ANALYSIS OF PUBLIC EXPENDITURE IN ROMANIA DURING 1995-2009

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ABSTRACT: *The objective of this paper is to analyze the evolution of Romania's public expenditure during the period 1995-2009. Expenditure analysis involves tracking their evolution in absolute and relative size, determining the share of public expenditure within the GDP, as well as determining the level of total public expenditure and of each category of expenditure per capita. At the same time there are several econometric models used in optimizing public expenditure for the various economic sectors by means of econometric modelling software Eviews.*

KEY WORDS: *public expenditure; gross domestic product; analysis; share; Eviews.*

JEL CLASSIFICATION: *H50.*

1. INTRODUCTION

The dynamics of the world economy and of Romanian economy implicitly, has led to a significant reduction of the time available to Governments to respond more adequately to problems that arise, especially in regards to the public money. Effectiveness of the measures taken depends, mainly, on a detailed analysis of events within the Romanian economy and particularly on public expenditure. Public expenditure constitutes a large part of GDP and, therefore, it has a significant impact on the productivity of the entire economy. Starting from the works of the authors Minea A. (2008)., Colibaşanu O.A. (2009), Obreja Braşoveanu l. (2010), Măcriş M.(2009), I dwelled upon this issue for Romania in the period 1995-2009, regarding the evolution of public expenditure in our country.

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2. EVOLUTION OF PUBLIC EXPENDITURE IN OUR COUNTRY DURING THE PERIOD 1995-2009

The analysis of public expenditure in Romania during 1995-2009 will be characterized in two ways: according to the quantitative and qualitative aspect. The quantitative aspect will monitor the evolution of the absolute and relative level of public expenditure and the quality aspect will keep track of their structure.

A first assessment of the degree of involvement of the State in the economic and social life will be made through the progress of the overall volume of public expenditure. For a proper understanding we shall take account of the fact that, as expressed in value, the absolute level of public expenditure is influenced by the evolution of prices, depreciation of the currency, which has become a generalized phenomenon in our country's economy.

In order to analyze the share of the public sector within the total social and economic activities we must determine the share of the total public expenditure in the GDP.

Table 1 shows the evolution of the volume of public expenditure in nominal value when they are expressed in current prices; in real value when they are expressed in constant prices; the evolution of the gross domestic product as well as the weight of public expenditure in GDP.

Table 1. The volume of public expenditure, GDP, and the weight of public expenditure in GDP in Romania during 1995-2009

-thousands lei-

Year	Nominal value	Real value	GDP	Weight of public expenditure in GDP (g)
1995	2 610.5	2 610.5	7 648.9	34.1
1996	3 777.0	2 537.7	11 384.2	33.2
1997	8 833.9	2 646.7	25 529.8	34.6
1998	13 257.7	2 736.6	37 055.1	35.8
1999	21 637.4	2 998.7	55 191.4	39.2
2000	31 225.6	2 949.2	80 984.6	38.6
2001	42 710.7	2 769.8	117 945.8	36.2
2002	53 221.1	2 677.9	152 017.0	35.0
2003	66 046.7	2 558.8	197 427.6	33.5
2004	83 003.0	2 566.5	247 368.0	33.6
2005	97 069.1	2 569.5	288 954.6	33.6
2006	122 500.0	2 718.7	344 650.6	35.5
2007	151 136.5	2 778.9	416 006.8	36.3
2008	197 150.9	2 929.8	514 700.0	38.3
2009	202 124.2	3 104.4	498 007.5	40.6

Source: Personal processing using Eurostat data

Based on the data analyzed, it is observed that the volume of public expenditure has been continuously growing as a result of State interference in the

economy and in social life; in 2008 it was 250 times higher than in 1995, thus we may conclude that the national economy itself had an increasing trend. Note also that public expenditure in the year 2009 was almost equal to that of 2008 which means that the economy experienced stagnation in development during this period.

Considering the actual amount of expenditure we may find that the years 2003, 2004 and 2005 were the years the lowest real effort from the State. This information is not sufficient, however, to give us an insight of the tax policies adopted by the Governments of those years; a further review of the evolution of expenditure was required.

GDP has also had an increasing trend over the period considered in the analysis with the exception of 2009 when it was recorded a decrease as compared to the previous year (2008) because of the effects of the crisis that led to a fall in consumption, investments and exports. Instead costs kept an increasing trend.

Based on the data analyzed, it is observed that the weights of public expenditure in GDP range from 33.2 % in 1996 to 40.6% in 2009. During the period 1999-2003, public expenditure showed a relatively decreasing trend from 39.2% to 33.5% of GDP, which means a certain disengagement of the State in the economy. Since 2004 public expenditure had been increasing relatively so that in 2009, 40.6% of the GDP would be redistributed to the population in the form of public expenditure; it is also recorded as the year with the largest share of expenditure in the GDP over this period.

The phenomenon of increasing the weight of public expenditure in the P.I.B. denotes a more intense involvement of the State in the use of financial resources of the society for different purposes (Table 2).

As regards the share of each category of public expenditure during the period considered, it is observed that the smallest variations, as a percentage of GDP, were registered by the expenditure on environmental protection, culture and other expenses, and the greatest changes were recorded by the payments for public services. However, analyzing the variations in different categories of public expenditure, as the relation between the maximum and minimum values, we may note an increase by more than 19 times of the expenditure on environmental protection in 2009 as compared with 1998. This increase was emphasized in 2007, the most important factor being the integration of Romania into the European Union and, as a result of the recommendations of the EU, increasing investments in environmental protection. Using the same reporting criterion we can observe that the slightest variation was registered by the expenditure on education and social protection. (Măcriş, 2009)

Particularly effective is the analysis of trends in public expenditure in relation to the evolution of the demographic factor. The calculation of the average payments per capita (table 3.) reveals the value of social needs satisfied on average, per capita.

It is worth noting that the public expenditure per capita are increasing at a faster rate than the GDP per capita. During the period under analysis we may find an increase in the level of public expenditure per capita, while in 2009 the value of social needs, on average, per capita amounted to 9409.7 lei/person.

For this indicator to be more eloquent, the average public expenditure per capita, it is analyzed in dynamics and by type of expenditure according to table 4.

Table 2. The size of each category of eligible public expenditure in the GDP in Romania during 1995-2009

-percentage-

Year	General public services	Defense	Public order and national security	Education	Healthcare	Culture, entertainment and religion	Social security	Environment protection	Economic activities	Other expenditure
1995	3.64	2.39	1.34	3.34	2.38	0.62	10.54	0.18	8.19	1.49
1996	3.77	2.37	1.58	3.63	2.31	0.77	10.29	0.13	6.80	1.52
1997	6.77	2.52	0.73	3.17	1.96	1.10	11.05	0.25	5.62	1.44
1998	7.33	0.79	0.54	4.05	2.63	1.42	12.13	0.03	5.51	1.35
1999	10.31	1.84	1.63	3.14	3.77	0.56	12.05	0.03	4.51	1.34
2000	7.90	2.16	2.25	3.18	4.18	0.73	10.90	0.22	5.60	1.44
2001	6.45	1.89	1.58	3.86	4.09	0.58	11.14	0.27	4.89	1.44
2002	5.36	2.22	1.99	4.01	4.12	0.63	10.12	0.24	4.39	1.93
2003	4.15	2.53	1.85	3.55	3.45	0.72	10.05	0.20	4.91	2.05
2004	3.91	2.20	1.83	3.62	3.21	0.68	10.30	0.12	5.62	2.07
2005	3.27	2.98	2.11	3.60	3.37	0.67	10.40	0.32	5.27	1.61
2006	3.29	2.31	2.39	4.12	3.28	1.01	10.41	0.35	6.92	1.47
2007	4.23	1.76	2.40	3.90	3.69	1.08	10.59	0.41	6.73	1.54
2008	4.57	1.53	2.29	4.47	3.85	1.16	11.83	0.48	6.80	1.33
2009	4.36	1.51	2.19	4.10	4.36	1.08	14.23	0.59	6.77	1.40

Source: Personal processing using Eurostat data

Table 3. The amount of public expenditure on average per capita in Romania during 1995-2009

-lei-

Year	Level of average public expenditure per capita	Year	Level of average public expenditure per capita
1995	115.1	2003	3 037.7
1996	167.0	2004	3 827.7
1997	391.7	2005	4 486.8
1998	589.0	2006	5 674.5
1999	962.9	2007	7 014.3
2000	1 391.3	2008	9 164.0
2001	1 929.8	2009	9 409.7
2002	2 441.0	---	---

Source: Personal processing using Eurostat data

Table 4. The amount of each category of expenses accruing on average per capita in Romania during 1995-2009

-lei-

Year	General public services	Defense	Public order and national security	Education	Healthcare	Culture, entertainment and religion	Social security	Environment protection	Economic activities	Other expenditure
1995	12.29	8.06	4.52	11.27	8.04	2.10	35.55	0.60	27.62	5.02
1996	18.99	11.91	7.98	18.27	11.64	3.88	51.81	0.65	34.21	7.65
1997	76.65	28.50	8.24	35.87	22.16	12.46	125.05	2.82	63.67	16.26
1998	120.68	13.08	8.89	66.64	43.27	23.32	199.67	0.53	90.68	22.27
1999	253.32	45.28	40.12	77.08	92.70	13.87	295.89	0.74	110.83	33.03
2000	285.14	77.94	81.11	114.81	150.88	26.39	393.17	8.04	201.91	51.95
2001	343.90	100.89	84.45	205.91	217.99	31.03	593.84	14.20	260.67	76.93
2002	373.56	155.00	138.78	279.68	287.25	43.98	705.44	16.50	305.94	134.87
2003	376.83	230.00	168.19	322.00	313.57	65.00	912.47	17.98	445.48	186.22
2004	445.49	250.49	208.88	412.49	366.17	77.67	1175.33	14.02	640.99	236.17
2005	437.12	397.58	281.67	480.25	449.64	89.05	1388.93	42.59	704.31	215.65
2006	524.49	368.06	382.31	657.72	523.04	161.42	1662.73	56.20	1104.13	234.43
2007	817.60	339.49	462.87	752.83	712.34	208.29	2045.33	78.97	1299.04	297.54
2008	1094.35	364.89	547.79	1068.76	920.21	278.07	2830.39	115.61	1626.17	317.76
2009	1010.33	349.37	508.26	951.41	1011.36	249.80	3298.10	135.95	1570.23	324.88

Source: Personal processing using Eurostat data

3. ANALYSIS OF EXPENDITURE ON GENERAL PUBLIC SERVICES AND EDUCATION USING EVIEWS

In order to emphasize the conclusions and the results, this paragraph dwells upon studies carried out on various econometric models used in optimizing budgetary expenses for various economic sectors by means of econometric modelling software Eviews.

First, using the least squares approach, an econometric analysis of expenditures on general public services reported on time has been developed.

The linear regression model has the following form:

$$y = f(x) \tag{1}$$

where

$$f(x) = c_1 + c_2 x \tag{2}$$

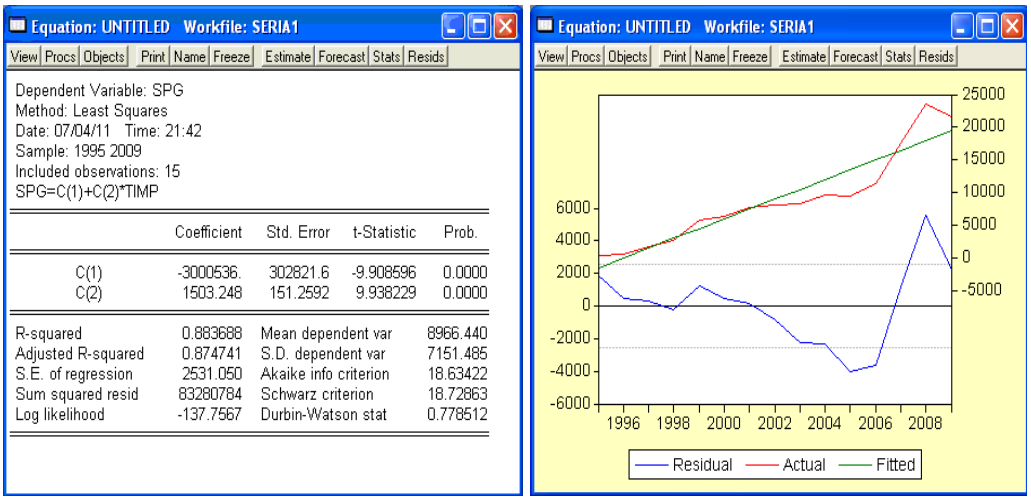
with c_1 and c_2 the parameters of the linear regression model.

The variables used in this model are:

x - the period of time undergoing analysis;

y - general public services.

The analysis was carried out for a period of 15 years between 1995 and 2009 in Romania, and the results obtained as well as the graphical representation of general public services with respect to time shall be submitted in the two figures below:



Thus, in the expression on the left we have the values of the two parameters within the linear regression model c_1 and c_2 as well as the values of statistical indicators and statistical tests used in the analysis.

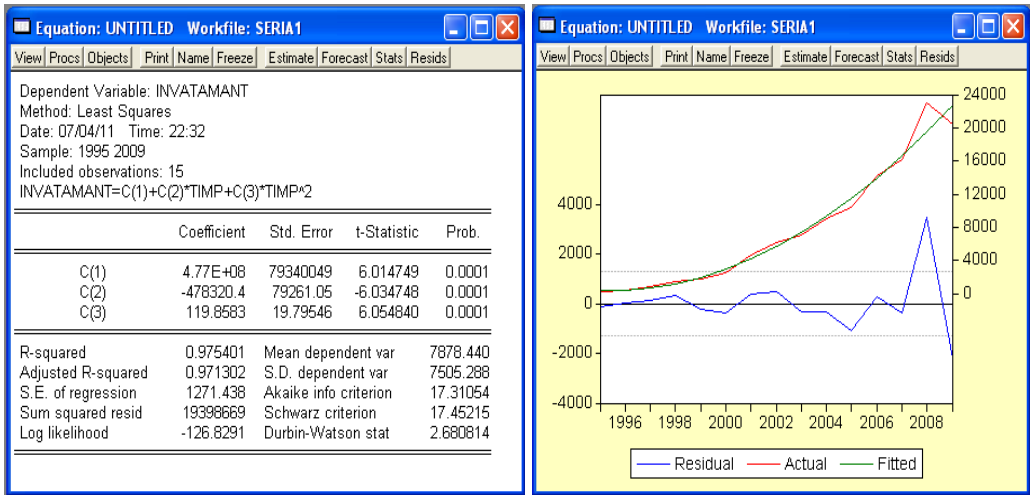
$$SPG = -3000536 + 1503248 \cdot TIMP \tag{3}$$

It is noticeable that between the two variables analyzed, there is a direct linear dependence because the slope/gradient of the regression line has a positive value, the link being a strong one.

The second econometric model developed refers to the analysis of expenditure on education in relation to time, for the same period of 15 years, 1995-2009.

Unlike the previous model, the figures below show that the model is a non-linear one of parabolic type, the approximate function in this case has the following form:

$$f(x) = c_1 + c_2 x + c_3 x^2 \tag{4}$$

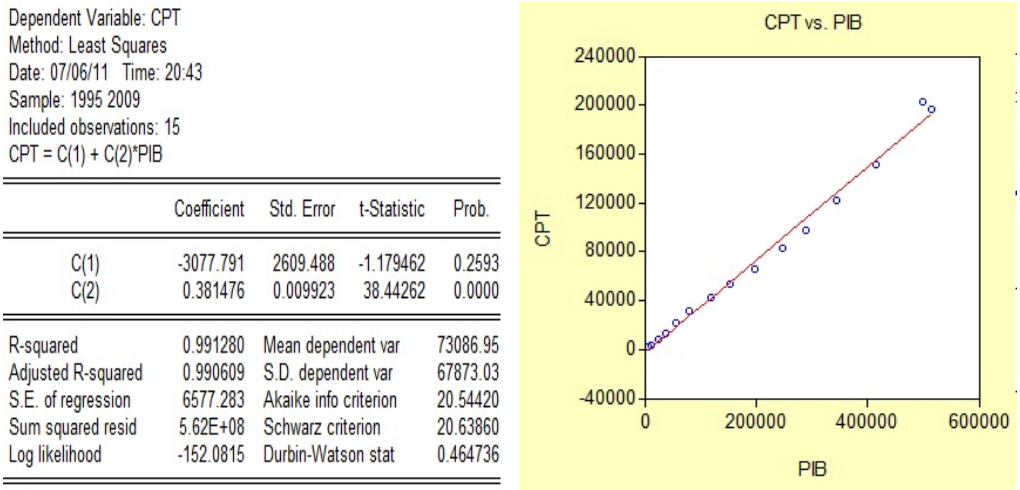


In this case, the dependent variable $x = TIMP$ is the time and the output variable is $y = ÎNVĂȚĂMÂNT$. Thus, the values of the parameters of the non-linear regression model are:

$$ÎNVĂȚĂMÂNT = 4,774783204TIMP + 1198583TIMP^2 \quad (5)$$

It is observed in the expression on the left that between those two variables there is a strong dependence, this being justified by the value of the correlation coefficient of 0.95.

Another econometric model subject to analysis is related to total public expenditure as share of the GDP for the same period, 1995-2009. The variables that are involved in the analysis of this model are the variable $x = PIB$ and the output variable $y = CPT$.



The values of the coefficients of the linear regression model are:

$$CPT = -3077,798 + 0.381476 \cdot PIB \quad (6)$$

We may note that between the two variables there is a direct linear dependence, a very strong one. Moreover, this result shows that for a percentage of the GDP, the total public expenditure will change in the same direction by 0.38%.

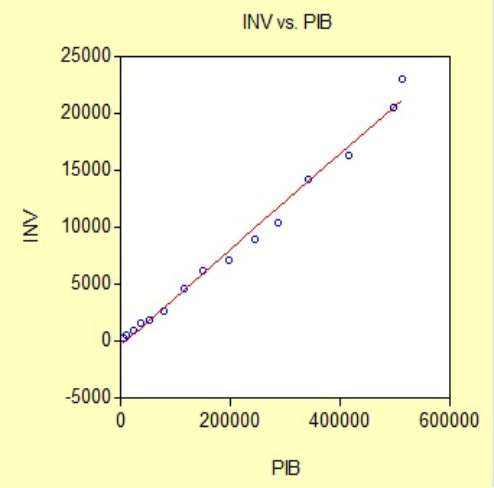
Furthermore, an econometric model between education expenditure and GDP is presented.

The variables used within the linear regression model are the input variable $x = PIB$ and the output variable $y = \hat{I}NV$.

Dependent Variable: INV
Method: Least Squares
Date: 07/06/11 Time: 19:35
Sample: 1995 2009
Included observations: 15
INV = C(1) + C(2)*PIB

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-540.4652	311.0733	-1.737421	0.1059
C(2)	0.042150	0.001183	35.63159	0.0000

R-squared	0.989864	Mean dependent var	7875.107
Adjusted R-squared	0.989085	S.D. dependent var	7504.767
S.E. of regression	784.0684	Akaike info criterion	16.29044
Sum squared resid	7991922.	Schwarz criterion	16.38484
Log likelihood	-120.1783	Durbin-Watson stat	1.891593



The values of the parameters involved in the model are:

$$\hat{I}NV = -540,4652 + 0.04215 \cdot PIB \quad (7)$$

It is worth noting that between the two variables there is a direct linear dependence, a very strong one. Moreover, this result shows that when the GDP changes by one percentage the total public expenditure will change in the same direction by 0,042%.

The last model subject to analysis refers to the general public services and GDP. Therefore, the variables used in the linear regression model are the input variable $x = PIB$ and the output variable $y = SGP$.

In the expression below, the values of the parameters that are involved in the model are:

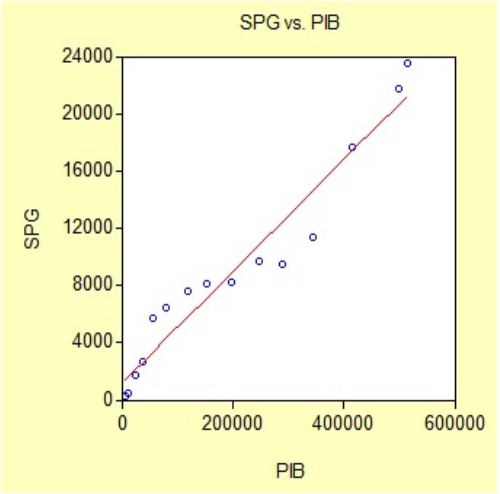
$$SPG = 1166,302 + 0.039 \cdot PIB \quad (8)$$

It is noticeable that between the two variables there is a direct linear dependence, a very strong one. Moreover, this result shows that when the GDP changes by one percentage the expenditure on general public services will change in the same direction by 0,039%.

Dependent Variable: SPG
Method: Least Squares
Date: 07/06/11 Time: 19:38
Sample: 1995 2009
Included observations: 15
SPG = C(1) + C(2)*PIB

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	1166.302	742.1254	1.571569	0.1401
C(2)	0.039067	0.002822	13.84329	0.0000

R-squared	0.936473	Mean dependent var	8966.440
Adjusted R-squared	0.931586	S.D. dependent var	7151.485
S.E. of regression	1870.547	Akaike info criterion	18.02941
Sum squared resid	45486288	Schwarz criterion	18.12382
Log likelihood	-133.2206	Durbin-Watson stat	0.690757



Considering the results of the analysis above it can be concluded that in Romania the expenditure on education have increased by 0,042% as a percentage of GDP, and expenditure on general public services increased by 0.039%.

4. CONCLUSIONS

In our country, under the conditions of market economy there have been changes in terms of content and structure of public expenditure. In the period under review the general trend of public expenditure is to increase from one year to the other. A dynamic analysis reveals that public expenditure is increasing rapidly in size.

In the years 2003, 2004 and 2006, the weight of public expenditure within the GDP has decreased as compared to previous years, and in the years 2007, 2008 and 2009 the weight of public expenditure within the GDP has increased. The value of the social needs that are met on average per capita increased from one year to another.

The State is directing its funds to finance social, economic actions and actions of the administration of the State. Most of the State's financial resources is used for payment of goods and services purchased by central and local bodies of the State administration and by institutions governed by public law as well as for the payment of salaries, pensions and other entitlements for public officials, for granting subventions for different categories of economic agents.

The year 2008 was the first year when the education sector was allocated 6% of the GDP, while higher education got 40% of the total funds allocated. Even if the level of funds allocated to higher education was continuously growing, financially, Romania was placed below the European average, the values allocated per student being of about € 1.692,22 while the average in other European State is €6.451,41.

Expenditure in the health sector in Romania was traditionally low in comparison with the European average. One of the explanations is related to the health sector being regarded as unproductive and therefore with a low priority in the budgetary allocations. Despite an increase in the weight of total health expenditure within the GDP, the level of financing the Romanian financing system remains low in the European context, especially if we consider the long period of sub-financing and the lack of investments in healthcare.

Currently the Romanian budget faces difficulties in covering expenditure.

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