

THE MEMBER STATES OF NORTH EUROPEAN UNION AND LAFFER'S THEORY

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Abstract

In most cases, the current situation of a country or another depends on the historical evolution of its own tax system, especially on the method that it was designed and applied in practice. By the reforms implemented, governments have a difficult task to accomplish, namely finding formulas that provide the financial resources necessary for the functioning of public institutions and reducing the tax burden to taxpayers. This paper aims to determine, by using graphical representation of Laffer's curve, the type of relation between tax burden and tax revenues in Denmark, Sweden, Finland, Estonia, Latvia and Lithuania. The research is based on data provided by the European Commission for 18 years. Conclusions for the EU Nordic states refer to the fact that the optimum values of tax burden are not closed to the maximum tax burden applied by them, they are lower (except for Lithuania). The differences are considerable high, even of 7.3 percentages for Sweden and 4.5 percentages for Latvia. The optimal value of tax burden varies between 29.2% in Latvia and 48.1% in Denmark. Moreover, Finland and Estonia are positioned in the non-admissible area of this theory, while the other four countries have a fluctuant position.

Key words: fiscal optimum, tax, tax policy

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1. Introduction

An important issue, that is today into attention of many economists and policy makers, is to optimize the tax system. Introduction or changing a

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tax is an issue that must be given a major importance because all consequences of it are on multiple levels: economic, social, financial and, not least, politically. Only a fiscal policy searching for tax optimum may collect budget revenues needed to cover public spending.

Optimization penetrated all spheres of human development. Although, optimization has been practiced in some form in prehistoric times, this concept has seen massive progress during the last five decades. This is due to intense competitive environment and resource conservation constraints. Optimality approach in the field of taxation can be done in terms of political cycles and the ruling parties in a country, given that the policy guidelines have a significant impact in shaping the features of the tax system. We cannot speak of optimality in tax field without the existence of an optimal fiscal management. Management in the tax area must meet five principles, namely: transparency in setting fiscal policy objectives, the implementation and provision of results, stability of fiscal policy and methods for affecting the economy, responsibility, fairness for generations of taxpayers and efficiency in implementation. (Roger Arnold, 2011)

The existence of any modern state is unthinkable without a tax system performance through efficiency and pressure on taxpayers. (Văcărel I., 2006) In most cases the current situation in which a country or another is depends on the historical evolution of its own tax system, especially on the design and practical application. The practical problem of any government is to determine the optimal taxation rate level, which would bring to the state (either government or local authority) higher tax revenues.

Aim of this study is to determine the position of six states from northern European Union on Laffer's curve and to identify the sens of any modification in tax revenues based on a change in tax burden. Laffer's curve is a graphical representation of two economic indicators, namely the annual flow of tax revenues and taxation rate.

The paper is structured as it follows: the first part presents a series of introductory issues, the second details Laffer's theory on optimal taxation, the third part refers to data and methodology, the fourth part shows results for the graphical analysis in the studied countries and, in the end, the paper outlines the overall conclusions. As research methods we used besides own reasoning, deductive logic, documentation as qualitative methods, the graphical analysis performed by MS Office as graphical method.

2. Tax optimum in Arthur Laffer's view

Historically "Laffer curve" has its roots in an article wrote by Jude Wanniski in 1978 in "The Public Interest" called "Taxes, income and Laffer curve". The article was published after a dinner attended with Donald Rumsfeld, Dick Cheney and Arthur Laffer, the latter drawing on a napkin a curve illustrating the relationship between taxation rates and tax revenues. Arthur Laffer said in his "Laffer curve. Past, Present and Future" that the origins of the curve does not belong to him, it has been shaped since the fourteenth century by Muslim philosopher Ibn Khaldun, who wrote in his "The Muqaddimah" that: "it should be known that at the beginning of the dynasty, taxation yields meant higher revenues from small assessments. At the end of the dynasty, taxation yields meant smaller revenues from large assessments." (Arthur Laffer, 2004)

Using as basis for analysis the U.S. market economy, the economist Laffer shows through a curve the relation between fiscal pressure rate and tax revenues. It claims to reflect the macroeconomic impact of microeconomic effects of taxation demonstrating how tax revenues evolve when tax rates increase. Laffer presented the curve as a normal statistical distribution (central and flattened-looking as a bell section). It was easy to conclude that there is a maximum point of correlation between revenues and tax rates, located in the top point of the curve, named by author as maximum taxation rate. (Bunescu L., Comaniciu C.,2013) According to many authors Laffer curve has no practical application because it does not know its most important detail, the location of the maximum point. Graphical illustration of this concept shows that at a taxation rate of 0% authorities will not collect any money to the budget as taxes, regardless of the size of the taxable matter. Also, the same goes for a 100% taxation rate when no one would work for the state. (Roger Arnold, 2011) Between these two extremes there are two rates of taxation that can collect from the population the same amount of tax revenue: a high tax rate applied to a small tax base and a reduced rate of taxation applied to a large tax base.

Specifically, the Laffer curve is divided into two areas: the area on the left, called normal or acceptable which stresses the idea that the growth rate of compulsory levies is lower than the growth rate of tax burden. Allowable area is the area where economic subjects "support" an increasing fiscal pressure because they need higher amounts of public utilities. Tax receipts grow although it took place a gradual reduction of taxable base. Instead, the right

side is called the inadmissible one, which shows that any increase in the tax burden is not sufficient to offset the decline in compulsory levies obtained by the public authorities. Consequently, individuals and companies from economy restrict their taxable activities and, directly, the taxable base reduces. As fiscal pressures increase there is a decrease in production and hence in tax revenues. It is desirable that when a country is in the inadmissible area to achieve a large tax base leading to increased tax revenues generated by the incentive effect of the measures that are needed to boost production and investment.(Bunescu L., Comanicu C.,2013)

Arthur Laffer exemplifies his anticipated effects by some concrete cases that confirm the theory. For example, to show that cuts in taxes lead to economic leap, Laffer has used statistics from three major periods of tax cuts implemented in the U.S. for over 10 centuries. Laffer noted that Harding-Coolidge cuts in the 1920s, Kennedy cuts in the 1960s and President Reagan's cuts in the 1980s were “remarkable success measured by virtual and public policy”. (Arthur Laffer, 2004)

One of the most vehement critics of the Laffer curve was Martin Gardner, he built neo-Laffer curve. This curve is based on the classic Laffer curve, it starts with two extremes of 0% and 100%, but very quickly it collapses in an incomprehensible chaos of the curve. Gardner wants to illustrate that there is no linear, smooth, concave curve, but the real curve is complex with maximum and minimum points determined by the action of other economic factors. Laffer curve literature explores the relationship between tax rates and tax revenues with little consensus among economists. This lack of consensus is because the Laffer curve is based on an incomplete pedagogical theory. Consequently, the Laffer curve literature is inconsistent and often contradictory. (Lhotak James, 2011) For these reasons, the Laffer curve should not be literally taken as a model for the graphical representation of tax revenue curve. Determining the optimal taxation rate is subject to controversy because Laffer curve does not provide a clear numerical answer, but rather suggests the existence of a hypothetical optimal rate of taxation. Both supporters of Laffer's theory and its opponents have made a number of credible arguments to support their views, but do not forget that most of the times the fiscal policy of a country is directly dependent on policy taken by the politicians in charge. Unfortunately they have not found the optimal tax point, but both admit that Laffer curve theory can be the closest idea to what we can find. (Lisa Smith, 2012)

3. Data and methodology

In analyzing the correlation between the tax burden and the volume of tax revenues collected by several European tax authorities we start from primary statistical data provided by Eurostat for tax revenues, including social contributions, expressed in absolute values and in million national currencies. Tax revenues are collected centrally and the data are updated on 07/24/2014. For the overall fiscal pressure indicator, including social security contributions, expressed in percentages, it was used Appendix A of the publication of the European Commission, "Taxation trends in the European Union" published in 2014 and 2012. All figures cover the period 1995-2012. For tax revenues it was accessed Eurostat database, gov_tax_a_ag code.

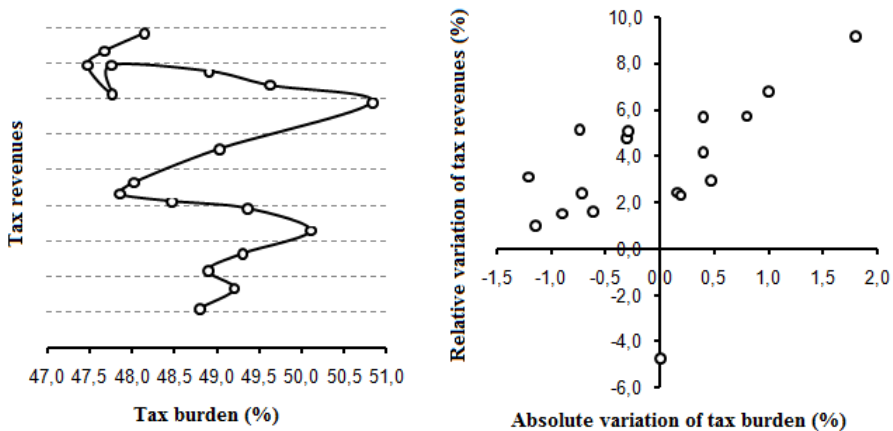
We proceeded to plotting the Laffer's curve, on horizontally it can be found taxation rate (including social contributions) for all three countries, and vertically it can be found tax revenues denominated in national currency in the analysed period. Graphics processing was done in MS Office.

4. Results

As it can be seen from the following figures, the graphs for the six member states of the European Union reinforce the idea of Gardner, Laffer's curve is not presented as a linear curve, smooth and concave in any case, but is closer in Finland and Estonia for the right half. Laffer's curve customizes each state by alternative mutations from the allowable area into the inadmissible area depending on different fiscal policy decisions. For all six countries in Northern Europe a lower rate of tax burden was used in the past to collect higher tax revenues than in case of using a lower tax pressure rate.

Denmark has the highest value of tax burden in the EU, 48.1%, by about 3 percents higher than the values recorded in Belgium and France. In the 18 analyzed years, the share of tax revenues to GDP in the country ranged from a minimum of 47.5% and a maximum of 50.8%. It cannot be identified a trend in tax burden evolution, but the sequence of periods with increases in tax pressure and periods with reductions in tax pressure (2000-2002, 2006-2009) are obvious. Tax revenues in Denmark showed annual increases (except 2009), growth indices ranged from 101.5% in 2001 and 109.1% in 2005. The year 2012 brought a percentage of tax revenue growth of 1.2% , reaching 893.01 mln.DKK

Figure 1: Laffer's curve for Denmark during 1995-2012

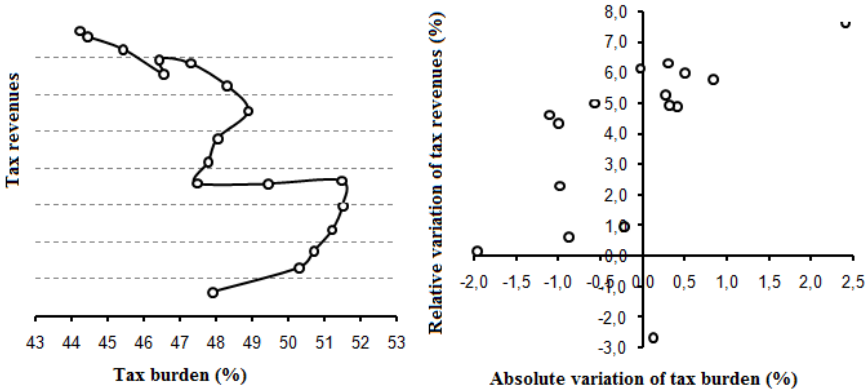


Source: Own processing

Graphical representation of Laffer's theory reinforces observation on alternate positioning of Denmark from one area to another. Alternative positioning between the two areas is obvious. After a period of positions in the area of negative correlation between tax burden and tax revenues, Denmark is found in 2011 and 2012 into the admissible are. Tax burden increase by 0.4 percentage points in 2012 was followed by an increase in tax revenue by 2.9%. The largest change in tax revenues of 9.1% was determined by the largest annual increase in tax burden by 1.8 percentage points. According to Laffer's theory, the rate of taxation with the highest degree of optimality in Denmark is 48.1%, 2.7 percentage points below the maximum tax burden.

In the case of **Sweden**, it ranks 4th among Member States with the highest tax burden. In 2012 it reached 44.2%, 4.8 percentage points above the EU-28. Compared to the neighboring countries it is less than in Denmark (48.1%), higher than in Finland (44.1%) and equal to that in Norway (44.2%). From an evolutionary standpoint, it cannot identify a trend for tax burden, it alternately known three periods of growth or decline. The extreme values of fiscal pressure were minimum 44,2% in 2012 and maximum 51.5% in 2000. Unlike fiscal pressure, tax revenues showed a positive trend year by year, discontinued in 2001 and 2009, when there were decreases in volume. In 2012, tax revenues in Sweden increased their volume by 1% reaching a value of 1,575,512 mln.SEK.

Figure 2: Laffer's curve for Sweden during 1995-2012



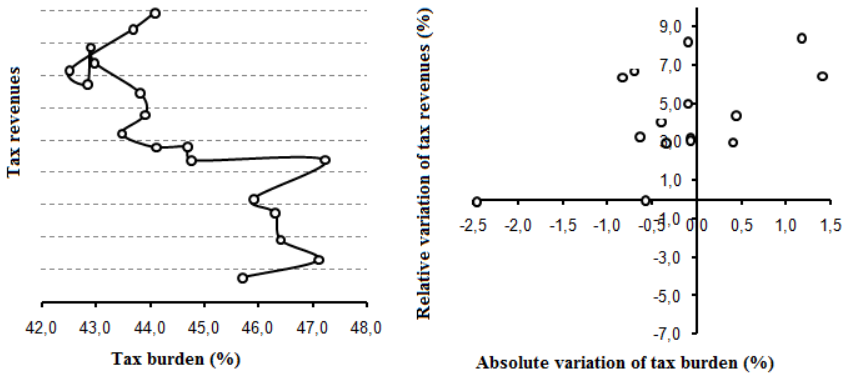
Source: Own processing

From plotting, a concave curved it is not shaped for Sweden, and there are identified successive segmentation correlated to oscillatory evolution of tax burden. Therefore it cannot be said what are is occupied by Sweden, but mutations of the left or right side of the optimal taxation rate value are alternatives. The last three years of analysis described position of Sweden in the non-economic area and an inverse proportional relationship between the analyzed indicators. In other words, in 2012, a decrease in tax burden by 0.2 percentage points is correlated to an increase in tax revenues of 1%. The largest impact of tax burden on tax revenues can be seen in 1996 when a tax burden increase by 2.4 percentage points is followed by an increase in tax revenues by 7.6%. The optimum taxation stands at 44.2%, 7.3 percentage points below the maximum value recorded in 18 years.

In 2012 **Finland** ranks 5th among the EU countries with the highest tax burden (44.1%) being exceeded by Denmark, Sweden, Belgium and France. Except for the last two years, annual tax burden decreases along the analysis period, so it is reduced from maximum of 47.1% in 1996 to minimum of 42.5% in 2010. The most significant reductions in tax burden occurred between 1999 and 2000. As in Estonia, tax revenues in Finland have an opposite trend as compared to tax burden. They record an upward trend with growth variations between minimum 2.9% in 2010, and a maximum of 10.9% in 2000. In 2012, tax revenues increased by 3% to 84,683 mln. € .

Finland is positioned in the non-economic area of Laffer's curve with inverse proportionality of tax pressure and tax revenues. The last two years reflects a shift in the economic area. Thus in 2012, an increase in tax burden by 0.4 percentage points generated an increase in tax revenues by 3%. Another exception to the non-economic position is in 2000, when the largest positive variation of 10.9% in tax revenues was driven by an increase in tax burden by 1.3 percentage points. Instead, in 2007, reduction of tax burden by 0.8 percentage points was followed by an increase in tax revenue by 6.4%. Tax rate with the highest degree of optimality in the analyzed period was 44.1%, 3.1 percentage points below the maximum value.

Figure 3: Laffer's curve for Finland during 1995-2012

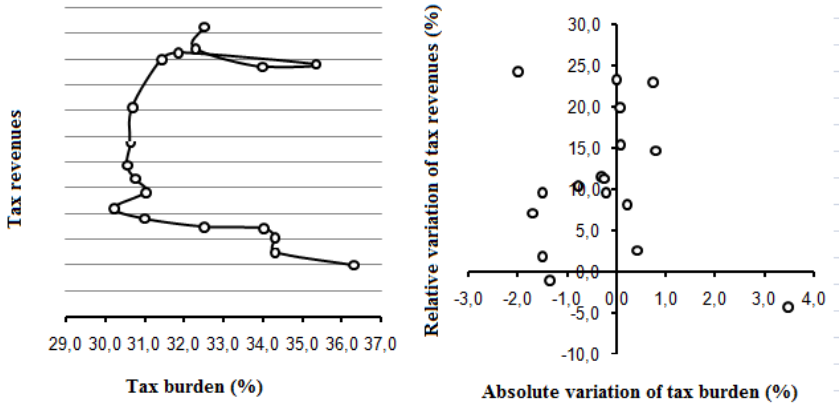


Source: Own processing

Estonia recorded in 2012 a tax rate of 32.5%. It is falling as compared to the level recorded before the start of the economic crisis, when there was a peak of 35.3%. The level of tax burden in Estonia is below the EU average (39.4%), but higher than in other Baltic states. In the ranking of the EU, Estonia is the 7th country with the lowest share of tax revenues in GDP. Over the 18 analyzed years, the indicator followed a downward trend since 1995 (36.3%), discontinued trend in 2005 (30.6%) when the fiscal pressure begins to increase until 2009, followed by some new reductions in indicator's value. Tax revenues have an opposite trend than tax burden. Annual increases in tax revenues ranged from 24.2% in 1996 and 1.8% in 1999. The index of tax

revenues in 2012 was 108.2% In 2012, and the absolute value was 5,364.6 mln €.

Figure 4: Laffer's curve for Estonia during 1995-2012



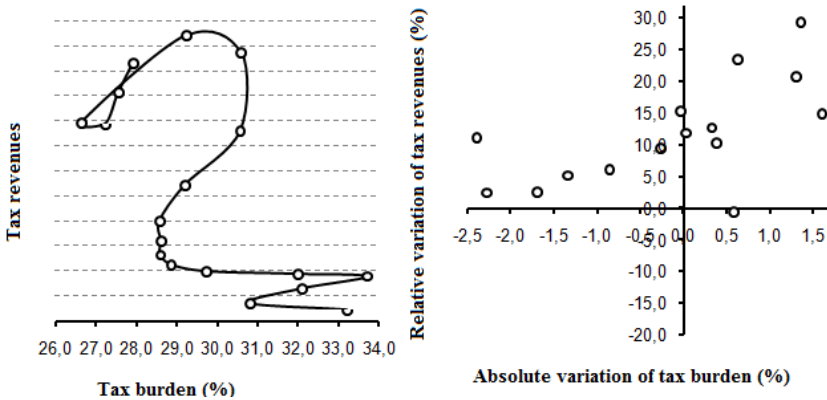
Source: Own processing

Given the diverging evolution of the two indicators, it is not a surprise a graphical representation of the Laffer's curve that positions Estonia into the non-economic area in most years. Reducing taxation rate is accompanied by an increase in amount of tax revenues, which determines a reaction feature to non-economic area. Only in five years it can be identified a shift in area with direct correlation between the two indicators (for example, in 2012 an increase in tax burden by 0.2 percentage points was followed by an increase in tax revenue by 8.2%). The most significant increase in tax revenues, 24.2% (1996) had premised on a taxation rate down by 2 percent. According to this theory, the optimum taxation rate in Estonia was 32.5%, i.e. 3.8 percent below the maximum value.

Latvia submitted in 2012 a share of compulsory levies (including social contributions) of 27.9% of GDP, by 11.5 percentage points below the EU-28 average. Together with Bulgaria, it ranks second among Member States with the lowest tax burden after Lithuania (27.2%). In terms of temporal evolution, it were identified two periods marked by successive reductions of tax burden between 1999 and 2003, from 32% to 28.6%, and between 2008 and 2009. It should be noted that variations in tax burden are relatively low, almost constant, in other periods. Latvia's extreme values were minimum 26.6% in 2009 and maximum 33.7% in 1998. By 2008, inclusive,

tax revenues of Latvia showed relative indices exceeding the value of 100% signifying considerable absolute increases in tax revenues. The peak was reached in 2006 with an index of 129.5%. For 2012 figures show that tax revenues increased by 10.3% to 6,158.2 mln €.

Figure 5: Laffer's curve for Latvia during 1995-2012



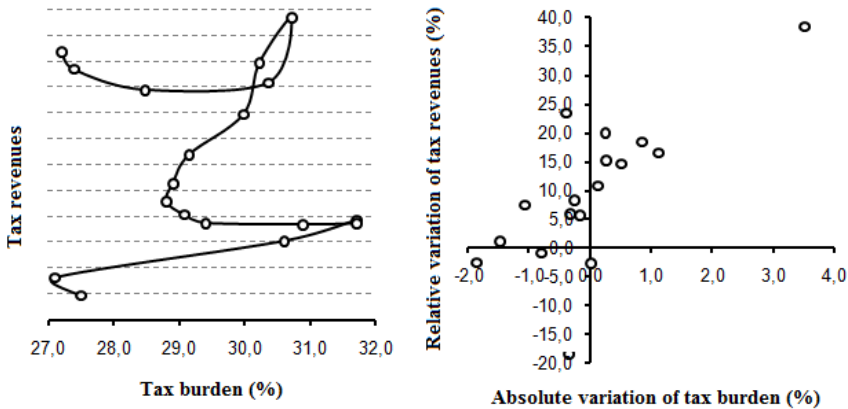
Source: Own processing

It cannot be found a steady position for Latvia in the economic or non-economic Laffer's areas. The graphical representation is similar to a convex curve in a certain period and similar to a concave curve in the following period. This fact shows the transitions from one area to another. In the last two years it is remarkable a progress in the same direction of the two indicators and positioning in the economic area. An increase in tax revenues by 10.3% had origins in an increased tax burden by 0.4 percentage points. The highest positive variation in tax revenues of 29.5% (2006) was determined by the second highest positive variation in tax burden of 1.4 percentage points. The optimum taxation rate was 29.2%, by 4.5 percentage points below the maximum level.

In 2012, **Lithuania** had the lowest value of tax burden in the EU-28 (27.2%). Compared to the other Baltic states, it has a value close to that of Latvia (27.9%), but 5.3 percentage points lower than that of Estonia (32.5%). In temporal view, the tax burden in Lithuania has two successive periods of decline between 2000-2003 and 2009-2012. Overall, it reduced from a maximum of 37.1% in 1999 to a minimum of 27.1% in 2012. In terms of tax

revenues, they saw an upward trend, except for the periods 1999-2000 and 2009-2010. In 2012, tax revenues rose by 5.7% and had a value of 30,973.6 mln €.

Figure 6 : Laffer's curve for Lithuania during 1995-2012



Source: Own processing

Laffer curve is not concave in Lithuania, on the contrary, the transitions from one area to the other one determines to not look like a curvilinear. Convexity is noted for last analyzed years, and the positioning is in the inadmissible area. For 2012, reduction of the tax burden by 0.2 percentage points generated an increase in tax revenues by 5.7%. In 1997 was the highest index of 138.3% of tax revenues caused by the growth in tax burden by 3.5 percentage points. In Lithuania, the optimal value of the tax burden was 30.7% with a percent less than the maximum rate.

5. Conclusions

The analysis of six states from northern European continent concludes that there is not a pattern by which these six European economies work. Fluctuations of relationship between the two indicators are varied and they have annual changes. It stands out among the analyzed states two opposite cases, namely, Denmark and Sweden are characterized by high taxation rates, while Lithuania and Latvia are among the countries with the lowest values of taxation rates in the European Union. It is also believed that fiscal optimum is reached when the minimum taxation rate obtains the maximum tax revenues.

Table 1: Tax burden corresponding to maximum tax revenues (1995-2012)

Country	Denmark	Sweden	Finland	Estonia	Latvia	Lithuania
Tax burden optim	48,1	44,2	44,1	32,5	29,2	30,7
Tax burden max	50,8	51,5	47,2	36,3	33,7	31,7

Source: Own processing

Taxation rate's values corresponding to optimal point were between 48.1% in Denmark and 29.2% in Latvia, the difference being enormous of 18.9 percentage points. In none of the countries optimal taxation rate is equal to the maximum taxation rate applied during 18 years. The largest difference between the two values of the tax burden stands for Sweden, 7.3 percentage points, and Latvia, 4.5 percent. A favourable situation is in Lithuania because the difference between the two values of fiscal pressure is only one percent.

Regarding the framing into theoretical areas, it appears that only in Finland and Estonia is prevailing position in the inadmissible Laffer's area, which allows us to assert that there is an opposite trend of tax revenues and tax burden for these countries. In Denmark, Sweden, Latvia and Lithuania Laffer's curve is chaotic, it is not concave, but the annual variations make the transition from one area to another without identifying a constant reaction of taxpayers to tax decisions.

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