CONSIDERATION ON THE CONTRIBUTION OF THE AGGREGATE SUPPLY TO THE GDP IN THE ROMANIAN ECONOMY FOR THE PERIOD 2010-2015 POST CRISIS INFLUENCES

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Abstract
In a modern market economy, open to the exterior, the behavior of the economic entities materializes in the form of aggregate supply and demand. The objective of this paper is to analyze the contribution of the aggregate supply components to the GDP growth over the period of 2010-2015, which was strongly affected by the effects of the economic-financial crisis of the early years, as well as by the economic, social and political factors which influenced the years that followed. We considered this analysis as necessary since the GDP is the most relevant indicator used to assess the economic status of a nation at a given moment in time.

Key words: *aggregate supply, GDP, economy, progress, influences.*

JEL Classification: E 60, G 01, O 40.

1. Introduction

Our country has registered remarkable progress in the recent years towards the reduction of macroeconomic imbalances which, together with the monetary policy and structural reforms implemented or under implementation, have helped maintain macroeconomic and financial stability. Gross Domestic Product (GDP) represents the most synthetic results' indicator of any national economy development, which together with other indicators provides the necessary relevance related to the progress of a country's economic growth over a period studied. [Anghelache, 2016; Dumitrescu, Anghel and Anghelache, 2015]. Thus, in this paper I wish to highlight the way the aggregate supply contributes to the growth of the GDP in the Romanian economy. Therefore, in order to address the issue under analysis, it is necessary to review some theoretical aspects regarding the aggregate supply and the GDP.

The supply of goods and services is the sum of quantities of final goods and services (in monetary expression) produced by all the entities in the economy. The supply is expressed as a relationship between the amount of goods and services offered and the price level, the other elements being considered as constants, the relationship between the two elements will depend on the manner in which time is considered [Măcriș, 2009, 2013].

The aggregate supply is, therefore, the total value of the newly created goods and services in an economy, at a given period, usually in a year. The aggregate supply is determined as the difference between the production value and the intermediate consumption (expenditure on raw materials, on the materials and services used in the production process), having the ability to adjust to the level of the aggregate demand limited to a short horizon of time [Man and Măcriș, 2013, 2014]. *In the long term*, the supply depends mainly on the dynamics of the fundamental factors, such as the production capacities, the work force and the degree of technological endowment and, consequently, it adjusts more slowly and in the longer run, and it cannot be influenced by the monetary policy [Dima and Man, 2013, 2015]. Under these circumstances, *in the short/medium term*, the monetary policy can only affect the gap between the actual level of the production and the sustainable one on the long term (the real GDP deviation from its potential level).

In order to achieve the analysis regarding the contribution of the aggregate supply to the growth of the GDP in the Romanian economy, we shall start from GDP, which represents the final result of the production activity of the resident producer units and expresses the size of the gross value added of the economic goods in their last stage of the economic circuit, calculated by **production method**, using the following: ***GDP = GVA + TP + RD – SP***, where GDP = gross domestic product (market prices); GVA = gross value added (basic prices); TP = taxes per product; RD = rate of duty (rights on imports); SP = subsidies on products.

At the same time, GDP can also be determined by the **income method**, in this case, the following is used: ***GDP = R + GOS + OTP – OSP + TP + RD – SP***, where GDP = gross domestic product (market prices); R = remuneration of employees; GOS = gross operating surplus; OTP = other taxes on production; OSP = other subsidies on production; TP = taxes per product; RD = rate of duty; SP = subsidies on products.

In order to achieve this approach on the contribution of the aggregate supply to the growth of the GDP in the Romanian economy, we have considered the production method since, in my opinion, it is more relevant as compared to the income method. The data used for the analysis have been taken from both the Romanian Statistical Yearbook, and the website www. insse. ro/database.

2. Issues on the development of GDP on categories of resources in the period 2010 - 2015

Once the economic crisis has been exceeded, Romania had a modest economic revival, with yearly increases below 1%, and then the advance of the real GDP returned to an annual rate of 3.4% in the period 2013 – 2015. Unemployment continued to remain at a low level in the recent years, hovering below 7%, while investments resumed their growth, reaching an annual growth rate of 17.6% in the last semester of the year 2016. Nevertheless, Romania recorded one of the highest rates of poverty or social exclusion in the EU (40.2% as compared to 24.4% on the whole EU – 28 in 2014).

The evolution of the gross domestic product, by types of resources calculated by the method of production in the period 2010-2015, is given in table no. 1.

Table no. 1. ***The evolution of the gross domestic product by types of resources in the period 2010-2015***

\- million lei current prices

No. crt.	Indicators	2010	2011	2012	2013	2014	2015
1	GDP	533,881.1	565,097.2	595,367.3	637,456.0	668,143,6	711,102.7
2	Gross value added	477,028.6	495,832.2	522,296.1	561,403.6	591,206.5	624,885.7
3	Taxes per product	59,638.9	67,682.6	72,691.1	75,750.2	77,006.9	86,048.0
4	Rate of duty (Rights on imports)	2,543.7	2,687.4	2,878.9	2,385.6	2,424.2	2,984.6
5	Subsidies per product	-2.786.4	- 1,096.0	- 2,499.3	- 2,083.4	- 2,494.0	- 2,015.6

Source: Adapted to: National Institute of Statistics, *Romanian Statistical YearBook,* 2016, Bucharest, p.395 - 397.

The gross value added measures what an entity, a branch or an institutional sector added over the value of goods consumed in the process of production. It is determined as the difference between the production value and the intermediate consumption (in the case of market production) and as the sum of components (income payment for the workforce employed, taxes related to production, fixed assets depreciation) in the case of the entities that do not produce for the market. In the case of the subjects that do not produce for the market, the income from the heritage and entrepreneurial activities is conventionally equaled to zero. [Măcriș and Măcriș, 2010]. The consumption of banking services is deleted globally from the added value at economy level as it represents intermediate consumption. Normally, the gross value added is calculated in current prices of the market. In constant prices, the gross value added is determined by the method of double deflation as the difference between the production value in constant prices and the intermediate consumption in constant prices. The intermediate consumption represents the value of goods and services, excluding the fixed assets used as inputs in the production process and which are transformed or totally consumed during the production process, thus it appears that the gross value added will represent, at national economy level, the measure of the aggregate supply [Anghelache, Manole and Anghel, 2015].

Considering the data presented in table no. 1, we can state that of the resources which contributed to the growth of the GDP in the period under review, the largest share is represented by the GVA, which varied between 89% in the years 2011, 2012, 2013, 2015 and over 92% in the year 2014, followed then by the taxes on product which contributed in proportion of 11-12%. When it comes to the customs duties and the subsidies per product, their contribution to the evolution of the GDP is insignificant.

3. The contribution of the aggregate supply components to the growth of the real GDP

In the year 2015, Romania registered an economic growth of 3.9%, making it the 5th consecutive year of growth (by 1.1% in 2011, by 0.6% in 2012, by 3.5% in 2013 and by 3.1% in 2014). The growth in 2015 was due to the positive contribution of the domestic demand. The main driver of this growth was represented by the final consumption as a result of an increase of the private consumption under the conditions of low inflation, of some interest rates which reached record minimum levels and of a significant increase of the real salary. From the point of view of the internal supply, we have noticed an increase of the gross value added in Services and Industry, in Constructions, while the gross value added in Agriculture decreased as compared to 2014 and 2013.

The goods and services forming the aggregate supply are carried out by the economic entities of all national branches, therefore, at national level, the main components of the supply which contributes to the achievement of the GDP are considered to be the Industry, the Agriculture, the Forestry and Fishing, the Constructions and Services.

Thus, following the evolution of the GDP by branches of activity during 2010 - 2015 (table No. 2), we note that accelerating the pace of the GDP growth in this period was accompanied by some positive results in the adoption of the supply to the requirements of the demand. Thus, the dynamics of the gross added recorded an average annual growth rate of 1,9%. The most significant increases were recorded in 2013 (3.5% as compared to 2012), 2014 (+3.1% as compared to 2013) and 2015 (+3.9% as compared to 2014). One can also notice that in no year did the growth of the gross value added in Industry exceed the increase of the GDP, it's only the Services that increased with 4.2% in 2012, representing the only component of the supply at the growth of GDP which surpassed all other throughout the period under review.

The dynamics of the GVA in Agriculture was strongly influenced by the weather-climate conditions, especially in the years 2012, 2015 and 2016. Throughout the period analyzed, the average annual growth rate of the GVA in Agriculture was of 0.3%. The gross value added in Agriculture witnessed a sinuous evolution because of the climate conditions, especially for the plant production which, in 2013 – 2014, significantly increased as compared to 2011, an increase which only partially compensated for the negative pace of the livestock component, which distinguished through spectacular mutations in the livestock development. Services, both as dynamics and share, registered an ascending evolution, the average annual growth rate of this sector (of 1.8%) being the largest.

Table no. 2. ***Contribution of the main components of the supply to the growth of the real GDP in the period 2010 – 2015***

percentage modifications as compared to the previous year

Item No.	Indicators	2010	2011	2012	2013	2014	2015
1	Real GDP	-0.8	1.1	0.6	3.5	3.1	3.9
2	Industry	1.1	0.0	-2.1	1.0	0.9	1.4
3	Agriculture, Forestry and Fishing	0.5	0.8	-1.7	1.6	0.2	-0.6

4	Construction	-0.3	-1.7	-0.1	0.3	0.1	0.4
5	Total servicies	-2.4	1.3	4.2	0.7	1.7	1.9
6	Net taxes per product	0.3	0.7	0.3	-0.1	0.2	0.8

Source: Adapted to: National Institute of Statistics, *Romanian Statistical YearBook,* 2016, Bucharest, p.395 - 397

Table no.3. ***GDP structure by domains of activity during the period 2010 - 2015***

% of GDP

Item No.	Indicators	2010	2011	2012	2013	2014	2015
1	Industry	**26.4**	**28.5**	**4.7**	**25.1**	**25.2**	**23.7**
2	Agriculture, Forestry and Fishing	6.0	6.4	24.7	5.3	4.7	4.1
3	Construction	7.3	7.9	8.5	7.01	6.2	5.7
4	Total servicies, of which:	**49.1**	**44.9**	**50.2**	**50.7**	**52.4**	**54.4**
	✓ Trade; Cars and household items repairing; Hotels and restaurants; Transport and Telecommunications;	20.9	21.2	21.0	19.6	19.8	21.9
	✓ Fiancial activities; Real estate; Renting and business services	16.2	14.1	14.0	18.3	18.1	19.2
	✓ Other service activities	12.0	12.8	13.8	12.8	14.5	13.3
5	**Total economy**	**88.8**	**87.7**	**87.8**	**88.1**	**88.5**	**87.9**
6	Net taxes per product	11.2	12.3	12.2	11.9	11.5	12.1
7	**GDP**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Own calculations after the official data from the National Institute of Statistics, *Romanian Statistical YearBook,* 2016, Bucharest.

The progress registered in all sectors of activity, after the attenuation of the effects of the economic crisis, has led to significant mutations in the structure of the GDP, especially in the years 2013 – 2014 – 2015 (table no. 3). Then, we witnessed a reduction of the share of Industry in the GDP from 26.4% in 2010 to around 4.7% in 2012, followed by an increasing starting with 2013 and reaching a percentage of 23.7% in 2015. Nevertheless, we cannot but notice the slow pace of improvement of the supply in Industry as a result of the delays in the process of rare constraints (with direct impact on the degree of technological endowment and on the level of professional qualification).

The major contribution of the sector was represented by some branches of the Processing Industry: tobacco products, means of road transport, wood and wood products, chemical pulp and paper, chemical products and substances, rubber products and plastics, manufacture of construction materials, machinery and electric appliances, textile items, equipments for radio, television and telecommunications, etc. Positive developments were also registered by firms manufacturing electrical products, IT items and motor vehicles, as well by the companies in Metallurgy, the latter taking advantage of the favorable juncture of the prices at international level – decrease in some inputs (mineral ores) concomitantly with an increase in some products (steel). Some branches of Industry speeded up their pace of economic growth especially due to export deliveries. Reductions were registered in some other branches, the most significant being with: machinery and electrical appliances, publishing houses, processing of earth oil, coal carbonization, treatment of nuclear fuels, leather goods, foot wear, etc.

At the same time, as a result of a breach of the correlation between the dynamics of labor productivity and labor costs, the market shares were affected in some branches, being determined both internally and externally by the domestic producers. The inadequate quality of the supply in some branches, as a result of de-capitalization of some companies, led to an increase of imported supplies (especially in Textile Industry, leather products, etc) which determined serious difficulties in the process of domestic products integration (mainly clothing and footwear).

There are also segments, in the Romanian Industry, characterized by a pronounced flexibility of the supply, such as, for example, the Automotive Industry, the Manufacturing Industry and Production of Electricity, Heating, Gas and Water, which have presented positive developments since 2013 till nowadays. With all the deficiencies presented, Industry as a whole, during 2010 – 2015, ranked 2nd place after the Services segment as a significant contribution to the growth of the real GDP (table no. 3).

Agriculture, Forestry and Fisheries had quite a small contribution to the growth of the GDP, thus, in 2010 and 2011, their contribution was of about 6%, increased to 24.7% in 2012 due to favorable climate conditions in that year and then decreased to 5.3% in 2013, respectively to 4.1% in 2015. Although their contribution to the growth of the GDP was not impressive during 2013 – 2015, there was a try to rehabilitate this segment by increasing the surface area, by granting subsidies and achieving better crops than in the previous years.

With regards to Constructions, one can notice quite a small contribution to the growth of the GDP, from 7.3% in 2010 to 5.7% in 2015, this being the result of little investment in this field. In recent years, due to the need for sustainable growth of the GVA in Constructions, there has been a reorientation of the supply towards the realization of residential complexes (intended to meet the demand of the population with average income and over), but also towards shopping centers, storage facilities and office buildings. It should be mentioned that the recovery of the activity on the building sector has been basically countered by the decline of the budgetary financing of the infrastructure projects.

The most sustained growth was registered in the Services sector, which had the greatest contribution to the growth of the real GDP (1.3% in 2011, 4.2% in 2012, 0.7% in 2013, 1.7% in 2014 and 1.9% in 2015. Regarding the contribution of Services to the formation of the GDP, we have noticed their substantial share during the period under review, respectively 49.1% in 2010, 44.9% in 2011, 50.2% in 2012, 50.7% in 2013, 52.4% in 2014 and 54.4% in 2015. Mainly, the increase in the Services sector was achieved on account of the Retail Trade, Transportation, Telecommunications, Cars and household items repairing, Hotels and Restaurants, which contributed at a rate of about 20%; Real estate transactions and Services for the enterprises which registered annual rates of their turn-over volume superior to the average turn-over of the sector – around 16 to 19%, while the difference is covered by other service activities whose contribution is around 12 to 14%. We should mention that 2014 was an exceptional year marked both by the consolidation of the customers' preferences for more sophisticated services and by the amplification of the services provided from the exterior, as a result of the expansion of the multinational companies on the local plan, stimulated by the excess of competitiveness offered by this segment of the labor market. .

4. Conclusions

Our country's macroeconomic condition, as it is presented in this paper, is highlighted using the analysis of the gross domestic product in terms of the aggregate supply's influence on it. It should be noted that this is just one of the important aspects of the GDP analysis to which they add the influence of the aggregate demand acting upon the development of the GDP in a market economy. The analyzed developments of this indicator reflect the socio-economic condition of the country during 2010 - 2015 which showed that the economy was strongly affected, especially during 2010 -2012, by the effects of the economic and financial crisis, multiplied by the lack of an appropriate anti-crisis governing plan or by the ineffectiveness of the one adopted, agreed upon when the effects of the crisis had been known, as well as by the inefficiency of the governmental activity.

After the economic crisis, Romania has gone over a modest upswing in almost all sectors of the national economy. Although all these developments were positive, with increases year by year, they were heavily affected by the concerns of the Government to fix a series of the austerity measures and by the lack of financial resources necessary to deal with them. Considering the situation resulted from the analysis of the resources categories which contribute to the formation and growth of the GDP, it is necessary to initiate a series of measures leading to the increase of the gross value added in Industry and Agriculture, seen as basic branches of the Romanian economy so that they should surpass the GVA from Services.

References

1. Anghelache, C., (2016), Starea economică. România 2016, Editura Economică, Bucharest.
2. Anghelache, C., Manole, A., Anghel, M.G. (2015). Macroeconomic Evolutions in Romania by the End of The Year 2014, Romanian Statistical Review - Supplement, No. 2.
3. Dima, I.C., Man M. (2015), Organisational Entities Under the Conditions of Market Economy Globalisation, in Modelling and Simulation in Management, Springer International Publishing, p. 49-66.
4. Dima, I.C., Man M. (2013), Considerations on the strategy for sustainable development of companies under the conditions of current globalization, Science Series Data Report, vol 5, issue 5, p. 66-75.
5. Dumitrescu, D., Anghel, M.G., Anghelache, C. (2015), Analysis Model of GDP Dependence on the Structural Variables, Theoretical and Applied Economics,Volume XXII, No.4 (605), Winter, pp. 151-158.
6. Man, M., Măcriș, M. (2012), Romania's governmental public debt in the context of the present day financial crisis: its dynamics during the last ten years, Romanian Statistical Review Supplement, vol. 60, issue 4, p. 214-224.

7. Man, M., Măcriș, M. (2014), SME-based approach in the context of the knowledge-based economy, Annals of the University of Craiova, Economic Sciences Series, vol. 2, issue 42, p.137-146.
8. Man, M., Măcriş, M. (2013), Evolutionary Trends of Romania's Small and Medium-Sized Enterprises in the Present Context of the European Economy, [in:] Proceedings of the 2013 International Conference on Economics and Business Administration RECENT ADVANCES in ECONOMICS and BUSINESS ADMINISTRATION, p. 92-98.
9. Măcriş, M. (2010), The Manner of Carryng out the Balance Beetween Aggregated Demand and Aggregated Offer on Concurrent Market, Lucrările Ştiinţifice ale Simpozionului Internaţional Multidisciplinar „Universitaria Simpro", Economics low and administration, Petroşani, pp.64-66.
10. Măcriş, M. (2009), Cererea şi oferta în economia concurenţială de piaţă, Editura Arves, Craiova.
11. Măcriş, A., Măcriş, M. (2010), Dynamics of the share of education expenditures within Romania's gross domestic product–Economic and social effects, Annals of the University of Petrosani, Economics, 10(4), pp.181-192.
12. Măcriş, M. (2013), Bazele economiei, Editura Universitas, Petroşani.
13. National Institute of Statistics, Romanian Statistical YearBook, 2016, Bucharest.
14. www.insse.ro