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The Evolution of the Public Debt in Romania and Serbia, During and After the Global Recession

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This paper describes a special evolution of debt of Romania and Serbia, during and after the recently completed global recession, with a focus on public debt. After a brief theoretical introduction and an equally short review of the recent literature devoted to the subject, the authors stress both the common elements and the particular aspects of the upward trends of borrowing in the two economies, concluding with some final remarks and a tentative anticipation of short-term and medium-term evolution.

Keywords: external or foreign debt (ED), public debt (PD), governmental debt (GD), Gross Domestic Product (GDP), export (X).

1. Introduction

Debt issues dominate economic history, and the economic history of the last three decades has dilated, in points of volume and impact, up to limits that are hard to accept and not in the least anticipated. Two concepts prevail in the language of this significant economic chapter: external/foreign debt and public debt, and in particular the latter has caught the attention of recent research.

External Debt (ED) means an amount in foreign currency payable, at a given point in time, by an economy to other economies and/or international financial institutions, in keeping with the loans received by the government and private companies, under the government's guarantee, and is to be paid over a period longer than one year. This sense is used in international statistics, and is understood as external public debt, not including loans with maturities under one year, which were contracted without the government's guarantees. Foreign debt can be gross or it can be net, after deduction, from the gross external debt, of its own claims in relation to non-residents. In determining the net foreign debt, only claims (rights) are taken into account, or those that can be easily mobilized (for which the perspective of collecting them from foreign debtors is clear).

Public Debt (PD) represents all the obligations that the state (government) assumes when contracting internal and/or external loans to finance public economy. Public debt is related to the financial intervention of the state (government) in the economy, whose aim is to form public capital, stimulate investment, increase employment. In its broadest sense, public debt also includes a visible debt, resulting from cash deposits in public vaults, which is payable at any time by the depositors. In terms of material content, it can consist of goods and values, in terms of its destination it may consist of consumption and of production, and in terms of duration it may be long-term, short-term, etc. *Encyclopaedia Britannica's* definition shows that "public debt represents the obligations of governments, particularly those evidenced by securities, to pay certain sums to the holders at some future time, being distinguished from private debt, which consists of the obligations of individuals, business firms, and nongovernmental organizations."

The debt owed by national governments is usually referred to as the national debt and is thus distinguished from the public debt of state and local government bodies (<http://www.britannica.com/>).

Much of the literature on the topic of debt produced in recent years has tried, and it is still trying, to provide and present genuine solutions and new methods of reassessment of those phenomena and thresholds,

and especially of forecasting external and public debt (Knedlik, Von Schweinitz, 2012), or even extends the analyses related to the same range of problems in geographic behavior areas (Hrvoje, 2013) considered to be similar in point of behaviour.

The contemporary theory continually redefines the essential role of foreign and public debts and the financial development of an economy, while delimiting the number of debt sustainability problems that are increasingly acute, so the tendency always appears to expand the universe of financial research and enrich it with new instrumental or cross-disciplinary solutions – crossdisciplinarity being accepted today as the *application of field-specific methods and their recognized use in fields that are altogether different from the original ones*, with special effects and an increased relevance in understanding the phenomena in question (Sîvoiu, 2014). In this regard we can mention the identification and statistical quantification of certain limits through indicators having the nature of restricting debt by the budget, going as far as the maintenance, through close monitoring, low thresholds for reference interest rates, a phenomenon of quantification of incipient “financial repressions”, through statistical indicators (Reinhart, 2012; Prabha and Savard, 2013), continually assessing and predicting a phenomenon which is hard to achieve in practice, suggestively called *liquidation of public debt*, particularly aimed at *government debt* (Reinhart and Sbrancia, 2011).

A new approach to adjusting the level of public debt in a more sustainable manner is more clearly distinguishable, based on a slightly more stable fiscal measures, or on measures with no temporary character, there being constant monitoring and the analysis of results being conducted at an ever shorter time intervals, noting that tax recovery and reducing debt, however, require a long time, as process management activities (the current Eurostat indicators system operates, during the recession, and especially after recession, with quarterly periodicity). The attempt to scale, through innovative indicators, “the hidden areas of public debt” (IMF Survey, 2013) is another original solution to analyzing debt, stratified in keeping with the level of development of the economies.

Kenneth Rogoff and Carmen Reinhart, who analyzed and quantified the phenomenon of debt over nearly eight decades, between the two great historical recessions (one starting in 1929, and the other starting in 2007), note that, after more than three years of financial crisis of the system, plus another three years of recovery (basically, over a period of about six years, i.e. the duration of the latest recession in the Balkans), the debt of a country tends to increase, on average in the first three years, by 86 percent of its original level, and after six years it tends to double in relation to the volume of exports, because of these very hidden areas of the debt; the delimitation of the hidden area especially regards commitments for future budgetary payments related to the pension scheme, which is under the pressure of an aging population; thus, those thresholds or limits of debt are set, where its effects turn from positive to negative, and the debt itself becomes *unsustainable*. (Cecchetti, Mohanty, Zampolli, 2011).

In the European Community the preference is maintained related to primarily evaluated public debt, and more especially government debt, whose theoretical limit amounts, in general terms, within the European Union (EU) and European Monetary Union (EMU), to 60% of GDP. In Romania, secular studies (Reinhart, Rogoff, 2010) place the alarm threshold even lower (at about 41%), while for Serbia, which has a much higher per capita income and a higher degree of development, the general alarm level remains that proposed in pre-accession (EU) and (EMU), i.e. the same 60%.

The intention and the originality of the present paper is to exploit the method of confronting, in statistical terms, the phenomenon of borrowing and the statistical indicators in the two Balkan economies (that of Romania, a member of the EU, and of Serbia, which is currently in the pre-accession phase), behaving in a relatively similar ways in their modern history of nearly one and a half centuries.

2. A brief statistical analysis of the alarming upward evolution of public debt in Serbia and Romania

Due to a series of social and geopolitical discontinuities in Serbia, the analyses of public debt in the period before the year 2000 are not objective. After that period, the public debt of the Republic of Serbia shows two distinctly different trends:

- a decreasing trend between the years 2000 and 2009, and
- an increasing trend since 2009 until today.

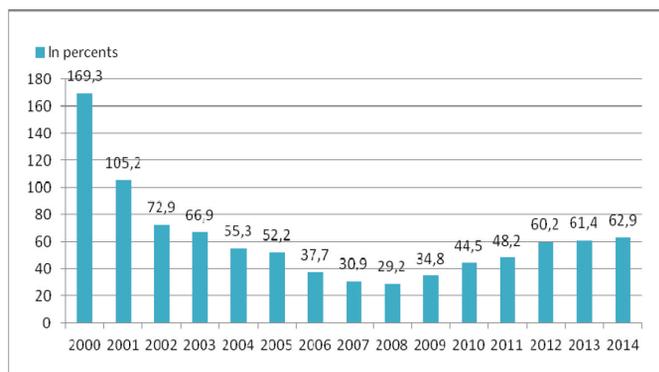


Figure 1: Public debt of the central government share of GDP%
 Source: Uprava za javni dug, February 2014, page 9

If we analyze the trend and the basis for the decrease of the public debt share of the GDP in the period up to the year 2008, we can draw certain important conclusions. The most significant debt reduction occurred in the year 2004, based on agreements on debt write-off (66% of the debt to the Paris Club, 62% of the debt to the London Club of Creditors (until 2003)). A further reduction is the result of repaying a debt of 1.3 billion euros on the basis of old foreign currency savings and domestic debts based on delays. Since 2004, the acceleration of the privatization process and the use of privatization revenues to cover the budget deficit made it possible to achieve a low amount of new loans, and in 2008 Serbia was in the group of low-debt countries.

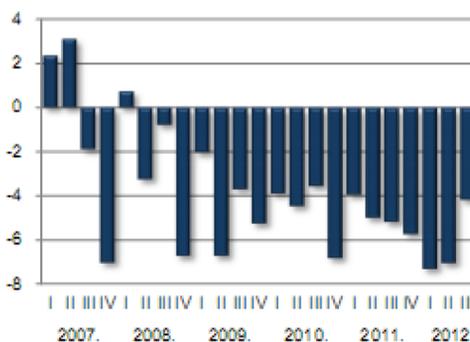


Figure 2: Fiscal budget deficit/suficit share of GDP% for Serbia, 2007-2012.
 Source: Šljivić, S., Jevtić, B., Šljivić, S. 2013. page 508

Since 2009, with the first effects of the global economic crisis, the public debt starts to grow both in absolute figures and in a share of GDP. The main causes for this increase were: primary fiscal deficit which was financed by the loans, the activated government guarantees for debts of public enterprises, but also a remarkable decline in net foreign direct investments. The correlation between the budget deficits and the public debt points to the key motive for borrowing, and that is maintaining the budget stability, while the relationship between the public debt trends and economic activity is negative.

For example, Romania can be extrapolated, as lying relatively close to the average trend of the South-Eastern European area, and especially the Balkans. Romania makes a relatively common instance for the two areas in point of overall trends in the phenomenon of borrowing. We exploit three waveforms that cyclically dismantle (in a Kondratiev manner) three similar historical periods in the two economies, defined by upward-downward repeatability, based on the visual support of the graph for a logical statistical thinking, the quality of which is recognized for the phenomenological approach to temporal variation (Figure 3).

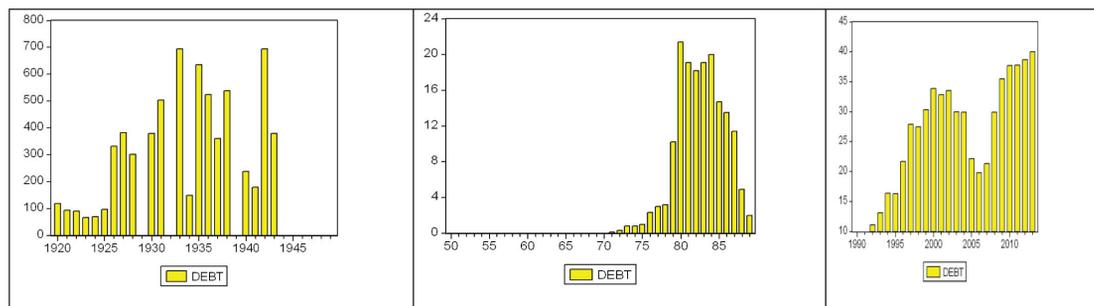


Figure 3: Debt dynamics in modern Romania for two and a half Kondratiev type cycles
 Source: Săvoiu, G., (2014), figures 5-7 pages 5-7.

The main statistical indicators of public debt are the indicators of public indebtedness (PD, PD/GDP, PD/inhabitant and total annual change of PD in %), and, separately, the indicators of public debt service or the annual financial burden of public debt repayment (PDS, PDS/GDP, and PDS/inhabitant) (Săvoiu, Apostol, 2013). A breakdown of the values of these indicators in the first category shows rising levels developments, and especially increasingly alarming dynamics.

Table 1: Major statistical indicators of the level of public debt of Romania and Serbia, during and after the crises

	Romania						Serbia					
	2007	2008	2009	2010	2011	2012	2007	2008	2009	2010	2011	2012
Public debt - PD – mil. USD	24863	33906	39704	45280	48645	55293	12526	12901	12908	14539	16105	18667
PD/GDP (%)	17.1	19.6	22.3	26.8	29.3	31.9	35.8	30.4	30.8	37.1	43.5	48.5
PD/Population - USD/inhabitant	1152	1576	1849	2108	2268	2580	1695	1748	1754	1985	2205	2567
Total annual PD change (%)	47.3	36.4	17.1	14.0	7.4	13.7	2.4	3.0	0.1	12.6	10.8	15.9

Source: *Economist Intelligence Unit*, available on-line at: http://www.economist.com/content/global_debt_clock.

The public debt in early 2013 was, according to the World Bank data, 172.5% of Romanian exports, and 182.2% for Serbia, as the general theoretical limit accepted for PD/X is 200%. Much more serious, however, is the debt level reached after six years of the analysis, i.e. multiplied by 2,224 times for Romania, and by only 1.49 times for Serbia. At the same time, the negative legacy of debt (i.e. the debt inherited) increases from the parents to their children by 2.24 times in Romania, and by 1.52 times in Serbia. The GDP/inhabitant indicators in the two economies are totally different at the beginning, which appeared to require separate analysis thresholds, but are strikingly close at the end of the period analyzed. The most serious evolution remains the structural one: the share of public debt in the GDP in Romania increased from 17.1% to 31.9% and 35.8% to 48.5% in Serbia, in about six years of recession and post-recession, and the outlook becomes really alarming, asking for immediate concrete policies with major financial impact.

Table 2: Short-term and medium-term outlook for public debt indicators in Romania and Serbia

	Romania			Serbia		
	2013	2014	2015	2013	2014	2015
Public debt - PD – mil. USD	59481	63670	67859	21359	24052	26745
PD/GDP (%)	34.4	36.9	39.4	60.3	72.2	84.1
PD/Population -USD/inhabitant	2778	2975	3172	2950	3333	3715
Total annual PD change (%)	7.6	7.0	6.6	14.4	12.6	11.2

Source: *Economist Intelligence Unit* for public debt* (http://www.economist.com/content/global_debt_clock).

The answer to the question whether there is a statistical correlation between public debt and economic growth, or, to put it differently, if the public debt is justified as a factor of development and, especially, as infrastructure investment support intended to change the economy, is disappointing.

Table 3: Associable or correlated potential indicators characterizing public debt and economic growth

Year	Romania				Serbia			
	GDP growth (%)	PD(%)	GDP/capita	PD/capita	GDP growth (%)	PD(%)	GDP/capita	PD/capita
2007	6.3	47.3	8170	1152	5.4	2.4	5277	1695
2008	7.9	36.4	9949	1576	3.8	3.0	6498	1748
2009	-6.8	17.1	8069	1849	-3.5	0.1	5498	1754
2010	-0.9	14.0	8139	2108	1	12.6	5073	1985
2011	2.3	7.4	9064	2268	1.6	10.8	5964	2205
2012	0.4	13.7	8437	2580	-1.7	15.9	5190	2567

Source: <http://data.worldbank.org/indicator>

A correlation matrix, even considered for a very small number of terms, delimits both similar and different behaviours in the two economies according to the values of the determination coefficient in Table 4 (which contains the values of the correlation ratio, or of simple R resulting from the classic R squared):

Table 4: Correlation Matrix

	Romania				Serbia			
	GDP growth (%)	PD(%)	GDP/capita	PD/capita	GDP growth (%)	PD(%)	GDP/capita	PD/capita
	SER01	SER02	SER03	SER04	SER05	SER06	SER07	SER08
SER01	1.000000	0.655422	0.644427	-0.457696	0.907705	-0.062483	0.486256	-0.161364
SER02	0.655422	1.000000	0.160833	-0.906713	0.722941	-0.628160	0.178830	-0.666111
SER03	0.644427	0.160833	1.000000	-0.068513	0.405304	-0.089228	0.932734	-0.053051
SER04	-0.457696	-0.906713	-0.068513	1.000000	-0.660397	0.827000	-0.211983	0.897560
SER05	0.907705	0.722941	0.405304	-0.660397	1.000000	-0.209301	0.318033	-0.414691
SER06	-0.062483	-0.628160	-0.089228	0.827000	-0.209301	1.000000	-0.371959	0.897362
SER07	0.486256	0.178830	0.932734	-0.211983	0.318033	-0.371959	1.000000	-0.271773
SER08	-0.161364	-0.666111	-0.053051	0.897560	-0.414691	0.897362	-0.271773	1.000000

Source: Data from table 3. Software used: EViews

The analysis of the correlation between the GDP growth (%) and the PD (%) identifies an average connection between *public debt and economic growth*, visible and relevant in Romania, which has now a much more open economy under the impact of the crisis and the recession, and also under the impact of economics of restarting growth, as a EU member, while it identifies a negative relationship, or almost a non-existent one, at the limit of statistical testing, in Serbia ($R = -0.209301$).

Large inflows of foreign capital through credits, privatization and foreign direct investment (FDI) were a major source for financing high consumption in Serbia in the period between 2005 and mid 2008 (Popovic, N. Jaško, O, 2012), which had an impact on economic activity, with the GDP growth rate higher than 5%. However, the economic crisis refocused the use of these sources to cover the budget deficit, in which, opposite of the required, a permanent reduction of spending on infrastructure projects and the economy (up to 5% of the national budget) was observed, while the allocations for salaries in the public sector and pensions grants remained at the same level (about 55% of the national budget). On the other hand, the FDI were almost stopped, given that many companies performed operations contractions during the crisis in order to adjust to these new circumstances.

The reduction or stabilization of the public debt is possible on the basis of reductions in public spending or through tax increases (budget inflows). In the short term, reforms in public sector in order to reduce budget

expenditures may be sufficient to stabilize the debt of Serbia, while the long-term debt reduction needs tax policy that is associated with the stimulation of investments in the real sector and in individual demand. Particular acceptable operations are those that operate in both directions, especially Public Private Partnership (PPP), which do not increase public debt, but rather substitute public sector investment and increase demand.

On the other hand, after statistical confrontation between the two countries, the values of R highlight a strong positive relationship (of an evolving nature) between the dynamics of economic growth in Romania and Serbia, and between the debt dynamics per inhabitant, as well as a contradictory reversed, or staggered ($R = -0.628160$) relation between the temporal trends of indebtedness of the two countries, according to their financial and monetary policies which are distinctly separate at the moment, but are probably likely to be common in the near future, as EU member states. From this emerges an important remark, highlighting the advantages of EU integration, i.e., the synchronicity and integration into the EU economic cycle can bring about, through "contagion", in addition to other advantages, some optimization in debt policies: public debt is much better correlated with economic growth and much more appropriate in times of recession in Romania, in comparison with Serbia; the remaining trends are similar for the two economies.

A tentative econometric modelling could only be achieved for the Romanian economy (Săvoiu, Apostol, 2013), where comparative data are available for a longer period of time (minimum 15 years or items in the model).

Table 5 summarizes two specified econometric models for Romania, parameterized and validated, with public debt as endogenous variable (a unifactorial and multifactorial model as possible examples).

Table 5: Two econometric models of public debt (PD) in Romania between 1997 and 2012

Dependent Variable: PD Method: Least Squares Specified models for the 16 – term series	R-squared	F-statistic
$PD_i = 31.90 + (-2.41) \times FDI/GDP_i + \epsilon_i$	0.621825	23.01993
$PD_i = 111.70 + (-1.55) \times FDI/GDP_i + (-3.56) \times EUFCF_i + (-0.669) \times Savings\ in\ EU_i + \epsilon_i$	0.802784	16.28232

Software used Eviews. Source: (Săvoiu, Apostol, 2013a, page 25-26)

Note: Foreign Direct Investment as % of GDP = FDI/GDP_i ;

European Union Fixed Capital Formation as % of EU GDP = $EU\ FCF_i$.

The major conclusion of this analysis shows that econometric models can be made to simulate and estimate or predict the dynamics of public debt, as well as some aspects of the most important exogenous variables that contribute to an optimized and efficient debt service applied to various periods or horizons.

Some final remarks

The present paper evolved from the idea to emphasize the importance of public debt, of statistical confrontation on this issue between the economies of Romania and Serbia in general, and also the assessments and modelling which are possible, but did not limit itself to the public debt, which requires a special, detailed treatment, exceeding the space of a midsize paper. The significance of public debt issues goes beyond many other important economic policy issues relating to accession and convergence processes, because of its effect on major economic equilibria, and especially on economic growth, optimizing the ability to consistently and sustainably manage the public debt process, turning it into a process of investment and development impact, in parallel with a process of inflation control.

Of course, external debt is also important (i.e. at the beginning of 2013, Romania's foreign debt already exceeded the alarm level of 100 million, i.e., about 3/4 of the official GDP), but the monitoring tools to do that are considerably improved, the solutions are much more efficient and the experience of both economies is already relevant from the periods prior to transition, through the balance of payments and balance of trade analyses.

The aggravating prospects of global public debt, which is likely to exceed USD 55.802 billion not later than the end of 2015, and the prospects of Romania's and Serbia's public debt, which at the end of the same year 2015 will amount to around USD 67.9 billion, and 26.75 billion respectively, require statistical analyses based on innovation, both instrumentally and methodologically, foresight solutions and policies focusing on new econometric modelling and simulations. In the past six years, the public debt has followed an upward trajectory aggravating through its consequences, speeding up, and even defining a globalizing process. The public debt has relevant advantages and disadvantages. The first category includes help to the National Bank concerning the monetary policy, the ability to avoid the negative effects of taxes against incentives and increased government spending, finally managing to develop the economy of any country, but leaving an unsustainable legacy for the generations to come. However, when the public debt exceeds the theoretically admissible limit, more and more long-term economic difficulties are generated, and this is what really happens in the cases of Romania and Serbia.

While there are no previous secular studies for the economy of Serbia, which is on the eve of EU accession, and which induces the threshold of 60% of GDP as the natural limit of the moment, there is ample international research for the Romanian economy. Thus, in a famous 2003 paper, which examined debt carefully in relation to GDP, a threshold of 41% of GDP was established; the effects of exceeding the threshold of the debt can induce not the economic growth required of an EU economy towards the EU-28 average, but rather diminish its economic growth (Reinhart, Rogoff and Savastano, 2003).

The analysis in that paper highlights, among other things, that both Serbia and Romania have exceeded the debt threshold in the short and medium term, that the debt threshold is rapidly and dangerously approaching the *sustainability* limit of public debt, i.e. 60% and 41% of GDP respectively, or the maximum level accepted by investors for these countries. The paper emphasizes the importance of the phenomenon, and the need to generate new economic policies that do not *neglect the signals provided by the general public debt indicators, and by internal debt, especially*, firstly, because "*internal debt is already nearly two-thirds of the public debt*" (Reinhart and Rogoff, 2011); secondly, because the indicators are becoming ever more explicit and turning into increasingly lower warning thresholds; and thirdly, because the domestic market needs to be increasingly investigated and monitored, compared to similar markets and similar effective solutions, largely ignored in the literature on the complex phenomenon of public debt.

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