

Is Growth of the Pro-Poor Kind? A 'Leftist' Perspective to Pro-Poor Growth Measurement

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Abstract

Pro-poor growth has largely attracted the interest of scholars in the last two decades. Most of the debate has been focusing on (i) the definition of pro-poor growth, and (ii) the identification of effective measurement strategies. In this paper a novel approach to the measurement of pro-poor growth, both in the weak and strong sense, is proposed. Specifically, measures of pro-poor growth are obtained by decomposing the growth rate in such a way as to capture the change in both (i) poverty rate and (ii) income inequality between poor and non-poor individuals. Most importantly, the methodology proposed in this paper is shown to implement an absolute approach to inequality — 'leftist' in Kolm's (*Journal of Economic Theory*, 12:416-442, 1976) words — which has been arguably disregarded in the existing literature. An empirical validation of the methodological proposal is also reported, as well as the consequences of the 'leftist' perspective I opted for is highlighted.

Keywords: pro-poor growth, poverty, inequality

JEL Classification: D31, O15, I3

1. Introduction

Ending poverty is nowadays considered at the top of the international policy agenda since it has been recognized to be an essential tool for sustainable growth; not surprisingly, the eradication of poverty appears as the first of the well known Millennium Development Goals (MDGs), as officially agreed by 189 countries in the 2000 (Millennium Summit, United Nations, New York City).

Over the past decades, the world has registered enormous economic growth driven by globalization and rapid technological progress. This sustained period of strong economic growth has allowed most of countries around the world to lift millions of people out of extreme poverty. Unfortunately, this phenomenon has not prevented the total reduction of poverty because the benefits of strong economic growth have not been evenly distributed, and high levels of income inequality have risen further (e.g., OECD 2014). As such, top international organizations are now required to account for the links between growth, poverty and inequality on promoting development in support of the most in need. In this vein, "pro-poor growth" is pursued through *ad hoc* economic policies targeting the activities of the poorest part of the population (e.g., land reforms, human capital investments, gender gap, access to credit facilities).

Unfortunately, a general agreement on both the definition and the measurement of pro-poor growth is still out of reach, and, as a result, existing empirical evidences are often non-comparable to each

other due to major differences in the implemented notions of pro-poor growth. Not surprisingly, the assessment of pro-poor growth policies — especially in the political debate — is often based on nebulous empirical and anecdotal evidences which jeopardize the effectiveness of pro-poor growth policies, and so poverty eradication.

In this paper, a novel approach to the measurement of pro-poor growth is proposed and empirically validated through an application to World Bank datasets (World Development Indicators 2017, Poverty and Equity 2017). In contrast with the existing literature, the starting-gate of the methodology I propose consists of the decomposition of the growth rate, that is not to be confused with the decomposition of poverty variations over time by which the well known Pro-Poor Growth Index is obtained (Kakwani and Pernia 2000).

Remarkably, the approach proposed in this paper implements a notion of absolute inequality which has been mostly disregarded in income-based measurement strategies for pro-poor growth. Even if the existing literature on relative inequality measurement is clearly overwhelming, there are two motivations, at least, by which the absolute perspective should be opportunely considered for pro-poor growth measurement. First, the eradication of poverty requires absolute income transfers aimed at closing individual poverty gaps. Second, when considering the allocation of “new income” originating from economic growth, one may reasonably agree that poor individuals would be “cheated”² if receiving an equi-proportionate amount of income. In a sense, *“growth that is associated with falling absolute inequality would be particularly pro-poor and, therefore, it is useful to consider this strong absolute concept as well”* (Klasen 2008).

The paper is organized as follows. In Section 2, the major approaches to both the definition and the measurement of pro-poor growth are discussed. The measurement strategy and its empirical validation are reported in Section 3. Remarkably, the empirical application is intended to be a methodological contribution, in that (i) it validates the measurement strategy proposed in this paper, and (ii) highlights the major implications of the absolute inequality perspective as compared to the relative one. Section 4 concludes.

2. Defining Pro-Poor Growth

Notions of *pro-poor* and *inclusive* growth are increasingly evoked for the design of institutional policies both at national and supranational level. Both ideas focus on the allocation of benefits originating from economic growth, but pro-poor growth is strictly concerned with the income (or consumption) distribution, whereas inclusive growth also includes non-income dimensions of well-being like health, education and, especially, the productive employment. As such, while pro-poor growth focuses exclusively on people below the poverty line, inclusive growth is aimed at benefitting all stripes of the society, including the poor, the near-poor, middle income groups, and even the rich (Klasen 2010).

As observed in Abatemarco (2016), the ethical foundations of pro-poor growth can be fairly traced back to the Rawlsian Difference principle by which, it is said, inequalities *“are to be to the greatest benefit of the least advantaged members of society”* (Rawls 2001). Indeed, in Rawls’ thought, inequalities are expected to generate economic growth which must be to the greatest benefit of the poor individuals (Abatemarco and Stroffolini 2017).

In line with the Rawlsian principle, the notion of pro-poor growth is aimed at emphasizing the need for an additional connotation of economic growth in terms of poverty; in contrast with the Difference

Principle, pro-poor growth focuses on the identification of ‘desirable growth’ depending on its effects on poverty and inequality, whereas Rawls theory is aimed at the identification of ‘legitimate inequalities’ depending on their consequences on poverty, when growth is accounted for.

As regards the definition of pro-poor growth, a separating line is commonly drawn between two approaches, respectively, ‘strong’ and ‘weak’ pro-poor growth. According to the ‘weak’ definition, growth is pro-poor if it leads to any reduction in poverty (e.g., Ravallion and Chen 2003, Ravallion 2004). In this vein, pro-poor growth focuses solely on the link between poverty and growth, regardless of the developments on the inequality front. As a matter of fact, one may observe that, during great economic growth absolute poverty is clearly expected to decrease, and, most importantly, this does not imply that poor individuals have relatively benefitted from economic growth, i.e. as compared to the rest of the population. For instance, China’s very rapid growth and dramatic poverty reduction during the 1980s and 1990s was not pro-poor because poor individuals gained relatively less than the non-poor. More in general, a similar result is expected to occur whenever growth is characterized by a vertical flow of economic gain from the rich to the poor through the spending and consumption of the first — known as ‘trickle-down effect’ — with the poor individual benefitting of economic growth only indirectly. Evidently, following a similar pattern — with no matter of how much the relative gains of poor are growing — might be ineffective for obtaining the eradication of poverty in all its forms.

To overcome such a drawback of the weak approach, a strong definition of pro-poor growth has been also considered. By the latter, growth is said to be pro-poor if, and only if, given that poverty has declined in the presence of growth, it is also the case that poor income units have benefitted more than non-poor ones, that is, if the decline of poverty is associated with the reduction of inequality (Kakwani and Pernia 2000). The simplest 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 poorest individuals is greater than the overall average growth rate (White and Anderson 2001). However, and this has been mostly disregarded in the existing literature, one may spouse the absolute approach to inequality measurement, by which a decline of inequality is said to occur if, and only if, a greatest *amount*, not *share*, of income has benefitted the poor income units as compared to non-poor ones. As far as opting for absolute or relative approaches to inequality is found to remarkably affect empirical findings (e.g., Atkinson and Brandolini 2004), this aspect is immediately relevant for the measurement of pro-poor growth as well.

Depending on the definition one is opting for, several metrics have been proposed for the measurement of pro-poor growth. Remarkably, two major approaches have been proposed in the existing literature.

On the one hand, indices of pro-poor growth have been constructed by averaging the incidence of economic growth on individual incomes below the poverty line (Ravallion and Chen 2003), or, alternatively, by considering the impact of growth on mean income calculated at each percentile (Son 2004). In this vein, According to Ravallion and Chen (2003), growth is said to be of the pro-poor kind in the weak sense if, and only if, ‘the income of poor income units has increased on average’. In addition, growth is said to be of the pro-poor kind in the strong sense if, and only if, ‘the income of poor individuals has increased more than mean income for the entire population’. Alternatively, according to Son (2004), pro-poor growth in the weak sense is observed if, and only if, ‘mean income has increased at each percentile below the poverty line’, whereas pro-poor growth in the strong sense has occurred if, and only, if ‘mean income has increased at each percentile below the poverty line more than mean income for the entire population’. It is worth observing that, as far as the measurement of pro-poor

growth relies on the comparison of the growth rate below the poverty line with the growth rate for the entire population, according to this first measurement approach, strong pro-poor growth is inevitably inspired to a *relative* notion of inequality ('rightist' perspective).

On the other hand, measures of pro-poor growth (weak and strong) are obtained through the decomposition of the change in poverty (Kakwani and Pernia 2000). Here, to capture (i) the effect of growth on poverty independently of redistribution and (ii) the effect of inequality on poverty independently of growth, the variation of the poverty index from one year to another is decomposed in terms of *growth effect* and *inequality effect*. The growth effect on poverty is obtained by constructing a virtual income distribution involving no change in the income shares held by income units, but growth; conversely, the inequality effect on growth is detected by considering the virtual income distribution involving the variation of income shares held by income units, but fixed total income. Once again, the notion of strong pro-poor growth is anchored to the decline of inequality as defined in relative terms, i.e. the sole income shares, not levels, are considered for the 'strong' characterization of pro-poor growth ('rightist' perspective).

In what follows, a simple decomposition of economic growth is proposed by which both strong and weak pro-poor growth dynamics are detected. As compared to previous approaches in the existing literature, I propose to measure pro-poor growth (weak and strong) by decomposing growth, and not the poverty index. Most importantly, I offer a simple metric for the measurement of pro-poor growth when absolute, not relative, inequality is considered. In this sense, growth is said to be pro-poor in the strong sense if, and only if, poverty has declined in the presence of positive growth, and a greatest 'amount of income' (i.e., 'leftist' perspective) has been received by the poor individuals, as compared to non-poor ones.

3. Pro-Poor Growth Measurement: a Proposal

3.1 Decomposition strategy

Let $y_t := \{y_{1,t}, \dots, y_{n_t,t}\} \mathfrak{R}_+^{n_t}$ and $y_{t+1} := \{y_{1,t+1}, \dots, y_{n_{t+1},t+1}\} \mathfrak{R}_+^{n_{t+1}}$ be the increasingly ordered income vectors, respectively, at time t and time $t+1$. Also, given the poverty lines at time t and $t+1$, respectively $z_t \in \mathfrak{R}_+$ and $z_{t+1} \in \mathfrak{R}_+$, let's consider the disjoint and exhaustive partitions of the population at time t and $t+1$, such that $y_t^P := \{y_{1,t}^P, \dots, y_{n_t^P,t}^P\}$ and $y_t^R := \{y_{1,t}^R, \dots, y_{n_t^R,t}^R\}$ are the two increasingly ordered income vectors at time t for the subgroup of poor and non-poor income units respectively, meanwhile $y_{t+1}^P := \{y_{1,t+1}^P, \dots, y_{n_{t+1}^P,t+1}^P\}$ and $y_{t+1}^R := \{y_{1,t+1}^R, \dots, y_{n_{t+1}^R,t+1}^R\}$ indicate the two corresponding increasingly ordered income vectors at time $t+1$. Given the overall mean incomes at time t and $t+1$, respectively, $\mu_t = (n_t^{-1}) \sum_{i=1}^{n_t} y_{i,t}$ and $\mu_{t+1} = (n_{t+1}^{-1}) \sum_{j=1}^{n_{t+1}} y_{j,t+1}$, let $\bar{y}_t^P = (n_t^P)^{-1} \sum_{i=1}^{n_t^P} y_{i,t}^P$, $\bar{y}_t^R = (n_t^R)^{-1} \sum_{i=1}^{n_t^R} y_{i,t}^R$, $\bar{y}_{t+1}^P = (n_{t+1}^P)^{-1} \sum_{j=1}^{n_{t+1}^P} y_{j,t+1}^P$, and $\bar{y}_{t+1}^R = (n_{t+1}^R)^{-1} \sum_{j=1}^{n_{t+1}^R} y_{j,t+1}^R$ indicate, respectively, mean income of the poor and non-poor income units at time t and $t+1$. Finally, let $\pi_t^P = (n_t^P/n_t)$, $\pi_t^R = (n_t^R/n_t)$, $\pi_{t+1}^P = (n_{t+1}^P/n_{t+1})$ be the corresponding relative frequencies.

Given all analytical notations above, overall growth from time t to $t+1$ is defined as

$$g = \frac{\mu_{t+1} - \mu_t}{\mu_t} = \frac{1}{\mu_t} (\pi_{t+1}^P \bar{y}_{t+1}^P + \pi_{t+1}^R \bar{y}_{t+1}^R - \pi_t^P \bar{y}_t^P - \pi_t^R \bar{y}_t^R) \quad (1)$$

where, as far as $\pi^R = 1 - \pi^P$ by construction, then

$$g = \frac{1}{\mu_t} [\pi_t^P (y_t^R - y_t^P) - \pi_{t+1}^P (y_{t+1}^R - y_{t+1}^P) + (y_{t+1}^R - y_t^R)] \quad (2)$$

By adding and subtracting $\pi_t^P (\bar{y}_{t+1}^R - \bar{y}_{t+1}^P)$ in square brackets, overall growth can be decomposed into three components as follows,

$$g = \left[\pi_t^P \left(\frac{y_{t+1}^P - \bar{y}_t^P}{\mu_t} - \frac{\bar{y}_{t+1}^R - \bar{y}_t^R}{\mu_t} \right) \right] + \left[\frac{y_{t+1}^R - \bar{y}_{t+1}^P}{\mu_t} (\pi_t^P - \pi_{t+1}^P) \right] + \left[\frac{\bar{y}_{t+1}^R - \bar{y}_t^R}{\mu_t} \right] \quad (3)$$

where (i) the first component in square brackets on the right-hand side is positive if and only if, on average, poor income units benefits from growth more than non-poor ones in absolute income terms, (ii) the second component is positive if and only if (the frequency of) poverty decreases, and (iii) the third component is determined by the sole variation of mean income in the subgroup of non-poor income units.

To better highlight the impact of inequality on the measurement of pro-poor growth, recall the two-components decomposition of the Gini index in terms of within-group and between-group inequality (e.g., Abatamarco 2010).³ Given $G = [G^w] + [G^b]$ with G^b indicating inequality due to the income gap on average between poor and non-poor individuals, it can be shown that eq. (3) can be equivalently rewritten as⁴

$$g = \left[\frac{\pi_t^P}{\mu_t} \left(\frac{\mu_t G_t^b}{\pi_t^P (1 - \pi_t^P)} - \frac{\mu_{t+1} G_{t+1}^b}{\pi_{t+1}^P (1 - \pi_{t+1}^P)} \right) \right] + \left[\frac{\mu_{t+1} G_{t+1}^b}{\mu_t \pi_{t+1}^P (1 - \pi_{t+1}^P)} (\pi_t^P - \pi_{t+1}^P) \right] + \left[\frac{(\bar{y}_{t+1}^R - \bar{y}_t^R)}{\mu_t} \right] \quad (4)$$

by which the impact of growth on absolute inequality is clearly captured by the first component in square brackets.

3.2 An application to world development indicators

In this Section the decomposition strategy discussed above is applied to World Bank data, as extracted from the World Development Indicators (2017) and the Poverty and Equity (2017) database. These results are compared with an alternative and well-established measure of pro-poor growth, i.e., the Pro-Poor Growth Index (hereafter, PPG-Index) proposed by Kakwani and Pernia (2000).

It is worth observing that this application intends (i) to validate, from an empirical perspective, the measurement proposal in the previous Section, and (ii) to highlight the impact of the absolute approach to inequality measurement we have opted for, as compared to standard measurement techniques relying on notions of relative inequality. As far as the aim of this application is purely methodological, the evidences from different countries are not compared to each other, and, most importantly, policy implications — even if of the greatest importance — are totally disregarded for the purposes of this paper.

3.2.1 Data

The measurement of pro-pro-growth is known to be very information demanding, as income distributions for different countries and periods are simultaneously required. Even worst, it is usually the case that pro-poor growth is investigated for developing countries, whose information are often not accessible, or even nonexistent. Not surprisingly, empirical analyses of pro-poor growth are very rare, and often restricted to specific countries.

Here, World Bank datasets are considered as information on growth, poverty and income shares are available for all countries starting from 1975. The most relevant information — which makes the World Bank dataset eligible for pro-poor growth measurement — consists of the income shares for, respectively, the first decile, the second decile, the second quintile, the third quintile, the fourth quintile, the ninth decile, and the ultimate decile. Given these income shares and the GDP, following Son and Kakwani (2006), the mean income for each of the corresponding (seven) shares is immediately retrieved for each country and year.

As far as information on incomes shares are frequently missing, the analysis is conducted over the period 2002-2012, for ten consecutive yearly growth rates (i.e., 2002-03, 2003-04,...,2011-12). The sole countries with information retrievable for at least six pairs of consecutive years are considered, i.e. Belarus, Brazil, Colombia, Dominican Republic, Kazakhstan, Paraguay, Russian Federation, and Turkey.

A relevant point of departure from existing empirical evidences, which I opted for in this paper, concerns the definition of the poverty line. In the exiting literature, it is usually the case that pro-poor growth analyses are restricted to the sole developing countries. As such, 'global' poverty estimates are considered, meaning that a single international poverty line is adopted, e.g., 1\$ or 2\$ dollars-per-day. Evidently, the use of 'national' poverty lines is to be preferred, depending on the purposes of the analysis, especially when countries strongly differ from each other, e.g. whenever both developing and developed countries are simultaneously considered.

While information on national poverty lines are not disposable from the Poverty and Equity (2017) database, 'headcount poverty ratios at national poverty lines' are available. Given the frequency of poverty and the average income for each of the seven quantiles above, national absolute poverty lines have been estimated by linear interpolation in the closest interval of average incomes including the poverty line.

3.2.2 Estimation

According to the decomposition of overall growth in (3), the measurement of pro-poor growth in both strong and weak sense, requires information on the average income in the overall population, average income for the poor subgroup, average income for the non-poor subgroup, and the headcount poverty ratio; all of them for two consecutive years. While the first and the ultimate variable are immediately disposable from the World Bank datasets, the average income of the poor subgroup of the population is not. So, it has been estimated by linear approximation from existing information on average incomes in each of the seven available quantiles.⁵ Obviously, the average income of the non-poor individuals, for the same country and year, is immediately obtained as a complement of the average income in the subgroup of poor income units.

Given the set of available information from 2002 to 2012, two major decisions need to be highlighted.

First, I opted for the estimation of the pro-poor growth component in the sole years exhibiting positive growth. Second, the estimation of pro-poor growth from 2002 to 2012 is obtained by averaging, for each country, results obtained for each couple of consecutive years. These two decisions are motivated by the ethical foundations of pro-poor growth: to the extent that pro-poor growth policies are expected to characterize the design of growth policies in such a way as to privilege the poorest part of the population — for instance improving immigrants integration, investment in agricultural sector, pro-active labour policies — it does not make any sense to consider periods of negative growth, which are characterized by the failure of growth policies, independently of the pro-poor spirit. In addition, as regards the possibility to consider the sole income distributions in 2002 and 2012 (not in between), this would inevitably hide the capacity of well-designed pro-poor growth policies to generate continuous positive pro-poor growth rates at each year. Obviously this aspect may be hidden by negative growth, especially when economic crises have interested the period of analysis (that is exactly the case for the period 2002-12).

Finally, to better assess the impact of the absolute approach to inequality for the measurement of pro-poor growth, the PPG-Index (Kakwani and Pernia 2000) has been computed as well. This index is obtained by separating the growth and the inequality effect which may have determined the change in poverty. According to Kakwani and Pernia (2000), given a poverty measure as a function of the poverty line z , mean income μ and Lorenz curve $L(p)$, i.e. $P = \theta(z, \mu, L(p))$, the pure growth effect is defined as the change in poverty if the mean income were to change but the relative income distribution remained unchanged. As such, the growth effect, ΔP_μ , can be measured as the change in poverty when comparing the effective income distribution at time t (P_t) with the virtual income distribution at time $t+1$, which is obtained from the effective one at time t by rescaling individual incomes according to the growth rate from t to $t+1$ (P_{t+1}^μ). Similarly, the pure inequality effect is defined as the change in poverty if the Lorenz curve were to change but the mean income remained the same. As such, the inequality effect, $\Delta P_{L(p)}$, is measured by comparing the effective income distribution at time t (P_t) with the virtual income distribution at time $t+1$ ($P_{t+1}^{L(p)}$), which is obtained from the effective one at time $t+1$ by preserving the Lorenz curve while holding average income fixed as in the effective income distribution at time t . Given the growth and the inequality effect on poverty, the overall poverty variation is decomposed, i.e. $\Delta P = \Delta P_\mu + \Delta P_{L(p)}$. From this decomposition, Kakwani and Pernia (2000) propose the PPG-Index which is defined as the ratio between the proportional change in poverty when there is a positive growth rate of 1 percent, and the proportional change in poverty when there is a positive growth rate of 1 percent and the distribution of income does not change, i.e.

$$PPGI = \frac{\frac{\Delta[\log(P)]}{\Delta[\log(\mu)]}}{\frac{\Delta[\log(P_\mu)]}{\Delta[\log(\mu)]}} = \frac{\Delta[\log(P)]}{\Delta[\log(P_\mu)]} = 1 + \frac{\Delta[\log(P_{L(p)})]}{\Delta[\log(P_\mu)]} \quad (5)$$

where $\Delta[\log(P_\mu)] = \log(P_{t+1}^\mu) - \log(P_t) \approx \frac{P_{t+1}^\mu - P_t}{P_t}$, and $\Delta[\log(P_{L(p)})] = \log(P_{t+1}^{L(p)}) - \log(P_t) \approx \frac{P_{t+1}^{L(p)} - P_t}{P_t}$.

According to the PPG-Index in (5), given $\Delta[\log(P_\mu)] < 0$ by construction, (i) growth is pro-poor in the weak sense if $PPGI > 0$ (given that growth is positive). In addition, (ii) growth is pro-poor in the strong sense if $PPGI > 1$. Finally, (iii) growth is poverty enhancing if $PPGI < 0$.⁶

3.2.3 Results

Results of the overall growth decomposition in (3) are reported in Table 1. The ultimate column, instead, reports the PPG-Index as calculated by considering the well known FGT poverty index (Foster et al. 1984) with no inequality aversion (for descriptive statistics and instrumental estimates see Tab 2-5 in the appendix).

Table 1: Growth decomposition and PPG-Index

Country	g^μ	g_1^μ	g_2^μ	g_3^μ	$PPGI^\mu$
Belarus	0.08	-0.01	0.02	0.07	0.74
Brazil	0.03	0.00	0.02	0.01	2.49
Colombia	0.03	0.00	0.02	0.00	1.26
Dominican Rep.	0.05	-0.01	0.01	0.05	-3.40
Kazakhstan	0.07	-0.01	0.03	0.04	1.73
Paraguay	0.04	0.00	0.03	0.01	1.65
Russian Fed.	0.06	-0.01	0.01	0.06	0.32
Turkey	0.06	-0.01	0.03	0.04	1.51

Note. Average growth (g^μ) is the average growth rate for all yearly positive growth rates from 2002-03 to 2011-12 as calculated in terms of 2010 US\$. Similarly, the three components of growth in (3) are averaged by considering the sole years with positive growth (g_1^μ , g_2^μ , g_3^μ). The PPG-Index ($PPGI^\mu$) is obtained by considering national poverty lines from 2002 to 2012 and averaging PPG-Indices calculated for each couple of consecutive years with positive growth rates. Author's computations on World Development Indicators (2017) and Poverty and Equity (2017) World Bank's databases.

Recall that, according to (3), weak pro-poor growth is detected when $g_2 > 0$, whereas $g_1 > 0$ is additionally required for pro-poor growth to be identified in the strong sense. Instead, according to (5) pro-poor growth is detected when $PPGI > 0$, whereas pro-poor growth in the strong sense holds when $PPGI > 1$.

By considering g_1^μ and g_2^μ , growth is found to be of the pro-poor kind in the weak sense for five countries (Belarus, Dominican Republic, Kazakhstan, Russian Federation, and Turkey), whereas strong pro-poor growth is detected for three countries (Brazil, Colombia, and Paraguay).

As one may expect, evidences of strong pro-poor growth, as obtained from (3) by considering an absolute approach to inequality, is generally confirmed by the PPG-Index. However, for two of the five countries reporting weak pro-poor growth in terms of g_1^μ and g_2^μ , strong pro-poor growth is also detected by the PPG-Index (Kazakhstan, Turkey). Once again, this is not surprising as the inequality requirement (absolute) implemented in the growth decomposition is more demanding than PPG-Index's one (relative). Finally, weak pro-poor growth for Belarus and Russian Federation is confirmed by the PPG-Index.

A particular attention is deserved by the case of the Dominican Republic. For the latter, the output of the two approaches clearly differs from each other as weak pro-poor growth is detected when considering g_1^μ and g_2^μ , but no pro-poor growth is found by implementing the PPG-Index. Even if poverty, as measured by the headcount poverty ratio (Tab.3-4, appendix), has increased in the 2012 as compared to the 2002, due to missing information on income shares for Dominican Republic (Tab.5, appendix), the couples 2002-03 and 2003-04 (implying an increase of about 18 percentage points of

the headcount poverty gap) are not considered in the computation. As such, it turns out that for the years averaged in this analysis, the headcount poverty ratio has mostly reduced over time (e.g., in the 2012 as compared to the 2004), even if both positive and negative variations have occurred over time. This is sufficient to make the g_2 component positive (weak pro-poor growth); however, to the extent that, on average, for one percentage point growth, the reduction of poverty in some periods is more than compensated by poverty increments in some other periods, the PPG-Index is found to be negative. Roughly speaking, the PPG-Index is negative because poverty reductions have mostly occurred in periods of stronger economic growth, whereas poverty increments have occurred in periods of lower economic growth.

4. Concluding remarks

In this paper, a new approach to the measurement of pro-poor growth is proposed which, in contrast with the existing literature, originates from the decomposition of growth. As compared to existing methodologies, this measurement proposal implements a leftist perspective to strong pro-poor growth, which requires — in the presence of economic growth — a greatest amount, not share, of income to be received by the population of poor individuals. The measurement strategy I propose, has been empirically validated, and the impact of the absolute approach to inequality is found to be immediately relevant for empirical findings, meaning that, different policy implications might be derived depending on how inequality is defined when measuring strong pro-poor growth.

Endnotes

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² Recalling a famous example from Kolm's (1976) seminal paper, "[i]n May 1968 in France, radical students triggered a student upheaval which induced a workers' general strike. All this was ended by the Grenelle agreements which decreed a 13% increase in all payrolls. Thus, laborers earning 80 pounds a month received 10 pounds more, whereas executives who already earned 800 pounds a month received 100 pounds more. The Radicals felt bitter and cheated; in their view, this widely increased incomes inequality".

³ Evidently, to the extent that individual incomes in the poor and in the non-poor subgroups cannot overlap each other by definition, no residual component is to be accounted for in the Gini decomposition (Lambert and Aronson 1993).

⁴ Given $G^b = \left[(n^2 \mu)^{-1} \left(\sum_{i=1}^{n^P} \sum_{k=1}^{n^R} |y_i^P - y_k^R| \right) \right]$, recall that $|y_i^P - y_k^R| = y_i^P + y_k^R - 2 \text{Min}\{y_i^P, y_k^R\}$ where, by construction, $\text{Min}\{y_i^P, y_k^R\} = y_i^P \forall i, k$. As a result, $(\bar{y}^R - \bar{y}^P) = \mu(\pi^P \pi^R)^{-1} G^b$, which is replaced into eq. (3) in order to obtain eq. (4).

⁵ E.g., let the headcount poverty ratio be 12%, if the average income of the first decile is $x\$$ and the average income of the second decile is $y\$$, the average income in the poor subgroup is obtained by averaging total income in the first decile plus the proportional part of it in the second decile, i.e. $\{0.1x + 0.1[x + [(y - x)(0.12 - 0.1)/(0.2 - 0.1)]]\}/0.2$.

⁶ The limit of the PPGI is that if the poverty line is not constant, then ΔP_μ may be positive when the poverty line has increased. Evidently, this would jeopardize the interpretation of metrics as defined above. However this is not jeopardizing the use of the PPG-Index in empirical analyses. Basically, if $\Delta P_\mu > 0$, then growth is weakly pro-poor when $PPGI < 0$; in addition, it is strongly pro-poor when $PPGI < -1$. If $\Delta P_\mu > 0$ and $0 < PPGI < 1$, then growth is not weakly pro-poor, so that it cannot be strongly pro-poor as well, even if $\Delta P_{L(p)} < 0$.

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Appendix

Table 2: Average incomes in 2010 US\$

Country	Y₂₀₀₂	Y₂₀₀₃	Y₂₀₀₄	Y₂₀₀₅	Y₂₀₀₆	Y₂₀₀₇
Belarus	3126	3369	3781	4165	4610	5030
Brazil	8923	8911	9309	9494	9762	10245
Colombia	4826	4946	5141	5312	-	-
Dominican Rep.	4075	4003	3996	4302	4693	5030
Kazakhstan	5607	6107	6648	7228	7918	8524
Paraguay	2570	2633	2695	2708	2797	2907
Russian Fed.	7209	7769	8361	8927	9687	10534
Turkey	8003	8333	9010	9692	10250	10638

Country	Y₂₀₀₈	Y₂₀₀₉	Y₂₀₁₀	Y₂₀₁₁	Y₂₀₁₂
Belarus	5561	5584	6030	6377	6493
Brazil	10659	10539	-	11559	11670
Colombia	6049	6079	6251	6592	6790
Dominican Rep.	5121	5100	5452	5548	5631
Kazakhstan	8698	8574	9072	9605	9924
Paraguay	3050	2890	3226	3321	3236
Russian Fed.	11090	10221	10675	11120	11495
Turkey	10598	9973	10672	11683	12054

Table 3: Headcount poverty ratios

Country	π_{2002}	π_{2003}	π_{2004}	π_{2005}	π_{2006}	π_{2007}
Belarus	30.50	27.10	17.80	12.70	11.10	7.70
Brazil	23.30	24.90	22.40	21.00	17.30	16.10
Colombia	49.70	48.00	47.40	45.00	-	-
Dominican Rep.	32.70	41.50	50.00	47.90	44.20	43.60
Kazakhstan	44.50	37.50	33.90	31.60	18.20	12.70
Paraguay	49.70	44.00	41.30	38.60	-	41.20
Russian Fed.	24.60	20.30	17.60	17.80	15.20	13.30
Turkey	30.30	23.80	20.90	16.40	13.30	8.40

Country	π_{2008}	π_{2009}	π_{2010}	π_{2011}	π_{2012}
Belarus	6.10	5.40	5.20	7.30	6.30
Brazil	14.10	13.30	-	11.10	9.00
Colombia	42.00	40.30	37.20	34.10	32.70
Dominican Rep.	44.20	42.10	41.60	40.40	40.90
Kazakhstan	12.10	8.20	6.50	5.50	3.80
Paraguay	37.90	35.10	34.70	32.40	26.90
Russian Fed.	13.40	13.00	12.50	12.70	10.70
Turkey	6.80	4.40	3.70	2.80	2.30

Table 4: Foster-Greer-Thorbecke (1984) poverty index

Country	<i>FGT</i>⁰²	<i>FGT</i>⁰³	<i>FGT</i>⁰⁴	<i>FGT</i>⁰⁵	<i>FGT</i>⁰⁶	<i>FGT</i>⁰⁷
Belarus	0.06	0.05	0.03	0.01	0.00	0.00
Brazil	0.07	0.08	0.06	0.06	0.05	0.04
Colombia	0.18	0.16	0.16	0.14	0.00	0.00
Dominican Rep.	0.09	0.11	0.16	0.15	0.13	0.12
Kazakhstan	0.10	0.07	0.06	0.05	0.02	0.01
Paraguay	0.19	0.14	0.11	0.10		0.12
Russian Fed.	0.05	0.04	0.03	0.03	0.02	0.02
Turkey	0.07	0.05	0.04	0.03	0.02	0.00

Country	<i>FGT</i>⁰⁸	<i>FGT</i>⁰⁹	<i>FGT</i>¹⁰	<i>FGT</i>¹¹	<i>FGT</i>¹²
Belarus	0.00	0.00	0.00	0.00	0.00
Brazil	0.03	0.03	0.00	0.01	0.00
Colombia	0.13	0.11	0.10	0.10	0.09
Dominican Rep.	0.12	0.11	0.10	0.09	0.10
Kazakhstan	0.01	0.00	0.00	0.00	0.00
Paraguay	0.10	0.10	0.10	0.10	0.08
Russian Fed.	0.01	0.01	0.01	0.01	0.00
Turkey	0.00	0.00	0.00	0.00	0.00

Table 5: Yearly growth decomposition

Country	g^{02-3}	g_1^{02-3}	g_2^{02-3}	g_3^{02-3}	g^{03-4}	g_1^{03-4}	g_2^{03-4}	g_3^{03-4}
Belarus	0.08	0.00	0.03	0.06	0.12	-0.02	0.07	0.07
Brazil	0.00	0.00	-0.02	0.02	0.04	0.00	0.03	0.02
Colombia	0.02	0.04	0.02	-0.04	0.04	-0.03	0.01	0.07
Dom. Rep.	-0.02	-0.01	-0.10	0.10	0.00	-0.05	-0.11	0.16
Kazakhstan	0.09	-0.03	0.06	0.06	0.09	0.00	0.03	0.06
Paraguay	0.02	0.05	0.07	-0.10	0.02	0.03	0.03	-0.04
Russian Fed.	0.08	-0.02	0.04	0.06	0.08	-0.02	0.03	0.07
Turkey	0.04	0.00	0.06	-0.02	0.08	-0.02	0.03	0.07

Country	g^{04-5}	g_1^{04-5}	g_2^{04-5}	g_3^{04-5}	g^{05-6}	g_1^{05-6}	g_2^{05-6}	g_3^{05-6}
Belarus	0.10	-0.02	0.04	0.08	0.11	-0.01	0.01	0.10
Brazil	0.02	0.00	0.01	0.01	0.03	-0.01	0.04	-0.01
Colombia	0.03	0.01	0.03	-0.01	-	-	-	-
Dom. Rep.	0.08	-0.01	0.03	0.06	0.09	-0.04	0.05	0.08
Kazakhstan	0.09	-0.01	0.02	0.08	0.10	-0.01	0.10	0.01
Paraguay	0.01	-0.01	0.03	-0.02	0.03	-	-	-
Russian Fed.	0.07	-0.01	0.00	0.08	0.09	-0.01	0.02	0.07
Turkey	0.08	-0.02	0.04	0.05	0.06	0.00	0.03	0.03

Country	g^{06-7}	g_1^{06-7}	g_2^{06-7}	g_3^{06-7}	g^{07-8}	g_1^{07-8}	g_2^{07-8}	g_3^{07-8}
Belarus	0.09	-0.02	0.03	0.08	0.11	-0.01	0.01	0.10
Brazil	0.05	-0.01	0.01	0.04	0.04	0.00	0.02	0.02
Colombia	-	-	-	-	-	-	-	-
Dom. Rep.	0.07	-0.01	0.01	0.07	0.02	-0.01	-0.01	0.04
Kazakhstan	0.08	-0.01	0.04	0.04	0.02	0.00	0.00	0.02
Paraguay	0.04	-	-	-	0.05	-0.02	0.04	0.03
Russian Fed.	0.09	-0.01	0.02	0.08	0.05	0.00	0.00	0.06
Turkey	0.04	-0.01	0.05	0.00	0.00	0.00	0.01	-0.02

Country	g^{08-9}	g_1^{08-9}	g_2^{08-9}	g_3^{08-9}	g^{09-10}	g_1^{09-10}	g_2^{09-10}	g_3^{09-10}
Belarus	0.00	0.00	0.01	0.00	0.08	0.00	0.00	0.08
Brazil	-0.01	0.00	0.01	-0.02	-	-	-	-
Colombia	0.00	0.01	0.02	-0.03	0.03	-0.01	0.04	0.00
Dom. Rep.	0.00	0.02	0.02	-0.04	0.07	-0.02	0.01	0.09
Kazakhstan	-0.01	-0.01	0.03	-0.04	0.06	-0.01	0.01	0.05
Paraguay	-0.05	0.03	0.03	-0.12	0.12	-0.05	0.01	0.16
Russian Fed.	-0.08	0.01	0.00	-0.09	0.04	-0.01	0.00	0.05
Turkey	-0.06	0.00	0.02	-0.08	0.07	0.00	0.01	0.07

Country	g^{10-11}	g_1^{10-11}	g_2^{10-11}	g_3^{10-11}	g^{11-12}	g_1^{11-12}	g_2^{11-12}	g_3^{11-12}
Belarus	0.06	0.00	-0.02	0.07	0.02	0.00	0.01	0.01

Brazil	-	-	-	-	0.01	0.00	0.02	-0.01
Colombia	0.05	0.00	0.04	0.02	0.03	-0.01	0.02	0.02
Dom. Rep.	0.02	0.00	0.01	0.00	0.01	0.01	-0.01	0.01
Kazakhstan	0.06	-0.01	0.01	0.06	0.03	0.00	0.02	0.02
Paraguay	0.03	-0.01	0.03	0.01	-0.03	0.04	0.05	-0.12
Russian Fed.	0.04	0.00	0.00	0.05	0.03	0.00	0.02	0.02
Turkey	0.09	0.00	0.01	0.09	0.03	0.00	0.01	0.03
