scope for targeted social protection programs aimed at improving the income prospects of the *current* generation of poor. Transfers may spur the income prospects of the poor by removing credit constraints that prevent them from engaging in productive activities: one-quarter of the income received by *Oportunidades* beneficiaries in Mexico was saved and reinvested in productive self-employment activities (Gertler, Martinez and Rubio-Codina, 2012). The shared prosperity potential of social protection is maximized when it provides insurance and a consumption or income floor to the poor.¹⁸ Sustained income transfers to the poor may unlock income prospects of the poor by providing the *ex-ante* insurance against income fluctuations that is needed to promote entrepreneurship investment in self-employment activities (Bobbia and Bianchi, 2013).

Finally, given the compounded constraints and deprivations of the extreme poor, integrated approaches that combine short-term protection with medium-term promotion might be needed to jump-start the extreme poor and take them on a sustained trajectory out of poverty. An example of such an integrated approach in Bangladesh (the Ultra Poor Graduation approach) has significantly improved the earnings of its beneficiaries by 38%, helping lift 11% of the beneficiaries out of poverty

¹⁸ Chetty and Looney (2006) model the welfare value of social insurance in developing countries.

and closing around 40% of the gap in occupation and earnings compared to the middle class (Bandiera et al, 2017), with analogous replications in a multi-country study (Banerjee et al, 2015). An ongoing and active research agenda is now seeking to disentangle the relative roles of the different components of the package, especially among the poorest.

Of course, the above examples, grouped under the “pre-distribution” and “re-distribution” headings, are certainly not exhaustive. We feel their focus on human-capital building and smart social protection warrant special emphasis, but there are other examples from different policy realms. Research from the US highlights how equality of opportunity is strongly intertwined with location (Chetty, Hendren Klein and Saez, 2014). Policies that reduce geographic isolation and promote mobility by helping people move to better areas, or investments in infrastructure and public goods that enhance the income generating ability of the poor *in situ*, might play an important role in promoting shared prosperity.

The evidence on the social returns on investment in infrastructure is mixed and likely to be context-specific. Electrification of poor areas, for example, has resulted in an increase in earnings in South Africa (Dinkelman, 2011) and Brazil (Lipscomb et al., 2013) but failed to translate into meaningful economic impact in a poorer setting such as Kenya (Lee, Miguel and Wolfram, 2016). Analogously, investments in rural roads in India helped facilitate access to external labor markets, rather than promoting the growth of jobs and economic opportunity for the poor within villages (Asher and Novosad, 2018).

Financial inclusion can also help, by directly addressing some of the credit market failures that generate inefficiencies in the first place. Improved access to credit and savings through one-off grants had long-lasting effects on income growth on male-owned self-employment enterprises in Sri Lanka, by tackling investment constraints of households and small businesses that potentially face high returns to capital (de Mel, McKenzie, and Woodruff, 2008, 2012). At the micro-level, bank expansion in India to previously unbanked rural areas substantially increased credit and savings mobilization and credit provision in rural unbanked locations and translated into a reduction in rural poverty in India (Burgess and Pande, 2005). Geographic expansion of commercial banks (Bruhn and Love, 2013) had a similar effect in Mexico, with larger effects on households with below median incomes and geographic areas previously underserved by formal banking.

5. Conclusions

The expression “shared prosperity” has recently gained prominence as a development objective – a social goal that should be pursued by all nations. Its promotion has been adopted as one of two central objectives that are meant to guide everything the World Bank does, and a closely-related objective is listed as goal 10.1 in the UN Sustainable Development Goals.

As understood at the World Bank, shared prosperity is measured as the rate of growth in the mean income or consumption of the poorest 40% of a country’s population. SDG 10.1 exhorts countries to make that rate higher than the growth rate of the overall mean. In both cases, the fundamental idea is that the money-metric component of development ought to be assessed by the rate at which those

at the bottom of the distribution are progressing. It is a Rawlsian ideal, brought to these development institutions by means of Basu's (2000) simple notion of a quintile growth rate.

In this paper we first discussed how this notion relates to the standard concepts of social welfare, poverty, inequality, and mobility. As operationally defined, shared prosperity is a measure of the change in social welfare, truncated at the fourth decile. It places no weight on people (currently) above that threshold, and the weights it places on those below are increasing in their income. The measure is different from but analogous to a measure of change in poverty rates. The shared prosperity premium – the difference between the growth rate of the mean for the bottom 40% and the growth rate in the overall mean – is similarly analogous to a measure of change in inequality, though some nice properties are lost by the truncation here, too.

Second, we described the performance of the shared prosperity indicator for as many countries as we could in the 2008-2013 period. Of the 83 countries for which information was available, mean incomes for the poorest 40% rose in 60. These countries represented 89% of the population of the country sample, and 67% of the world's population. The other 23 countries, where shared prosperity fell, are over-represented among industrialized and Eastern European countries, which were hit harder by the global financial crisis and the European debt crisis that followed. Greece recorded the worst performance in the sample, with the mean income of its poorest 40% falling by 10%. Growth for the bottom 40% was higher than growth in the overall average income – a positive shared prosperity premium - in 49 of the 83 countries, representing 65% of the population of the country sample.

Finally, we reviewed a set of policies that have been shown, at least in certain contexts, to promote productivity and well-being among the poor. We began by noting that growth in the incomes of the poorest 40% is highly correlated with overall economic growth, so the promotion of macroeconomic stability, investment, innovation, openness, and other factors generally associated with economic growth are obviously important. Faithful to the spirit of the target, however, we focused on policies that promote greater opportunity for growth at the bottom of the distribution, which we grouped into two broad categories: pre-distribution and re-distribution policies.

The general message arising from this brief review of policy interventions is that development economists have been able to rigorously establish that a number of different micro-level interventions can help build – and protect – the human capital of the poor, often with measurable impacts on their subsequent earnings. The promotion of shared prosperity will certainly involve careful macroeconomic management, but it can also involve greater and better-designed investments in poor people themselves.

6. References

- Almond, Douglas and Janet Currie (2011): "Human Capital Development Before Age Five." *Handbook of Labor Economics*, **4(B)**: 1315-1486
- Araujo, M. Caridad, Pedro Carneiro, Yyannú Cruz-Aguayo and Norbert Schady (2016): "Teacher Quality and Learning Outcomes in Kindergarten," *Quarterly Journal of Economics*, **131(3)**: 1415-1453.
- Asher, Sam and Paul Novosad (2018): "Rural Roads and Local Economic Development", processed, World Bank Development Research Group.
- Bandiera, Oriana, Niklas Buehren, Robin Burgess, Markus Goldstein, Selim Gulesci, Imran Rasul and Munshi Sulaiman (2015): "Women's Empowerment in Action: Evidence from a Randomized Control Trial in Africa." LSE, STICERD - Economic Organisation and Public Policy Discussion Papers Series 50.
- Bandiera, Oriana, Robin Burgess, Narayan Das, Selim Gulesci, Imran Rasul, and Munshi Sulaiman (2017): "Labor Markets and Poverty in Village Economies." *Quarterly Journal of Economics*, **132(2)**: 811-870.
- Banerjee, Abhijit V., Esther Duflo, Nathanael Goldberg, Dean Karlan, Robert Osei, William Pariente, Jeremy Shapiro, Bram Thuysbaert, Christopher Udry (2015): "A multifaceted program causes lasting progress for the very poor: Evidence from six countries." *Science*, **348**: 6236.
- Barham, Tania, Karen Macours, and John A. Maluccio (2013): "Boys' Cognitive Skill Formation and Physical Growth: Long-Term Experimental Evidence on Critical Ages for Early Childhood Interventions." *American Economic Review*, **103(3)**: 467-71.
- Basu, Kaushik (2000): "On the Goals of Development." In Gerald Meier and Joseph Stiglitz (eds.) *Frontiers of Development Economics, The Future in Perspective*, New York: Oxford University Press.
- Blattman, Christopher, Julian C. Jamison and Margaret Sheridan (2017): "Reducing Crime and Violence: Experimental Evidence from Cognitive Behavioral Therapy in Liberia." *American Economic Review*, **107 (4)**: 1165-1206.
- Bobba, Matteo and Milo Bianchi (2013): "Liquidity, Risk, and Occupational Choices." *Review of Economic Studies*, **80 (2)**: 491-511.
- Bourguignon, François (2011): "Non-Anonymous Growth Incidence Curves, Income Mobility and Social Welfare Dominance", *Journal of Economic Inequality* **9**: 605-627.
- Bourguignon, François, Francisco H. G. Ferreira and Michael Walton (2007): "Equity, Efficiency and Inequality Traps: A Research Agenda", *Journal of Economic Inequality* **5 (2)**: 235-256.
- Bruhn, Miriam and Inessa Love (2013): "The Real Impact of Improved Access to Finance: Evidence from Mexico." *Journal of Finance*, **69 (3)**: 1347-1376.
- Bruns, Barbara and Javier Luque (2014): *Great Teachers: How to Raise Student Learning in Latin America and the Caribbean*. Washington D.C: The World Bank.

- Burgess, Robin and Rohini Pande (2005): "Do Rural Banks Matter? Evidence from the Indian Social Banking Experiment." *American Economic Review*, **95** (3): 780–95.
- Campbell, Frances, Gabriella Conti, James Heckman, Seong Moon, Rodrigo Pinto, Elizabeth Pungello and Yi Pan (2014): "Early Childhood Investments Substantially Boost Adult Health." *Science*, **343** (6178).
- Campbell, Oona M.R. and Wendy J. Graham, on behalf of The Lancet Maternal Survival Series steering group (2006): "Strategies for reducing maternal mortality: getting on with what works." *The Lancet*, **368** (7): 1284-99.
- Checchi, Daniele and Vito Peragine (2010): "Inequality of opportunity in Italy." *Journal of Economic Inequality*, **8** (4): 429-450.
- Chetty, Raj and Adam Looney (2006): "Consumption smoothing and the welfare consequences of social insurance in developing economies." *Journal of Public Economics*, **90**: 2351-2356.
- Chetty, Raj, John N. Friedman, and Jonah E. Rockoff (2014): "Measuring the Impacts of Teachers II: Teacher Value-Added and Student Outcomes in Adulthood." *American Economic Review*, **104** (9): 2633-79.
- Chetty, Raj, Nathaniel Hendren, Patrick Kline and Emmanuel Saez (2014): "Where is the land of Opportunity? The Geography of Intergenerational Mobility in the United States", *Quarterly Journal of Economics*, **129** (4): 1553-1623.
- Cunha, Flavio and James Heckman (2007): "The Technology of Skill Formation." *American Economic Review*, **97** (2): 31-47.
- Dang, Hai-Anh H. and Peter F. Lanjouw (2015): "Toward a New Definition of Shared Prosperity: A Dynamic Perspective from Three Countries", World Bank Policy Research Working Paper 7294.
- de Mel, Suresh, David McKenzie and Christopher Woodruff (2008): "Returns to Capital in Microenterprises: Evidence from a Field Experiment." *Quarterly Journal of Economics*, **123** (4): 1329-1372.
- de Mel, Suresh, David McKenzie and Christopher Woodruff (2012): "One-Time Transfers of Cash or Capital Have Long-Lasting Effects on Microenterprises in Sri Lanka", *Science*, **335**: 962-965.
- Dinkelman, Taryn (2011): "The Effects of Rural Electrification on Employment: New Evidence from South Africa." *American Economic Review*, **101** (7): 3078-3108.
- Dollar, David, Tatjana Kleineberg and Aart Kraay (2014): "Growth, Inequality and Social Welfare: Cross-Country Evidence." *Economic Policy*, **30** (82): 335-377.
- Ferreira, Francisco H.G. (2012): "Distributions in Motion: Economic Growth, Inequality, and Poverty Dynamics." Chapter 13 in P.N. Jefferson (Ed.), *The Oxford Handbook of the Economics of Poverty*. New York: Oxford University Press.
- Ferreira, Francisco H. G., Shaohua Chen, Andrew Dabalen, Yuri Dikhanov, Nada Hamadeh, Dean Jolliffe, Ambar Narayan, Espen Beer Prydz, Ana Revenga, Prem Sangraula, Umar Serajuddin and Nobuo

- Yoshida (2016): "A global count of the extreme poor in 2012: data issues, methodology and initial results." *Journal of Economic Inequality*, **14** (2): 141-172.
- Ferreira, Francisco H.G. and Jeremie Gignoux (2011): "The Measurement of Inequality of Opportunity: Theory and an application to Latin America", *Review of Income and Wealth*, **57** (4): 622-657.
- Ferreira, Francisco H.G. and Vito Peragine (2016): "Individual Responsibility and Equality of Opportunity." Chapter 25 in M. Adler and M. Fleurbaey (eds), *The Oxford Handbook of Well-Being and Public Policy*. New York: Oxford University Press.
- Fields, Gary S. (2000): "Income Mobility: Concepts and Measures" in N. Birdsall and C. Graham (eds.) *New Markets, New Opportunities? Economic and Social Mobility in a Changing World*. Washington, DC: Brookings Institution and Carnegie Endowment Press.
- Fiszbein, Ariel, Norbert Schady, Francisco H.G. Ferreira, Margaret Grosh, Niall Keleher, Pedro Olinto and Emmanuel Skoufias (2009): *Conditional Cash Transfers. Reducing Present and Future Poverty*. Washington, DC: The World Bank.
- Foster, James, Joel Greer and Erik Thorbecke (1984): "A class of decomposable poverty measures." *Econometrica*, **52** (3): 761-66.
- Gertler, Paul J., James Heckman, Rodrigo Pinto and Sally Grantham McGregor (2014): "Labor market returns to an early childhood stimulation intervention in Jamaica." *Science*, **344**: 998-1001.
- Gertler, Paul.J., Sebastian W. Martinez and Marta Rubio-Codina (2012): "Investing Cash Transfers to Raise Long-Term Living Standards." *American Economic Journal: Applied Economics*, **4** (1): 164-92.
- Greenwald, Bruce C. and Joseph Stiglitz (1986): "Externalities in Economies with Imperfect Information and Incomplete Markets." *Quarterly Journal of Economics*, **101** (2): 229-64.
- Grimm, Michael (2007): "Removing the Anonymity Axiom in Assessing Pro-Poor Growth." *Journal of Economic Inequality*, **5**: 179-97.
- Heckman, James J. (2006): "Skill Formation and the Economics of Investing in Disadvantaged Children." *Science*, **312**: 1900-1902.
- Heckman, James J. and Stefano Mosso (2014): "The Economics of Human Development and Social Mobility." *Annual Review of Economics* **6**: 689-733.
- Heckman, James J., Seong Hyeok Moon, Rodrigo Pinto, Peter A. Savelyev and Adam Yavitz (2010): "The rate of return to the High Scope Perry Preschool Program." *Journal of Public Economics*, **94** (1-2): 114-128.
- Heller, Sara B., Anuj K. Shah, Jonathan Guryan, Jens Ludwig, Sendhil Mullainathan, and Harold A. Pollack (2017): "Thinking, fast and slow? Some field experiments to reduce crime and dropout in Chicago." *Quarterly Journal of Economics*, **132** (1): 1-54.
- Hoynes, Hilary, Diane Whitmore Schanzenbach, and Douglas Almond. (2016): "Long-Run Impacts of Childhood Access to the Safety Net." *American Economic Review*, **106** (4): 903-34.

- Hoynes, Hilary, and Diane Whitmore Schanzenbach (2018): "Safety net investments in children." Brookings Papers on Economic Activity, Conference Draft, Spring.
- Lakner, Christoph, Mario Negre and Espen B. Prydz (2014): "Twinning the Goals: How Can Shared Prosperity Help to Reduce Global Poverty?" World Bank Policy Research Working Paper No. 7106.
- Lipscomb, Molly, Ahmed Mushfiq Mobarak and Tania Barham (2013): "Development Effects of Electrification: Evidence from the Topographic Placement of Hydropower Plants in Brazil," *American Economic Journal: Applied Economics*, **5** (2): 200–231.
- Lee, Kenneth, Edward Miguel and Catherine Wolfram (2016): "Experimental Evidence on the Demand for and Costs of Rural Electrification", NBER Working Paper No. 22292.
- Okun, Arthur M. (1975): *Equality and efficiency, the big tradeoff*. Washington, DC: The Brookings Institution.
- Parker, Susan W. and Tom Vogl (2018): "Do Conditional Cash Transfers Improve Economic Outcomes in the Next Generation? Evidence from Mexico." NBER Working Paper No. 24303.
- Pop-Eleches, Cristian and Miguel Urquiola (2013): "Going to a Better School: Effects and Behavioral Responses." *American Economic Review*, **103** (4): 1289-1324.
- Ravallion, Martin and Shaohua Chen (2003): "Measuring Pro-Poor Growth." *Economic Letters*, **78** (1): 93-99.
- Rawls, John (1971): *A Theory of Justice*. Cambridge, Mass.: Belknap Press.
- Rosenblatt, David and Tamara J. McGavock (2013): "A note on the simple algebra of the shared prosperity indicator." World Bank Policy Research Working Paper No. 6654.
- Van de Gaer, Dirk (1993): "Equality of opportunity and investment in human capital." Ph.D. Dissertation, Katholieke Universiteit Leuven.
- World Bank (2015a): *A Measured Approach to Ending Poverty and Boosting Shared Prosperity: Concepts, Data, and the Twin Goals*. Policy Research Report. Washington, DC: World Bank.
- World Bank (2015b): *Global Monitoring Report 2014/2015: Ending Poverty and Sharing Prosperity*. Washington, DC: World Bank.
- World Bank (2016a): *Global Monitoring Report 2015/2016: Global Development Goals in an Era of Demographic Change*. Washington, DC: World Bank.
- World Bank (2016b): *Poverty and Shared Prosperity 2016: Taking on Inequality*. Washington, DC: World Bank.
- World Bank (2018): *World Development Report 2018: Learning to Realize Education's Promise*. Washington, DC: World Bank.