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INCOME DISTRIBUTION AND ITS DETERMINANTS IN THE REPUBLIC OF MACEDONIA

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Abstract: Income inequality, which is the unequal distribution of income is an important issue within the study of economic development. The economic theories on the income distribution consist of many potential factors by which income inequality can be influenced, with a minor point on a selection of suitable determinants to include in Gini coefficient regression model. Past studies remain divided about this issue, where some find there to be a positive relationship and others support a negative relationship between income inequality and the factors that determinate it. Recent researches and analysis show that income inequality in Macedonia has increased in recent years. Therefore, the level of inequality in the distribution of wages in Macedonia in 2008 as a year when the economic crisis started in the last quarter, in 2012 as the year in which GDP still has had a negative rate of economic growth, in 2014, when the economy maintained positive economic growth and in 2016 as a year with last available annual data will be discussed. The purpose and the aim of this study is to bring forward the major macroeconomic determinants that affect the income inequality in Macedonia, taking into account the specific characteristics of the country. The primary papers which investigate the determinants of income inequality analyze the effect of economic growth on income inequality. So, we will use real GDP growth as one of explanatory variable and employment, real wages, foreign direct investments and labor productivity as independent variables alongside the economic growth. After theoretical background, correlation and regression analysis will be done in order to test the relationship between Gini coefficient as a dependent variable and GDP per capita, employment, real wages, foreign direct investments and labor productivity as independent variables. The fundamental assumption for a clear econometric analysis is the stationarity of data time series. Therefore, before the regression analysis is made, the stationarity of the variables involved in the regression model will be checked. A regression analysis will be followed by examination of stationarity of time series, as well as the imperative specifications for selecting the best model from all of the available alternatives. The research will be based on time series as they are more significant when analyzing individual countries. The data on empirical analysis that refer to the analyzed period will be taken from State Office of the Republic of Macedonia and World Bank. Analyzing these determinants is of a great importance because such analysis can be used by creators of economic policies, in the direction of decreasing income inequality and helping the economy and its citizens from the consequences of a high level of inequality, especially in the context of developing countries as economically damaging effects of income inequality are more difficult for developing countries because they already have weak economies.
Keywords: economic growth, employment, Gini coefficient, FDI, labor productivity, real wages

1. INTRODUCTION

Income inequality, which is the unequal distribution of income is an important issue within the study of economic development. The economic theories on the income distribution consist of many potential factors by which income inequality can be influenced, with a minor point on a selection of suitable determinants to include in Gini coefficient regression model. In recent years, the relationship between economic growth and income distribution has received a great attention. The social costs of inequality and its effects on the low – income classes are highly important to consider because the quality of life for many people is contingent on the level of income that they earn. Some authors consider that while economic growth is a powerful mechanism for poverty reduction, it does not necessarily have to include a reduction of inequality. That means that a nation could experience economic growth without

incurring any benefit on the poor, so the rich get richer and the poor remain unaffected. The essence of life, such as health, education, social mobility, representation in government etc., can all be negatively impacted with high levels of income inequality (Baden et al., 2015). Past studies remain divided about this issue, where some find a positive relationship and others support a negative relationship between income inequality and the factors that determinate it.
The growing income inequality in the transition economies is a subject of a great interest among researches over the last two decades. The majority of empirical studies in the area of income inequality are focused and based on defining the factors that determine the enhanced income differentiation.
The transition from centrally-planned to a market economy and the processes of economic liberalization in the early 1990s led to the emergence and a growth of the private sector, as well as to a diminishing importance of the government sector enterprises, which were the only form of ownership before the changes. One of the main features of the transition has been related to the large-scale transferring of state-owned assets to private ownership through privatization. This has led to income restructuring and an emergence of new sources of income, whose share in total income has been gradually growing and resulted in deepening of income inequality. Privatization is also related to the concentration of income in a smaller number of people, which also increases the income inequality in some European countries. Growing income inequality in the transition economies is also associated with the process of restructuring and rising unemployment (Mitra and Yemtsov, 2006).
With the globalization, a growing level of foreign direct investment into the economies in transition, and the changes in technologies followed by that process are considered as income inequality determinants, since they affect the demand for a certain type of labor, and the level of wages.
The study of income inequality is of particular importance for developing countries because of the effect of income inequality on their economies. The economically damaging effects are more severe for developing countries because they already have weak economies and significant unemployment rates. Income inequality can cause economic inefficiencies within a country.
The Republic of Macedonia is a country with a high degree of inequality in the distribution of income, according to the value of the Gini index which puts Macedonia on the top of the list of EU member states and candidate countries for EU membership, too. What is characteristic for the Republic of Macedonia is the fact that Gini index, as a measure of inequality in the distribution of total income in the last fifteen years has seen a tendency of constant increase, and from 28.1 in 1998 increased to its highest level of 44.2 in 2008 and in 2009 and 2010 retained almost at that level (43.2 and 43.6, respectively). This is an exceptionally high value of Gini index and indicates a higher level of inequality in the distribution of income in the country than the inequality in the distribution of wages. Namely, in 2008 the Gini index calculated on the basis of wages paid in Macedonia is 27.98, whereas for the same year the Gini index, calculated by the World Bank based on the total paid income is dramatically higher and it is 44.2. This points the fact that there is greater inequality in the distribution in other incomes (Trpeski, 2015). On one hand, the educational structure of employees is a reason for the inequality in the distribution of wages in Macedonia. The share of employees with maximum four years of secondary education is approximately 75% from total employment, whereas further education is 5% and those with a minimum higher education are 20%. Taking into consideration the structure of employees by the level of education, it is obvious that employees who receive wages below the average wage in Macedonia are the people with maximum four-year secondary education. Furthermore, those 75% with maximum four-year secondary education take half of total paid wages, while the other half goes to individuals who have a minimum further and higher education. The deviations from the average wage of the employees who receive a higher wage than the average are greater than the average wage of the employees who receive lower wages than average.
The permanent wage growth during the economic crisis, primarily among employees in the public sector has had a great influence on the growth of average net wage. The increase in the average net wage in the period of crisis and years after was due to the steady increase in the wages in the public sector, which paid from the national budget. In the circumstances when the unemployment is very high, the employment is lower than the European average and the poverty rate is high, the issue of inequality in the distribution of net wages is very important.
In both theoretical and empirical studies, many different kinds of variables have been considered as significant determinants of Gini coefficient. There are a wide range of variables that have a potential impact on income inequality. The primary papers which investigate the determinants of income inequality analyze the effect of economic growth on income inequality. Therefore, real GDP growth as one of an explanatory variable and

employment, real wages, foreign direct investments and labor productivity as independent variables alongside the economic growth are used in our study for analyzing income inequality determinants.

2. LITERATURE REVIEW

Pioneering steps in the measurement of income inequality are made in the '50s of the last century by a famous economist, winner of the Nobel laureate in economics, Simon Kuznetz. Kuznetz (1955) examines the relationship between economic growth and distribution of income. Later, the issue of measuring income inequality is processed by other economists, Atkinson (1970), Tinbergen (1975), McConnell, et al. (2003), Freeman (2009), Atkinson (2009) and they take place in publications of international institutions OECD (2008) and United Nations (2012a; 2012b).

Ngarambe et al. (1998) examined joint determinants of U.S. county-level income growth and income inequality using Gini coefficients. Results indicated that the South experienced a significant change in the income growth-inequality relationship over the last two decades. In the 1970s, increases in family income inequality significantly depressed income growth, while in the 1980s, increases in inequality were associated with more rapid growth.

Lejour and Tang (1999) are investigating the potential future impact of the globalization on the relative wages, whereas the focus is put on the inequality in wages in Japan, Western Europe and the United States.

Rose and Viju (2014) are examining income inequality in Central and Eastern Europe for the period of transition whereas it is stated that in these countries various factors (economic, demographic, political, cultural, etc.) have a different influence on the different incomes.

Simai (2006) examines the causes and the consequences of inequality and poverty in the countries of Eastern Europe with a focus on CIS transition economies. Cornia (2011) explains the variations in the income inequality over the time and makes a comparison between Latin America and Europe.

Mojsovska - Blazevski (2011), analyzes the development of wages in the country over the past two decades, and puts special emphasis on the years during the great global economic crisis.

Tevdovski and Ivanovski (2014) are examining the income inequality in South-Eastern Europe and they conclude that income inequality is increasing almost in all countries of SouthEastern Europe until 2009. Also they conclude that the greatest inequality in the distribution of income is registered in Macedonia.

Fawaz et al. (2014) addressed the correlation between economic growth and income inequality. They found a positive relationship between income inequality and economic growth in high income developing countries and a negative relationship was found between the variables in low income developing countries.

Trpeski (2015) showed that Gini index in the Republic of Macedonia is above the average of the EU 28, which means that there is a greater inequality in the distribution of income. According to Trpeski (2015) Macedonia could approach the value of the Gini index of the EU 28, only if the index is calculated for the distribution of wages.

Baden et al. (2015) found a positive relationship between economic growth and income inequality. On one hand, income inequality is linked with some economic and social issues in a country. On the other hand, sustained economic growth is what tends to improve the overall conditions of the people in an economy. According to them, some amounts of income inequality may be a necessary evil for economic growth.

According to Bratoeva – Manoleva (2017), income inequality in Bulgaria increased noticeably over the period 1990-2015. She founds that GDP growth and structural changes in Bulgarian economy are among determinants which deepen income inequality. Furthermore, the study showed that a statistically significant negative estimate of the government expenditures on social protection means that an increase in social transfers mitigate income inequality. The empirical results showed that inflation, foreign direct investment and education are statistically insignificant in affecting income inequality.

3. DATA AND METHODOLOGY

In both theoretical and empirical studies, different kinds of variables and determinants have been considered as significant for Gini coefficient.

Gini coefficient is the dependent variable. In this paper we are investigating influential variables on it. The Gini coefficient is chosen for this study because it is a common measure of income inequality in countries. It is a measure of inequality in the distribution of wages, or inequality of income and most generally of wealth and is defined as a ratio with values between 0 and 1 in which 0 means perfect quality and 1 means complete inequality.

GDP per capita is one of independent variables, which is traditionally present in the empirical studies concerning the determinants of income inequality.
FDI is another independent variable, which takes into account the role of globalization and its effects on income inequality. Most of the studies which analyze the relation between FDI and income inequality show the existence of direct correlation between these variables.
In the regression model, there are also tested employment, productivity and real wages as independent variables.
In order to determine the impact of employment, real wages, foreign direct investments and labor productivity in Macedonia, we start with the following function:

$$GINI = f(Y, W, FDI, P, E) \qquad (1)$$

where the nonlinear model:

$$GINI_t = \beta_0 * Y_t^{\beta_1} * W_t^{\beta_2} * FDI_t^{\beta_3} * P_t^{\beta_4} * E_t^{\beta_5} * U_t \qquad (2)$$

can be transformed in the following model using logarithms[150]:

$$\ln GINI_t = \beta_0 + \beta_1 \ln Y_t + \beta_2 \ln W_t + \beta_3 \ln FDI_t + \beta_4 \ln P_t + \beta_5 \ln E_t + U_t \qquad (3)$$

Econometric analysis will be used in order to determine the relationship between Gini coefficient on the one hand and and employment, real wages, foreign direct investments and labor productivity in Macedonia on the other hand. The research is based on time series because they are more significant when it comes to individual countries. The data on empirical analysis refer to the period 2000-2016 and it is taken from State Office of the Republic of Macedonia and World Bank Data.

4. EMPIRICAL RESULTS AND DISCUSSION

Before regression analysis, a correlation analysis and multicollinearity between all variables have been examined and due to the high correlation between employment and labor productivity, labor productivity has been eliminated and hence a regression model has been used in the following form:

$$\ln GINI_t = \beta_0 + \beta_1 \ln Y_t + \beta_2 \ln W_t + \beta_3 \ln FDI_t + \beta_4 \ln E_t + U_t \qquad (4)$$

This regression model is chosen due to the lower values of Akaike and Schwarz, as well as the higher determination coefficient which prove the best alternative of many equations. Table 1 shows the results of the regression model:

Table 1. Results of multiple regression model for Gini index in Macedonia as dependent variable for the period 2000-2016

Independent variable	Coefficient	Std. Error	t - statistic	Prob.
B_0	17.97214	4.125758	4.356083	0.0011
$\ln Y_t$	-0.137507	0.487607	-0.282004	0.7832
$\ln W_t$	0.084020	0.255323	0.329072	0.7483
$\ln FDI_t$	0.227381	0.092609	2.455297	0.0319*
$\ln E_t$	-1.158689	0.387914	-2.986971	0.0124*
R - squared	0.708312			
Prob (F – statistic)	0.005583			

Source: Authors' calculations

While testing the significance of variables in the multiple regression model, the effects of foreign direct investments and employment on Gini index are statistically significant, as evidenced by t-statistical values and their respective probabilities which are lower than the level of significance of 5%. The adjusted R^2 is 71%. This coefficient shows

[150] Y_t - gdp per capita; W_t – real wages; FDI_t – foreign direct investments; P_t – productivity; E_t - employment

the good state of the regression. F-statistic which is statistically significant shows that explanatory variables are important factors that determine Gini index in Macedonia, i.e. that the model is good. According to the model, an increase in foreign direct investments for 1% increases Gini index for 0.22% which means that foreign investment over domestic investment contribute for income inequality. Furthermore, 1% rise in the employment contribute for decrease in Gini index for 1.16%.

GDP per capita shows a negative relationship, but it has an insignificant coefficient. The reason for this result may lay in the fact that low – income classes contribute very little to the growth of GDP in Macedonia. Real wages also have an insignificant coefficient, due to the possibility that increases in inequality are largely driven by changes in the distribution of wages, not in the level of real wages.

The results of this research reflect employment and foreign direct investments as indicators and determinants that are contributing to Gini index caused by their negative and positive impact, respectively. The importance of employment for reducing of Gini index is greater and more important in the case of Macedonia.

5. CONCLUSION

The Republic of Macedonia is characterized a high degree of inequality in the distribution of income, according to the value of the Gini index which puts Macedonia on the top of the list of EU member states and candidate countries for EU membership. In the period of economic crisis, the deviation of net wages from the calculated average net wage has seen a tendency of increase. Wage growth during the economic crisis, primarily among employees in the public sector has had a great influence on the growth of average net wage. The increase in the average net wage in the period of crisis and years after was due to the steady increase in the wages in the public sector, which are paid from the national budget. What is characteristic for the Republic of Macedonia is the fact that the Gini index, as a measure of inequality in the distribution of total income in the last fifteen years has seen a tendency of constant increase. This is high value of the Gini index and indicates a higher level of inequality in the distribution of income in the country than the inequality in the distribution of wages. The inequality in the distribution of wages in Macedonia is partly due to the educational structure of employees. Taking into consideration the structure of employees by the level of education, it is obvious that employees who receive wages below the average wage in Macedonia are the people with maximum four-year secondary education.

The results indicate that foreign direct investment is a determinant affecting Gini coefficient, leading to more inequality. The second influential factor on Gini coefficient is the employment. The coefficient of this variable is negative which means an increase in this determinant improves the distribution of income. Therefore, foreign direct investments not only fail to achieve one of income distribution goals, but also cause more inequality. Other considered variables have not strong correlation with Gini coefficient and they are statistically insignificant in the case of Macedonia for the analyzed period.

Employment and foreign direct investments are contributing to Gini index by their negative and positive impact, respectively. The importance of employment for reducing of Gini index is greater and more important in the case of Macedonia.

Further research needs to be conducted, taking into account more determinants, in order to deeper the analysis and determine if there can be some decrease at least some levels of income inequality. Analyzing these determinants is of a great importance because such analyzes can be used by creators of economic policies, in the direction of decreasing income inequality and helping the economy and its citizens from the consequences of a high level of inequality, especially in the context of developing countries as economically damaging effects of income inequality are more difficult for developing countries because they already have weak economies.

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