LAW IN THE TAX LEGAL SYSTEM, INCOME INEQUALITY AND ECONOMIC GROWTH: AN EMPIRICAL ESTIMATION

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Abstract

The law on the tax system is of great interest when we discuss income inequality and economic growth. The understanding and interpretation of the purpose of taxes are closely related to the rule of the role of the state as the expansion of the role of the state increases the need for monetary means by which the state meets public needs and which in itself constitute public revenues (Bardho, 2022). This study aims to highlight the impact of income inequality and economic growth in the case of North Macedonia. The distribution of income and the average level of income in a developing country is the key factor for social wellbeing. Countries, where income inequality is decreasing, grow faster than those with rising inequality (OECD, 2014). The data used are time series data and cover the period 1997–2019. This study uses data from World Development Indicators (WDI) and sheds light on the factors, which impact income inequality using multiple regression analyses. This study employs the OLS regression analysis in order to estimate the variables that affect income inequality and economic growth. It is concluded that the positive Gini coefficient approves the Kuznets hypothesis and the pro-inequality theory which means that in the first phase of countries' development, income inequality is expected to be positively linked to economic growth. The study suggests that economic growth, if the benefits of growth are evenly distributed, has a positive effect on reducing income inequality.

Keywords: Tax Law, Income Inequality, Gini Coefficient, Income Distribution, Social Welfare, Growth


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1. INTRODUCTION

The tax system refers to parts of the legal system or to the whole of legal packages, instructions, tax agreements with other countries, levels and types of taxes, tax assessment, collection, and control procedures for securing public revenues which are applied in a place. It is considered a system as all taxes are interdependent with their effects on the contributor and on the national economy as a whole. The law on the tax system is of great interest when we discuss income inequality and economic growth. In the case of North Macedonia, the laws on tax system are: Law on Personal Income Tax, Law on Compulsory Social Insurance Contributions, Law on Value-Added Tax and Law on Profit Tax (Finance Think, n.d.). On the other hand, the calculation and payment of all the employees' social contributions is regulated under the Law on Mandatory Social Insurance Contributions.

Considering this law, the employers are obligated to calculate, withhold from employees' gross salary, and pay into the accounts of respective funds the compulsory social contributions and...
personal income tax (PIT). The current level of the compulsory social contributions on gross salary is as follows: Pension and disability insurance: 18.8%; Health insurance: 7.5%; Employment insurance: 1.2%; Additional health insurance: 0.5% (PwC, 2022). Taking into consideration that the basis of income inequality is taxation, the laws on taxation are of great interest to build the tax system. But when it comes to inequality, there are different channels through which income inequality impacts the economy of a nation.

First, inequality leads to weak aggregate demand; second, inequality of outcomes is associated with inequality of opportunity; third, societies with greater inequality are less likely to make public investments that enhance productivity, such as in public transportation, infrastructure, technology, and education (Stiglitz, 2015).

In the latest scientific debates, special attention is paid to income inequality in both developed and developing countries. Economists, researchers, scientists, and others try to investigate the factors that influence income inequality and economic growth. In the relevant literature, many authors find it very difficult to establish the link between income inequality and economic growth and came to different conclusions. Some empirical studies support growth hypotheses that affect inequality, while others report that inequality affects growth (Ferreira, Lakner, Lugo, & Ozler, 2014). And some others find no connection between income inequality and economic growth. In our case, the hypothesis that economic growth is positively related to reducing income inequality can only work if the benefits of growth are evenly distributed. If inequality increases as a country becomes richer, this raises important questions about a possible trade-off between equity and efficiency (Riley, 2012).

There has been and has been a reduction in economic growth due to the increasing concentration of incomes among a smaller portion of the global population (Organisation for Economic Co-operation and Development [OECD], 2014). Economic growth is very important in social welfare. There are many growth theories that explain the link between economic growth and income distribution inequality. Factors that can affect economic growth are not just macroeconomic factors, such as savings, capital growth, and population, known as Solow's classical growth theory. Some other authors cite human capital, education, and poverty as factors.

The main objective of this study is to assess the relationship between economic growth and income inequality using the classical growth model by Solow, when savings and investment are two economic indicators that have played an important role in economic growth before Harrod (1939) and Domar (1946). Due to the classical model of economic growth, an increase in the savings rate will increase the rate of economic growth of all other variables that hold constant, this is known in the economic literature as the Harrod-Domar model. These factors are included in the classical models of economic growth, which predict the exact correlation between growth rate and variables, such as savings rate, working capital ratio, and population growth rate. We add to our model the Gini ratio and totally private and public investment as a percentage of GDP. We also assess inequality in terms of tax policies and revenue sharing. Some authors argue that income inequality harms economic growth while others support Kuznets hypothesis that income inequality is necessary when the country is in the first stage of its development.

The objectives of this study have a theoretical and empirical base which are developed as follows:
1. To measure the income inequality in economic growth thus to measure the inequality of the law on income in economic growth.
2. To analyze the law on taxation in the case of North Macedonia.

The research questions raised in this study will help us to achieve the main aims of the study and also to bring a clear picture related to the legal tax system, income inequality, and economic growth in the case of North Macedonia:

Q1: How does the Gini index impact economic growth?

Q2: How does the savings rate impact economic growth?

The remainder of this paper is structured as follows. Section 2 reviews the relevant literature. Section 3 analyses the methodology that has been used to conduct empirical research. Section 4 presents the results of the study. Section 5 presents the conclusions and recommendations.

2. LITERATURE REVIEW

The literature review in this study begins with an analysis of the law in the tax legal system in the case of the Republic of Northern Macedonia and the importance of tax legislation in income inequality and economic growth. We will begin our empirical analysis by elaborating on the Kuznets hypothesis. The relationship between income inequality and economic development has been popularly characterized by the Kuznets's inverted U-shaped curve (Kuznets, 1955), which argued that income inequality tends to increase at an initial stage of development and then decreases as the economy develops, implying that income inequality will fall as income continues to rise in developing countries (Li, 2017). Regarding the Kuznets hypothesis, if the country is in the first stage of its development it should increase income inequality which means increasing income inequality will increase economic growth. There is a lot of research that tried to test the validity of the hypothesis by considering different proxies for analysis. But the question is "Is it true that inequality first increases and then decreases as a country develops?" — the answer must clearly be "No". Thus, the fact that the broad pattern of decreasing inequality up until around 1980 has been followed by a sharp increase in some countries (but not all) clearly shows a pattern that is not consistent with inequality following an inverse U-shape, nor is it consistent with changes in inequality being the same across countries at similar levels of development (Roine & Waldenström, 2015). Following the Kuznets curve hypothesis, first formulated in the 1950s, another common view among economists has been that income inequality — and possibly wealth inequality as well — should first rise and then decline with economic development, as
a growing fraction of the population joins high-productivity sectors and benefits from industrial growth (Piketty & Zucman, 2015).

A study by Oczki, Muszyńska, and Wędrowska (2017) tests for the existence of an inverted U-shaped relationship between income inequality and the level of economic development measured by the GDP per capita. It is predicted by the Kuznets hypothesis for EU countries using data from Eurostat (EU-SILC), International Monetary Fund, and World Bank and Oczki et al. (2017) provide evidence for a U-shaped, rather than the inverted U-shaped, relationship. The study also concludes that the unemployment rate and tertiary education attainment are statistically significantly and positively related to income inequality.

A study from Baymul and Sen (2020) finds that structural transformation relating to manufacturing may have contradictorily effects in developing countries not merely through higher growth but by reducing inequality as well. On the other hand, the study concludes that, for many low-income countries, where the realistic possibility of structural transformation may be the movement of workers from agriculture to services, the inequality may increase with further structural transformation. The relative-income effects of revenue-neutral reductions in labour tax wedges are broadly in line with intuition: the relative position of those benefitting from them typically improves. In absolute terms, however, nearly all the income distribution benefits from revenue-neutral reductions in labour tax wedges, be they focused on below or average income earners (Akgun, Cournède, & Fournier, 2017).

According to Stiglitz (2015), inequality weakens aggregate demand for individuals at the bottom and thus they spend a bigger portion of their income than those at the top, it makes sense intuitively; the poor often need to spend all their earnings simply to have the necessities to get by (Kandek & Kayling, 2017). Taking into consideration that income inequality is linked with economic growth through different channels, a study by Mdingi and Ho (2021) analyse the level of economic development, through 1) the level of technological development; 2) social-political unrest; 3) the savings rate; 4) the imperfection of credit markets; 5) the political economy; 6) institutions, and 7) the fertility rate. Thus, based on the estimated results of these models, the study found that the relationship between income inequality and growth can be negative, positive, or inconclusive.

Due to the classical model of economic growth, an increase in the rate of savings will increase the rate of economic growth, all other variables holding constant, this is known in the economic literature as the Harrod-Domar model. This model is used in development economics, in the previous stage of the post-Keynesian model of economic development to explain the level of correlation of capital savings and productivity with the rate of economic growth. To analyze economic growth, one factor that can affect economic growth is the savings rate which depends on the development of country levels. Developed countries have higher per capita incomes compared to countries in transition. It is logical that in developing countries that have a low level of per capita income the savings rate is small or even negative. When there is economic growth, the intensity of savings can also expand. Following the Solow model, austerity rates have no effect on economic growth in the long run looking at capital accumulation, population growth, and productivity growth, altogether referred to as technological progress. Another factor is how growth benefits are distributed.

If the benefits of economic growth go in greater proportion to those population groups that are considered to have a high propensity to save, then the overall savings rate is expected to increase. But if growth benefits more groups with a higher propensity to consume, then the overall savings rate will decrease as a result of the increase and impair subsequent growth (Gali, 2002). In countries with high-income inequality, richer people become richer day by day which means that their savings can be oriented abroad and their consumption lies in luxury products and brands imported from abroad so this may have no effect on economic growth or may have a negative effect.

The hypothesis raised in this study is: H1: In the first phase of countries’ development, the higher the income inequality, the higher the economic growth.

In our model, we also estimate the capital rate, the population growth rate is also the decisive factor in the classical growth model. Both death rates and birth rates tend to be high in low-income countries, which keep population growth rates low and vary within a narrow range of values (Ray, 1998). We go through personal income processing tax policies and income distribution. In some countries, mainly developing countries, as a result of the tax system, there is a huge inequality between rich and poor people and the middle class is disappearing.

3. RESEARCH METHODOLOGY

The research methodology of this study begins with a deep analysis of the law on taxation, theories of economic growth, and income inequality. To assess the relationship between economic growth and income inequality in relation to economic theories, we construct the classical model of economic growth followed by Solow (1962). In our model, we estimate the correlation between growth rate and variables, such as gross savings as a percentage of total GDP, capital formation ratio, and population growth. We also add to our model the Gini coefficient which measures income inequality and total investment, as a percentage of GDP growth, including private and public investment. We also combine our analysis according to the García model for estimating tax policy income inequality and its impact on revenue redistribution. To evaluate the model, we use secondary data from World Development Indicators (WDI).
Figure 1. The research methodology, the data, and methods

Followed by theories on economic growth and income inequality we have constructed our regression multiplication model as follows:

**Model 1**

\[
\log Y_t = \beta_0 + \beta_1 X_{1t} + \beta_2 X_{2t} + \cdots + \beta_n X_{nt} + \mu_t
\]

where,

- \(Y_t\) is the dependent variable;
- \(\beta_0\) is the interception term;
- \(\mu_t\) is the error term.

The above model was modified and evaluated as follows:

**Model 2**

\[
GDPR_t = \beta_0 + \beta_1 \text{Gini} + \beta_2 \text{Ti} + \beta_3 \text{Sr} + \beta_4 \text{Pg} + \beta_5 \text{Cr} + \mu_t
\]

In the above figure, the variables used in the econometric model OLS are presented.

The dependent variable in the OLS model is \(GDPR_t\) = gross domestic product or real growth rate (as a percentage).

The following variables are used as independent variables in the OLS model:

- \(\text{Gini}\) = Gini coefficient that measures the level of income inequality (by The World Bank);
- \(\text{Ti}\) = total investment (as a percentage);
- \(\text{Sr}\) = savings rate (as a percentage);
- \(\text{Pg}\) = population growth rate (as a percentage);
- \(\text{Cr}\) = capital formation rate (as a percentage).

Based on the theories of economic growth and income inequality, we estimate the variables presented by the model where the dependent variable is \(GDPR_t\) and the other variables are independent variables that affect real GDP, such as the Gini coefficient, total investment, savings rate, population growth rate, and capital formation rate. To test the validity of the variables we go through the OLS method.

4. RESULTS

Law in legal tax system is of very importance from taxation, income inequality and economic growth. To evaluate the elaborated regression model, we use data from the WDI for the period 1997–2019 using Stata.

The increase in income inequality is often shaped by the increasing concentration of income in the higher part of the income distribution (Hoeller, 2012). What are the factors behind this income inequality in the country? We will begin our analysis of income inequality in North Macedonia by identifying the tax system as the first factor that affects the distribution of income in a society. Tax and transfer systems play a key role in reducing overall income inequality (OECD, 2012). Tax regimes can affect the compensation mix, shifting it towards lower tax forms of compensation and thus increasing disposable income, especially at the top (Roine & Waldenström, 2015).
In this research, as previously elaborated in the paper, we used a multiple logarithmic regression model to evaluate the validity of the variables. To begin with the interpretation of the result, we first try to answer the question of how many independent variables seriously predict the dependent variable? We find that in the case of North Macedonia, this model is significant with R-squared of 0.8810 indicating that 88% of the variance in the dependent variable (GDP Real) can be predicted by the dependent variables, such as the Gini coefficient that measures the level of inequality in its income in a country, the rate of gross savings as a percentage of GDP, total investment, and population growth. As a result of co-linearity, capital formation as an independent variable is excluded from the model. Adj. R-squared is the most honest value in estimating R-squared in a model. In our case, the adj. R-squared is at 0.7223, as a result of which the number of observations compared to the number of predictors (independent variables) is greater.

5. DISCUSSION

Law in the tax legal system is of special importance and has a very high impact on income redistribution and the economic growth of the country. To explain how predictors can explain the dependent variable (GDP Real), we go through the interpretation of the p-value and t-test for each variable. If the p-value is less than 0.05, then the variable is significant. On the other hand, if the p-value is greater than 0.05, then we can conclude that the group of predictors does not show a significant relationship with the dependent variable. In our case, the result shows us that the two predictors 1) savings and 2) total investment are not significant and do not explain real GDP. Gini with a p-value of 0.033 and also population growth with a p-value of 0.335 are important. We can conclude that the positive Gini coefficient brings us to the Kuznets hypothesis and the pro-inequality theory, which means that in the first phase of countries' development, income inequality is expected to be positively linked to economic growth. In the case of total savings and investments, we can conclude that these variables are not significant and do not predict real GDP. Even so, we can say that if investments are oriented toward non-productive sectors, we have no multiplier effect and can expect a non-productive relationship. The savings rate does not affect economic growth if income distribution is concentrated on rich people, it also showed us the theory consulted and elaborated on paper and we can also conclude that in countries with a high level of income inequality the rate of savings does not affect the reality of GDP. As Ray (1998) states that both mortality and birth rates tend to be high in low-income countries, which keep population growth rates low and vary within limited narrow values.

6. CONCLUSION

Income tax, as stated by the Law, is paid at a progressive rate of 10% for the earned income up to 1,080,000 MKD per year, and 18% for the earned income above this threshold, for any labor income earned. Income tax is paid at a flat rate of 15% for any capital income earned (Finance Think, n.d.).

Income inequality is widely debated nowadays. Many authors have attempted to investigate the factors that influence income inequality in developed and developing countries. Although they came to different conclusions with pros and cons about income inequality, the results from the consulted documents clearly explain the factors that may affect economic growth. Based on the theory and Solow model, in this research, we construct the regression multiplication model to assess the relationship between economic growth and income inequality. As a dependent variable, we have used real GDP and as independent variables, we have used the Gini coefficient by measuring the level of income inequality in a country, gross savings rate as a percentage of GDP, capital formation, total investment, and population growth. We have come to the conclusion that one way that creates income inequality of distribution is tax policies and other macroeconomic factors that we explained through regression analysis.

According to Kuznets theory, the first stage of the country’s development may be associated with high levels of income inequality, but as the country develops, with its development income inequality decreases. In both developed and developing countries, income inequality is expressed and forces must be encouraged to reduce this trend and improve social welfare in a society. Tax policies should be oriented towards direct taxes instead of indirect ones. The tax system should be progressive in the case of North Macedonia, as a result of which flat taxes increase income inequality when the tax burden worsens the poor people in a country. Investments as a total of GDP should be oriented towards productive sectors to increase the employment rate thus increasing economic growth.

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**Table 1. OLS regression results**

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of squares</th>
<th>DF</th>
<th>Mean squares</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>2.19549524</td>
<td>4</td>
<td>0.548873809</td>
</tr>
<tr>
<td>Residual</td>
<td>0.296000682</td>
<td>3</td>
<td>0.098806894</td>
</tr>
<tr>
<td>Total</td>
<td>2.49209592</td>
<td>7</td>
<td>0.356013793</td>
</tr>
</tbody>
</table>

Number of obs. = 8
F4, 3) = 5.55
Prob. > F = 0.0093

<table>
<thead>
<tr>
<th>Source</th>
<th>Coef.</th>
<th>Std. Err.</th>
<th>t</th>
<th>P &gt;</th>
<th></th>
<th>95% Conf. Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>LnGini</td>
<td>2.1380</td>
<td>0.5772</td>
<td>3.74</td>
<td>0.033</td>
<td>0.317499</td>
<td>3.958844</td>
</tr>
<tr>
<td>LINSF</td>
<td>-0.8284</td>
<td>0.3983</td>
<td>-2.08</td>
<td>0.129</td>
<td>-2.086114</td>
<td>0.439233</td>
</tr>
<tr>
<td>LITI</td>
<td>-4.1042</td>
<td>2.1314</td>
<td>1.94</td>
<td>0.048</td>
<td>-11.01188</td>
<td>2.682579</td>
</tr>
<tr>
<td>LnPg</td>
<td>1.6497</td>
<td>1.4397</td>
<td>1.15</td>
<td>0.335</td>
<td>-2.9313</td>
<td>6.230822</td>
</tr>
<tr>
<td>cons</td>
<td>4.2465</td>
<td>0.9981</td>
<td>0.42</td>
<td>0.700</td>
<td>-2.57240</td>
<td>36.06514</td>
</tr>
</tbody>
</table>

Source: Authors' calculations.
growth. The government should promote trade for qualified employers to create jobs. Must take the unemployment rate seriously and carefully plan and manage programs to support the poor. The government should increase the minimum wage.

The main limitation of this study is the small sample of analysis due to the lack of data. This study is of great interest to future researchers because income inequality is very important for the social welfare of a country.

REFERENCES