

*Preliminary communication*  
(accepted March 28, 2015)

## THE IMPACT OF TAXES MEASURED BY GINI INDEX IN MACEDONIA

**Sasho Kozuharov<sup>1</sup>**  
**Vladimir Petkovski**  
**Natasha Ristovska**

### **Abstract**

The past decades the problem of income inequality and welfare segregation has presented itself as one of the biggest faults for modern economic systems. Republic of Macedonia as a country in development is presented with a serious challenge into decreasing the income inequality which has risen for average 4% annually over the past 15 years, according to the GINI index. The problem of income inequality for Republic of Macedonia stands further as the country presents itself as one of the highest ranking of income inequality in comparison with the South-East European countries. The impact of different types of taxes on the income inequality in Republic of Macedonia measured through the GINI index, the econometric model of regression and correlation was conducted towards determination of the type of tax that has the most impact on the income inequality in Republic of Macedonia for the observational period, the Personal income tax has the utmost impact on the income inequality measured through the GINI index.

**Keywords:** inequality, GINI index, personal income tax, income distribution.

*Jel Classification:* O150

### **INTRODUCTION**

The changing dynamics of today's modern economic system renders them confronted with many problems mostly concerning the aspect of social welfare. Through the past few decades the problem that has raised itself into the latter as the most significant for the economists is income inequality and welfare segregation. Income inequality is a broader concept than poverty. It defines the level of income distribution in a current country. The seriousness of the problem is addressed by many economists to have a

---

<sup>1</sup> **Sasho Kozuharov**, PhD, Full Professor, University of Tourism and Management in Skopje; **Vladimir Petkovski**, PhD, Assistant Professor, Institute of Economics, University "Ss. Cyril and Methodius" in Skopje; **Natasha Ristovska**, PhD, Assistant Professor, University of Tourism and Management in Skopje, Macedonia.

grave impact on the social welfare, sustainable development and sustainable growth of the economy. Income distribution can be explained through the most popular concept of measurement i.e. Gini index. The Gini coefficient is derived from the Lorenz curve, which sorts the population from poorest to richest, and shows the cumulative proportion of the population on the horizontal axis and the cumulative proportion of expenditure (or income) on the vertical axis (Haughton and Khandker 2009). Gini index tends to show the redistribution of the income of one economy. It is measured in a scale from 0 to 100, where 0 is considered to be a perfect distribution i.e. all of the income is divided equally amongst the working population, and 100 is considered to be the utmost maximum of income inequality where few gather all the income from the economy.

Income inequality and income distribution is a product of several different factors in the country's economy. The negative effect of redistributive policies is indeed the central theme of many economists through the past decades implicating to the utmost importance of this question and its implication on the economic development, sustainability and growth. Arthur Okun in his famous 1975 book on the tradeoffs between efficiency and equity and on the efficiency "leaks" showed that efforts to reduce inequality can be transferred into creating more inequality. Examples could include taxes on activities with negative externalities paid mostly by the better-off but harmful to the poor (such as, perhaps, excessive risk-taking in the financial sector), cash transfers aimed at encouraging better attendance at primary schools in developing countries, or spending on public capital or education that benefits the poor (Ostry, Berg and Tsangarides 2014). Also some authors believe that government spending in social economics issues such as healthcare, education and creating a tax system that can relieve the population with lower income can be a guideline to decreasing the income inequality. However, the most important issues connected with the degree of income inequality still remain the factor of unemployment and social care.

Taxes and taxation system in one economy can contribute to increasing or decreasing the income inequality and distribution of the income in general. For example a progressive tax system can mean that the higher earning income workforce will be paying more paying a higher percentage of their income in taxes. On the other hand, people realizing smaller incomes will pay smaller percentage from their share of realized income. This type of personal tax can significantly impact the income inequality in the economy; but decreasing it, although it cannot always be the case. The dependence of many various factors could mean that the significance of one factor impact on the income inequality is rather hard to determine. Despite the progressive taxation system the flat tax system implies that every person that generates income should pay the exact same percentage in form of taxes. This also implies that the people who realize higher income also pay a higher amount of tax although the percentage is the same for everyone. But the social effect of this tax is relatively on the side of the people who realize the higher degree of income. Although they are giving more of their income in the form of taxes, still they have relatively more income than the people who realize less income and are paying less of it in the form of tax. The reasoning behind this tax system is to enable the higher income earners to distribute the income to lower income earners through creating more possibilities for income generation in the form of various real capital investments. However, the people who realize the higher amount of income usually invest their income into the possibility with the highest rate of return for the acceptable amount of risk. This can usually mean

that the higher income earners invest their funds into investment funds, different types of securities, bonds etc., thus leaving their income to generate more income, and at the same creating a larger gap between the lower income earners and them.

Besides the direct taxes, indirect taxes can also have the same effect on the income inequality. Indirect taxes such as value added tax is the same for everybody no matter the amount of income they realize. These kinds of taxes also tend to create income inequality. People who generate lower income will give relatively more of their income for indirect taxes than the people who generate higher incomes. In this research paper the main goal is to determine the link between the income inequality and different taxes in Republic of Macedonia. The subject is therefore defined as the income inequality in Republic of Macedonia measured through the Gini index and the hypothesis states that all of the vast taxes in Republic of Macedonia are equally linked and have impact on income inequality in Republic of Macedonia.

## **1. METHODOLOGY**

The research in this article is conducted using both quantitative and qualitative methods for research. The quantitative methods are consisted of statistical and econometrical analysis using correlation and regression as econometric models to determine the link and impact on different types of taxes on the income inequality in Republic of Macedonia. Statistical method is used to collect the data necessary for comparison of the income inequality of the south-east European countries and countries member of European Union. The data was gathered from the data base of World Bank, OECD data base and Eurostat online sources, research in the field and other written sources. Econometric analysis presented in the last chapter of this research paper is based upon correlation and regression analysis on different taxes in order to determine the strength of the link and impact of the taxes upon the income inequality. The analysis is conducted within the period of 10 years from year 2003 to year 2014. The data of the income gathered by tax system of Republic of Macedonia is collected form the State Statistical office of Republic of Macedonia and other written sources. This data is also used to determine the taxes which generate the utmost revenues from the tax system of Republic of Macedonia.

Qualitative method that is used in the research for this article is comparative method. The comparative method is used to compare the income inequality measured with the Gini index for Republic of Macedonia, South-east European countries and the countries of European Union. Besides the comparative method, other qualitative methods are used in the process of research and conclusion findings, such as: analytical method, method of deduction and method of induction.

## **2. INCOME INEQUALITY MEASURED THROUGH THE GINI INDEX COMPARAISON OF THE SOUTH-EAST EUROPEAN COUNTRIES AND EUROPEAN UNION COUNTRIES**

Gini index or Gini coefficient is most common coefficient for measuring income inequality. Gini coefficient can be defined in to alternative ways:

- The Gini coefficient is the GMD divided by twice the mean. For this definition to hold, the mean must be positive.
- The Gini coefficient also known as the concentration ratio is the area enclosed between 45<sup>0</sup> line and the actual Lorenz curve divided by the area between the 45<sup>0</sup> line and the Lorenz curve that yields the maximum possible value that the index can have (Yitzhaki and Schechtman 2013).

As stated before the Gini index (discovered by Italian statistician Corrado Gini) measures the income distribution in one society/country. The measurements of Gini index can vary from 0 to 100, where 0 means total equality and 100 means total inequality. The higher the Gini index is from 0 the more unequal distribution of income is present in the society. This can indicate to more social segmentation and social clustering. The table presented below shows the income inequality or income distribution for the Republic of Macedonia, South-east European countries and EU countries. The table's purpose is to show the comparison between the income distributions of the countries for the period of the year 1998 till year 2013.

**Table 1.** Review of the Gini index in the south-east European countries, EU countries and Republic of Macedonia

Year	Mk	Serb	Alb	Blg	Gr	Cro	B&H	Slo	Rom	EU 27
1998	28,1			26,4	37,2	29,45		29,41	29,44	
1999						27,17			29,42	
2000	34,4				34,4	31,33			30,25	
2001				33,8		31,1	29,97		29,43	
2002	38,8	32,7	31,7					29,15	30,23	
2003	39,0	32,8	31,7	28,9				30,82	29,91	
2004	38,9	33,0	31,7		33,7	28,83	34,4	31,15	30,4	
2005	39,1	33,4	31,7					24,63	29,82	30,6
2006	42,8	29,7	31,2					24,48	30,61	30,3
2007		29,4	31,3	28,1	34		33,04		30,35	30,6
2008	44,2	28,2	30	33,6		33,61		23,72	29,53	30,9
2009	43,2	28,7	30						28,34	30,5
2010	43,6	29,7	30	35,8	34,7			24,94	28,16	30,4
2011	44,2	29,6	29,5	34,3	34,2			24,87	27,21	30,7
2012	44,2	28,2	29	33,2				24,1	27,33	30,4
2013										30,5
Aver.	40,0	30,5	30,7	31,8	34,7	30,2	32,5	26,7	29,4	30,5

Source: <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&language=en&pcode=tessi190> <http://data.worldbank.org/indicator/SI.POV.GINI>

From Table number 1 we can see that the Gini index has different values for the countries taken into consideration in this research. Among the countries taken into consideration for the purpose of the research, the highest values of Gini index and thus the highest degree of income inequality has Republic of Macedonia (seen by the average value of the Gini index in the period of 1998 till 2013).

Republic of Macedonia with 44, 2 in 2008, 2011 and 2012 has the highest value of Gini index recorded in the observational period in comparison to the other countries

form south-east Europe and EU countries. The lowest value of the Gini index among the countries taken in consideration for the research is recorded in Slovenia in 2008, estimated to 23, 72. Slovenia also has the lowest average value of the Gini index with 26,7. The average value of the Gini index in Slovenia is lower than the average value of the Gini index of EU 27 which is estimated to 30,5. Excluding Republic of Macedonia which has a 25% higher Gini index then the EU 27 countries, and Greece with average value of the Gini index of 34,7, every other country taken into consideration for the research has average value of Gini index approximately as the EU 27 countries. The value of Gini index as shown in table one clearly states that the highest income inequality in the region can be seen in Republic of Macedonia.

Besides the presentation of the absolute values of the Gini index through the observational period of 16 years shown in Table 1, the percentage of growth and decline of the value of this index is also presented, and the data of the research are shown in a Table 2.

**Table 2.** Review of the growth and decline of the Gini index in the south-east European countries, EU countries and Republic of Macedonia

Year	Mk	Serb	Alb	Blg	Gr	Cro	B&H	Slo	Rom	EU 27
1998										
1999						-8%			0%	
2000	18%				-8%	13%			3%	
2001				22%		-1%			-3%	
2002	11%							-1%	3%	
2003	1%	0%	0%	-17%				5%	-1%	
2004	0%	1%	0%		-2%	-8%	13%	1%	2%	
2005	1%	1%	0%					-26%	-2%	
2006	9%	-12%	-2%					-1%	3%	1%
2007		-1%	0%	-3%	1%		-4%		-1%	1%
2008	3%	-4%	-4%	16%		14%		-3%	-3%	1%
2009	-2%	2%	0%						-4%	1%
2010	1%	3%	0%	6%	2%			5%	-1%	0%
2011	1%	0%	-2%	-4%	-1%			0%	-3%	1%
2012		-5%	-2%	-3%				-3%	0%	1%
2013										0%
<b>Average</b>	4%	-2%	-1%	2%	-2%	5%	4%	-3%	-1%	0%

Source: \* <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&language=en&pcode=tessi190>;  
<http://data.worldbank.org/indicator/SI.POV.GINI>

Table 2 shows that the highest average growth of the Gini index can be seen in Croatia with 5%, as well as Bosnia and Herzegovina and Republic of Macedonia with 4%. However, the highest growth of the Gini index can be noticed in Republic of Macedonia for the period of 1998 to 2000 where the index has risen for 18%, i.e. from 28, 1 to 34, 4 and Bulgaria where the Gini index value has risen for 22% for the same period. High average growth of the Gini index points to further increase of the income inequality, which can present a threat to sustainable growth of the economies and the social welfare of the countries. The highest average decline of the Gini index value according to the research can be found in Slovenia where the average decline of the Gini index for the observational period is determined to -3%. The single highest decline in the value of the Gini index is also registered in Slovenia in the year 2004 and 2005 when the value of the Gini index has decreased for 26%. Decrease of the Gini index can be seen as a number of measures taken for decreasing the income inequality and income segregation. This can lead to a more sustainable economic growth of the

country as well as increasing the social welfare of the people. Table 2 also shows that the average growth the Gini index of EU 27 countries is 0% for the observational period, meaning that the income inequality is established as stable at a certain level.

### **3. REVIEW OF THE TAX SYSTEM AND TAX INCOME IN REPUBLIC OF MACEDONIA**

Tax reforms that occurred in developed countries were the result of presence of tax evasion, the growth of public expenditure, globalization and mobility of capital, avoiding fiscal distortions and more. The biggest reforms made in the Republic of Macedonia in the new tax system occurred in 1994. These reforms were actually reforms regarding the taxation of consumption. The reforms started by the beginning of 2000, when the Value Added Tax (VAT) started to apply. Value added tax is calculated using the proportional tax rates on taxable income for the goods and services. Two different tax rates were established i.e.:

- General tax rate of 18%;
- Preferential tax rate of 5% (Law on Value Added Tax of RM 2014).

The general tax rate of 18% is applied to all products, except for the preferential tax goods. Preferential tax rate of 5% is applied on the products for human consumption, i.e. drinking water, publications (books, brochures, newspapers), seeds and fertilizers for agriculture, and foils plastic products for agriculture, agricultural machinery, pharmaceuticals and medical equipment, solar thermal systems, computers, the first turnover of residential buildings and apartments used for residential purposes). In the period from 1 April 2000 to 31 March 2003 the general tax rate of 19% was applied, that was true till April 1, 2003 when the changes occurred, i.e. the tax rate of 19% change of 18%. With these changes certain groups of products which were taxed with preferential rate of 5% moved to the taxation general tax rate of 18% (Law on Value Added Tax of RM 2014). Nowadays the VAT in Republic of Macedonia is considered to make the majority of assets generated form taxes. Afore introduction of the VAT in Republic of Macedonia the vast tax i.e. the tax which generated the majority of assets was considered the Personal income tax and Income tax.

The biggest reforms in the tax system of direct taxes were made in order to provide simpler and more efficient tax system, by introducing the flat tax. Before introducing the flat tax, Republic of Macedonia had progressive tax system with rates of personal income tax of 15%, 18% and 24%. These rates were replaced with a single tax rate of 12% in 2007 which then was converted in rate of 10% from 01.01.2008. In order to boost the economic development and lower the unemployment the flat tax was also introduced in the income tax, which has decreased the tax rate of 15% with a tax rate of 12% in 2007 and further more with tax rate of 10% which is valid from 01.01.2008. The changes in the tax system in Republic of Macedonia resulted into changing the ratio of the tax revenues. The idea behind introducing the flat tax system was to generate more investments and thus create more job vacancies by the high income earners. But at the same time, the flat rate direct taxes cede primacy to the VAT relative to the amount of income gathered in form of taxes. This dependence of the indirect taxing and flat tax rate further increased the possibility of creating a higher income inequality in Republic of Macedonia. Table 3 presented below, shows the

amount of income gathered by the 3 vastest taxes in Republic of Macedonia as well as their respective participation in total income gathered by the tax system.

**Table 3.** Review of the Tax income of Republic of Macedonia for the period of year 2003 till year 2014 in million MKD\*

Year	Income tax	As % of total	Personal Inc. tax	As % of total	Excise duty	As % of total	VAT	As % of total	Total
2003	3.270,1	7,69%	7.502,5	17,65%	10.565,2	24,85%	21.175,9	50%	42.513,7
2004	2.362,2	5,12%	7.706,7	16,69%	10.336,4	22,39%	25.756,8	56%	46.162,1
2005	2.835,8	5,77%	8.098,7	16,49%	11.090,9	22,59%	27.081,1	55%	49.106,5
2006	4.709,8	9,08%	8.413,8	16,22%	11.511,4	22,19%	27.240,3	53%	51.875,4
2007	5.896,4	9,77%	8.890,9	14,74%	12.583,8	20,86%	32.962,1	55%	60.333,2
2008	8.579,0	12,80%	8.696,0	12,98%	13.557,0	20,23%	36.174,0	54%	67.006,0
2009	4.434,0	7,14%	8.707,0	14,02%	13.789,0	22,20%	35.178,0	57%	62.108,0
2010	3.691,0	7,34%	8.872,0	17,65%			37.694,0	75%	50.257,0
2011	3.888,0	6,99%	9.513,0	17,10%			42.223,0	76%	55.624,0
2012	3.665,0	7,09%	9.553,0	18,48%			38.468,0	74%	51.686,0
2013	4.419,0	8,26%	10.255,0	19,17%			38.835,0	73%	53.509,0
2014	5.060,0	8,26%	12.321,0	20,12%			43.859,0	72%	61.240,0
Average	4.400,8	8%	9.044,1	17%	11.919,1	22%	33.887,3	62%	54.285,1

Source: \* [www.ujp.gov.mk/files/attachment/0000/0684/ISSN-\\_1857-7121\\_Godisen\\_izvestaj\\_na\\_UJP\\_za\\_2013.pdf](http://www.ujp.gov.mk/files/attachment/0000/0684/ISSN-_1857-7121_Godisen_izvestaj_na_UJP_za_2013.pdf)

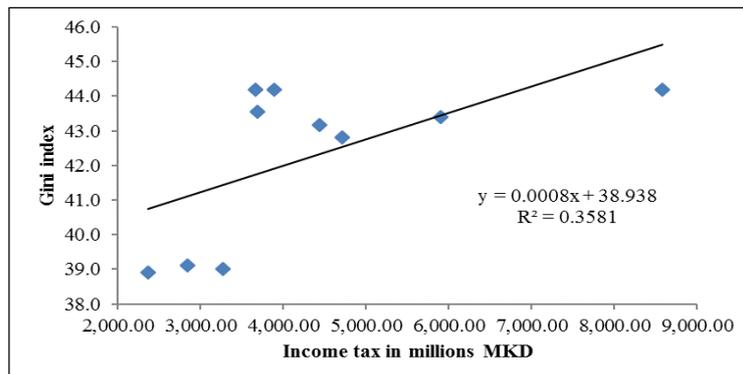
From Table 3 it can be clearly seen that the highest amount of tax revenues in Republic of Macedonia is acquired from the VAT. VAT also accounts for above 70% of total tax revenues in Republic of Macedonia. The least represented tax is the Income tax with only 8% average participation in total tax revenue. Personal income tax account for average of 17% of total tax revenues, and Excise duty tax accounts for 22% average of the total. Still the Exercise duty tax has insufficient date to be part of the regression analysis which is the subject of the next chapter.

The table clearly states that Republic of Macedonia relies on VAT as an indirect tax for acquiring tax revenues. Indirect taxing as explained before can broaden the income inequality and create more income segregation. Indirect taxes in general are considered income inequality creators because without consideration for the earnings of the people they are still charged with equal tax rate for purchasing of various goods and services. This is considered to be a greater burden for the low income earners because they pay relatively higher percentage from their income in consideration to high earning population. Personal income tax has less participation into total tax revenues. Although the percentage of the participation of this type of tax is smaller than the participation of VAT it still can have relatively high effect on the income inequality. This can happen as a result of the flat tax rate which again creates the same effect as the indirect taxing. In the next chapter the link and links reliability between the different types and the income inequality in Republic of Macedonia is determined.

#### 4. IMPACT ON DIFFERENT TYPES OF TAXES ON THE INCOME INEQUALITY IN REPUBLIC OF MACEDONIA-REGRESSION ANALYSIS

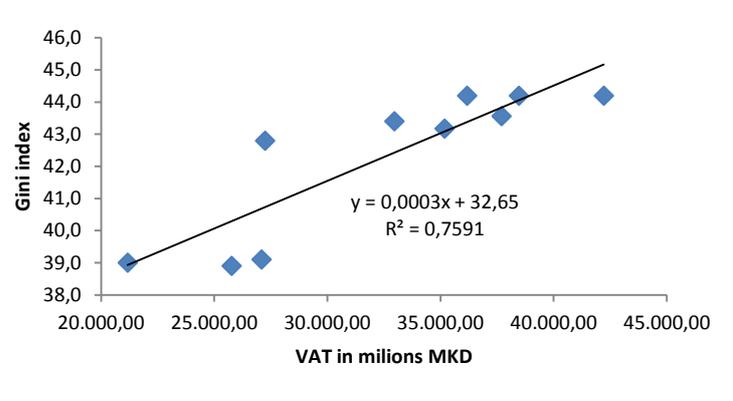
In order to determine the link and relevance of the link between the different taxes and income inequality in Republic of Macedonia an econometric analysis was conducted using the correlation and regression analysis. The analysis is conducted on 10 observational years starting with year 2003 and ending it with year 2012. Although the period can be perceived as a rather small it still can give an insight into the bond

between the income inequality measured with the Gini index and the major taxes in Republic of Macedonia. In this research 3 of the vastest taxes will be considered to have an equal impact on income inequality, as stated in hypothesis of this research paper. The first correlation and regression analysis was conducted on the income tax's impact on the income inequality in Republic of Macedonia. The results of the analysis are given below in the form of graph.



**Figure 1.** Review of the impact of income tax on income inequality measured by the Gini index in Republic of Macedonia

The regression analysis showed that the impact of the Income tax on income inequality is insufficient, i.e. there is no bond between the tax revenues realized from Income tax in Republic of Macedonia and the income inequality measured with the Gini index. This can be seen at the Graph number 1 where  $R^2$  is determined to 0,3581 and also another indicator that is Adjusted  $R^2$  which takes into consideration the observational sample size is determined to 0,28 which indicates to weak link between the two variables. Even though the correlation index is determined to 0, 5984 it is still insufficient to claim that there is any connection between the income tax and income inequality in Republic of Macedonia. The regression analysis also didn't pass the p-test for  $p > 5\%$  ( $p = 7\%$ ), thus it can be deducted that there is certain degree of randomization in the link between the two variables and that the bond between them is inconsistent. Also the regression model between the two variables didn't pass the F-test (F-4, 46; Significance of F-0, 07) and thus the bond cannot be determined as significant. All the data presented above showed that there is no significant link between the income tax and the income inequality in Republic of Macedonia. This can actually be expected as the income tax is more significant for the enterprises and companies rather than the income of the people, so it cannot be expected to have any direct impact on the income inequality and segregation measured by the Gini index. The next part of the regression analysis concerns the bond between the VAT and income inequality. The results are also graphically presented in the graph below.

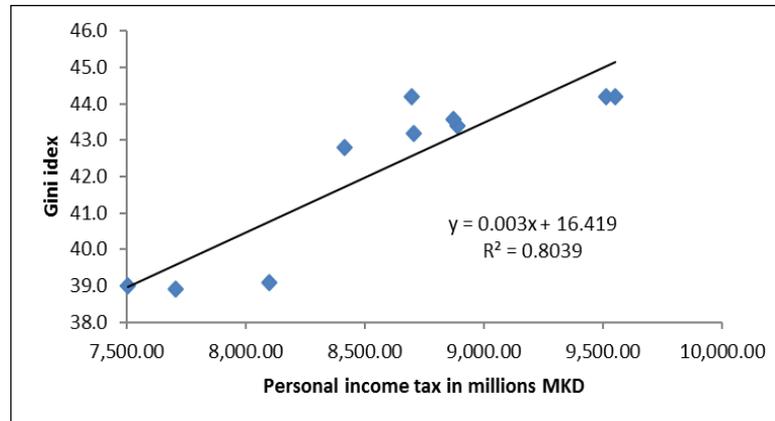


**Figure 2.** Review of the impact of VAT on income inequality measured by the Gini index in Republic of Macedonia

The regression analysis showed that the impact of the VAT on income inequality is relatively high, i.e. there is a possible bond between the tax revenues realized from VAT in Republic of Macedonia and the income inequality measured with the Gini index. This can be seen at the Graph number 2 where  $R^2$  is determined to 0,7591 and also Adjusted  $R^2$  indicator is determined to 0,73 which indicates to rather strong link between the two variables. The correlation index is determined to 0,871 which also confirm that there is strong connection between the VAT and income inequality in Republic of Macedonia.

The regression analysis between the two variables passed the p-test for  $p > 5\%$  ( $p = 0,1\%$ ), thus it can be deduced that there is a slight, if any, degree of randomization in the link between the two variables and that the bond between them is consistent. Also the regression model passed the F-test (F-25, 21; Significance of F-0,001) and thus the bond can be determined as significant. The regression analysis between the two variables also passed the t-test which makes this link relevant.

According to the data presented above it can be determined that there is a rather strong and significant link between the VAT and the income inequality in Republic of Macedonia measured by the Gini index. This was also confirmed by the confidence interval of the test. Now that the bond is confirmed between the VAT and the income inequality in Republic of Macedonia, it can be deduced that this indirect tax can have a significant role in decreasing or increasing the income inequality of Republic of Macedonia. The last type of tax taken in consideration for the research is the Personal income tax. The results of the regression analysis are shown in the graph number 3.



**Figure 3.** Review of the impact of Personal Income tax on income inequality measured by the Gini index in Republic of Macedonia

The regression analysis showed that the impact of the Personal income tax on income inequality is high, i.e. there is a bond between the tax revenues realized from Personal income tax in Republic of Macedonia and the income inequality measured with the Gini index.

This can be seen at the Graph number 3 where  $R^2$  is determined to 0, 8093 and also Adjusted  $R^2$  indicator is determined to 0, 78 which indicates to rather strong link between the two variables. The correlation index is determined to 0,898 which also confirm that there is strong connection between the Personal income tax and income inequality in Republic of Macedonia. The regression analysis between the two variables passed the p-test for  $p > 5\%$  ( $p = 0,04\%$ ), thus it can be deducted that the chance of randomization in the link between the two variables is very small and that the bond between them is consistent.

Also the regression model passed the F-test ( $F = 32, 79$ ; Significance of  $F = 0, 0004$ ) and thus the bond can be determined as significant. The regression analysis between the two variables also passed the t-test which makes this link relevant. According to the data presented above it can be determined that there is a rather strong and significant link between the Personal income tax and the income inequality in Republic of Macedonia measured by the Gini index. This was also confirmed by the confidence interval of the test.

The Personal income tax also has the highest correlation index which can be seen from the presented graphs. This makes the Personal income tax the variable with the strongest impact on the income inequality of Republic of Macedonia measured by the Gini index from the 3 reviewed variables. That means that Personal income tax can impact into increasing or decreasing the income inequality in Republic of Macedonia. It is not relevant that with changing the flat rate or any changes of just one factor will have the impact on income inequality, but the bond is true and can be reviewed as a possible mean to intervene with the uprising problem that is income inequality.

## CONCLUSION

Income inequality is a threat to modern economic system, whether for the countries in development or already developed countries. Most popular measurement unit that represents the income inequality and income segregation of the countries is the Gini index. According to the Gini index values and the comparative analysis conducted in this paper showed that Republic of Macedonia has significantly higher income inequality than the countries of south-east Europe and European Union countries. This issue is a result of a number of factors that can impact the income inequality, one of them being the tax system of the country. The tax system of Republic of Macedonia characterizes with the flat tax rate for the direct taxes, dating from 2008, and also a high percentage of participation of the indirect taxes in the total tax revenues (72% in year 2014). This can be theoretically foreseen as a factor for increase of the income inequality. The reasoning behind the flat tax system is to release more income of the high earning population in order to be reinvested or invested into real capital which can presumably increase the income of the low earning population. As opposed to the theory practical example for this kind of tax systems can usually backfire on the income inequality. High earning population following the global trends would usually decide to go with the highest rate for the return of their income for the lowest possible risk, thus meaning investing into the financial markets or real estate markets. This can further broaden the income inequality gap between the low and high income earners.

Indirect taxing can also be seen as a factor for increasing the income segregation in Republic of Macedonia. The high percentage of participation of VAT in total tax revenues on annual level indicates that this is the utmost vast tax for realizing public revenues. Indirect taxing tends to further increase the income inequality because all people no matter the height of their incomes are affected by this tax. More so people with lower income earnings are more affected because they give more of their income to this tax. The presumption that for the same amount of consumption by the high and low income earners, low income earners pay a relatively larger amount of their income for the VAT than the higher incomes, only straightens the fact that indirect taxes such as VAT are creating more income inequality. Especially when the VAT takes 72% of the total tax revenues in one year, as is the case in Republic of Macedonia.

The relevance of the tax system to the income inequality in Republic of Macedonia was also confirmed by the regression analysis conducted in this research paper. Although the initial hypothesis was rejected because the Income tax has no relevance or link with the income inequality measured by the Gini index in Republic of Macedonia, still the goal was met and the impact of the VAT and Personal income tax was presented. Personal Income tax was indicated as the tax to have the highest relevance as a factor on the income inequality in Republic of Macedonia. This can mean that the changes in the system and maybe reintroducing the progressive rate of taxes can benefit towards the decreasing of income inequality. Changing the taxes and tax rates may not directly lead to decreasing of the value of the Gini index for income inequality of Republic of Macedonia, but will certainly pave the path the path for resolving the serious issue that is income inequality.

## REFERENCES

- European Commission, ec.europa.eu. <http://ec.europa.eu/eurostat/tgm/table.do?tab=table&language=en&pcode=tessi190> (accessed January 21, 2015)
- Haughton, Jonathan and Shahidur R. Khandker. 2009. *Handbook of poverty+inequality*. Washington, DC: The International Bank for Reconstruction and Development/ The World Bank.
- Law on Value Added Tax of RM, pravdiko.mk. <http://www.pravdiko.mk/wp-content/uploads/2013/11/Zakon-za-danokot-na-dodadena-vrednost-01-12-2014-prechisten-tekst.pdf> (accessed January 18, 2015)
- Ostry, Jonathan D., Andrew Berg, and Charalambos G. Tsangarides. 2014. *Redistribution, Inequality and Growth*. International Monetary Fund.
- Public Revenue Office of RM, ujp.gov.mk. [http://www.ujp.gov.mk/files/attachment/0000/0684/ISSN-\\_1857-7121\\_Godisen\\_izvestaj\\_na\\_UJP\\_za\\_2013.pdf](http://www.ujp.gov.mk/files/attachment/0000/0684/ISSN-_1857-7121_Godisen_izvestaj_na_UJP_za_2013.pdf)
- World Bank, worldbank.org, <http://data.worldbank.org/indicator/SI.POV.GINI> (accessed January 14, 2015)
- Yitzhaki, Shlomo, and Edna Schechtman. 2013. *The Gini Methodology, A Primer on a Statistical Methodology*. New York: Springer Series in Statistics.