LAFFER CURVE IN EASTERN EUROPEAN COUNTRIES

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Abstract:

The aim of this paper is to study the behavior of different categories of taxes: consumption, labour and corporate tax in Eastern European countries and to find the optimal tax rate for them. After finding out the optimal tax rate, using the Laffer Curve methodology, it will be compared with the average implicit tax rate and we will see if countries practice a higher or a lower level of taxation compared with the optimal tax rate. The importance of practicing optimal tax rates is because they maximize tax revenues, according to Laffer Curve.

Keywords:

Laffer Curve, Fiscal policy, Tax revenues, Optimum tax rate, Implicit tax rate.

JEL classification: H21, E62.

Introduction

Nowadays, almost more than ever before, the topic of fiscal space is becoming of striking importance for policymakers, due to the high importance of national economies to be able to sustain as much as possible the internal needs, but also to become competitive on global stage. In order to be capable of financing as many expenditures, states need a performant tax collection, and this can be achieved by maximizing the tax revenues than can be collected. Raising taxes could be the answer in a world where nothing else matters, but in reality, this is not the case. There is a hypothesis that states that taxes can be raised until a specific point in order for the tax revenues to be maximized and after that point the revenues collected will diminish. This case is happening because the tax payers are reconsidering their behavior, and will prefer to work less because they think the labour taxes are too high and they will achieve a better utility by having more free time, or if the consumption tax is too high, they will prefer to renounce to some goods and buy similar ones at a lower price, but less qualitative. In the case of corporate tax, if the taxes are too high in a country, firms will relocate their production facilities in other countries with a more competitive taxation system, or will reduce their production. All scenarios described before will have a common result, the reduction of taxation base, and so a diminish in revenues collected by the state.

In order to maximize fiscal resources, Arthur Laffer proposed a theory according to which resources can be achieve the maximum level at a certain taxation rate, and introduced the Laffer Curve, which will be studied in this paper for five eastern European countries: Bulgaria, Czechia, Hungary, Poland and Romania. The categories of taxes under examination where consumption tax, labour tax and corporate tax, for the latest the Laffer Curve did not respect the conditions to be a normal Laffer Curve and is an inverse one, and in the Methodology and Data sections will be presented the reason for that. This paper is structured as follows: in section Description of the problem will be presented some facts from the literature about the topic, in Methodology and Data will be presented the theory behind Laffer Curve and how this study is different from the point of view of methodology used, in section Results are discussed the outputs of this writing and in Conclusion will be stated some policy recommendations in order for tax revenues to be maximized.

Description of the Problem

The main goal of this paper is to show how governments can improve the collection of tax revenues using the theory of Laffer Curve. It is important to mention from the starting point, that the revenues collected from taxes in the countries presented are lower than revenues from taxes in both EU-28 and EA-19. One explanation for this cause could be a mismatch in rates for different

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types of taxes, and so the fact that the revenues collected are not at their peak. Other causes for the fact that revenues are not maximized by collection could be the tax system, the lack of digitalization or the fiscal compliance, which requires the start of a reform in this system.

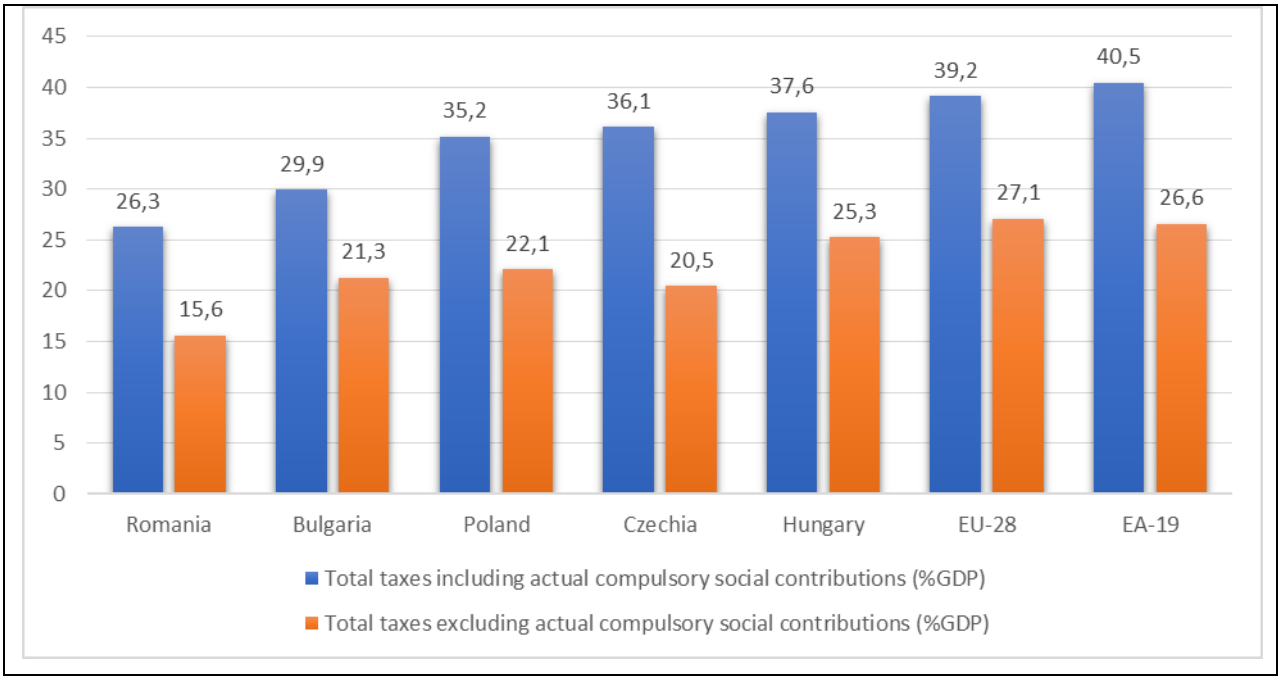

Figure 1 – Taxes level in 2018 (%GDP)

Source: Taxation Trends Report 2020

Figure 1 presents the taxes level in 2018, and we can observe that for all the five countries analyzed, the level of taxes also including and excluding actual compulsory social contributions is lower than in the EU-28, but also than in EA-19. All the five countries under analyses are emergent economies, and for them is vital to increase the revenues collected in order to be able to support expenditure in strategic areas like education, health or infrastructure and to recover the development gap between them and the countries considered to be advanced from social and economic point of view.

In the literature there are many studies that follow the logic of Laffer Curve and one the first studies regarding this methodology was the study of Canto, Joines and Laffer (Canto V., Joines D., Laffer A., 1980, Tax rates, market production and factor employment) in which they observed that an increase in the level of personal income tax leads to a decrease in the level of fiscal revenues collected, meaning an indirect effect between tax rates and fiscal revenues, and the fact that the US economy at that time was on the economic effect side of the curve.

A latter presented study of Goolsbee (Goolsbee A., 1999, Evidence on the high-income Laffer Curve from six decades of tax reforms) comes to different results from the previous one. It states that the US economy had periods during the history in which it was on the arithmetical side of the curve. In this study it was found that an increase with 1 pp of personal income tax, led to an increase in the level of fiscal revenues with about 0,7 pp. This could happen due to the fact that the elasticity of fiscal revenues was less elastic to changes in the tax regime.

Trabant in his study (Trabant M., Uhlig H., 2010, How far are we from the slippery slope? The Laffer Curve revised), showed that both US and EU-14 area are located on the left sides of their Laffer curves, but the EU-14 are much closer to their slippery slopes than US. In this paper it was found that US can increase tax revenues by 30% by increasing the labour tax rates, while EU-14 countries can increase tax revenues by only 8% for an increase of labour tax rates. In the case of capital income taxes, US can increase the tax revenues by 6% in case of an increase of capital income taxes, and EU-14 by only 1%. Another finding in this paper is that tax cuts in the EA-14 are more self-financing than in US, and tax cuts can be supported by the degree of efficiency produced

in the economy by the tax cuts. Also, the authors are supporters of maintaining a tax rate below the optimal one, due to the fact that welfare can be maximized in this way.

In his study, Kazman (Kazman S., 2014, Exploring the Laffer Curve: Behavioral Responses to Taxation) shows that movements in income tax revenues can be explained by the capital gains tax rate. It is showed that individuals take part in the income switching process when the top marginal income tax rate changes relative to the capital tax rate, and the fact that the direction of switching depends on the direction of tax change. Another finding of this paper is the fact that is more effective from a fiscal point of view to increase the tax rate especially for the high-income population.

Another paper that studied the relation between tax revenues and tax rates is the one of Gordon and Slemrod (Gordon R., Slemrod J., 1998, Are real responses to taxes simply income shifting between corporate and personal tax bases?) in which they showed how it is working the substitution effect between revenues from salaries and firms profit. They found out that people tend to adapt to fiscal changes by changing their type of realized income.

Giertz studied in (Giertz S., 2008, How does the elasticity of taxable income affect economic efficiency and tax revenues and what implications does this for tax policy moving forward) the relationship between the level of taxation for personal income tax and the tradeoff between working and free time. He showed that for an increase below a certain point in the personal income tax, people will prefer to work less and enjoy more their free time.

To resume, there is much debate in the literature on the effectiveness of Laffer Curve in calculating the optimal tax rate and to illustrate the relationship between tax revenues and total tax rates, but as economist Arthur Laffer said, this is a more pedagogic device.

Methodology and Data

In order to analyze the maximum level of revenues and the optimal tax rate that should be applicable to obtain that level of revenues, Laffer Curve is used. It highlights the bond between tax rate and revenues. In this paper are studied three categories of taxes: consumption, labour and corporate.

The equation that describes the Laffer Curve is:

$$R_{Tax}^{Real} = \alpha i + \beta i^2 \quad (1)$$

R_{Tax}^{Real}- volume of real tax revenues

i- tax rate

α, β- equation coefficients

The effects of Laffer theory are described in Figure 2, below:

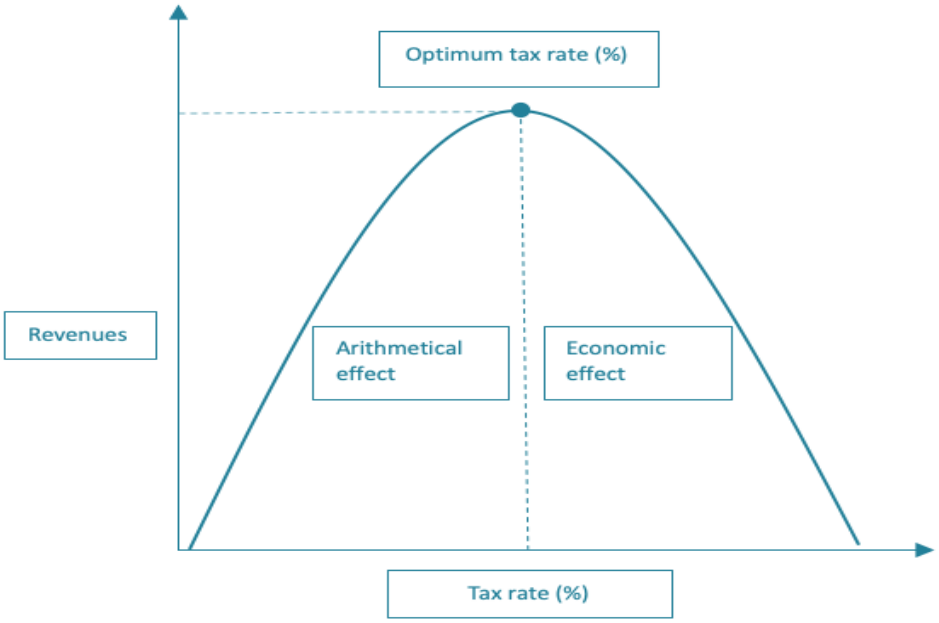

Figure 2. Laffer Curve

The effects on the Laffer Curve are the arithmetical effect, which states that when the tax rate increases, revenues will also increase, and the economic effect which is means that when the tax rate is increasing below the optimum tax rate, tax revenues will decrease.

After estimating Laffer's equation, we can find the optimal tax rate deriving it to i, and will result the following:

$$\frac{\partial R_{tax}}{\partial i} = \alpha + 2\beta i \quad (2)$$

$$i^* = -\frac{\alpha}{2\beta} \quad (3)$$

The existence conditions for this function are that $\alpha > 0$ and $\beta < 0$.

The data was collected from Taxation Trends Report for 2020, for five eastern European countries: Bulgaria, Czechia, Hungary, Poland and Romania, and the period under analyses is between 2006 and 2018. As methodology, panel data with fixed effects, as resulted from the Hausmann test, was used, rejecting the null hypothesis of the test, and was compared the average of implicit tax rate on each category of tax with the optimum tax rate obtained from panel.

Another important aspect regarding the methodology is that for the tax revenues were used real data, adjusting the nominal value with the harmonized index of consumer prices. Due to the variability of data, implicit tax rates were used, available in Taxation Trends Report for 2020.

Results

For the five eastern European countries studied in this paper, Laffer Curve is validated in the case of VAT and social security contributions plus personal income tax, and for corporate income tax we can observe an inverse curve, which is caused by a series of factors that will be detailed latter in this section. Another important aspect worth mentioning is that equations coefficients were not statistically significant for none of the categories of taxes categorized by economic function: consumption, labour and capital.

Table 1

Average implicit tax rates

Country	Average implicit tax rate on consumption (%)	Average implicit tax rate on labour (%)	Average implicit tax rate on capital (%)
Bulgaria	19,49	25,28	14,93
Czechia	18,54	39,56	21,84
Hungary	23,29	40,06	12,7
Poland	17,71	31,65	13,47
Romania	16,47	31,35	11,93

Source: Taxation Trends Report 2020, author calculations

After the average implicit tax rates were calculated, they should be compared with the optimal tax rate for each category of tax. The average implicit tax rates were obtained averaging implicit tax rates from Taxation Trends Report 2020, and the period under analysis is between 2006 and 2018.

In the next table will be presented the optimal tax rates as well as the alpha and beta coefficients, all statistically significant, used in the determination of the optimal tax rate as stated in the methodology.

Table 2

Optimal tax rates

Type of tax	Alpha	P-value	Beta	P-value	Optimal tax rate (%)
VAT	3,866229	0,0322	-0,0906	0,0502	21,34
Social security contributions + PIT	3,336183	0,0343	-0,06408	0,0298	26,03
CIT	-0,092355	0,0234	0,003164	0,0025	14,60

Source: authors calculations

Going further with the analysis we will compare the optimal tax rates with the average tax rates for each category of taxes and will see the level of tax revenues obtained by each country from applying the respective taxes. Also, on the figures, we will be able to analyze their positioning on the Laffer Curve and what should each country do in order to maximize the tax revenues collected from the point of view of tax rates.

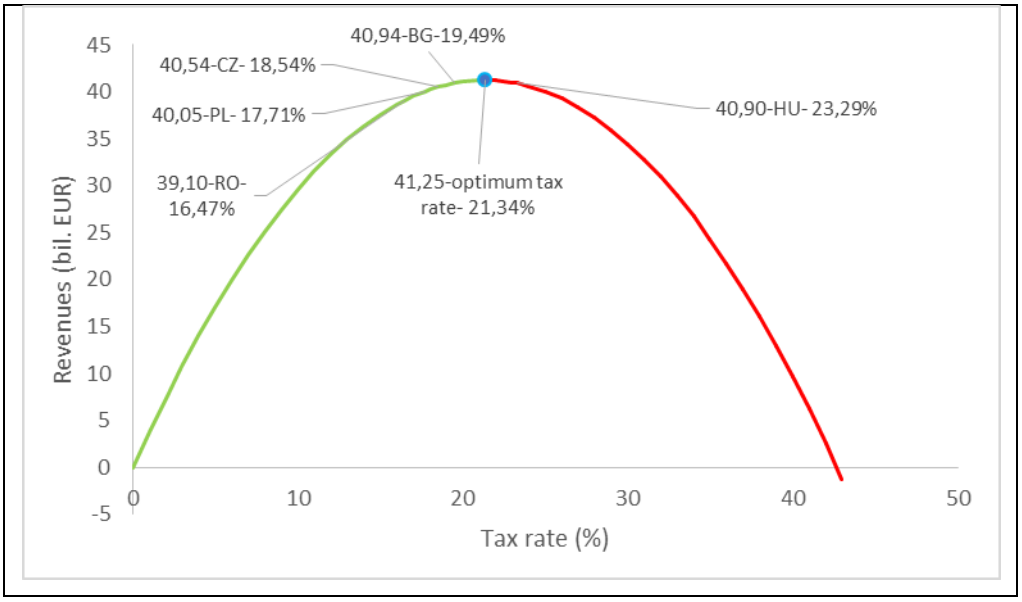

Figure 3. Laffer Curve for VAT

Source: Taxation Trends Report 2020, author calculations

In figure 3, we can observe that four countries are on the arithmetical side of the Laffer Curve, respectively Bulgaria, Czechia, Poland and Romania, and only Hungary is situated on the economic side of the curve. The closest countries to the optimal tax rate (21,34%) are Bulgaria with an average of implicit tax rate on consumption of 19,49% and a level of revenues of 40,94 billion Euros and Hungary with an average of implicit tax rate on consumption of 23,29% and a level of revenues of 40,9 billion Euros. Even though Bulgaria and Hungary are on different sides of the curve they can collect approximatively the same amount of revenues from VAT.

For the other countries, Czechia have an average implicit tax rate of 18,54% and the level of tax revenues is at 40,54 billion Euros, Poland can collect 40,05 billion Euros with an average implicit tax rate of 17,71% and Romania with an average implicit tax rate on consumption of 16,47% can collect 39,1 billion Euros revenues from VAT.

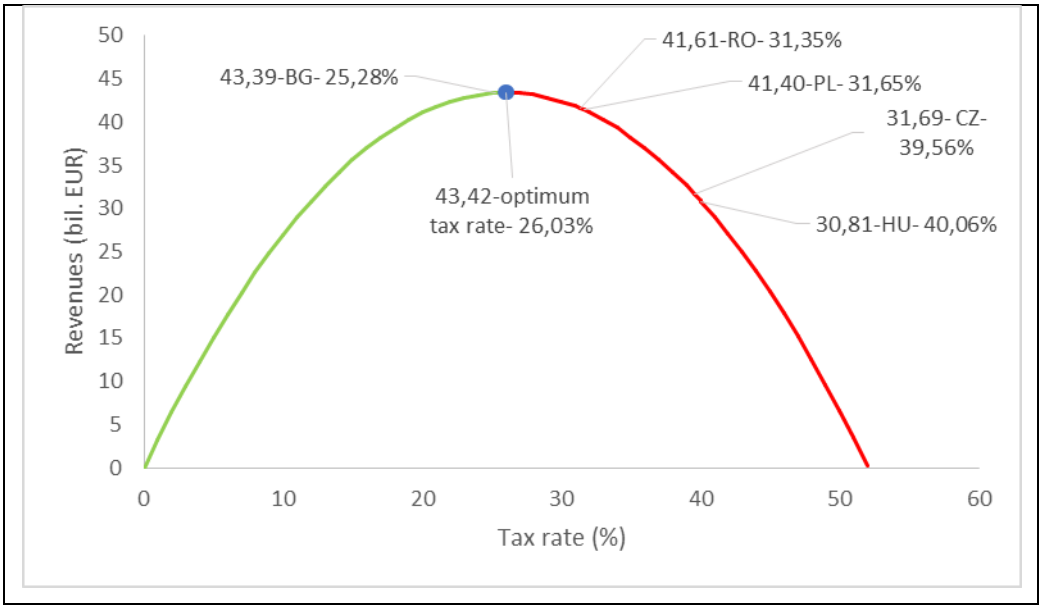

Figure 4. Laffer Curve for Social Security Contributions plus PIT

Source: Taxation Trends Report 2020, author calculations

For the case of taxes on labour taxes, the paper studies the impact of implicit tax rate on labour on revenues collected from the sum of revenues collected from social security contributions and PIT, due to the fact that they are the most important taxes related to labour.

In figure 4, only Bulgaria is situated on the arithmetical side of Laffer Curve, the rest of four countries under analyzes, are situated on the economic side. Looking at the data, Bulgaria with an average implicit tax rate on labour of 25,28% collects revenues of 43,39 billion Euros from labour taxation, being also the closest country to the optimum tax rate, which is of 26,03%. The second country that collects the higher level of revenues from labour after Bulgaria is Romania, which has an average implicit tax rate on labour of 31,35% and revenues of 41,61 billions Euro. Romania is followed by Poland with an average implicit tax rate of 31,65% and Czechia with 39,56%. From the countries under observation, Hungary has the highest average of implicit tax rate, 40,06%, and collecting only 30,81 billion Euros from taxes related to labour.

For the countries situated on the economic side of the Curve, is recommended a reduction of taxation on these categories of taxes in order to be able to collect more revenues. It is important to mention that a decrease of tax rate in the case of countries situated on the economic side of the curve, especially Hungary and Czechia, could result in a better outcome of the economy, as the multiplication effects will drive positively the output. The multiplication effects could mean: a decrease in the unemployment rate, due to the higher resources of capital of firms, or an increase in the salaries of the employees, or even new investments of the firms in economy. All of these could create more welfare for the citizens, which should be the supreme goal of any government.

Going further with the analyzes, we will see a special case of tax, CIT, which does not respect the Laffer Curve for the analyzed countries, in the analyzed period. The outcome of the calculations led to an inverse Laffer Curve for this category of tax, which could mean that the decision regarding the establishing the tax rate was a discretionary one.

An inverse Laffer Curve means that for the tax revenues we will have a minimum point given by the optimum tax rate, and explained from a mathematical point of view, now α is negative and β is positive. From economic point of view, this situation could not happen, and this could represent a weak spot of Laffer Curve.

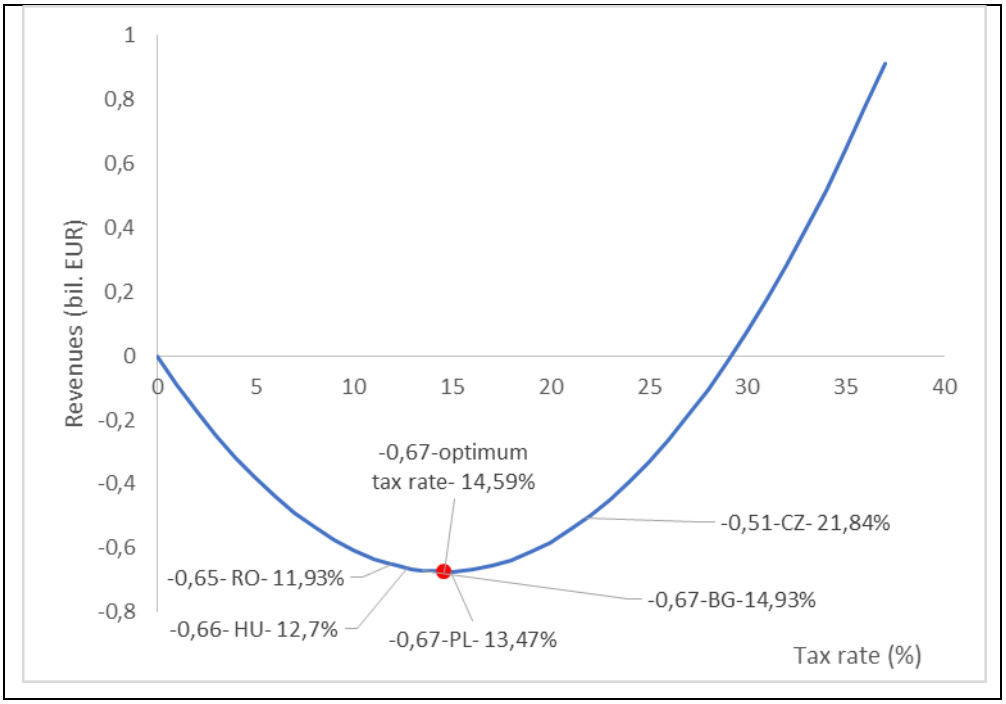

Figure 5. Laffer Curve for CIT

Source: Taxation Trends Report 2020, author calculations

Conclusions

As a conclusion, we can observe from the results those countries under analyzes can be dividend in two categories: the ones that are on the arithmetical side of Laffer Curve, and the ones on the economic side. As a general conclusion, it is recommended for countries to implement tax rates as close to the optimum as possible. For the countries with tax rates above the optimum tax rate, they should decrease the tax rate, in order to increase the tax base and collect more. For example in the case of labour taxes and capital taxes if the countries have a higher tax rate than the optimum one, it should be decreased because additional resources will be available in the economy and this could mean: new jobs, new investments or even higher salaries for the existing work force, all of them having as effect economic growth and an increase in the welfare of the population. In the case of consumption taxes the practice of tax rates equal or below the optimal one could mean a change in the consumption habits of people and a preference for more qualitative goods that create more added value in the economy, compared with a tax rate above the optimal one, that could mean a decrease in consumption, a lower quality of products consumed by population and less social welfare.

Another aspect important to be mentioned is the fact that tax rates are not the only elements in the way of maximizing the collection of revenues to the state budget. There are aspects like digitalization of fiscal authorities, the transparency of public policies in this field, debureaucratisation, or even popular culture with respect to tax compliance.

Future Directions

As future directions, it should be mentioned the more in detail examination of countries fiscal measures taken in order to increase the collection of revenues, or to see the differences between the fiscal systems for the analyzed countries.

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