Poverty and income growth: Measuring pro-poor growth in the case of Romania

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Abstract: The paper attempts to examine the extent to which income growth was beneficial to poverty reduction in Romania between the years 2000 and 2007. We build income growth incidence curves, both in absolute and relative terms, on the basis of mean individual income by percentiles and then using Ravaillon and Chen approach on pro-poor growth measurement, we argue whether the poor have indeed benefited by the strong economic development of Romania between 2000 and 2007. We find out that between 2000 and 2002 growth was pro-poor both in the relative and weak absolute definitions, while between 2002 and 2007 it was pro-poor in the weak absolute sense, but not for the poor in the relative approach.

Key-Words: pro-poor growth, growth incidence curve, income, poverty, inequality, economic growth.

1 Introduction

Pro-poor growth, meaning growth that is particularly beneficial to the poor, as well as its measurement, have become central issues in researches related to poverty and inequality. In the context of global concern on poverty alleviation, finding out whether economic growth is beneficial for the poor and measuring the extent of it seems to be an important challenge. Romania has experienced a reduction of absolute poverty incidence (calculated on individual consumption data) after 2000, along with the economic growth, but relative poverty (computed as the share of individuals out of the total population who earn less than 60% of the median income) has remained constant across the time period under study. We explain this by the increasing inequality levels in the income distribution which consequently raises the question of whether the poor benefited of growth at least as the non-poor. In order to make a contribution to the settlement of this debate, our paper aims at measuring pro-poor growth in Romania, analyzing the period between 2000 and 2007, which is characterized by strong economic growth. We split the time series into two sub periods, 2000 and 2002, respectively 2002 and 2007, in order to capture whether the substantial changes that took place in 2002 in the social policies directed to the poor (e.g. minimum guaranteed income) influenced the extent of pro-poor growth. For the definition of pro-poor growth we follow OECD’s approach on the debate of defining pro-poor growth and employ three dimensions: on one hand, the absolute measure, with the strong and weak approaches and the relative measure, on the other hand. Using mathematical and computer techniques we draw income growth incidence curves by percentiles of total income per person for the initial distribution and then, we measure pro-poor growth following Ravallion and Chen (2003) [1], as being the area under the growth incidence curve and the vertical poverty line plotted on the percentile axes in the point given by the poverty headcount or, alternatively, the pro-poor growth rate can be measured as the average of income growth rates for the percentiles under the poverty line. In explaining our findings we look at different inequality and poverty indexes, because both theory and empirical evidence show that poverty’s elasticity to growth depends on the initial level of inequality and the changes in the inequality level. We go into detail with our analysis by looking at income components, such as salary and social benefits and build their growth incidence curves in the same manner and discuss their contribution to pro-poor growth. The paper is organized as follows: Section 2 is devoted to theoretical and prior empirical research regarding pro-poor growth measurement, poverty and inequality, Section 3 briefly outlines the main tendencies in inequality, poverty and economic growth in Romania, Section 4 measures pro-poor growth in the income dimension for the case of Romania and discusses the main findings and finally, Section 5 concludes.

2 Pro-poor growth: definition and measurement issues

The concept of “economic growth in support of the poor” aims at combining growth with social policy in
order to achieve poverty reduction. Although economic growth is the basis for increasing national income, it does not necessarily lead to better distribution and poverty reduction. Ideally, the concept of economic growth in support of the poor comprises two basic elements: an increased growth of average incomes and the reducing of inequalities. Specialized technical literature links income growth, inequality and poverty reduction for highlighting the main determinants of pro-poor growth. Ideally, pro-poor growth combines the average income growth with the reduction of income inequality, in order to have a maximum impact on poverty.

2.1 Defining Pro-Poor Growth

Pro-poor growth is defined in literature by a number of international organizations (OECD, UN, World Bank, UNDP), but also by many experts. They started to question on what a significant reduction of poverty is and how much should benefit the poor from the economic growth. According to World Bank documents, a first definition essentially argues on the share of income increase of the poor for a growth model to be considered pro-poor [2]. The simple version of this definition proposed by White and Anderson (2000) [3] is based on a relative concept of inequality and states that the income growth rate of the poor has to be higher than the average growth rate. Thus, inequality would decrease along with growth, when growth is pro-poor. A more radical criterion (also proposed by White and Anderson (2000)) [3] considers that the share of poor’s income growth in support of the poor comprises two basic elements: an increased growth of average incomes and the reducing of inequalities. Specialized technical literature links income growth, inequality and poverty reduction for highlighting the main determinants of pro-poor growth. Ideally, pro-poor growth combines the average income growth with the reduction of income inequality, in order to have a maximum impact on poverty.

Meanwhile, according to OECD documents, the rate of poverty reduction depends on average income growth rate, initial level of inequality and changes in the level of inequality (after World Bank 2000, Bourguignon 2003, Klasen, 2003) [6].

2.2 Measurement of pro-poor growth in the income dimension

Despite a consensus on the relationship between growth, inequality and poverty reduction, there is still significant debate on conceptualization and measurement of pro-poor growth. [7] According to OECD documents, there are two dimensions for measuring pro-poor growth [4]: One is the relative dimension which is easier to develop. It suggests that a growth policy can be considered pro-poor if their income growth rate exceeds the growth rate of average income. In other words, growth must be targeted to the poor. According to this approach, income inequality must be reduced. The absolute dimension is more difficult to cope with. There are two types of absolute dimensions: one is referring to the fact that growth is pro-poor if the absolute income gain of the poor is larger than on average (or of the non-poor). This dimension is called ”strong absolute”. Another absolute scale on which the political debate focuses is going in a totally different direction. It suggests that growth can be pro-poor if the income growth rate of the poor is greater than zero. This dimension is called ”weak absolute”. The main argument of this method is based on the fact that it measures how much the income of poor increased compared with the income of non-poor.

3 Variables: poverty, growth, inequality

3.1 Relative poverty. Absolute poverty

Currently Romania uses two indicators to measure monetary poverty: absolute poverty (using a poverty threshold determined by the costs required to obtain a consumer basket of minimum daily caloric requirements) and relative poverty (using as a threshold, most often of 60% of the median disposable income per adult equivalent). Absolute poverty has been established, according to the national methodology developed in 2002 by experts of the Romanian Government, the National Institute of Statistics and the World Bank as part of a national set of social inclusion indicators. Absolute poverty rate is the share of households whose consumption expenditure per adult equivalent is below the poverty threshold in total population. Extreme or severe poverty is calculated by adding up to the cost of minimum food basket a minimum non-food consumption of goods and services, equal to the costs incurred by individuals whose food consumption equals...
the cost of the food basket. Food basket cost was estimated to provide the necessary 2550 calories per day, depending on the consumption of deciles 2 and 3 of the ascending distribution of total population by consumption expenditure. The relative poverty indicator is based on a methodology approved by the Laeken European Council (2001). This methodology was developed to enable monitoring in a comparative manner the progress of the member states regarding EU targets to fight poverty and social exclusion. Relative poverty indicator is determined by the risk of poverty rate after social transfers, defined as the share of persons with an equivalised disposable income below the poverty risk, which is set at 60% of the average national income equivalent available (after social transfers).

**Fig.1.** At-risk-of-poverty rate, Absolute poverty and Real GDP growth rate during 2000-2008

With regard to absolute poverty, this indicator is placed on a constantly descending trend. As for the relative poverty, worrying is that, according to EUROSTAT data, though it registers a small increase in 2006 compared to 2000, from 2006 to 2008 it grows with a highly accelerated pace, from 19% to 25%, an unprecedented for our country in any period considered from 1996 to 2008, nor in other countries. This trend of the relative poverty indicator means that, in fact, inequality has not changed significantly in the period 2000-2005, when the relative poverty indicator oscillated between 17-18%. Insignificant change in the relative poverty indicator over the years until the year 2006 might suggest that benefits of growth were distributed fairly among income groups. Instead, since 2006, relative poverty was placed on a slightly upward slope (19%), then, in 2007-2008, has seen a significant increase from 19% to 25%. Clearly, inequalities have changed substantially since 2006 and the economic growth is not distributed to the poorer population.

### 3.2 Economic growth

We look at the real GDP growth rate, as a percentage over the previous year. According to EUROSTAT data, Romania is placed on a strong upward slope, with small and slight decreases. By correlation, there is a link between economic growth and poverty. Thus, in the period 2000-2008, regarding the economic developments’ influence on the absolute poverty rate, it can be seen in Fig.1 that the absolute poverty has an inverse dynamics compared to the economic growth. The economic growth has a strong and continuous upward trend, with small and light decreases, while the absolute poverty rate decreases strongly and continuously, and the relative poverty rate remains almost constant over the period 2000-2006, boosting in the next three years.

### 3.3 Inequality

#### 3.3.1 Income quintile ratio of population of the upper and lower quintile (S80/S20)

The general indicators of social inclusion Portfolio, published by the European Commission in 2006, refer to the ratio of total income of the upper quintile (20% of the richest, with the highest incomes) and total income of the lower quintile (20% of the poorest, with the lowest incomes). Income quintile ratio S80/S20) is an indicator of income inequality. This indicator which points a polarized or an egalitarian distribution of income indicates how many times the income of the richest fifth of the population is higher compared to the population of the poorest fifth. From 2000 until 2004, Romania has not experienced significant increases from one year to another in the inequality of income distribution. According to EUROSTAT data, inequality of income in this period was not very pronounced, i.e. the ratio of incomes of the richest 20% compared to income of the poorest 20% of total population did not vary greatly from one year to another, the relationship between the two extreme quintile ranking varied between 4.5 to 4.9, in favor of the upper quintile. Since 2005, the gap between the two income quintiles began to differentiate, and thus the differences have widened between the richest and the poorest and the indicator started to put on a continuous upward trajectory, when inequalities have increased during 2005-2008.

#### 3.3.2 Inequality of income distribution - Gini coefficient

A most often used measure to quantify the extent of income inequality is the Gini coefficient/index. The Gini coefficient shows the size of the total income which is to be redistributed if one would like to obtain an equalitarian distribution of income. The Gini coefficient is an indicator of the severity of poverty, which is characterized by unequal distribution of income and resources between members of society. Signifying a higher degree of inequality, respectively a more unequal
distribution of the income, a higher level of the indicator shows a higher risk of poverty. In dynamics, according to EUROSTAT data, the Gini index was placed between 29-38% during 2000-2008.

It can be argued that, in Romania, inequality has been on a sensitive upward slope, the progress was negligible during 2000-2005 (0.29-0.31), then knowing a significant increase (up to 0.38 in 2007). All these indicators of inequality (the ratio of the quintiles, the Gini coefficient) generally indicate a growing trend of economic inequality in this period and show no sign of stagnation or even reversal, but instead sometimes a quite rapid growth from one year to another.

4 Measurement of pro-poor growth in the case of Romania

Following the pro-poor growth measurement described in the previous sections, the first step we take is to generate growth incidence curves for individual income, using income distribution by percentiles of total income per person. In building the incidence curves we take into account the mean individual income by percentiles. We employ annual data released by the National Institute of Statistics (NIS) for the years 2000, 2002 and 2007 and we correct income with the consumption price index in order to obtain comparable income levels for the three years under study. Then, we draw the incidence curves for absolute change by plotting the difference between the mean incomes of every percentile in two moments of time and, for relative change, we plot the mean income growth rate between the two moments. Practically, we draw six incidence curves, three (2007 compared to 2000, 2002 compared to 2000 and 2007 compared to 2002) for absolute change and three for relative change. On the same figure, we draw the initial poverty line for the year 2000, which points at 18, meaning that 18% of the Romanian population had an income level less than 60% of the median income calculated on the income distribution (see Fig. 2).

Fig.2 Income Growth Incidence Curves, Romania

We find out that our results are sensitive to the definition that we use for pro-poor growth and are as follows. We notice that the three curves (GIC 2007/2000, GIC 2002/2000 and GIC 2007/2002) which point the absolute change in income levels by percentiles are upward sloping from the first percentile, which is the poorest one to the last percentile, which is the richest one. This means that the increase in the absolute income was higher for the richer percentiles and, following the definition of absolute pro-poor growth, we can say that between 2000 and 2007 growth was not pro-poor in Romania, in the strong absolute definition. But, the curves which plot the relative income growth rates look somehow different. The growth incidence curve which compares 2002 to 2000 (relative GIC 2002/2000) is downward sloping, indicating that the income growth rates of poor percentiles are higher than those of richer percentiles, thus suggesting that during this period we have experienced a pro-poor growth in the relative definition. Surprisingly, between 2002 and 2007 the income growth rates of the poorer two percentiles are lower than for the rest of the percentiles, in spite of social policies adopted in 2002 and targeted to the poor, e.g. the minimum guaranteed income. On second thought, it is not such a surprise if taking into account evidence that, for example, the minimum guaranteed income program, though performing in coverage, lacked in terms of targeting, meaning that not only the poor benefited (World Bank, 2003, 2007) and that increasing income inequality experienced by Romania during this period negatively affected poverty’s elasticity to growth. Empirical evidence suggests that poverty’s elasticity to economic growth strongly depends on the initial level of inequality and on the changes in inequality level (Bourguignon, 2003; Klasen, 2007) [8], [9]. As a result of increasing inequalities (according to Eurostat data, the Gini index increased from 0.30 in 2002 to 0.36 in 2008 and the quintile ratio from 4.7 to 7 for the same period of time), although decreasing in absolute terms, poverty in Romania has been stable in the relative sense during the studied period (as discussed in the previous section). In other words, social policies succeeded in absolute poverty alleviation, but did not reduce inequalities and relative poverty.

On the entire time period and also on the two sub periods, we observe pro-poor growth in the weak absolute definition, which considers that if the income growth rate of the poor is positive then we are talking about pro-poor growth.

In order to have a more detailed view on the types of income that contribute to pro-poor growth, we draw
incidence curves for salary and social benefits in the same manner as described above. We plot only the relative income growth rate by percentiles, as we have already proved that there is no pro-poor growth in the strong absolute approach. Figure 3 shows the salary’s growth incidence curves for the same periods and Figure 4 shows the growth incidence curves for social benefits. By far, the most interesting finding which came out after studying these curves is that the salary growth incidence curve for 2007 compared to 2002 (SGIC 2007/2002) is downward sloping which indicates that the poorer percentiles experienced a higher relative growth in salaries than the richer percentiles. A possible explanation for this finding is that, first, individuals belonging to the poorer percentiles, if in employment, benefit of the minimum salary; second, the minimum wage has increased approximately two folds between 2002 and 2007 (from 175 RON to 390 RON); third, unemployment rate has been strongly reducing between 2002 and 2007, from 8.4% to 4% (NIS data on registered unemployment) and fourth, employment rate has slightly improved between 2002 and 2007 (from 58% to 58.8%, NIS data) after an important contraction between 2000 and 2002 (from 63.6% to 58%, NIS data).

The other two growth incidence curves for salary, namely SGIC 2007/2000 and SGIC 2002/2000 are upward sloping, thus suggesting that the richer the percentile, the higher the salary growth. The negative values for the poorest percentiles indicate that salary growth rate has been decreasing for the poor between 2007 and 2002, which indicates a non pro-poor growth.

**Fig.3** Salary Growth Incidence Curves, Romania

The social benefits growth incidence curves (SBGIC) are ambiguous in the sense that we would have expected a higher growth rate for the poor as compared to the non-poor. If the SBGIC 2002/2000 suggests a positive growth rate for the poorer percentiles and a negative one for the richest, the SBGIC 2007/2002 points out an increased growth rate for the tails of the social benefit distribution by percentiles compared to the rest of the distribution. This result is rather difficult to interpret as we do not have information on the types of benefits received on average by the individuals belonging to a certain percentile.

**Fig.4** Social Benefits Growth Incidence Curves, Romania

Now, after the discussion of whether Romania has experienced during the years 2000 and 2007 a pro-poor growth based on graphical tools, we believe that the effective calculation of the relative pro-poor growth as the average income growth rate for the poor is useful. Because the poverty line for Romania, for the initial income distribution, is 18%, close to 20% which represent the first two percentiles, we shall use an approximation by assuming that the first two percentiles comprise the poor. So, we compute the average income growth rate for the first and second percentiles (the poor), the average income growth rate for the entire distribution and the average income growth rate for the rest of the percentiles (from the third to the tenth). The results are shown in Table 1.

**Table 1:** Pro-poor growth rate in Romania, 2000-2008

<table>
<thead>
<tr>
<th>Period (from-to)</th>
<th>Pro-poor growth (average income growth rate for the percentiles 1 and 2) (%)</th>
<th>Average income growth rate for the entire distribution (%)</th>
<th>Average income growth rate of non-poor (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002-2007</td>
<td>47.6</td>
<td>59.6</td>
<td>62.6</td>
</tr>
<tr>
<td>2000-2002</td>
<td>25.9</td>
<td>19.9</td>
<td>18.4</td>
</tr>
<tr>
<td>2000-2007</td>
<td>85.9</td>
<td>91.2</td>
<td>92.6</td>
</tr>
</tbody>
</table>

As it can be seen in the highlighted cell of the above table, economic development was pro-poor in the relative definition for Romania between 2000 and 2002, as the average income growth rate of the poor (25.9%) exceeded that of non-poor (18.4%) and also the average income growth rate for the entire distribution (19.9%). Thus, the rate of pro-poor growth between 2000 and 2002 was equal to 25.9%. The same period is characterized by slight inequality increase (from 4.5 to 4.7 in quintile share ratio and from 0.29 to 0.30 in the Gini index) and although pro-poor growth is stronger when it is accompanied by inequality reduction, we believe that the changes in inequality levels are too small to affect the accomplished pro-poor growth. For the other sub period between 2002 and 2007 our calculations show that economic growth, though at a very rapid pace, was not mainly in favor of the poor in the relative definition, but still pro-poor in the weak absolute approach, as the income growth rates of the poor are above zero.

5 Conclusions
Romania has experienced a positive economic development at rapid pace during 2000 and 2007. The number of poor has suffered an important contraction in the absolute definition of poverty, but remained stable in the case of relative poverty. In the meantime, income inequalities have been deepening, especially during the recent years. Our paper aimed at settling the pro-poor growth debate in Romania and, if there was pro-poor growth, it attempted to measure its extent. After employing mathematical and computer-based techniques to draw incidence curves and compute pro-poor growth, the following conclusions have emerged:

1. Our results are very sensitive to the definition that we use for pro-poor growth.
2. Following the definition of absolute pro-poor growth, we can say that between 2000 and 2007 growth was not pro-poor in Romania in the strong absolute definition.
3. Economic growth was pro-poor in the relative and weak absolute senses for the first sub period 2000-2002 and the rate of pro-poor growth was equal to 25.9%.
4. Between 2002 and 2007 the income growth rates of the poorer two percentiles are lower compared to the rest of the percentiles, in spite of social policies adopted in 2002 and targeted to the poor, e.g. the minimum guaranteed income. That is because social policies succeeded in absolute poverty alleviation, but did not reduce inequalities and relative poverty.
5. For the entire time period and also for the two sub periods, we observe pro-poor growth in the weak absolute definition, which considers that if the income growth rate of the poor is positive than we identify pro-poor growth.

6. The analysis of income growth rate by income components show that the salary growth incidence curve for 2007 compared to 2002 is downward sloping which indicates that the poorer percentiles experienced a higher relative growth in salaries than the richer ones; the social benefit growth incidence curve 2002/2000 suggests a positive growth rate for the poorer percentiles and a negative one for the richest ones and the social benefit growth incidence curve 2007/2002 points out an increased growth rate for the tails of the social benefit distribution by percentiles compared to the center of the distribution.

References: