

Analysis of taxation in Romania using Laffer curve, 1990-2012

*Andreea Stoian PhD
Academy of Economic Studies*

*Scientific Research Elena Pădurean PhD
Romanian Academy
Email: padureanelena@yahoo.com*

Abstract: *Fiscal policy offers the Member States of the European Union, and in particular the countries that have adopted the common currency, an important tool in influencing economic activity and, we could say, the only one that remained available for the governments of these economies after the unification of monetary policy. Through taxes and budgetary expenditures used as economic levers, tax policy can have a contractible or expansionary effect on the national economy. From our point of view, the Laffer curve, applied by its simplicity, is a tool that allows the analysis of tax impacts.*

Key words: *fiscal policy, the Laffer curve, tax, public expenditure.*

JEL Classification: *C2, H21, E62*

Introduction

The evolution of taxation, specific for the transition period, has led to the involvement, sometimes excessive and discretionary, of decision-making power. Political decisions have resulted in permanent implementation of new rules and measures that have influenced, in one way or another, the fiscal-budgetary system of Romania in this period. The measures mainly aimed at state's financial resources and less at efficiency of the system of public spending at national level.

In managing the tax system, an important element is linked to the „plan of measures” to be applied, this stage attracting an „approach to fiscal policy on medium and long time as a sustainable and complementary component for the market mechanism” (Androniceanu, 2000).

As it is known, taxes as a budgetary category fulfill a dual role: on the one hand, they are an instrument with a financial character through which public revenues are collected and, on the other hand, they are being used as economic leverage influencing economic activity (of individuals and of businesses). Regardless of the purpose for which they are used, the taxes can induce effects in the national economy through both their size and their structure. Thus, high levels of taxes can lead to evasion behaviors among taxpayers. Also, taxing a higher proportion of consumption or of income of taxpayers and labor has different impacts on taxpayers.

The formations of budget revenues, especially on indirect taxes, entail the impairment of categories of taxpayers with low incomes, leading to their declining purchasing power.

To ensure the effectiveness of compulsory levies, there should be a balance between total fiscal revenues, which end up in budget and total fiscal taxes paid by taxpayers.

The analysis of taxation has as result the following: once with increase of taxable mass and of tax rate, tax revenues will increase, and therefore individual taxes will increase, leading to inhibition of taxpayers' propensity to further savings and investments, ie to reduce taxable mass.

The level of taxation is influenced and determined by several factors, including (Hoanță, 1997):

- ✓ performance of the economy at a given time
- ✓ effectiveness of using public expenditures financed by taxes
- ✓ structure of the property
- ✓ public needs set by governmental policy and approved by parliament
- ✓ taxpayers' level of understanding budgetary needs and adherence to government policy needs
- ✓ stage of democracy in a given country.

In addition to an objective tax burden, technically determined depending on the financing needs of public expenditures, there is a psychological fiscal pressure (felt) that measures the tolerance threshold to taxes. This, most often, takes the form of individual tax burden, which is the ratio between the total levies borne by the taxpayer and the revenues earned by him before taxes. It expresses the sacrifice which the taxpayer is forced to agree to on overall wealth he obtained during a given period. As a result, individual tax burden also includes subjective elements of social life.

In Romania, according to the latest data from Eurostat¹, in 2012, the share of budgetary revenues in GDP² from taxes stood at 28.3%, more than 10 percentage points below the average of 39.4% of GDP recorded in the EU-28. This result ranks Romania in top 4, from 28 countries, in order of increasing tax rates, along with Latvia and Bulgaria which have registered a 27.9% share of GDP.

As regards the structure of taxation, Romania is based on indirect taxation (consumption), being on the second position of the European rankings with a share of direct taxes in total tax revenue of 47.2%, higher than average recorded for the EU-28, which is only 34.5%. The share of income from social security contributions is 31.2% very close to the European average of 32.4%, while direct taxes are accounted for 21.6%, lower than the level recorded for the EU-28 33,4%.

Implicit tax rate (defined as the ratio between revenue actually collected for a specific type of tax and the macroeconomic basis of the corresponding tax) of consumption in Romania has reached a historical high in the analyzed period in 2012, being 20.9%, being 1.1 points higher than the European average of 19.9%, while the default rate of taxation from employment, at 30.4%, was in the same year, below the average in the EU-28 (36.1%).

Analyzing the share in GDP of various tax categories in the period 2000-2012 based on data provided by Eurostat, we can notice some constancy in the levels of taxation, without dramatic changes from one year to another. In the case of VAT revenues in 2011 was registered a maximum of 8.7% of GDP, which fell by 0.2 percentage points next year. As regards the taxation of individuals and legal entities we find that by 2006 their share in GDP was relatively close slightly higher for the taxation of legal entities, but since 2007 we can see a clear superiority of personal income tax receipts

¹ Eurostat (2014), *Taxation trends in the European Union. Data for the EU Member States, Iceland and Norway*, 2014 edition, pp.134-137.

² According to the authors, social security contributions, including those paid by employees are categorized as taxes meeting all generally accepted characteristics as defined in the literature. Therefore, in our analysis we will include this category in total tax revenues.

which stands at least 1 percentage point above the receipts from corporate taxation. Regarding social security contributions, they have recorded a maximum in 2000 and a minimum in 2010.

The main coordinates to be drawn from this preliminary analysis on taxation in Romania are the following:

- ✓ preponderance of consumption taxation compared with the revenues of taxpayers and / or labor;
- ✓ taxation in a greater degree of personal income compared to taxation of corporations;
- ✓ social security contributions were higher compared to direct taxes.

As a result of the structure and the level of taxation resulting from the analysis performed, we can anticipate the following effects on the national economy:

- ✓ distortions on prices of goods and services;
- ✓ salary distortions in the labor market;
- ✓ encouraging the employment into forms coming out of the scope of taxation;
- ✓ decrease in labor productivity due to substitution of work-allotted time with the free time;
- ✓ affecting the categories of low-income taxpayers;
- ✓ decrease in public budget revenues.

All these are forms of inefficiency in the way taxpayers are taxed in Romania, inefficiency in terms of its negative effects felt on economic activity, which can create a dangerous vicious circle for the national economy.

2. Methodology

The work methodology that we chose in our approach is based on the famous „Laffer curve”. Although the theory can not be attributed to US economist Arthur Laffer, it was popularized by him among the political class in the United States in the early 1970s. From our point of view, the Laffer curve, applied by its simplicity, is a tool for analyzing the impact that taxes level has on the tax payers.

Laffer curve, as analytic tool, offers the possibility of estimating a tax rate which we will consider „optimal” by the fact that it allows to collect a maximum level of tax revenue to the public budget. The estimation of this rate is given by the following relationship. First, we can express the volume of budget revenues from a particular tax (V_i) as a function of 2nd degree depending on the tax rate (r_i) according to the equation (1):

$$V_i = \alpha_0 + \alpha_1 r_i + \alpha_2 r_i^2 + \varepsilon_i \quad (1)$$

where: α_0 , α_1 , α_2 are the coefficients to be estimated, and ε_i is the error term.

The main condition for the equation (1) to reflect the Laffer curve is that the parameter α_2 to be different from zero and negative.

Condition: $\alpha_2 \neq 0, \alpha_2 < 0$.

To estimate the share of „optimal” tax (r_i^*) we must solve the equation (2):

$$\frac{\delta V_i}{\delta r_i} = 0 \quad (2)$$

where δ is derived I.

Deriving equation (1) to solve equation (2), we obtain the following relationship:

$$\alpha_1 + 2\alpha_2 r_i = 0 \quad (3)$$

It results the optimal tax rate, from the relation:

$$r_i^* = -\frac{\alpha_1}{2\alpha_2} \tag{4}$$

Substituting in equation (1) the optimal tax rate determined by the relation (4) we can also estimate the maximum volume (V^*) of public budget revenues resulting from the collection of a certain tax:

$$V^* = \alpha_0 + \alpha_1 r^* + \alpha_2 r^{*2} \tag{5}$$

If the Laffer curve is not confirmed, we will check for a simple linear relation between the amount of revenues to the public budget and tax rate, as:

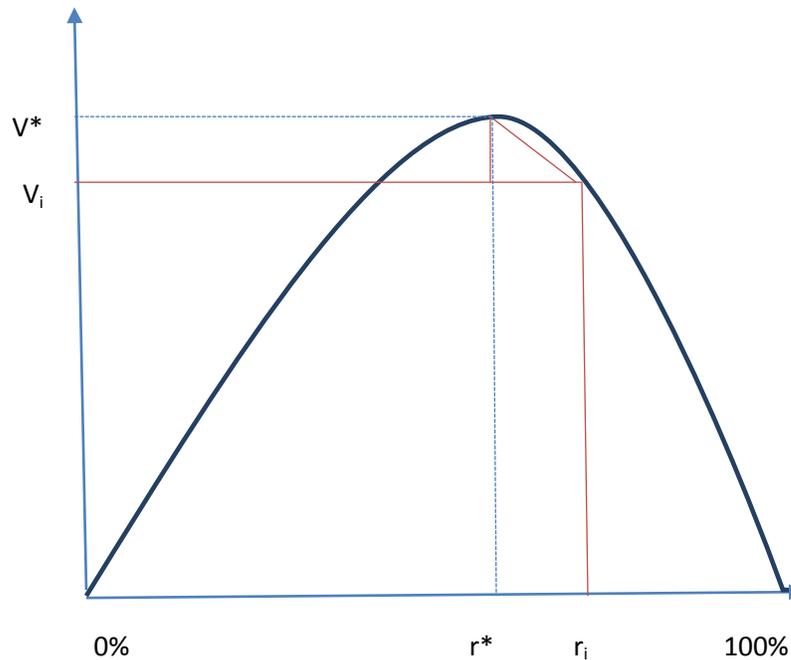
$$V_i = \alpha + \beta r_i + \vartheta_i \tag{6}$$

where ϑ_i is the term of errors.

The interpretation in this case will be made according to the sign and value of β coefficient. If $\beta > 0$, means that we have identified a direct relationship indicating increasing revenue volume as tax rate increases. If $\beta < 0$, the correlation between the two variables is an indirect one, suggesting the decrease in earnings per share as the tax rate increases.

Laffer curve also allows the estimation of excess tax burden (EPF) caused by increasing the tax rate and reflected in the decrease in revenue volume to the public budget. Figure 1 illustrates this fact.

Figure 1. Estimation of excess tax burden using Laffer curve



Given that a tax rate r_i , higher than the optimal tax rate r^* generates a decrease in tax revenue to the public budget, and excess tax burden can be approximated by the surface of the red triangle in Figure 5. Computing relation which describes this fact is the following:

$$EPF = (r_i - r^*)(V^* - V_i)/2 \quad (7)$$

To analyze taxation in Romania using Laffer curve, we used annual data for the period 1990-2012 from the Ministry of Finance, National Institute of Statistics and Eurostat representing tax revenues and tax categories, the consumer price index and GDP. To estimate the coefficients of the equation (1) we chose the smallest squares method (OLS). We have estimated several regressions using as dependent variables: total tax revenue (inclusive and exclusive social security contributions), categories of direct and indirect taxes, revenues from corporate income tax, personal income, income from VAT and from social security contributions. All tax revenues are expressed in constant prices of 1990, processing performed using the consumer price index. As tax rates we chose a proxy, represented by the share of these taxes in GDP, which is equivalent to a tax burden, or an average rate of taxation at macroeconomic level. Basically, our scientific approach aims at estimating the optimal tax burden exerted by various taxes, resulting in collecting a maximum volume of budget revenues. Overcoming this share of tax revenues in GDP generates distortive effects in Romanian economy. Results of estimations are presented in the next section.

3. Results:

The estimations made have revealed some significant issues.

For total tax revenue, whether or not they included social security contributions, Laffer curve was not confirmed and we could not identify a simple linear relation, statistically significant between the volume of budget revenues and tax burden.

For broad categories of direct taxes (excluding social security contributions) and indirect taxes also Laffer curve was not confirmed but we got a direct linear relation described by equation (6), between the average taxation and volume of revenues. This result indicates that an increase in tax burden leads to increased revenues to the public budget. Thus, once with 1 percentage point increase of fiscal pressure exerted by indirect taxes, real budget revenues may increase by 2.02 million lei, while the impact of increased tax burden exerted by direct taxes is only 0.57 million RON.

We can also confirm the same direct linear relation for the main categories of taxes: VAT, corporate income tax and personal income tax. It is noticed the same influence, higher, average tax rate exerted by at macroeconomic level VAT on the revenues of that tax. Increased tax burden exerted by tax on corporate profit can lead to increase budget revenues by 0.49 mil. RON, while personal income tax increase could generate a budget surplus of 0.42 million.

The only category of budget revenues for which the Laffer curve is confirmed is represented by the revenues from social security contributions. Table A.1 shows that all the estimated coefficients of equation (1) are significantly different from zero in terms of statistical and comply with the initial condition, which means that we can use this equation in further estimations. Thus, using equations (2), (3), (4) and (5), we estimate an optimal tax burden exercised at macroeconomic level by social security contributions of 9.5% of GDP and the maximum volume of budget revenues corresponding to this tax burden is appreciated at a level of 10.5 million lei in constant prices of 1990.

In the period 1990-2012, the highest tax pressure exerted by social security contributions was 11.1% of GDP and it was recorded in 2000. According to equation (7), this level of tax induced an excess of tax burden of nearly 2 mil in constant prices of 1990. This amount was actually 25% of actual receipts to the budget of social security contributions for the year 2000.

4. Conclusions and Recommendations

Analysis of taxation in Romania reveals some specific features of the tax system and of the way taxpayers decide to behave towards it. Thus, we have shown, based on statistical data that in the period 2000-2012, it was the indirect taxation that dominated our fiscal system. Taxing consumption had the highest contribution to the formation of tax revenues, second place being placed by social security contributions, followed by the category of direct taxes.

By analyzing the structure of indirect taxes results in the fact that the VAT occupies the largest share, both in GDP and in total tax revenue, compared with other indirect taxes. If we consider how it is settled and charged, as well as some of its technical elements, we conclude that it mostly affects low-income people. Operators that are VAT payers have the right to deduct a portion of this tax. Final consumers, individuals are those who, however, support this tax levied on the value of the goods they consume, or the pricing of services they receive. Whether their income is high or low, they will bear the same rate of VAT for the same goods they consume. They are not able to deduct or recover this cost, whether they are individuals. Therefore VAT-induced fiscal burden is borne by consumers and not only by payers of this tax. Our analysis has revealed that between the volume of public budget revenues from VAT and the so-called average rate of taxation at macroeconomic level there is a direct link, which has also the highest impact compared to the other main categories of tax revenue. The results show that a 1 percentage point increase in the tax rate leads to increase of budget revenues by 2.02 mil in 1990 prices. These records can provide a relevant argument in favor of increasing the VAT rate. This has been already happened in 2010, when the government decided to increase the standard VAT rate from 19% to 24%. Given that in the short term, consumption is characterized by a certain degree of inertia, also depending on its structure and share of goods with inelastic demand, the effect will consist of an increase in budget revenues. What concerns us, however, it is the medium and long term effect on aggregate demand and on welfare. If on short term we consider that the probability of adjustment in consumption is quite low, on medium and long term, if household income will not increase in order to compensate for the excess tax burden induced by the increase in VAT, then they can adjust their consumption, in terms of quantity or in terms of structure, which ultimately will affect aggregate demand. Also given the effect of increasing the VAT rate on those with low incomes and that such a decision reduces the purchasing power of the population, we think its welfare. Therefore, the adoption of such a decision must take into account the medium and long term effects that may have on the living standards of individuals. Some tips that we can make, aim, in fact, to point out landmarks that public policymakers should include into the design of fiscal policy and in particular those which include measures relating to the modification of indirect taxation. These are: individual consumption patterns, population structure by income bracket, the time horizon for which the impact is assessed, size and structure of aggregate demand, people's living standards

Another important result of our analysis shows that in terms of social security contributions, taxpayers have already penalized the high degree of tax induced by this category of tax revenues. This conclusion is substantiated by confirming the Laffer curve and by the fact that we could estimate an average rate which, when exceeded, results in a reduction in budget revenues. For example, identification of wage schemes that minimize the amount of contributions paid by employees and employers, can have negative effects on short and / or medium term, especially if dependency ratio between retiree (recipient of public schemes pension) - and employee is high.

Higher disposable income, resulting from a lower level of taxation, obtained by the use of such tax schemes may provide an incentive for consumption. If increasing social security contributions was designed as a measure for reducing consumption, due to reduced disposable income, the effect obtained in economics will not be the anticipated one. Taxpayers, individuals and legal entities in their tax optimization strategy, induce an adverse effect. Therefore, fiscal policy transmission channels may become inoperative, and the impact may not be the anticipated one. On long term, reduced contributions to state social insurance budget, can mean lower pensions for taxpayers, and if they will not save, or invest in financial products in order to supplement their income, they may face reduced level of living.

Table A.1 Laffer curve for the receipts from social security contributions

Explanatory Variables	coefficient*)	t-stat	p-value
α_0	-71.88	-2.08	0.04
α_1	17.39	2.22	0.03
α_2	-0.91	-2.13	0.04
			*)5%
R-sq: 0.29	F-stat: 4.09	p-value: 0.03	significance level

Source: Data processed by authors

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