

Assessing The Impact of Economic Growth and Income Inequality on Poverty Reduction: The Case of Macedonia

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Abstract: The past 25 years Macedonia has gone through the process of transition that has affected every domain of the political, economic, and social life. The initial transitional recession has *inter alia* manifested salient effects on the labour market performance. Generally, the transitional reforms initially had negative effects on labour markets, which were manifested in declining participation rates and in persistent high unemployment. Long spells of unemployment have been leading to the degradation and dehumanisation of individuals in society, causing poverty and social exclusion and increasing the burden for the government of providing the necessary safety net. Having in mind the rising poverty during transition, the poverty reduction has become one of the highest priorities in development policy of Macedonian government. In this context, the poverty reduction objective can be achieved by faster growth and/or greater equity. With this regard, determining an optimal combination of these two means appears to be primarily a pragmatic issue. The aim of this paper is to assess the effects of growth and inequality on poverty in a country specific context for Macedonia. For this purpose we first estimate the poverty growth and inequality elasticity for the period from 2000 to 2014. In addition, we calculate inequality-growth trade-off index and pro-poor growth index which show the nature of growth in Macedonia. Finally we present some concluding remarks and formulate policy recommendations for achieving more equitable growth.

Keywords: Poverty, inequality, pro-poor growth.

1. Introduction

The past 25 years Macedonia has gone through the process of transition that has affected every domain of the political, economic, and social life. Nowadays, Macedonia as other Western Balkan countries (WBC) pretends to become a part of the European Union (EU) and has already undertaken measures for meeting the conditions for EU accession. For instance, at the last Western Balkans Summit held on July 4, 2016 in Paris the participating countries reaffirmed that their future lies in the European Union¹. However, the economic performance of Macedonia has not been strong enough compared to more developed transition countries, which already take part of the European Union. In this sense, Macedonia and other WBC are known as 'lagging reformers' with regard to completion of the reforms in all spheres of the society. The effects of transition in this region seem to have been more persistent and traumatic, which imposes a number of challenges for the future socio-political and economic development.

The process of transition, which started at the beginning of 90's was a multidimensional process, which embraced systemic changes in a number of

spheres in the society. In the economic sphere, transition has been characterised by a change in the ownership of capital, liberalisation of goods and capital markets, liberalisation of the foreign economic relations, radical change in the role of the state in the economy, and the creation of a less regulated labour market. In the sphere of social life, transition has led to rising income inequality, a weakening of the middle class and social exclusion of vulnerable social groups. Politically, the transition has been accompanied by the creation of a democratic society, differentiation of power into legislative, executive and judicial branches, the creation of a pluralistic political system and implementation of public and democratic elections (Pechijareski and Rocheska, 1998).

The initial transitional recession is associated with tectonic changes that engendered enormous social costs (Milanovic, 1998). Generally, the costs of transition consisted of decreases in output due to systemic changes and macroeconomic stabilisation that initially led to lower incomes, higher inequality and greater poverty. The transitional period with respect to macroeconomic performance can be divided into two phases. The first phase, also known as 'transformational recession' was characterised by a weak performance of the

¹ Final Declaration by the Chair of the Paris Western Balkan Summit, July 4, 2016;

transition economies, mainly reflected in falling output and increased unemployment and inflation. The second phase was characterised by macroeconomic stabilisation and economic recovery. As a consequence, in most transition countries was observed a so-called U-shaped trend in evolution of the gross domestic product and industrial production (Boeri and Terrell, 2002).

Moreover, the transition imposed job-loss costs due to the processes of ownership restructuring and sectoral reallocation. These processes respectively assume a large-scale transformation of state owned firms into privatised ones and, a reallocation of a substantial part of the labour force from the manufacturing and agricultural sectors towards the expanding service sector (Blanchard, 1997). The experience in almost all transition countries showed that the creation of new jobs in the emerging private sector was not initially strong enough to absorb the mass of workers laid-off from the restructured state-owned firms. At the same time, the mismatch between the skill requirements of newly created jobs and effective skills owned by the workers has become a substantial problem (Svejnar, 2002). Consequently, the labour markets in early transition became less dynamic with a relatively stagnant unemployment pool leading to increases in unemployment and especially long-term unemployment. Long spells of unemployment often leads to the degradation and dehumanisation of individuals in society, causing social exclusion and increasing the burden for the government of providing the necessary safety net.

Having in mind the rising poverty during transition, the poverty reduction has become one of the highest priorities in development policy of transition countries. For instance, the Macedonian government in 2010 has prepared a National Strategy on Alleviation of Poverty and Social Exclusion in the Republic of Macedonia 2010-2020 as a document which reflects its intention for balancing the degree of inclusion and welfare in all social levels. The main strategic objective of the strategy is to reduce poverty and social exclusion in the country by a better utilization of the available human resources, improve conditions for life, work and social conditions for all citizens, system and institutional coordinated activity in the function of

faster development, higher standard and better quality life².

One of the crucial theoretical concepts with this regard is the concept of pro-poor growth which attracts a considerable policy and academic attention. The poverty reduction objective can be achieved by faster growth and/or greater equity. With this regard, determining an optimal combination of these two means appears to be primarily a pragmatic issue. Without going in details of different theoretical strands, in this paper we make an effort to analyse the effects of growth and inequality on poverty in a country specific context for Macedonia. More precisely, we intend to answer to the following research questions: To what extent the economic growth reduces poverty? How, income inequality affects poverty? What policy measures can be recommended in order to influence poverty-growth-inequality nexus? For this purpose, the paper is structured as follows. In section 2 we provide the basic theoretical background regarding the relationship among poverty, growth and inequality, followed by the conceptual framework utilised for assessing these relationship presented in section 3. In section 4 we present the main empirical findings, whereas in section 5 we convey the main conclusions and policy recommendations.

2. Theoretical background

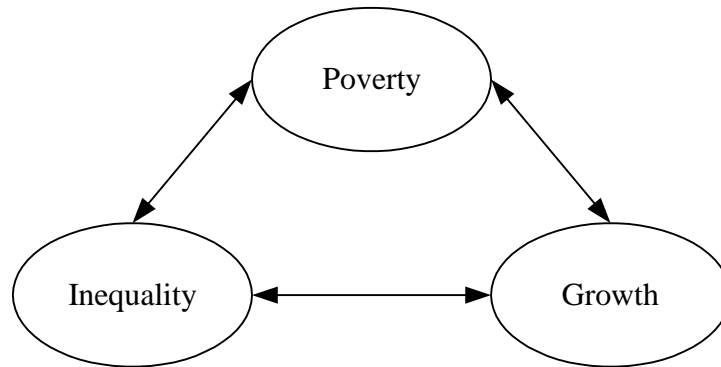
One of the most debatable questions among the policy makers regarding the poverty reduction is whether we should worry about distribution or let the growth do the work of reducing poverty? While, there are strong arguments that growth is good for the poor, growth with redistribution is expected to provide even better outcomes. Hence, before proceeding with an empirical analysis we need to present a theoretical background that explains relationships among poverty, growth and inequality.

The interactions among poverty, growth and inequality can be represented by a set of two-way links. This analytical framework called 'Poverty-Growth-Inequality Triangle' was popularised by the former Chief Economist of the World Bank Francois Bourguignon (2004) and is depicted on Figure 1.

² National Strategy on Alleviation of Poverty and Social Exclusion in the Republic of Macedonia 2010-2020,

Ministry of labour and social policy of the Republic of Macedonia;

Figure 1. The Poverty, Growth and Inequality triangle



Poverty reduction strategies have traditionally focused on economic growth as a main policy for reducing poverty. Namely, economic growth implies a higher income of the population on average which subsequently has impact on poverty reduction. However, the recent studies show that the distribution of income is an important determinant of poverty reduction as well. Depending on how the income growth is allocated in the population, changes in the distribution of income in the country will have impact on the poverty structure. In sum, faster growth usually leads to absolute improvements for all including poor, while greater equity implies relative improvement for the poor.

Having in mind the above reasoning, the concept of pro-poor growth has received considerable attention in determining the effects of growth on poverty while taking into considerations the distribution effects. However, the definition of pro-poor growth is viewed as dubious subject since some definitions are vague regarding its measurement or its policy implications (UN, 2000; OECD, 2001). According to these definitions pro-poor growth is referred as growth that benefits the poor and provides them with opportunities to improve their economic situation. However, more recent definitions are more precise and acknowledge differentiation between weak and strong pro-poor growth (Kakwani et al., 2004). From the point of view of the weak definition, the growth is pro-poor if it reduces poverty howsoever small (Ravallion, 2004). In this case the poor may receive proportionally less benefits from growth than the non-poor and still the growth might be considered as pro-poor. In contrast, the strong definition of pro-poor growth assumes inequality reduction that occurs along poverty reduction during economic growth (Kakwani and Pernia, 2000).

According to White and Anderson (2001), the pro-poor growth is meant by the following three conditions: (i) the poor's share of incremental income exceeds their current share; (ii) the poor's share of incremental income exceeds their share of the population; (iii) the poor's share of incremental income exceeds some international norm. The first of these conditions assumes that the growth increases the poor's share of income. The second condition is far more demanding by stating that the gap between mean income of the poor and overall income must close. The final condition seems more appealing, although its application requires identification of an "international norm" for which there is no agreement.

According to the "trickle down" theoretical concept developed by Kakwani and Pernia (2000), the growth produces a vertical flow of income from the rich to the poor. Namely, the benefits of economic growth go first to the rich, and then in the second round the poor start to benefit when the rich begin spending their gains. Thus, the poor benefit from economic growth only indirectly, which implies that the proportional benefits of growth going to the poor will always be less. As a consequence, when the rich benefit from growth proportionately more than the poor, a pro-poor growth strategy is needed to counteract this bias in favour of the rich. To assist in achieving pro-poor growth, Kakwani and Pernia propose a measure of 'pro-pooriness', called an index of pro-poor growth as the ratio of the rate of poverty reduction to the contribution that growth makes to poverty reduction.

However, the concept of pro-poor index has its advantages and weaknesses. Its strength consists of easy interpretation, but it overstates the importance of inequality reduction for the achievement of poverty reduction. Alternatively, it has been proven that growth which is most

effective at reducing poverty does not necessarily coincide with growth that reduces inequality (Warr, 2005).

3. Conceptual framework

Taking into account the need for determining whether the growth is pro-poor and if so, to what degree, we present the conceptual framework applied for the empirical analysis of the poverty-growth-inequality nexus in Macedonia.

The Foster, Green and Thorbecke poverty measure can be generally written as follows:

$$P_\alpha = \int_0^z \left(\frac{z-x}{x} \right)^\alpha f(x) dx$$

where z is the poverty line, $f(x)$ is the density function of individual income x , and α is the parameter of inequality aversion. When $\alpha = 0$, P_α represents the headcount ratio; when $\alpha = 1$, P_α represents the poverty gap ratio; when $\alpha = 2$, P_α represents the severity of poverty measure. In this paper we focus only on the headcount ratio as a measure of poverty.

The degree of poverty generally depends on two factors: average income and income inequality. While an increase in average income reduces poverty, an increase in income inequality increases poverty. The responsiveness of poverty to changes in mean income when income inequality remains fixed can be measured by the poverty elasticity of growth.

A poverty measure can be written as:

$$P = P(\mu, L(p))$$

where μ is the mean income and $L(p)$ is the Lorenz curve measuring the relative income distribution. In other words, $L(p)$ is the percentage of income that receives the bottom $100 \times p$ of the population.

The poverty elasticity of growth is defined as follows:

$$\eta_\alpha = \frac{\partial P}{\partial \mu} \frac{\mu}{P}$$

which is interpreted as percentage change in poverty in response to a growth rate of 1%

provided income inequality measured by the Lorenz curve remains unchanged. Since, it is assumed that an increase in average income reduces poverty this elasticity is expected to be negative.

Similarly, the poverty elasticity of inequality is defined as follows:

$$\varepsilon_\alpha = \frac{\partial P}{\partial G} \frac{G}{P}$$

which is interpreted as percentage change in poverty when Gini index increase by 1% while mean income remains constant. Since, it is assumed that an increase in income inequality increases poverty, this elasticity is expected to be positive.

By using these two elasticity indices we can calculate inequality-growth trade-off index also known as marginal proportional rate of substitution (*MPRS*) proposed by Kakwani (1993) as follows:

$$MPRS = \frac{\partial \mu}{\partial G} \frac{G}{\mu} = -\frac{\varepsilon_\alpha}{\eta_\alpha}$$

The *MPRS* represents the percentage of growth in mean income that is required to offset the increase in the Gini index by 1 percent. This suggests that with larger value of the growth-inequality trade-off index the benefits of adopting pro-poor policies that reduce inequality will be greater.

Furthermore, we can define the total poverty elasticity δ_α as the proportional change in poverty divided by the growth rate of mean income. Following Kakwani and Son (2008), total poverty elasticity can be written as the sum of two components:

$$\delta_\alpha = \eta_\alpha + \zeta_\alpha$$

where η_α is the poverty elasticity of growth as defined above, while ζ_α measures the inequality effect of poverty reduction. This shows how poverty changes due to changes in inequality that accompany the growth process.

Growth is pro-poor if the change in inequality that accompanies growth reduces total poverty i.e. if the total elasticity of poverty is greater than the growth elasticity of poverty. In this context, Kakwani and Pernia (2000) developed the idea of pro-poor growth index defined as the ratio of the

total poverty elasticity to the growth elasticity of poverty as follows:

$$\varphi_{\alpha} = \frac{\delta_{\alpha}}{\eta_{\alpha}}$$

According to the magnitude of φ_{α} the growth process can be considered as pro-poor, distribution neutral or anti-poor. The growth is pro-poor if φ_{α} is greater than 1, anti-poor if it is less than 1 and distribution-neutral if it is around 1.

4. Empirical analysis

The poverty in Macedonia has been in the focus of policy and academic debates since the outset of transition. With respect to this, the empirical findings point out that incidence of becoming or remaining poor among different population segments is unevenly distributed. For example, the poor persons are more likely to come from households that have many members, especially children and adults who are either economically inactive or unemployed. Additional characteristics which increase the probability of being poor are low educational achievement, belonging to less represented ethnic communities (for ex. Roma), living in suburban areas and in the regions with low GDP per capita (World Bank, 2005; Gerovska Mitev, 2012). Having in mind the persistent pattern in poverty distribution among different population segments, one can expect that the poverty in Macedonia is associated with high income

inequality and potential social exclusion. In this context, the empirical findings from the Balkan region show that many episodes of growth have not been pro-poor (El Ouardighi and Somun-Kapetanovic, 2010), *i.e.* the growth has been often accompanied by a relative impoverishment and increased inequality.

We further present the dynamics of poverty, growth of income and inequality in Macedonia during the period 2000-2014 (Figure 2). As measure of poverty we utilise the Headcount ratio, while the inequality has been assessed by the Gini index. As a growth measure is taken the growth of average household incomes. In order to present the three indicators on same figure we first standardise the variables, while in the subsequent econometric analysis have been used original values.

From Figure 2 we can notice that poverty sharply increased in 2002 and manifested a steady declining trend thereafter. Following the negative economic shock due to the global economic crisis it marked another increase in 2009 and since then started to fall until the present day. The dynamics of Gini index more or less manifests similar pattern as that observed for the Headcount ratio which suggest that we should expect a positive association between the poverty and inequality. In contrast, the dynamics of household income shows different pattern. Namely, it decreased in 2001 and since then continues to increase pointing out to the possible negative association with the dynamics of poverty.

Figure 2. Dynamics in Poverty, Inequality and Growth in Macedonia

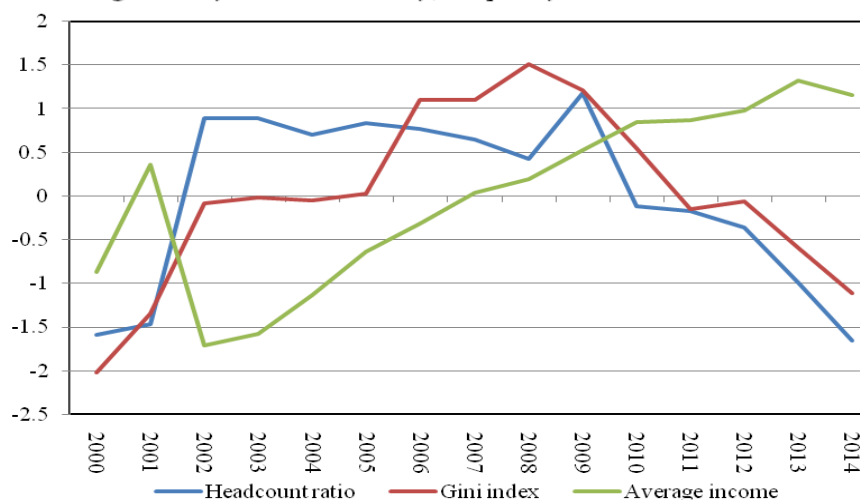


Table 1. Estimation results (Dependent variable log of the Headcount ratio)

Variable	Model 1	Model 2
Constant	4.033718*** (0.001)	8.139828*** (0.000)
y	-.3870554*** (0.000)	-.713916*** (0.000)
g	1.127894*** (0.000)	
y×g		.0897835*** (0.000)
R ²	0.9093	0.9090
F-stat.	60.16 (0.000)	59.95 (0.000)

Note: p-values are in parentheses; */**/** indicate significance at 10/5/1 % level respectively.

In order to obtain the elasticity coefficients we estimate a multiple regression model with log values of the variables. The baseline specification is as follows:

$$p_t = \alpha_0 + \alpha_1 y_t + \alpha_2 g_t + u_t \quad (1)$$

where p , y and g represent logarithms of the measures of poverty, income growth and inequality. The expected sign of the coefficient α_1 is negative which means that the increase of income reduces poverty while the expected sign of the coefficient α_2 is positive which means that increase of inequality increases poverty.

Alternatively, we include the interaction term $y \times g$ in order to assess the effect of inequality on the impact of income growth. In this case we exclude variable g in order to avoid potential multicollinearity problem. The specification will be as follows:

$$p_t = \beta_0 + \beta_1 y_t + \beta_2 y_t g_t + u_t \quad (2)$$

The sign of β_1 is expected to remain negative, while β_2 is expected to be positive. This is because β_2 represent the effect of g on the impact of y , so that as g increases and income distribution becomes less equal, the negative effect of income growth on poverty is reduced.

The estimation results of the specifications (1) and (2) are presented in Table 1.

According to the first specification the elasticity coefficients of both average household income and Gini index have expected signs and are highly statistically significant. That is growth (logarithmic increase in income) reduces poverty, while a rise in inequality raises it. A one percent increase of average household income would cause a decrease in Headcount ratio by 0.387 percent while inequality is constant. In contrast, a one percent increase of Gini index would lead to increase of Headcount ratio by 1.127 percent while income is constant. In addition, we notice that the explanatory power of the model is high, while the F -statistics points out to the entire significance of the estimated model.

In the second specification we include the interaction term $g \times y$ while retaining the average household income as explanatory variable and excluding the Gini index. The coefficient of the interactive term is positive and highly statistically significant, while the coefficient of y remains negative as anticipated. These results suggest that a higher level of inequality would reduce the poverty reduction efficiency of growth at rate of 0.0897 percentage points per each percentage point increase in the Gini index.

By using the estimated partial elasticity coefficients from the first specification we can calculate the marginal proportional rate of substitution.

$$MPRS = -\frac{\varepsilon_\alpha}{\eta_\alpha} = -\frac{1.127894}{-0.3870554} = 2.9$$

The implication from this result is that we need an income growth rate of 2.9 percent to compensate for an increase in Gini index of 1 percent. The high value of *MPRS* suggests that it is of crucial importance to know if there is a systematic tendency for inequality to increase with economic growth.

Furthermore, from the second specification we can calculate the pro-poor growth index as the ratio of the total poverty elasticity to the growth elasticity of poverty as follows:

$$\varphi_{\alpha} = \frac{\delta_{\alpha}}{\eta_{\alpha}} = \frac{-0.713916 + 0.0897835}{-0.713916} = 0.87$$

Since φ_{α} is less than 1, we can conclude that the growth in Macedonia during the above specified period has been generally anti-poor.

5. Conclusions and policy recommendations

In this paper we revisit the issue of pro-poor growth and make an attempt to analyse the impact of growth and inequality upon poverty in Macedonia during the period 2000-2014. The problem of poverty reduction continuously receives attention by the policymakers in developing countries since various strategies can be applied in order to fight high and sustainable poverty. However, this aspect of growth has still not been systematically analysed in the WBC and particularly in Macedonia.

The aim of the paper is to generate new insights of the poverty-growth-inequality nexus in Macedonia by applying an appropriate quantitative approach. Namely, by using econometric modelling we estimate the poverty elasticity of growth and poverty elasticity of inequality. The estimated elasticity coefficients are statistically significant and have expected signs i.e. the increase of income reduces poverty while the increase of inequality increases poverty. Moreover, the poverty elasticity of inequality is almost three times greater than the poverty elasticity of growth which indicates that small changes in income distribution can have a large effect on poverty.

Even though the growth of average income in Macedonia during the previous 15 years has been generally positive, the poor segment of the population has not been experiencing substantial improvement of the living standard. This is partly due to the actual policies that have not been providing opportunities for poor people. Having in

mind that the pro-poor index in the case of Macedonia is less than 1 we can claim that adopting pro-poor policies that reduce inequality will have considerable beneficial effects. Hence, the results from our analyses will be further used for making suitable policy recommendations. The policies aiming to improve the living standard of poor should be undertaken in two directions. First, by providing sustainable economic growth and, second, by improving the relative position of poor population through reduction of inequality.

The poverty reduction cannot be achieved without a sustainable economic growth on long run, which requires several preconditions such as: maintaining the macroeconomic stability, improving the business environment and creation of favourable investment climate that will increase the domestic as well as the foreign direct investment. However, the beneficial effects of economic growth for poverty reduction will be enhanced if it is accompanied by policies aiming more equitable distribution of incomes. Having in mind that the poor people are predominantly long-term unemployed or marginally attached to the labour market, these policies have to consider active labour market measures that will improve their employability. In addition, more equitable distribution can be achieved by reforms in taxation system and better coordination of social policies that have to target the most vulnerable segments. This is feasible only by increasing the transparency of the social programmes and easing the access of poor people to information about various social programmes.

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