The Impact of the Wealth Taxes on Income Inequality and Poverty in OECD Countries

Paper aims to assess if wealth and other taxes have an influence on income inequality and poverty in OECD countries. The theoretical aspects of taxes and their functions, the concept of wealth taxes and their effect on income inequality or poverty are analysed. The obtained results show that OECD countries have a different structure of wealth taxes; wealth tax revenue percentage of GDP is different in all OECD countries. Countries which have more revenues from wealth taxes tend to have a lower level of income inequality and poverty. The econometric calculations show that wealth taxes and all other taxes are statistically significant, and they have a positive effect on the society, i.e. they reduce income inequality and poverty.

**Keywords:** taxes, wealth taxes, income inequality, poverty.

Introduction

The relevance of the topic. Taxes are one of the most important topics – formulation of the concept had started in the early days. In Lagash, the current territory of Iraq, tax information was found on clay tablets. Taxes are believed to have been introduced to provide enough funds for military activities in this ancient city. Furthermore, taxes are also mentioned in the Xenophon Athenian Written Source “About Income” and, historically, they were formed when the states began to develop. Taxes are one of the main tools for generating state revenue, i.e. budget. When the exchange of commodity and money had started the taxes were paid in cash.
Wealth taxes are also called as one of the most honest taxes because people who own more wealth can pay taxes and then this money which goes to the country’s budget will be redistributed and, in that way, wealthier people can help the more unfortunate once. Wealth taxes are known, but not all countries use all of the wealth taxes in their state. So, it is also essential to know which wealth taxes have a more significant impact have on reducing income inequality and poverty rate. According to Santos-Paulino (2012), income inequality and poverty rate in countries differ due to the country’s level of development and tax policy. Thus, income inequality and poverty rate are a sensitive issue and a debatable topic in many countries around the world (Dabla-Norris, Kochhar & Suphaphiphat, 2015). Some authors have already done some researches based on taxes and income inequality or poverty: Aleknavičius (2011); Lusting, Pessino and Scott (2013), Higgins and Pereira (2014); Goldburn and Maynard (2015); Bird-Pollan (2016); Repetti (2016); Dapkus, Pukelienė and Kalendienė (2016); Piketty (2017) and others. The object of this article: the impact of wealth taxes on income inequality and poverty.

The aim of the article is to calculate the impact of wealth taxes on income inequality and poverty in OECD countries.

Methods of the research: systematic, comparative and generalising analysis of scientific literature, comparison and generalization of scientific statements and methods of determination, graphical analysis, quantitative and qualitative analysis. The Microsoft Office Excel program was used to make comparative and structural analysis. Applied econometrics software GRETTL was used for empirical research using pooled OLS, fixed-effects and random-effects methods for multiple regression. Sources of information used in this study: scientific literature, database of the website of the Organization for Economic Cooperation and Development (OECD).

Theoretical Aspects of Wealth Taxes, Income Inequality and Poverty

The nature and functions of taxation and wealth taxes. Taxes are one of the main and most important sources of income that the country receives and uses to ensure effective state functions. Furthermore, one of the most known professors, academician and the first governor of the Bank of Lithuania Vladas Jurgutis have had said that taxes are a fierce, stubborn, active, energetic, agile proclamation of human freedom but also it can be a tool of cruel oppression and bloody suffering (Rimkuvienė & Tamošaitienė, 2012). All countries are responsible for a variety of crucial functions, including administrative, defensive and other functions like production, commerce, etc. According to Buškevičiūtė (2007), government itself does not create any products, thus it could not exist without funding from taxes. This leads to the statement that the beginning of taxes existence is accompanied by the creation of countries and governments. Knowing that taxes are vital for governments to function properly, without them, appropriate living conditions could not be ensured for its citizens. The main characteristics of taxes: they are set by the state, based on law; taxes are universally mandatory transfers for economic operators and citizens; taxes are monetary obligations and they are not directly remunerated.
Wealth tax is the most discussed tax because people think differently about what kind of property and wealth must be paid. The concept of wealth has a lot of contrasting meanings because it means different things for different people. Wealth can be characterized as tangible and intangible element which makes people or business better off. So, it is decided to tax wealth because it helps to get money from these wealth taxes to the country’s government. Wealth taxes can also be called as equity or capital taxes. Wealth taxes are composed of stocks taxes, transfer taxes and capital gains taxes. Wealth taxes are quite attractive from both points of view: economic theory and social inequality policy. In all countries, it is often used to ensure the financial independence of municipalities – they can choose how much, what and what level of public services they will provide to the local community.

Discussions and theoretical problems of wealth taxes are on the top. Wealth and property taxes are the best source of revenues to state budget in all countries (Slack, 2010). Wealth taxes are visible in comparison with income taxes because the taxpayer must pay one-off payments directly. It is one of the main advantages of this tax. These taxes also finance well-visible services such as: roads, garbage collection, park maintenance, etc. It looks like a very good system of paying taxes and using revenues from it. But it is not like this because there are some problems and disadvantages of wealth taxation. Also, it can be added that wealth taxes are inelastic because the tax base does not react strongly and does not increase as the economic activity changes in contrast to income tax (Bahl, Martinez-Vazquez & Youngman, 2010).

One of the worst problems is double taxation. According to Radu (2012, p. 403), “International double taxation is subjecting direct to the same tax and taxable materials for the same period, by the public authorities from different countries. The advent of double taxation is due to the way criteria are applied to the taxation of income or wealth.” It means that people must pay for the same material twice. Double taxation has two meanings: economic and legal. In economic terms, double taxation will occur when, for example, a person who has earned an employment relationship in accordance with the legalization will have to pay a personal income tax on his income but for the same state this person also will have to pay wealth taxes if he buys some wealth. So, in this case, the employment-related income and the wealth which he has bought are different taxable tax objects and double by the different taxes at the same time.

Another very important issue about wealth taxation is that it is not as impartial as it looks from the first sight. It means that wealth taxes look like symbolic tax in some countries and it is the most important and serious criticism. According to Ristea and Trandafir (2010, p. 305), “to witness, in France, the fact that the solidarity wealth tax was instituted at approximately the same time as the subsidized minimum mainstreaming income (RMI) is highly symbolic.” So, this confirms the idea that wealth tax sometimes is not so good tax which can ensure equality in the country.

Tax avoidance and wealth migration are also important problems which are connected to wealth taxation. Asset mobility is an issue because it’s easy to hide jewellery, paintings, household goods, vehicles, artwork or fungible assets like bank balances, etc. Tax evasion or avoidance
from a domestic point of view is also possible under a net wealth tax as there are several property and asset groups which can be highly susceptible to non-disclosure or underreporting (OECD Tax Policy Studies, 2018). Furthermore, to analyse the causes of tax evasion, it is logical to conclude that when tax size increases from a certain point the taxpayers desire to avoid taxes increases and the shadow economy size also increases.

Finally, the last issue about wealth taxation is that some economists do not agree that gifts and inheritance should be paid by the taxes. It is thinkable that if it is not a person's accumulated wealth, and it is inherited or gifted, so why person must pay taxes for it. According to Lewis (2016), “Inheritance tax, or IHT, seems to be hated more than any other. The next generation often feels that the property of their parents – particularly the “family” home – is somehow theirs and that taxing it is tantamount to theft especially if they fear that the home will have to be sold to pay the tax.” So, people do not like this tax because they cannot understand why they must pay for this asset, especially, if they must sell this asset due to paying taxes. Moreover, the gift means something that you gave for free and it is why you should not pay anything for this present (Islam & Zayed, 2018).

There are four main issues which are related with the problems of wealth taxes, but, of course, there are other problems which can influence wealth taxation to negative perspective. Sometimes it is very difficult to evaluate wealth (OECD Tax Policy Studies, 2018). Economists say that it is a real issue to talk about wealth taxes and asset. According to Evans (2013, p. 3), “Valuation is also a major problem, especially where an actual sale of asset does not take place to give an independent market value.” Sometimes there is no exact value of rare kind of asset then a problem becomes an issue of wealth taxation. Furthermore, there are some arguments about horizontal (the same treatment for the same taxable capacity) and vertical equity (it also can be called as progressive taxation because it means that the heavier taxation should be for those with the greater taxable capacity) which are related with wealth taxes. Also, it can be said that administrative costs can be high, some forms of assets are hard to evaluate, and some groups of assets are easy to hide. Hence, the most difficult is to evaluate private companies (Ingles, 2016). So, from here countries will encounter disclosure and valuation problems of wealth tax. Furthermore, these problems were arguments due to a lot of European and OECD countries decided not to introduce or, especially, to re-introduce, net wealth taxation in their countries during the last quarter of the 20th century. Moreover, these problems of wealth taxation were counterarguments which dominated the advantages of wealth taxes (Krenek & Schratzenstaller, 2017).

In recent years, the problem of inequality has worsen off than it was before. Inequality is multi-faceted task. The increase in inequality is relevant to the link with social economic phenomena. Although the issue of inequality can be considered in different aspects, two concepts are most important – results (income and wealth inequality) and unequal opportunities. Income and wealth inequalities are one of the most debated topics in academic, political and economic debate nowadays.

The concept of income inequality is linked to the idea of fairness of income as it is considered unfair if the rich have a disproportionately large share of the
country’s income compared to all its inhabitants. It is worth to mention that income inequality can be treated as an uneven distribution of income among economic agents in a country’s economy, for example, based on country-specific statistics on income distribution in it, it can be said that 80% of state income can dispose of 15% of the population (Keeley, 2015). Skučienė (2008) had agreed with these definitions of income inequality adding that the inequality of income can usually be explained by the example of sharing the cake, “dividing the cake” into equal parts for all recipients will be full equality, and with the introduction of an additional dimension that will be important for the share of the cake to be shared size, it will be inequality. According to OECD Tax Policy Studies (2018), “Income inequality has increased in most OECD countries over the past three decades. The Gini coefficient of disposable income inequality stood at 0.29 on average across OECD and it has increased about 10% or 3 points to 0.32.” So, income inequality is increasing worldwide. A lot of scientists think that inequality is not very negative process because we have some examples of equality in economics history, but these examples are not very good because countries lost their efficiency. So, it can be said that not very high level of inequality can be treated as good but higher level and tendencies of increasing inequality is a signal that not everything is good, and it should be stopped.

There are many different factors that can cause this exclusion, according to Kaasa (2005), the main ones are:

- economic development of the country (state welfare, technological development and economic development and growth);
- demographic factors prevail in the country (urbanization, percentage of children and pensioners in the country, level of education, distribution of education (inequality), and science prices);
- political factors (democratization and public sector);
- environmental and cultural factors (shadow economy, corruption, natural resources, cultural differences and land concentration);
- macroeconomic factors (unemployment, inflation, imports, exports, foreign investment in the country, financial development).

It is worth mentioning that many of the factors have an indirect impact on income inequality, as they primarily affect the country’s economy, and only after a certain economic situation within the country some of them can have an impact on income inequality, i.e. increase or decrease it. It can be said that income distribution has a clear position to policy makers while wealth inequality does not. Wealth inequality has risen as well as income inequality in a lot of countries worldwide (Alvaredo et al., 2018). Wealth is distributed more unequally than income is distributed in a lot of countries (OECD Tax Policy Studies, 2018). Between income and wealth distribution correlation exists. So, people who earn more income are also more likely to be wealthier than those people who earn less (Gibson-Davis & Percheski, 2018).

Poverty is not only related to deficiency of financial resources, but to some extent it is also related to obstacle of restrictions to fully employ opportunities and services, which otherwise would ensure full-scale participation in a public life. Thus, phenomenon of poverty is closely related to social exclusion and income inequality.
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Scientific literature distinguishes two types of poverty, it is economic (monetary) and non-monetary. Economic poverty is based on quantitative measurements of poverty characteristics, which include economic resources of citizens (usually revenue or consumption expenditure) and valuation of their sufficiency. While non-monetary poverty covers a noticeably wider spectre of social, demographic, personal and other characteristics. Literature defines economic poverty (later – poverty) as deficiency of economic resources to acquire set amount of economic goods by citizens of particular social group. It can also be understood as inability to attain standard of living, which would ensure satisfaction of minimal consumer’s personal needs. Evolution of poverty’s understanding and definition is present for more than two past centuries. Poverty’s discussion started in second half of 18th century.

Studies suggest that income inequality stagnate development of country and its society. Poverty is not the only consequence of income inequality, others are: poorer citizens’ health, increased mortality, psychological and social stresses, criminality, emigration. Usually, particular social groups are more sensitive to social and economic challenges and other risks as they have less needed resources to cope with that. According to statistical facts, children, disabled people, pensioners, widows and widowers, unemployed persons are considered as more vulnerable to the risk of poverty (Budrys, 2018). Thus, fighting poverty and social exclusion is one of the main priorities by European Commission (2010). Since 2010, the latter goal is incorporated into Europe’s job creation and economic growth strategy „Europe 2020“.

Data Analysis and Methodology of Research

The benefits of taxation are valued differently. So, in order to have a better understanding of taxes, their role and relationship with inequality and poverty in countries, it is necessary to analyse their application in selected countries of the world. The Organisation for Economic Co-operation and Development steadily accumulates big amounts of development data of OECD member countries. The research will use wealth taxes which are already discussed. Not all countries have annual wealth tax data for many years due to this it is decided to select the data for this research from 2005 till 2017 because almost all countries have enough data uploaded for this period. Moreover, it includes the most actual data available. Another important reason for this period is that it also includes Global Financial and Economic crisis. Due to it is necessary to insert few years before the crisis to see the situation before. So, the period selected for research covers 13 years. To obtain reliable and accurate data, tax information will be collected from a single source of information – the online OECD website for statistical data (https://stats.oecd.org/).

Moreover, all 36 OECD countries are divided into 4 clusters (Table 1) according to two characteristics: the population of the country (small country – population < 5 million, big country >= 5 million) (Brito, 2015) and the country’s level of development and richness in terms of GDP per capita (according to the World Bank, which has data on the World Bank website (https://www.worldbank.org/) showing that the average GDP per capita in the OECD member countries is 33 756.33 €, the countries are divided into
two groups: rich, with GDP per capita $\geq 33\,756.33\,€$ and poor, with GDP per capita $< 33\,756.33\,€$): first cluster includes rich / large countries; second – rich / small; third cluster – poor / large, forth cluster – poor / small countries.

Most countries value and interpret the importance and benefits of taxes differently, and therefore exploit their potential unevenly. All countries which are analysed are different because of the size of the population and the wealth of the country in terms of GDP per capita. So, maybe these factors have an effect which can influence GINI in these countries.

One of the insights that can be made is that 3 cluster and 4 cluster countries collect less amount of revenues from wealth taxes than countries which are in 1 cluster and, of course, in 2 cluster. So, richest countries tend to have a higher level of wealth taxes than poorer countries. Furthermore, the first and second clusters have the highest share of total tax revenue (% of GDP) (1 cluster maximum value is 48.53\% ; 2 cluster – 51.59\%) and wealth tax revenue (% of GDP) (1 cluster maximum value is 4.42\% ; 2 cluster – 3.52\%) the third and fourth clusters have collected less revenue from taxes. Moreover, in these clusters it was observed that the maximum value of the GINI index was correspondingly 0.31 and 0.32. The maximum values of the GINI index in these clusters are lower than the maximum GINI index values in the third (3) and fourth (4) cluster. The same situation is with the poverty ratio (Table 2). Countries

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Total tax revenue (% of GDP)</th>
<th>Wealth tax revenue (% of GDP)</th>
<th>GINI index</th>
<th>Poverty ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>48.53</td>
<td>22.54</td>
<td>4.42</td>
<td>0.51</td>
</tr>
<tr>
<td>2</td>
<td>51.59</td>
<td>22.84</td>
<td>3.52</td>
<td>1.43</td>
</tr>
<tr>
<td>3</td>
<td>39.45</td>
<td>11.36</td>
<td>2.99</td>
<td>0.28</td>
</tr>
<tr>
<td>4</td>
<td>37.95</td>
<td>26.97</td>
<td>3.10</td>
<td>0.22</td>
</tr>
</tbody>
</table>

Note: composed by the authors based on OECD database.
with higher GDP per capita average of OECD countries (GDP per capita OECD average – 33 756.33 €) are distinguished by lower income inequality in the country than those with GDP per capita is below the OECD average. It is also worth noting that richer countries have a higher share of taxes of GDP.

It can be assumed that taxes and, of course, wealth taxes are linked to income inequality and poverty ratio, but this assumption will be confirmed / denied by econometric study.

Income inequality and poverty rate vary from country to country because all states have a different level of development and also states have different domestic policies which can make the direct or indirect impact on income inequality and poverty rate in the country. The causes of income inequality and poverty rate vary depending on the region, gender, education, social status, and so on. Since 1980s, the gap between high-income earners and those with lower incomes has gradually increased. Also, the poverty rate has increased in some countries. Since then, this phenomenon has been increasingly discussed and analysed by politicians and economists. Cingano (2014) says that in almost all OECD countries the difference between high and low income is the highest in the last 30 years. In order to make some predictions it is necessary to make an econometric research which will confirm or reject predictions about taxes and their impact on income inequality / poverty. The primary aim of this paper is to investigate effect of taxes and wealth taxes on income inequality and poverty. Due to this, four hypotheses are defined to be tested:

**H1:** Increasing revenues of taxes have the effect of decreasing income inequality.

**H2:** Increasing revenues of wealth taxes have the effect of decreasing income inequality.

**H3:** Increasing revenues of taxes have the effect of decreasing poverty.

**H4:** Increasing revenues of wealth taxes have the effect of decreasing poverty.

Multiple regression model is constructed to test all hypotheses and to investigate the relationship between independent variables by fitting a linear equation to observed data. All models are built by using different variables (dependent and independent):

- to test the first hypothesis the dependent variable is GINI index and independent variable is total tax revenue of GDP (%);
- to test the second hypothesis the dependent variable is GINI index and independent variables are wealth taxes (expressed as % of GDP);
- to test the third hypothesis the dependent variable is poverty rate and independent variable is total tax revenue of GDP (%);
- to test the fourth hypothesis the dependent variable is poverty rate and independent variables are wealth taxes (expressed as % of GDP).

The models which are used to test four hypothesis are as following:

\[
\text{logGINI} = \beta_0 + \beta_1 \cdot \text{logTotaltaxRevenue} + \beta_2 \cdot \text{logGDPPerCapita} + \beta_3 \cdot \text{logSocialSpending} + \beta_4 \cdot t_1 + \beta_5 \cdot \text{t_2} + \beta_6 \cdot \text{t_3} + \beta_7 \cdot \text{t_4} + \beta_8 \cdot \text{t_5} + \beta_9 \cdot \text{t_6} + \beta_{10} \cdot \text{t_7} + \beta_{11} \cdot \text{t_8} + \beta_{12} \cdot \text{t_9} + \beta_{13} \cdot \text{t_10} + \beta_{14} \cdot \text{t_11} + \beta_{15} \cdot \text{t_12} + \text{ut} \quad (1)
\]

\[
\text{logGINI} = \beta_0 + \beta_1 \cdot \text{logtax} + \beta_2 \cdot \text{logtax}_1 + \beta_3 \cdot \text{logtax}_2 + \beta_4 \cdot \text{logtax}_3 + \beta_5 \cdot \text{logtax}_4 + \beta_6 \cdot \text{logtax}_5 + \beta_7 \cdot \text{logtax}_6 + \beta_8 \cdot \text{logtax}_7 + \beta_9 \cdot \text{logGDPPerCapita} + \beta_{10} \cdot \text{logSocialSpending} + \beta_{11} \cdot \text{t_2} + \beta_{12} \cdot \text{t_3} + \beta_{13} \cdot \text{ut}
\]
Independent variables:

Total tax revenue – the total tax revenues of GDP (%).

Wealth taxes – taxes on profits and capital gains; taxes on profits and capital gains of corporate; recurrent taxes on immovable property; recurrent taxes on net wealth; estate, inheritance and gift taxes; taxes on financial and capital transactions; non-recurrent taxes on property; other recurrent taxes on property (taxes are expressed as % of GDP).

Controlled variables:

GDP per capita – an independent and controlled variable expressed in US dollars.

Social expenditure – an independent and controlled variable that is expressed as a percentage of GDP.

So, the selected data is called as panel data, cross-sectional time series data or longitudinal data. But there are some limitations for this research because not all OECD countries provide all the necessary data (there are some unobserved values for the certain years). These data sets can be balanced or not, meaning that we have balanced data set when there are all entities for all time periods observed and unbalanced data set when there are some unobserved values for some time periods, but not for all time periods. Also, it was impossible to make an investigation and see the impact of wealth taxes on wealth inequality because there is not enough data to make this research. So, all four models are made with unbalanced data sets because not all data was available. In a lot of researches (European Commission, 2017; Gibson-Davis & Percheski, 2018; Davies, Lluberas & Shorrock, 2017; Fuest, Neumeir, Stimmelmayr & Stohlker, 2018) to estimate the relationship between income inequality and taxes Pooled OLS, Random Effects (RE) and Fixed Effects

\[ t_4 + \beta_{14} - t_5 + \beta_{15} - t_6 + \beta_{16} - t_7 + \beta_{17} - t_8 + \beta_{18} - t_9 + \beta_{19} - t_{10} + \beta_{20} - t_{11} + \beta_{21} - t_{12} + ut \]  

\[ \log\text{PovertyRate} = \beta_0 + \beta_1 - \log\text{TotalTaxRevenue} + \beta_2 - \log\text{GDPPerCapita} + \beta_3 - \log\text{SocialSpending} + \beta_4 - t_2 + \beta_5 - t_3 + \beta_6 - t_4 + \beta_7 - t_5 + \beta_8 - t_6 + \beta_9 - t_7 + \beta_{10} - t_8 + \beta_{11} - t_9 + \beta_{12} - t_{10} + \beta_{13} - t_{11} + \beta_{14} - t_{12} + ut \]  

\[ \log\text{PovertyRate} = \beta_0 + \beta_1 - \log\text{tax} + \beta_2 - \log\text{tax}_1 + \beta_3 - \log\text{tax}_2 + \beta_4 - \log\text{tax}_3 + \beta_5 - \log\text{tax}_4 + \beta_6 - \log\text{tax}_5 + \beta_7 - \log\text{tax}_6 + \beta_8 - \log\text{tax}_7 + \beta_9 - \log\text{GDPPerCapita} + \beta_{10} - \log\text{SocialSpending} + \beta_{11} - t_2 + \beta_{12} - t_3 + \beta_{13} - t_4 + \beta_{14} - t_5 + \beta_{15} - t_6 + \beta_{16} - t_7 + \beta_{17} - t_8 + \beta_{18} - t_9 + \beta_{19} - t_{10} + \beta_{20} - t_{11} + \beta_{21} - t_{12} + ut \]  

where GINI – income inequality index; Poverty Rate – the ratio of the number whose income falls below the poverty line; Total tax Revenue – total tax revenues of GDP (%); tax – taxes on profits and capital gains; tax\_1 – taxes on profits and capital gains of corporate; tax\_2 – recurrent taxes on immovable property; tax\_3 – recurrent taxes on net wealth; tax\_4 – estate, inheritance and gift taxes; tax\_5 – taxes on financial and capital transactions; tax\_6 – non-recurrent taxes on property; tax\_7 – other recurrent taxes on property except tax\_2 and tax\_3; GDP per capita – amount of money expressed as USA dollars; Social Spending – social spending (expressed as % of GDP); t\_2, t\_3, t\_4, t\_5, t\_6, t\_7, t\_8, t\_9, t\_10, t\_11, t\_12 – time dummies, i.e. time period (years); ut – error.

Based on OECD (2018) indicators, description research variables are:

**Dependent variables:**

GINI index – income Inequality Index, which ranges from 0 (total income equality) to 1 (total income inequality).

Poverty rate – “the poverty rate is the ratio of the number of people (in a given age group) whose income falls below the poverty line; taken as half the median household income of the total population” (OECD Tax Policy Studies, 2018). The poverty rate is multiplied by 100 to get the percentage number.
(FE) methods are used. So, first it is necessary to try to use all these three methods and then to decide which method is the best for the model. Results of the best of method will be interpreted as the best and the most reliable, then the results will be discussed in the third part of the article.

Results and Discussion on the Impact of Wealth Taxes on Income Inequality and Poverty

The first model tests the impact of total tax revenue as percent of GDP (%) on income inequality (GINI index, meaning that 0 – is the total income inequality in the country; 100 – the total income equality in the country) (Table 3). So, pooled OLS is like a baseline but after doing the “Panel test” in the “Gretl” program it was decided to use Random Effect as the best option. Joint significance of differing group suggests that it is better to use FE than pooled OLS because p-value = 0, meaning that the null hypothesis is confirmed which is against the pooled OLS model, as adequate, and the better model is FE. Breusch-Pagan test suggests that it is better to use RE because p-value = 0, meaning that the null hypothesis is confirmed which is against the pooled OLS model as adequate and the better model is FE. Finally, the Hausman test p-value = 0.243619, which is > 0.05 meaning that the best model is RE.

Controlled variable GDP per capita is statistically insignificant (p-value > 0.05). But controlled variable social spending is significant (p-value < 0.05) and reduces income inequality. So, total tax revenue has the greatest influence on income inequality because this independent variable has the standardized beta coefficient = 0.0587341. Conclusions can be drawn from significant independent variables. Thus, with a 1 % increase in total tax revenue, income inequality decreases by 0.16 % (0.155177 %). Duncan and Peter (2012) state that, “Progressive taxes reduce income inequality.” The controlled variable – with a 1 % increase in social spending, income inequality decreases by 0.16 % (0.158633 %).

The second model tests the impact of wealth tax revenue of GDP (%) on income inequality (GINI index, meaning that 0 – is the total income inequality in the country; 100 – the total income equality in the country). The results of it are presented in Table 4. Thus, from all wealth taxes the greatest influence has the l_tax 1, which are taxes on profits and capital gains of corporate and this tax standardized beta coefficient = 0.0293052. Thus, with a 1 % increase in l_tax (taxes on profits and

| Table 3 |
|---|---|---|---|---|---|
| (When the dependent variable is 1_GINI) | Pooled OLS | Random Effect |
| | Coefficient | Std. Beta coefficient | p-value | Coefficient | Std. Beta coefficient | p-value |
| l_Totaltaxrevenue | −1.15994 | 0.271455 | 2.39e-05*** | −0.155177 | 0.0587341 | 0.0082*** |
| l_GDPpercapi | −0.360640 | 0.110096 | 0.0011*** | −0.0768447 | 0.0486975 | 0.1146 |
| l_socialspending | −0.712230 | 0.208490 | 0.00011*** | −0.158633 | 0.0521025 | 0.0023*** |

Note: *, **, *** – significance at 10 %, 5 % and 1 % levels respectively.
capital gains) income inequality decreases by 0.13 % (0.131206 %), with a 1 % increase in l_tax1 (taxes on profits and capital gains of corporate) income inequality decreases by 0.1 % (0.0923996 %), with a 1 % increase in l_tax2 (recurrent taxes on immovable property) income inequality decreases by 0.04 % (0.0382435 %), with a 1 % increase in l_tax3 (recurrent taxes on net wealth) income inequality decreases by 0.02 % (0.0223140 %), with a 1 % increase in l_tax4 (estate, inheritance and gift taxes) income inequality decreases by 0.07 % (0.0749061 %), l_tax5 (taxes on financial and capital transactions) is statistically insignificant (p-value = 0.1666) and therefore requires no interpretation. Moreover, with a 1 % increase in l_tax6 (non-recurrent taxes on property) income inequality increases by 0.03 % (0.0326209 %). As Troiano (2017) states, “Not in all cases taxes have the tendency to reduce income inequality.” Also, l_tax7 (other recurrent taxes on property except tax2 and tax3) as l_tax5 (taxes on financial and capital transactions) is statistically insignificant (p-value = 0.3792). Controlled variable GDP per capita is statistically insignificant (p-value = 0.3957). Controlled variable social spending is statistically significant. So, with a 1 % increase in social spending income inequality increases by 0.18 % (0.179117 %). So, in both models (pooled OLS and FE) all the variables have some direction of the independent variables on the dependent variable. So, it can be said that the results are reliable.
The third model tests the impact of total tax revenue as percent of GDP (%) on poverty. As it was mentioned before, the poverty rate is the ratio of the number of people (in each age group) whose income falls below the poverty line (OECD Tax Policy Studies, 2018). As Table 5 reflects, total tax revenue has an impact on poverty (it is significant because p-value < 0.05) and it reduces it. Controlled variable GDP per capita is statistically insignificant (p-value > 0.05). Controlled variable social spending is significant (p-value < 0.05) and it reduces poverty. Judging from the Table 5, conclusions can be drawn from significant independent variables. Thus, with a 1 % increase in GDP per capita, poverty decreases by 0.15 % (0.148879 %). The controlled variable – with a 1 % increase in the social spending, poverty decreases 0.14 % (0.135139 %).

The last model tests the impact of wealth taxes revenue as percent of GDP (%) on poverty (Table 6). As shown in the Table 6, not all wealth taxes are significant. Controlled variable GDP per capita is statistically significant (p-value < 0.05). So, with a 1 % increase in GDP per capita poverty decreases by 0.12 % (0.122631 %). Also, the controlled variable of social spending is significant (p-value < 0.05) and it reduces poverty, same as another controlled variable, i.e. GDP per capita. So, with a 1 % increase in social spending poverty decreases by 0.01 % (0.0117207 %). Judging from the Table 6, conclusions can be drawn from significant independent variables. Thus, with a 1 % increase in l_tax (taxes on profits and capital gains) poverty decreases by 0.12 % (0.120598 %), with a 1 % increase in l_tax2 (recurrent taxes on immovable property) poverty decreases by 0.02 % (0.0152771 %), with a 1 % increase in l_tax3 (recurrent taxes on net wealth) poverty decreases by 0.04 % (0.0430429 %), with a 1 % increase in l_tax4 (estate, inheritance and gift taxes) poverty decreases by 0.04 % (0.0449122 %), with a 1 % increase in l_tax6 (non-recurrent taxes on property) poverty decreases by 0.02 % (0.0216921 %). So, in both models (pooled OLS and FE) all the variables have same directions of the independent variables on the dependent variable.

So, it can be said that all the results are reliable because in the baseline model (the pooled OLS) and in the another models, which have been chosen (FE or RE), all the variables have same directions of the independent variables on the dependent variable (meaning that if in the pooled OLS model independent variable has the

<table>
<thead>
<tr>
<th>(When the dependent variable is l_poverty)</th>
<th>Pooled OLS</th>
<th>Random Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent variables</td>
<td>Coefficient</td>
<td>Std. Beta coefficient</td>
</tr>
<tr>
<td>l_Totaltaxrevenue</td>
<td>-0.858189</td>
<td>0.165961</td>
</tr>
<tr>
<td>l_GDPperc capita</td>
<td>-0.182876</td>
<td>0.067310</td>
</tr>
<tr>
<td>l_socialspending</td>
<td>-0.490268</td>
<td>0.127466</td>
</tr>
</tbody>
</table>

Note: *, **, *** – significance at 10 %, 5 % and 1 % levels respectively.
The impact of the wealth taxes on income inequality and poverty in OECD countries

Considering the results of this research, it is possible to develop certain tax models that would reduce social exclusion and poverty among the population and thus increase prosperity in the country and reduce the GINI index.

Moreover, hypotheses were described to find the impact or not of total tax revenue as percent of GDP (%) on income inequality and poverty and of wealth taxes revenue of GDP (%) on income inequality and poverty.

Concluding we can find, that the first hypothesis suggests that increasing revenues of taxes have the effect of decreasing income inequality. This hypothesis was accepted. Results of estimated the first RE model suggested that total tax revenue as percent of GDP (%) has a statistically significant negative effect on income inequality. In other words, it can be said that if the country collects more money the income inequality will decrease. The second hypothesis suggests that increasing revenues of wealth taxes have the effect of decreasing income inequality. This hypothesis was accepted. Results of estimated the second FE model suggested that wealth tax revenue as percent of GDP (%) has a statistically significant negative effect on income inequality. In other words, it can be said that if the country collects more money from the certain wealth taxes (because not all wealth taxes reduce income inequality and not all of them are statistically significant) the income inequality will decrease. So, the third hypothesis suggests that increasing revenues of taxes have the effect of decreasing poverty. This hypothesis was accepted. Results of estimated the third RE model suggested that total tax revenue of GDP (%) has a statistically significant negative effect on poverty rate. Furthermore, in other words, it can be said that if the

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### Table 6

<table>
<thead>
<tr>
<th>Independent variables</th>
<th>Pooled OLS</th>
<th>Fixed Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient</td>
<td>Std. Beta coefficient</td>
</tr>
<tr>
<td>l_tax</td>
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<tr>
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<tr>
<td>l_tax2</td>
<td>-0.0166107</td>
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<tr>
<td>l_tax3</td>
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<td>0.0117538</td>
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<tr>
<td>l_tax4</td>
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<td>0.0237834</td>
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<tr>
<td>l_tax5</td>
<td>0.0301954</td>
<td>0.0389866</td>
</tr>
<tr>
<td>l_tax6</td>
<td>0.0320913</td>
<td>0.0318165</td>
</tr>
<tr>
<td>l_tax7</td>
<td>0.0943183</td>
<td>0.031209</td>
</tr>
<tr>
<td>l_GDPpercapita</td>
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<td>0.0440201</td>
</tr>
<tr>
<td>l_socialspending</td>
<td>-0.0471913</td>
<td>0.0465380</td>
</tr>
</tbody>
</table>

Note: l_tax – taxes on profits and capital gains; l_tax1 – taxes on profits and capital gains of corporates; l_tax2 – recurrent taxes on immovable property; l_tax3 – recurrent taxes on net wealth; l_tax4 – estate, inheritance and gift taxes; l_tax5 – taxes on financial and capital transactions; l_tax6 – non-recurrent taxes on property; l_tax7 – other recurrent taxes on property except tax5 and tax6.*,**,*** – significance at 10%, 5% and 1% levels respectively.
country collects more money the poverty rate will decrease. The fourth hypothesis suggests that increasing revenues of wealth taxes have the effect of decreasing poverty rate. This hypothesis was accepted. Results of estimated the last FE model suggested that wealth tax revenue as percent of GDP (%) has a statistically significant negative effect on poverty rate. In other words, it can be said that if the country collects more money from the certain wealth taxes (because not all wealth taxes reduce poverty rate and not all of them are statistically significant) the poverty rate will decrease.

Conclusions

Wealth tax is the most discussed because people think differently about what kind of property and wealth has to be paid. There are some problems of the wealth taxes: double taxation; according to some economists, wealth tax is not as impartial as it looks like from the first sight; the tax avoidance; some economists do not agree with idea that gifts and inheritance should be paid by taxes. So, there are four main issues which are related to the problems of wealth taxes but, of course, there are other problems which can influence wealth taxation to a negative perspective.

The research on the impact of tax revenue and wealth tax revenue on income inequality and poverty in OECD countries during the period of 2005–2017 had testified the positive findings: tax revenue and wealth tax revenue had the effect of decreasing income inequality and poverty.

The analysis of OECD countries’ wealth taxes and the impact of these taxes on income inequality and poverty reveals that the tax system and wealth taxes in many countries are different and not effective enough, as not all taxes are statistically significant, and recommendations for improving the tax system are provided:

- scientists have to show the statistically significant and not very difficult way how to avoid double taxation because people tend to avoid taxation twice because they are notable to pay more than once for the same stuff. Countries have to avoid double taxation according to the recommendations of the scientists whom make researches about it and adopt their recommendations;
- wealth taxes can be Global taxes according to Piketty (2017) findings because people cannot pay taxes;
- it is also worth considering whether the property tax should be paid on the inherited or gifted property. It is worth emphasizing that this tax should be progressive.

References

Turto mokesčiai yra viena seniausiai nagrinėjamų ekonominiių temų, aktuali ir teorinių, ir praktinių atžvilgiu. Turto mokesčiai vadinami vieni sąžiningiausių mokesčių, nes žmonės, turintys daugiau turto, sumoka daugiau mokesčių, kurie per šalies biudžetą perskirstomi vargingiesiems šalies gyventojams. Tuo tarpu pajamų nelygybė ir skurdas yra bene dažniausiai moksliniuose straipsniuose analizuojami reiškiniai. Vis dėlto nėra vieningos nuomonės apie tai, kokį įtaką turto mokesčiai daro pajamų nelygybei ir skurdui. Šiame straipsnyje siekima nustatyti tai, kaip turto mokesčiai veikia pajamų nelygybę ir skurdą EBPO šalyse.


Galiausiai atliekamas ekonometrinis tyrimas, kurio metu tikrinamas turto mokesčių ir pajamų nelygybės bei skurdo ryšys. Empirinio tyrimo rezultatai parodė, kad turto mokesčiai yra statistiškai reikšmingi ir jie daro teigiamą poveikį pajamų nelygybei ir skurdu.