FACTORIAL ANALYSIS OF FISCAL PRESSURE IN ROMANIA: 2008 - 2011

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Abstract

The existence of any modern state is unthinkable without a tax system's efficiency and performance through pressure on taxpayers. Tax burden may be easier as long as it is not excessive. This paper aims to analyze the factors which influence overall tax burden calculated at the Romanian state budget level by using two factorial models for decomposition of the tax burden, a synthetic one and an analytical one. This goal is preceded by a dynamic and structural approach of the tax burden in Romania during 2000 - 2011 in relation to changes in tax burden of the EU Member States.

Keywords *tax pressure, factorial analysis, taxation*

JEL classification: *H 20*

1. Introduction

The existence of any modern state is unthinkable without a tax system's efficiency and performance through pressure on taxpayers. Most times, the current situation of a country depends on the historical development of own tax system, especially it depends on how the tax system was designed and applied in practice. Last decades are characterized by a number of significant and successive tax changes. World states have a difficult task to accomplish by the implemented or in progress reforms, namely by finding

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formulas that provide the necessary resources for the functioning of public institutions and reducing the tax burden of taxpayers.

Tax burden has always been and always will be a subject of expert and lay discussions as it concerns every citizen. Tax burden rate is a relative value, which was the subject of many specialists' studies. The most commonly used and simple aggregated tax burden indicator is the tax-to-GDP ratio, which is a measure of what percentage of GDP is transferred to general government in the form of compulsory, unrequited payments. (Kiss Gábor P., J´drzejowicz Tomasz, Jirsákova Jana, 2009) As long as there is a balance between tax burden and social pressure that merely could spice the business environment. The tax burden expresses an influence on tax management, on the education level of taxpayer, on taxation's principles, on establishing the role of tax information across socio-economic policies. Tax burden may be easier as long as it is not excessive. In turn, taxation rate influence the evolution of GDP, between total tax rate (expressed as % of GDP) and real growth rate of GDP there is an inverse relationship. (Mihaiu Diana Marieta, Opreana Alin, 2012) The taxpayers adapt on long run to different levels of fiscal pressures. This implies that it is not possible to consider the levels of the tax rates as responsible for the levels of tax evasion. (Bernasconi Michele, Corazzini Luca, Seri Raffaello, 2011)

The paper is divided into four parts: the first part contains some introductory issues, the second part presents an analysis of the dynamics and structure of the tax burden in Romania having as benchmark its progress in the Member States of the EU, then we detailed a conceptual approach on the methodology and the factorial analysis of the tax burden, and finally beside the results we pointed some conclusions.

2. Evolution of the tax burden in Romania in the context of fiscal burden in the European Union

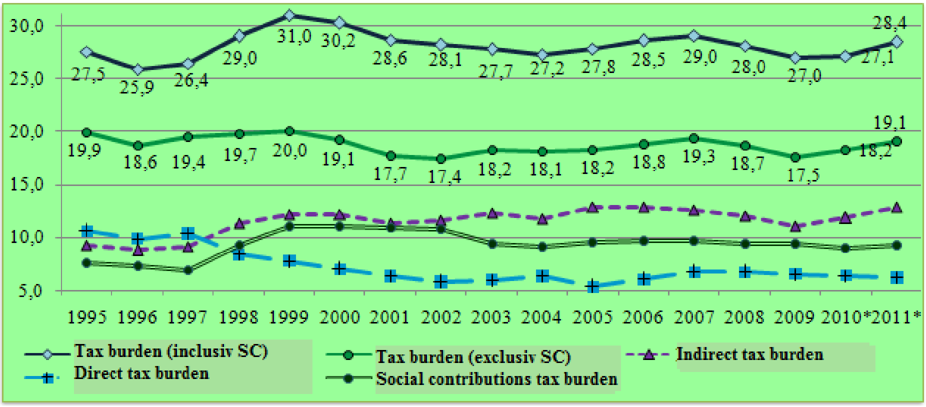
The European single market and the Economic and Monetary Union were not followed by reducing the gap that exists between the tax systems of EU Member States. A study on taxation in the EU reveals an enormous diversity. National tax systems are the result of economic and social structures accumulated over time as a result of policy options in that the psychological elements should not be ignored. The level of taxation is found to be essential for the economic development of the EU Members. EU-27 countries are characterized by a different level of development, especially if we consider the last member joined. Analysis of the present levels of taxation is important because fiscal conditions are having a major influence on businesses and among the investors. Romania should not only compare different indicators with those of the European Union, it must understand the policies and motivations of analyzed values. It should learn the most valuable lessons from the European experience. We cannot speak about homogeneous tax systems in the EU, each Member State differs by its tax system leading to identification of significant overall differences.

The European Union is a region with a high rate of taxation. As compared to other world states, the average across all 27 Member States is higher than that of the U.S., Japan, and the same position as compared to other OECD countries. In 2009, the last year for which there are statistics, tax rate (calculated as the total amount of fees, taxes and contributions) was in the 27 countries 38.4% of GDP (weighted average). In 2009 the tax rate of EU-27 fell by 0.9 percentage points as compared to 2008. From a temporal perspective, in the EU there is a gradual decrease in tax burden since 2000 to 2009. This is materialized in a decrease of 2.1 percent. On the whole EU, there are considerable differences in the levels of tax burden. Taxation rate in the Member States varies from 26.6% in Latvia, 27% in Romania, 28.2% in Ireland, 28.8% in Slovakia to 48,1% in Denmark, 46.9% in Sweden, 43.5% in Belgium, 43.1% in France and Italy. As a general rule, the share of tax liabilities to GDP is higher in the EU-15 than in the last 12 countries which joined the EU. Relating to the evolution of the tax burden over the last decade, statistical data indicates a decrease in 20 Member States and an increase in only 7 states. The greatest reduction in the tax burden took place in Slovakia by 5.3% and the largest increase in total tax burden was found in Malta by 6%. If we ignore the influence of social contributions, EU-27 fiscal pressure reaches a value of 25.6% in 2009, as in 1995, declining since 2007.

Romania belongs to the category of countries with an average tax constraint, although the tax burden is not excessive, however, the level of certain categories of taxpayers it is felt as oppressive. The problem of fiscal pressure derives from how fiscal policy is perceived individually. The question is: how can be quantified the purpose of a tax system? Tax obligation that it is supported by individual income to form tax flow, represent the concept of fiscal pressure and it is used for quantification the purpose of the tax system. (Corduneanu Carmen, 1998) Ratio of all taxes and social contributions actually received by the public administration and GDP is tax burden. (Brezeanu Petre, 1999)

Annual evolution of tax burden in terms of indices in Romania is presented below:

Figure 1: Evolution of the tax burden in Romania 1995 - 2011



Source: 1995-2009 European Commission's data series processed by author, 2010 and 2011 own calculations on the state budget executions published by the Ministry of Finance (April 2012)

Dynamic analysis of Romania's tax burden during 16 years (1995-2011) allows the identification of a slight cyclicity in its evolution. This is correlated to the periods of political government and to the political color of ruling parties. So, after two periods of fiscal pressure's boom 2004 - 2007 to 29% and 1996 - 1999 to a maximum of 31% (1996 and 2004 were election years), in 2010 the tax burden was at around 27%, the same value as in 1995. In the past five years, overall tax burden (including social contributions) in Romania has experienced a downward trend, from 29% in 2007 to 27% in 2009, according to data published by the European Commission (European Commission, 2011). For 2010 calculations according to provisional execution of the general government budget posted on the website of the Ministry of Finance indicate a fiscal pressure including social contributions of 27.1% and 28.4% for 2011. In terms of tax burden by dividing taxes to Romanian GDP were obtained the same cycles, but with smaller amplitude variations between years. This deceased from 20% in 1999 to 17.5% in 2009 and 18.2% in 2010 and 19.1% in 2011. Tax rate in Romania reached in 2009 a level of 27% below EU-27 average of 35.8%. Tax burden of Romanian taxpayers is among the lowest in the EU, i.e. it is the second state with the lowest tax rate in the community, after Latvia 26.6%. Romania also has a tax rate lower than that of neighboring countries: Bulgaria 28.9% and Hungary 39.5%.

Typological analysis of the fiscal pressure highlights that out of the three categories of tax burden (direct, indirect and social) for Romania prevail the indirect one, tax liabilities hidden in prices are the most pressing and the most received to the public budget. Tax burden of indirect taxes in the last 16 years has seen an upward trend reaching to 12.9% of GDP in 2011, while their share in total compulsory levies increased from 33.7% in 1995 to almost 41% in 2009 and 45.5% in 2011. Direct tax burden lost its advantage after 1997 encouraged by the political decisions to reduce the corporate tax rate and tax progressivity replacement. Thus, direct tax revenues to GDP experienced a decrease of 4 percent over the last 16 years, from 10.6% in 1995 to 6.2% in 2011. Revenues of social protection system are not insignificant in Romania. The number of pensioners, unemployed people and social assisted persons increased leading to increased rates of social security contributions. This fact has as a result an increasing trend of fiscal pressure until 2000 when it peaked 11.1%, after that it fell during the following 10 years to 9.2% in 2011.

Table 1: Structural tax burden in Romania during 2000 - 2011

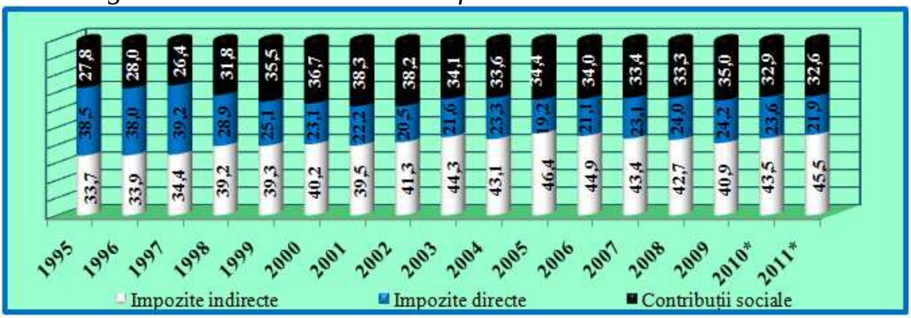
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Indirect tax burden	12,2	11,3	11,6	12,3	11,7	12,9	12,8	12,6	12,0	11,0	11,8	12,9
Direct tax burden	7,0	6,4	5,8	6,0	6,4	5,3	6,0	6,7	6,7	6,5	6,4	6,2
Social contribution tax burden	11,1	10,9	10,7	9,4	9,1	9,6	9,7	9,7	9,3	9,4	8,9	9,2

Source: For 2000-2009 the European Commission, Taxation Trends 2011, 2010 and 2011 own calculations on executions of general government budget published by the Ministry of Public Finance

Of structurally view, in 2009, Romania was on the 9th place among countries with the highest tax levy based on indirect taxes with a share of 40.9%, above the European average, the value is declining from a peak of 46.4% in 2005. Social contributions held in 1997 a share of 26.4% of total tax revenue, the minimum of last 16 years, and they have come to hold in 2009 a share of 35%, 3.6 percentage points above the EU-27 average of 31.4 %, and then their share decreased to 32.6% in 2011. Romania ranks the 12th among

EU member states with the largest share of revenues from social contributions. Regarding the structural position of direct tax revenues of the situation is the opposite of the previous two. Romania applies a tax system in that direct taxes bring about ¼ of government tax revenues, 24.2% in 2009, 6.9 percent below the EU-27 average. (European Commission, 2011) This percentage is decreasing year by year, so it was representing in 2010 21.9% of total revenues.

Figure 2: Structural evolution of taxes in Romania 1995 – 2011



Source: Author's processing based on data published by the European Commission

Tax management, the education level of taxpayers, taxation's principles, the impact of tax information across socio-economic policies influence the level of tax burden.. A high tax burden on taxpayers, perhaps, or not, mobilizes more important resources to the budget. We consider that it is important to mention that a high tax pressure can have adverse effects on economic growth on long term. Fiscal policy promoted by public authorities should minimize the tax burden because taxation should be seen not only as a right of the state, but as a tool to take into account the wished of the taxpayer. Tax burden and tax level are low only in appearance, because, in fact, low national income, inequality in the distribution of tax burden, the large number of taxes means that there is a heavy tax burden for certain taxpayers. (Drăcea Nicoleta Mihaela, 2009) Tax burden is not easy to quantify given the existence of practices about to input taxes in prices. There is not a maximum of tax burden because it is more of a perception that differs depending on economic, political and psychological circumstances. (Braga Viorica, Zărnescu Mihaela, Mirea Gabriel, 2010)

3. Methodology

Tax burden can be analyzed considering two approaches: tax burden as flow and tax burden as indices.

Tax burden in terms of flow is determined on account of data from their annual public budgets. At the individual level, tax pressure is given by the flow of direct levies required from operators and population. Globally, the tax burden is a sum of individual flows reflected in the amount collected through fiscal instruments (i = number of subjects in the economy; TB = tax burden)

$$TB_{\text{individual (flow)}} = \sum_{i=1}^{n} TB\,\text{indirect} + \sum_{i=1}^{n} TB\,\text{direct}$$

$$TB_{\text{global (flow)}} = \sum_{i}^{n} TB\ \text{individual} \quad .$$

The overall fiscal flow is a macroeconomic fiscal aggregate affecting the circular flows of income and expenditure in the economy. Tax burden as flow is an absolute pressure, reflecting the sacrifice in monetary expression resulted from taxation. (Corduneanu Carmen, 1998)

Tax burden as indices reflects relations in monetary expression of fiscal flows and economic flows that create income. It is very important the selection of two indicators which will be reported to determine the index. For the numerator it is easy to find a solution because there are many methods for grouping tax levies, but for the denominator the question is: what is the most representative one? The complex indicator providing an international comparison of tax burden is a tax quota that compares total implicit taxation in individual countries by measuring a proportion of effectively collected taxes on gross domestic product. (Szarowska Irena, 2009)

Tax burden or tax effort reflects tax efficiency in a monetary view. In an economic view, it reflects the redistribution of value through which part of the income created in the real economy is removed through market actions. (Corduneanu Carmen, 1998) Analysis of the contribution of tax system to finance general government can be done using the indices' method at global or structural level. Total tax burden index is calculated as the ratio of tax revenue collected from central government (direct and indirect) and GDP expressed in market prices.

$$\text{Tax pressure} = \frac{\text{Total tax revenues}}{\text{GDP}} \times 100$$

Tax burden, strictly speaking, consider only tax levies in the form of taxes paid to the state budget, so not all tax obligations owed by a taxpayer. In contrast, implicit tax burden (implicit rate of taxation) takes into account, in addition to taxes and social contributions, even if they are managed by separate budgets or special funds. Tax burden is a quite complicated issue, because too much pressure discourages taxpayers to work, save and invest. It is desirable to combine taxation with a better satisfaction of individuals' needs, so that taxpayers feel that the taxes and fees are really spent on their behalf.

The two approaches mentioned above were used to perform the analysis in the previous subsection. But the purpose of the paper is to analyze the factors influencing tax burden. The tax burden is calculated on data from the state budget of Romania in the period 2000-2011. To achieve this we used two factorial models for decomposition of the tax burden, a synthetic one and a analytically one, as follows:

$$PF = \frac{Vf}{PIB} * 100 = \frac{Vf}{Cf + Ib + Vs + E - I} * 100 =$$

$$= \frac{Vf}{Agr + Ind + Con + Com + Fin + As + Ip} * 100$$

$$PF = \frac{PJ + PF + TVA + Acc + Avf}{Cp + Cg + Ib + E - I} * 100$$

Where: Vf – tax revenues (data collected from executions of the state budget – the Ministry of Public Finances), PIB – Gross Domestic Product in current prices (it is determined by expenses method according to online database of INSEE), Ib – gross investments, E – export, I - import, Agr – agriculture, forestry, fishing, Ind – industry, Con – buildings, Com – services: commerce, repair, hotels, telecomunications, Fin – financial services, real estate, rent, As- other services, Ip – taxes on goods, PJ – tax revenues from companies, PF – tax revenues from individuals, Acc – excises, Avf – other tax revenues, Cp – privat consumption, Cg- gouvernmental consumption

We considered two main factors, tax revenue and GDP, comprising a number of secondary factors of influence. Thus, within the tax revenues we focused on earnings from companies, the proceeds from taxation of all sources of income of population, revenue from VAT, excise duties and other types of revenue. In terms of GDP, it was divided on secondary factors of influence given by its calculation methods: the method of production and expenditure approach. Primary data source consists of budgetary execution of the state budget provided by the Ministry of Finance for 2000-2011 (preliminary), INSEE monthly statistical bulletins and Tempo online INSEE database for 2000-2010, INSEE press release No . 51/6 March 2012 on gross domestic product in the fourth quarter and 2011.

4. Results and conclusions

At state budget level, fiscal pressure has experienced a yearly and gradual decline from 14.12% in 2000 to 9.61% in 2009. Annual variation ranges from -2.49% in 2001/2000 to 0.92% in 2003/2002. Except last period, annual increases in GDP have a positive impact on tax burden, it contributed to decrease, while increasingly receipts from tax revenues have a negative impact leading to its increase. In terms of the impact intensity of these two factors (GDP, tax revenues) to influence fiscal pressure it prevails the evolution of GDP which gives the sense of evolution of tax rate in 7 of the 11 analyzed years.

In 2010 fiscal pressure rate recorded a value of 10.96%, 1.29% more than in 2009. This increase of 1.29% is attributable +1.64% to the evolution of tax revenues and - 0.34% to changes in GDP. The increase in tax burden calculated for the state budget in 2011 as compared to 2010 by 1.05% is due as follows: GDP growth has led to a decrease of 1.52% and an increase in tax revenue led to an increase of 2.57%, confirming the indirect relationships, respectively direct, between them. A breakdown by category of tax revenue indicates that VAT charged has the greatest impact on the evolution of the tax burden of 1.93% followed by excise with an impact of 0.50% and other indirect tax revenue of -0.12%. GDP evolution had an impact of -1.52% on fiscal pressure, this impact can be divided on its components, as follows: GDP created in agriculture, construction and other services than commercial, financial, led to a reduction of tax burden by -0.18%, while the GDP created in industry, trade and repair services, financial services, real estate led to a decrease of -0.41% of fiscal pressure, the industry has the largest influence on it. The breakdown of GDP by expenditure approach is observed that the influence of -1.52% in 2011 is due mostly to private final consumption growth (-0.90%), to increases in exports (-0.74%) and increases in gross investment growth (-0.67%). The other two components of GDP had the following impact: a decrease in governmental consumption led to an increase in fiscal pressure of 0.01% and an increase in imports of goods and services had an impact of 0.78% on fiscal pressure.

Table 2: Results of factorial analysis between 2008 and 2011

Year	2008	2009	2010	2011	2009/2008	2010/2009	2011/2010
Tax revenues	55133,60	48152,90	56304,70	69.524,2	-1,36	1,64	2,57
Tax revenues from companies	14.405,30	11.989,40	10.929,07	10.658,7	-0,47	-0,21	-0,05
Venituri fiscale de la persoane fizice	4.156,30	3.553,20	3.525,10	5.112,2	-0,12	-0,01	0,31
VAT	21.691,80	16.639,90	23.672,30	33.602,0	-0,98	1,41	1,93
Excise	12.382,50	14.272,10	16.212,30	18.798,6	0,37	0,39	0,50
Other tax revenues	2.497,70	1.698,30	1.965,93	1.352,7	-0,16	0,05	-0,12
GDP	514.700,00	498.007,50	513.610,80	578.551,9	0,31	-0,34	-1,52
Agriculture, forestry, fishing	34.126,30	31.734,90	30.728,60	37.837,7	2,51	0,02	-0,18
Industry	11.848,60	121.842,50	135.472,00	152.062,9	-2,53	-0,30	-0,41
Buildings	54.628,20	49.350,00	45.481,90	56.744,5	0,10	0,08	-0,27
Commercial services, repair, hotels, telecommunication	114.762,50	107.556,20	108.502,30	109.665,7	0,14	-0,02	-0,03
Financial services	68.622,00	68.265,80	71.473,40	47.997,8	0,01	-0,07	0,56
Other services	67.910,50	69.097,80	64.265,90	85.222,5	-0,02	0,11	-0,51
Taxes of goods	56.164,50	50.160,30	57.716,70	69.201,2	0,12	-0,16	-0,26
Privat consumption	381.108,10	362.749,90	368.495,10	405.259,7	0,35	-0,13	-0,90
Gouvernmental consumption	39.809,40	39.496,10	36.927,30	36.397,4	0,01	0,06	0,01
Gross investments	160.896,90	126.036,40	135.920,60	166.675,7	0,73	-0,22	-0,67
Export	156.629,30	153.349,80	183.832,60	221.842,1	0,07	-0,62	-0,74
Import	223.743,70	183.624,70	211.534,80	251.623,0	-0,85	0,57	0,78
Tax burden (%)	10,71	9,67	10,96	12,01	Δ Tax burden (%) – analyzed factors		
Δ Tax burden (%)	-	-1,04	1,29	1,05			

Source: Author calculations based on data sets of the Ministry of Finance and INSEE

GDP expenditure approach emphasizes the following conclusions: public and private final consumption is the factor with the highest influence on tax burden; an increased consumption lead to a lower annual tax burden; between an increase in gross investment and development of tax burden it is an inverse relationship, which led to an average annual reduction of 0.54% of the tax burden; the second most important factor considering the impact intensity is given by the trends in imports, between them and tax burden there is a direct relation, an increase in imports led to an increase in fiscal pressure during the reviewed fiscal years. An opposite situation is recorded for exports showing an inverse relationship with the tax burden.

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