

Assessing the poverty-growth-inequality nexus: the case of Macedonia

Dimitar NIKOLOSKI*, Miroslav GVEROSKI**

Abstract

The process of transition in Macedonia, as in other former socialist countries, has affected every domain of the political, economic, and social life. Generally, the transitional reforms initially had negative effects on labour markets, which were manifested in declining participation rates and 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 government's burden of providing the necessary safety net. Having in mind the rising poverty during transition, poverty reduction has become one of the highest priorities in the development policy of the Macedonian government. According to the theory, the poverty reduction objective can be achieved by faster growth and/or greater equity. In this regard, achieving an optimal combination of these two channels 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 and we find that a higher level of inequality would reduce the poverty reduction efficiency of growth. In addition, we calculate the theoretically well established indicators such as: the inequality-growth trade-off index and pro-poor growth index which show that the growth in Macedonia during the above specified period has been generally anti-poor. Finally, we formulate policy recommendations for improving the living standard of the poor and for achieving more equitable growth.

Keywords: poverty, inequality, pro-poor growth

*Dimitar NIKOLOSKI is associate professor at University "St. Kliment Ohridski"-Bitola, FYR of Macedonia; e-mail: dimitar.nikoloski@uklo.edu.mk.

**Miroslav GVEROSKI is full professor at University "St. Kliment Ohridski"-Bitola, FYR of Macedonia; e-mail: mgveroski@yahoo.com.

Introduction

During the past 25 years Macedonia has undergone a process of transition that has affected every domain of the political, economic, and social life. Nowadays, Macedonia, as other Western Balkan countries (WBC), wishes 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 are already part of the European Union. In this sense, Macedonia and other WBC are known as ‘lagging reformers’ with regard to completion of 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 the ‘90s, 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 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 in 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 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 a so-called U-shaped trend in the evolution of the gross domestic product and industrial production was observed (Boeri and Terrell, 2002).

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

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). In almost all transition countries, the experience 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 the newly created jobs and the actual 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 lead to the degradation and dehumanisation of individuals in society, causing social exclusion and increasing the government's burden 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 the 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 prerequisite for balancing the degree of inclusion and welfare at all social levels. The main objective of the strategy is reducing poverty and social exclusion in the country by a better utilization of the available human resources, improving living and working conditions for all citizens, assuring institutionally coordinated activity in order to achieve faster development, providing higher standards and better quality of life².

One of the crucial theoretical concepts in this regard is the concept of pro-poor growth which attracts considerable policy and academic attention. The poverty reduction objective can be achieved by faster growth and/or greater equity. In this regard, determining an optimal combination of these two means appears to be primarily a pragmatic issue. Without going into 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 the following research questions: To what extent does economic growth reduce poverty? How does income inequality affect poverty? What policy measures can be recommended in order to influence the poverty-growth-inequality nexus? For this purpose, the paper is structured as follows. In section 1 we provide the basic theoretical background regarding the

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.

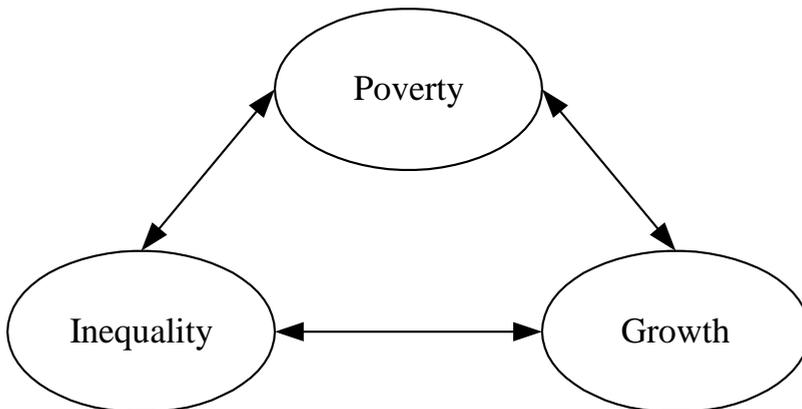
relationship among poverty, growth and inequality, followed by the conceptual framework utilised for assessing the relationships presented in section 2. In section 3, we present the main empirical findings, whereas in last section we convey the main conclusions and formulate policy recommendations.

1. Theoretical background

One of the most debatable questions among policy makers regarding poverty reduction is whether we should worry about distribution or let 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 the 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 in Figure 1.

Figure 1. The poverty, growth and inequality triangle



Source: Bourguignon (2004)

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 the average which subsequently has an impact on poverty reduction. However, recent studies show that the distribution of income is an important determinant of poverty reduction as well. Depending on how income growth is allocated among the population, changes in the distribution of income in the country will have an impact on the poverty structure. In sum, faster

growth usually leads to absolute improvements for all, including the poor, while greater equity implies relative improvement for the poor.

Hence, the pro-poor growth can be viewed from two different standpoints, namely: the absolute and relative pro-poor growth. In absolute terms, growth is pro-poor if it helps many people leave poverty behind and lifts them above the poverty line. People cross the poverty line as soon as they are in power of resources sufficient to satisfy basic physical and social needs. Thus, as long as the income of the poor is growing, growth is pro-poor regardless of how the relation to other parts of society is developing. According to the relative standpoint, the living standard of different social strata within a country is compared. The benchmark is thus not the satisfaction of basic needs but rather the share the poor have in the national income. Following this approach, it is not the reduction of poverty *per se* which is central but the reduction of inequality (Dzihic and Grupe, 2008).

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 consideration the distribution effects. However, the definition of pro-poor growth is viewed as a dubious subject since some definitions regarding its measurement or policy implications are vague (UN, 2000; OECD, 2001). According to these definitions, pro-poor growth is referred to 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 the differentiation between weak and strong pro-poor growth (Kakwani, Khandker and Son, 2004). From the point of view of the weak definition, the growth is pro-poor if it reduces small poverty (Ravallion, 2004). In this case, the poor may receive proportionally less benefits from growth than the non-poor and growth might still 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), growth produces a vertical flow of income from the rich to the poor. Namely, the benefits of economic growth go to the rich first, 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 smaller. 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-poorness’, 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 in 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).

2. Conceptual framework

Taking into account the need for determining whether growth is pro-poor and if so, to what degree, we present the conceptual framework applied to 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 increases 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 the 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 a 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 the change in inequality that accompanies it reduces total poverty. In this case φ_{α} is greater than 1. On the contrary, the growth is anti-poor if the change in inequality that

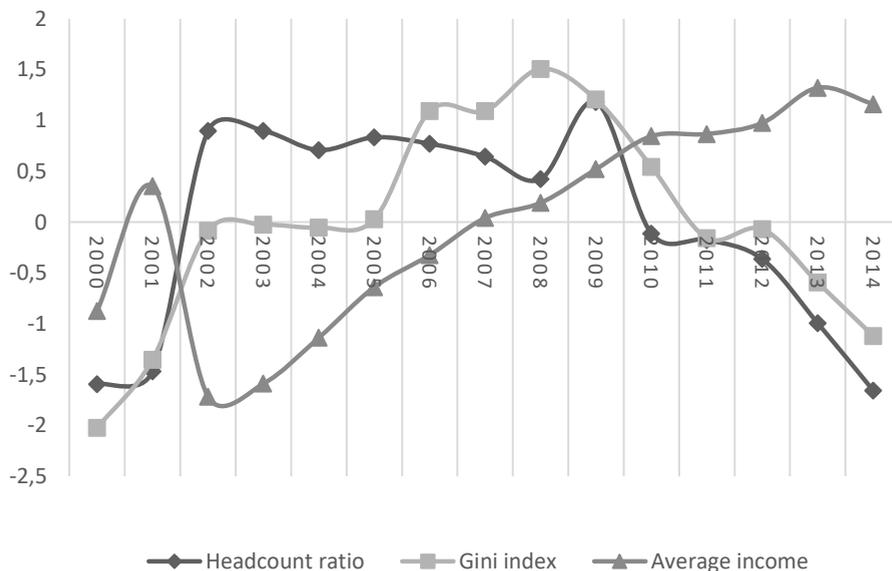
accompanies it increases total poverty. In this case φ_α is less than 1. Finally, the growth is distribution-neutral if the pro-poor growth index is around 1 (Son, 2007).

3. Empirical analysis

The experience with respect to the pro-poor growth during transition has been rather mixed, which is not surprising taking into account the heterogeneity among transition countries. For instance, Jalles (2011) found that in the case of resource abundant transition countries such as Russia and Azerbaijan, inequality significantly affects poverty. By contrast, the evidence from the Balkan region shows that many episodes of growth have not been pro-poor, i.e. growth has often been accompanied by a relative impoverishment and increased inequality (El Ouardighi and Somun-Kapetanovic, 2010). Similarly, in the case of Bosnia-Herzegovina and Serbia, Dzhic and Grupe (2008) noticed a persistent high proportion of the poor despite the real improvements of macroeconomics indicators. In addition, the recent crisis is likely to further worsen the situation of poor households in the Western Balkans as it hit them particularly hard, even more than in Central and Eastern Europe, resulting in job losses, reduction in wages and lower remittances (Koczan, 2016). As a consequence, many authors emphasise the need of analysing separately transition economies, at different levels of wealth, when making policy decisions related to income inequality (Rose and Viju, 2014).

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 the 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 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 poverty in Macedonia is associated with high income inequality and potential social exclusion.

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

Figure 2. Dynamics in poverty, inequality and growth in Macedonia

Source: own representation

According to Figure 2, 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, it started to fall until the present day. The dynamics of the Gini index more or less manifests a similar pattern to that observed for the Headcount ratio, which suggests that we should expect a positive association between poverty and inequality. By contrast, the dynamics of household income shows a 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. The linear association between the three variables is assessed by the correlation matrix presented in Table 1.

In Table 1 we notice a positive and relatively high correlation between the Headcount ratio and the Gini index in Macedonia. By contrast, the correlation index between the Headcount ratio and the Average income is negative but moderate, while negligible correlation has been found between the Gini index and the Average income.

Table 1. Correlation matrix for poverty-growth-inequality

	Headcount ratio	Gini index	Average income
Headcount ratio	1.0000		
Gini index	0.7968	1.0000	
Average income	-0.4856	0.0213	1.0000

Source: own representation

With an average Gini index of 39 percent during the period 2000-2014, Macedonia has marked the highest income inequality in the Western Balkan region. Regarding the distribution of income by quantile groups in 2014 we can notice that the 20% richest households in Macedonia possess around 41.5% of the total disposable income, while the 20% poorest households possess only 5.4% of the total disposable income³. Although the Gini index has decreased from 40.9% in 2010 to 35.2% in 2014, it is a general perception that income inequality in Macedonia is particularly high. The analysis of reasons for high income inequality in Macedonia points out to the significance of two major driving mechanisms. The first is the implementation of neo-liberal ideology in the economic practice, while the second is the system of political patronage and clientelism (Tevdovski, 2016).

Even though the incomes since 2002 have marked continuous growth, the available data suggest that gains from growth have not been proportionately shared. Macedonia has made outstanding progress in reducing unemployment from 34 percent in 2008 to 28 percent in 2014, but most jobs were created in the low-productivity sectors or in the public sector. Having in mind that the Hadcount ratio has declined from around 30 percent in 2009 to 22 percent in 2014, this trend signals an improvement in the living conditions at the bottom of the distribution (World Bank, 2015).

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

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

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 the 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 or *vice versa*. In this case, we

³According to the data from State statistical office.

can exclude either variable g or y in order to avoid potential multicollinearity problems. The two alternative specifications will be as follows:

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

$$p_t = \gamma_0 + \gamma_1 g_t + \gamma_2 y_t g_t + u_t \quad \dots (3)$$

The sign of β_1 is expected to remain negative, while β_2 is expected to be positive. This is because β_2 represents 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), (2) and (3) are presented in Table 2.

Table 2. Estimation results (Dep. variable log of the Headcount ratio)

Explanatory variables	Model 1	Model 2	Model 3
Constant	4.033718*** (0.001)	8.139828*** (0.000)	-8.274517 (0.078)
y	-0.3870554*** (0.000)	-0.713916*** (0.000)	
g	1.127894*** (0.000)		2.463665 (0.000)
$y \times g$		0.0897835*** (0.000)	-1.1063556 (0.000)
R^2	0.9093	0.9090	0.9095
F-statistics	60.16 (0.000)	59.95 (0.000)	60.33 (0.000)

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

Source: own representation

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 the Headcount ratio by 0.3870 percent while inequality is constant. By contrast, a one percent increase of the Gini index would lead to an increase of the Headcount ratio by 1.1279 percent while income is constant. In addition, we notice that the explanatory power of the model is high, while the F -statistics points out the entire significance of the estimated model.

In specifications (2) and (3), we include the interaction term $g \times y$ while retaining the average household income/Gini index as explanatory variable and excluding the Gini index/average household income. From the estimated Model 2, we notice that the coefficient of the interactive term is positive and statistically

highly 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 a rate of 0.0897 percentage points per each percentage point increase in the Gini index. From the estimated Model 3, we can observe that the coefficient of the interactive term is negative and statistically highly significant, while the coefficient of g remains positive as anticipated. These results suggest that a higher level of household income would reduce the negative impact of inequality on growth at a rate of 0.1063 percentage points per each percentage point increase in the average household income.

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

$$MPRS = -\frac{\varepsilon_{\alpha}}{\eta_{\alpha}} = -\frac{1.127894}{-0.3870554} = 2.90$$

The implication from this result is that we need an income growth rate of 2.9 percent to compensate for a 1 percent increase in the Gini index. 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, according to the previous argumentation, we can conclude that the growth in Macedonia during the above specified period has been generally anti-poor.

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 from policymakers in the 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 the average income in Macedonia during the previous 15 years has been generally positive, the poor segment of the population has not been experiencing a 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 the poor population through reduction of inequality.

Poverty reduction cannot be achieved without a sustainable economic growth on the long run, which requires several preconditions such as: maintaining macroeconomic stability, improving the business environment and creating a favourable investment climate that will increase domestic as well as foreign direct investment. However, the beneficial effects of economic growth for poverty reduction will be enhanced if it is accompanied by policies aimed at 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 the taxation system and a better coordination of social policies that have to be targeted at the most vulnerable segments. This is feasible only by increasing the transparency of the social programmes and by easing the access of poor people to information about various social programmes.

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