THE ROLE OF AGRICULTURE IN ROMANIAN DEVELOPMENT

Bianca AVRAM POP

Technical University of Cluj-Napoca, North University Center in Baia Mare, Romania
avrambia@gmail.com

Simona SABOU

Technical University of Cluj-Napoca, North University Center in Baia Mare, Romania
simona.sabou@gmail.com

Abstract

The aim of this study is to identify the role agriculture plays in the economic development of Romania. Consequently, we studied the specialized literature, which analyzes the relationship between agriculture and the economic development, as well as the role of agriculture in reducing poverty. In order to study the impact on Romanian economy of the shift from a centralized economy to the market economy, we use four variables of which the independent one is represented by the added value of agriculture, and the other three variables are dependent, they only slightly characterize Romanian economy: the GDP/capita, inflation consumer prices and external debt stocks. Conclusions show that the increase of the added value in agriculture positively influences the evolution of the GDP/capita. At the same time, it also exercises a major influence on inflation, thus the positive correlation highlights the fact that the annual percentage of the purchase price of a consumer basket will decrease when the internal crop is rich, and it will increase when agriculture production is unsatisfactory. It is interesting to notice that Romania's external debt increases when the added value of agriculture records surges as compared to the previous years.

Keywords: Agriculture, Inflation, GDP/Capita, External debt

1. INTRODUCTION

Agriculture plays an important role in economic development, a subject which is thoroughly debated in the specialized literature. Arguments in favor of this statement are numerous. Because agriculture forms a large share of the national output and employment in the early stages of development, this sector has been explicitly treated in most theories of economic development (Timmer, 1988).

Agriculture plays an active part throughout the development of society. Thus we would like to mention the following (Johnston & Mellor, 1961):

1. agriculture provides the food necessary for a growing economy, since the demand for food increases as incomes increase, as well as the world population increases;

2. agricultural exports generate the currency exchanges required for importing capital goods;

3. in less developed countries, agriculture is the only sector capable of generating savings that are so necessary for the non-agricultural sector to accumulate capital; and

4. a growing agricultural sector creates a wider local market for the non-agricultural sector.

In the European context, agriculture holds a significant place due to the nature and level of the mobilized financial, human and material resources (Esposti, 2007).

Performances in the field of agriculture can play an important part in stimulating the development of the entire economy (Schultz, 1964). Moreover, agriculture is often seen as a central point in efficient strategies for poverty reduction (Christiaensen, Demery & Khl, 2006). In many circumstances, growth in the agricultural sector has been an important ingredient in the formula that connects economic growth to the poor (Fan, Zhang & Zhang, 2002). An agriculture-driven growth strategy directs a greater share of income to the poor (Timmer, 2008).

Another argument which supports the role of agriculture in economic development is the fact that the increase of productivity in agriculture, due to technological change, has brought huge benefits both to individual nations, and to the entire world (Alston, 2010). Research carried out in the field of agriculture and hiring well-trained human resources can offer substantial productivity (Ashley & Maxwell, 2001). Growth in agricultural productivity not only can increase farm incomes; it also stimulates linkages to the non-farm rural economy, causing economic growth and rapid poverty reduction, with overall growth multipliers almost always significantly greater than one (Hazell & Haggblade, 1993).

Consequently, current literature agrees that economic development cannot be stimulated other than through the growth of agriculture in the less developed countries, while in all other countries agriculture plays an important part in reducing poverty not only in the rural area but also amongst urban population (Salasan & Fritzsch, 2009). The new paradigm of sustainable growth highlights the role of agriculture in economic growth, in ensuring food safety, in reducing poverty and income disparities, in developing the rural area and in environmental protection (Byerlee, De Janvry & Sadoulet, 2009).

The agricultural development process can be speeded up by investing in the human capital of rural inhabitants, especially through education, and by assistance in the development of new agricultural

technology, especially where modern science is needed to play a key role in providing the genetic foundation for higher yields (Timmer, 2008).

Starting from these aspects, in this paper we intend to analyze the role of agriculture in the economic development of Romania, the country which, during the past 3 decades, has gone through numerous political, legislative and economic changes. The paper is structured as follows: the next section presents the literature review; the following section contains research hypotheses, methodology and data, followed by outcomes and discussions; and the last section concludes the paper.

2. LITERATURE REVIEW

No country has successfully transformed its agricultural sector and established strong rural-urban links to economic growth without sharply improving the level of technology used on its farms (Timmer, 2008). The contribution of agriculture to growth naturally declines with structural transformation from an agricultural economy to an urban-based nonagricultural economy, although even well into middle-income status, agriculture continues to "pull beyond its weight," as measured by its contribution to GDP, because of its unique "externalities" (Byerlee, Diao & Jackson, 2005).

For Romania, as well as for most former communist countries, the shift from a planned economy to a market economy required complex reforms (Andrei & Darvasi, 2012). The agricultural sector is, in most of its part, dominated by subsistence or semi-subsistence farming (Davidova, et al., 2012), which has become a characteristic of the rural area in Romania (Alexandri & Luca, 2008). Although Romanian agriculture has a significant economic potential, almost double as compared to the EU average, it continues to be a subsistence agricultural economy (Andrei, Eftimie & Matei, 2014).

The specialized economic literature highlights three significant criteria for defining subsistence agriculture: the size of the farm, the production and the extent to which products are sold on the market (Giurca, 2008). Moreover, the area faces major demographic changes due to the emigration of many inhabitants and the limited efficiency of the traditional methods used in agriculture (Fischer, Hartel & Kuemmerle, 2012). Recent data show that the weight of the agricultural sector in the GDP is smaller than other sectors, despite the fact that agriculture uses up a larger part of human resources and funds (Alam, 2008).

Despite all these, part of the world population needs to be involved in agriculture in order to ensure the food supply for the population (Arcand, 2000). There are many reasons for the limited contribution of

agriculture to the GDP, of which we would like to mention unqualified labor force, the use of obsolete technology and of traditional methods (Barrett, et al., 2003).

Recently, Romanian agriculture has witnessed a decline caused by the excessive tearing of land ownership, inadequate equipment, insufficient agricultural service, and the lack of a functional agricultural management and marketing system (Sirbu & Kleps, 2010), as well as population aging (Burja & Burja, 2010). Statistics clearly show that, due to excessive fragmentation of farm land, the high number of people active in agriculture, and to the fact that most production process are mainly manual which leads to limited productivity, Romania has not been able to become a cereal supplier in Europe, and will not be in the near future (Barbu, 2011). The positive effects of the major lack of real and bank capital in Romanian agriculture are represented by the development potential of ecological agriculture, Romania being thus able to follow the EU trends, as well as the potential of developing rural tourism (Gabor, 2007).

Romanian agriculture has a great potential, yet which is not appropriately exploited (Burja, 2011). Several factors which influence the development of the agricultural sector have been identified, one of them being inflation (Gokal & Hanif, 2004). Agricultural markets can thus affect inflation both through the transmission of international food commodity prices and through changes in domestic food supply and demand (Loening, Durevall & Birru, 2009). New agricultural technology and incentive prices in local markets combine to generate profitable farm investments and income streams that simultaneously increase commodity output and lift the rural economy out of poverty (Hayami & Ruttan, 1985).

A challenge for Romania's development perspectives is also the sustainability of the external financial situation highlighted by the evolution of external debt in the short, medium or long term (Zaman & Georgescu, 2010).

Over-sizing external debts influences economic growth because it discourages investments, affecting macroeconomic stability due to currency depreciation, the increase of the fiscal deficit, inflation and the uncertainty induced by the high level of debt (Arnone, Bandiera & Presbitero, 2005).

Due to the importance of agriculture for the economic development of any country, we shall analyze its role in the economic development of Romania, using the following indicators: GDP/capita, inflation and external debt stocks (% of GNI).

3. RESEARCH HYPOTHESES, METHODOLOGY AND DATA

3.1 Research hypotheses

Based on the specialized literature, we express hypotheses (H) which are aimed at the relationship between progress in agriculture and the indicators of economic development reported for Romania. We expect that the results obtained in agriculture should bring about major influences on the economic welfare of Romanians.

H_1: Performances in agriculture influence the evolution of the GDP/capita

The quality of production in agriculture should have a great influence on the value of all end goods and services produced in the country during one full year, in rapport to the number of inhabitants. This would mean that increases in the field of agriculture should determine the improvement of the quality of life.

H_2: Various added values in agriculture act significantly different in determining the inflation rate

The generalized increase of prices and the simultaneous decrease of the purchasing power of the national currency should be subject to changes along with the yield in agriculture. In this situation we expect inflation to decrease when agricultural productivity is significant.

H_3: Economic results in the field of agriculture determine increases or decreases of the degree of external indebtedness

The level of all debts to creditors from other countries is influenced by yields in agriculture. It is obvious that it is not enough to have a competitive agriculture, but to also have profitable marketplaces.

3.2 Methodology, data and variables

During the transition period subsequent to the fall of the communist regime in 1989, Romania recorded several major changes in the field of agriculture, a field which directly influences the economic development of any country. In order to study the impact on Romanian economy of the shift from a centralized economy to the market economy, we use four variables of which the independent one is represented by the added value of agriculture (measured in current US $), which includes hunting, forestry, fishing, as well as zootechnics and growing crops. The values are calculated by subtracting the intermediary inputs after adding all the results obtained in the field. Deductions regarding the degradation of natural resources and the depreciation of the manufactured goods are not included in this calculation.

The other three variables are dependent, they only slightly characterize Romanian economy, and express the GDP/capita (expressed in current US $), inflation consumer prices (annual %) and external debt stocks (% of GNI). The GDP/capita is the result of dividing the Gross Domestic Product (the amount of all gross added values of all resident producers existent in the economy to which taxes for the products are added) by the arithmetic mean of the population from 1 January to 31 December of a year.

Inflation, measured with the help of the Laspeyres formula, through the consumption price index, indicates the modification of the annual percentage of the purchase price of a consumer basket which an average consumer can buy. This consumer basket can be fixed or it can be changed at specific intervals.

External debt represents the amount of long term public debt publicly guaranteed, of credits from the IMF (International Monetary Fund) and of short term debts (interest for the delayed payment of long term debts and debts due within one year). It is calculated in % from GNI, where GNI is equal to the sum of the value added by all resident producers, to which taxes for the products which care not included in the evaluation of revenues are added.

The data expressing the evolution of the above-mentioned variables refer to a period of 25 years (1991-2015) and are taken from the website of The World Bank. The statistical study of the database thus created was carried out using specific programmes such as Microsoft Excel 2010 for graphic representations and SPSS 17 (Statistical Package for the Social Sciences) for more complex analyses.

4. OUTCOMES AND DISCUSSIONS

We begin the analysis of the relationship between Romania's agriculture and economy after the establishment of democracy by drawing up some descriptive statistics of the four variables analyzed in table 1. Due to the fact that the variables have different units of measurement, their values recorded on one line for the same parameter significantly differ from one another. Thus we will analyze each parameter in the first column in relation to the four variables. As regards the added value in agriculture, one can notice that the variable which is measured in current US $ records a mean for the studied 25 years of 7.4713E9 (billions), and the mean (the value which divides the observations into two equal parts) has the vale 6.8873E9.

TABLE 1. DESCRIPTIVE STATISTICS

	Agriculture, value added	GDP/Capita	Inflation, consumer prices	External debt stocks
Mean	7.4713E9	4674.7739	53.9134	39.6418
Std. Error of Mean	4.53561E8	704.19562	15.57381	3.90766
Median	6.8873E9	2774.9558	15.2740	38.8601
Mode	4.04E9	1102.10[a]	-.59[a]	7.44[a]
Std. Deviation	2.26780E9	3520.97811	77.86905	19.53830
Variance	5.143E18	1.240E7	6063.589	381.745
Skewness	.477	.441	1.694	.208
Std. Error of Skewness	.464	.464	.464	.464
Kurtosis	-.627	-1.691	1.607	-1.137
Std. Error of Kurtosis	.902	.902	.902	.902

a. Multiple modes exist. The smallest value is shown

Source: Own calculations using SPSS 17 software

In other words, the median tells us the half of the analyzed observations is under the value 6.8873E9, while the other half is above it. Because there are only few data available (only 25 entries), the modal value (the value which appears most frequently in the sample) appears only once in all four variables, being the minimum value in the table. As regards the standard variant and deviance, we shall analyze only the last one because it represents a more precise measurement of the variation of the values around the mean, being equal to the square root of the variant. Thus, the added values in Romanian agriculture between 1991 and 2015 slightly shift away from the average value by 2.26780E9; the value is explained by the big difference between the extreme values (the minimum value =4.04E9 and the maximum value =1.22E10).

The mean GDP/capita over the 25 studied years has a value of 4674.7739$, being large than the average (2774.9558$) which divides the observation into two equal parts. The lowest value of the GDP/capita, and at the same time the modal values, is 1102.10$, and it was recorded in 1992. The average deviation from the mean value is equal, in this situation, with 3520.978$ despite the fact that in 2008, before the global economic crisis, in Romania, the GDP/capita was 10136.473$, almost 10 times the minimum value recorded in 1992. The explanation for this phenomenon is given by the values of the GDP/capita recorded for 11 years, between 1991 and 2001, values which did not exceed the 2000$ threshold, not recording great fluctuations from the mean.

Inflation and external debt are variables expressed in % and this is why the values of the parameters calculated in table 1 are similar. Despite the fact that after 2004 inflation stayed below the 10% threshold, reaching even -0.5933 in 2015, values such as 230% (in 1991), 211% (in 1992), 255% (in

1993) or 154% (in 1997) lead to a mean for the 25 studied years of 53.91% and a standard deviation of 77.86905.

The external debt increases constantly, starting from 7.44%, in 1991, and reaching 71.61% in 2012. After this period it recorded decreases up to 55.20% in 2015. During half of the studied years, in Romania, external debt is under 38.86%, and the mean of this economic indicator (39.6418%) is approximately equal to its median value. When we refer to standard deviance, one can notice in table 1 that the values recorded along the 25 studied years deviate from the mean value by 19.5383 on average.

The last coefficients presented in table 1 are Skewness and Kurtosi, which will be analyzed comparatively because these have values within the same interval for all the four analyzed variables. The degree and direction of asymmetry are measured with the Skewness coefficient, whose positive values appearing with all the variables included in the study (0.447 – the added value in agriculture, 0.441 – GDP/capita, 1.694 – inflation and 0.208 – external debt) show that these have a right-oriented oblique distribution, and thus positively asymmetrical. This occurs because in all of the situations presented, the median is smaller than the average.

The Kurtosis coefficient refers to the height of the curvature as compared to the normal distribution. Both the negative and the positive values of the Kurtosis coefficient (-0.627 – the added value in agriculture, -1.691 – GDP/capita, 1.607 – inflation and -1.137 – external debt) do not exceed the ±1.96 threshold, which means that the distribution of the four variables is a normal one.

Hereafter we drew up three graphs which represent the evolution of the added value in Romanian agriculture between 1991 and 2015, depending to the three variables chosen to describe the economic environment in this country.

For a more comprehensive analysis, in the three following figures, we used white, black and gray to represent different periods of time. Thus, white represent the years 1991-2000, black is for the years 2001-2010, and gray is for the last five years of the analyzed time interval, i.e. 2011-2015.
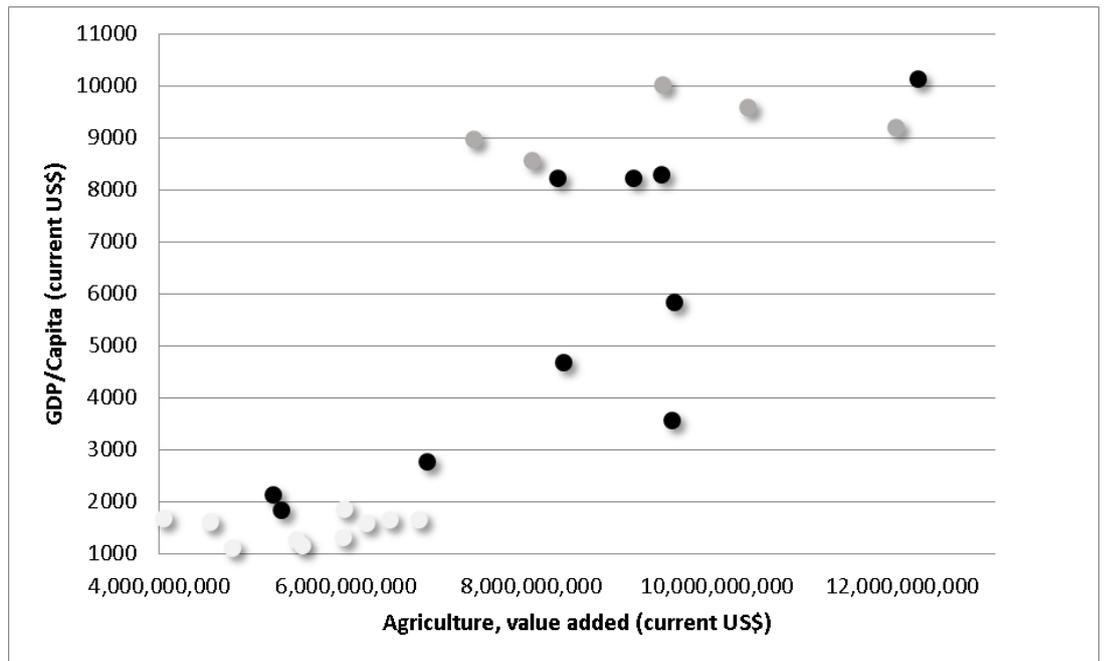
FIGURE 1. THE LINK BETWEEN AGRICULTURE, VALUE ADDED AND GDP/CAPITA IN ROMANIA
Source: authors´ own elaboration

In figure 1, the relationship between the added value in agriculture and the GDP/capita is presented. One can notice from this that during the first ten years the values of the GDP/capita and the added values in agriculture record the lowest values. If 2000$ is the maximum threshold reached by the GDP/capita, the added value in agriculture does not exceed seven billion $. In the following years, 2001 and 2002, the situation remains virtually unchanged, changes occurring only starting with 2003, when the GDP/capita increases to 2774$, and the added value in agriculture to 6.88 billion $. The years 2004 and 2005 are characterized by slow growth of the GDP/capita and faster growth of the added value in agriculture. Later, in 2008, the year of the debut of the global economic crisis, the added values in agriculture and the GDP/capita reach maximum level. The period of time between 2011 and 2015 is characterized by significant fluctuations of the added value in agriculture (from 11.92 billion $ in 2011 to 7.38 billion $ in 2015) and little increase of the GDP/capita. With the exception of 2008, years 2011, 2013 and 2014 are the most efficient from the perspective of these criteria.

In figure 2 things change because the first ten years are characterized by high levels of inflation which reaches 255.16% in 1993, and low levels of performance in agriculture. Starting with 2001 inflation has values below 35%, one being able to clearly notice in figure 2 that, especially between 2001 and 2010 (black marks), as this macroeconomic indicator decreases, the added value in agriculture increases.
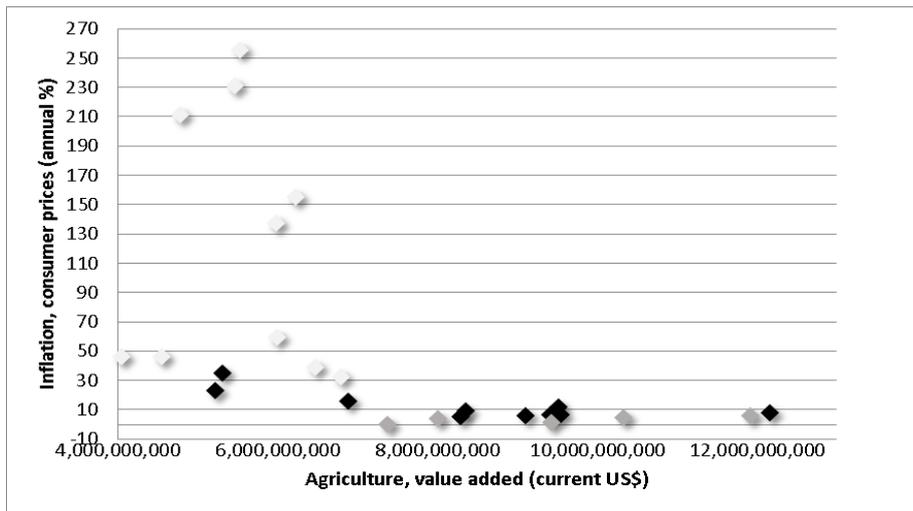
FIGURE 2. THE LINK BETWEEN AGRICULTURE, VALUE ADDED AND INFLATION IN ROMANIA
Source: authors´ own elaboration

In this situation, the best performance was recorded in 2008 and 2011 (the last two marks in the bottom right-hand side of figure 2). If we analyze the last five years of the considered time interval, we can notice that there were gradual decreases of inflation until it reached negative values (-0.59% in 2015).
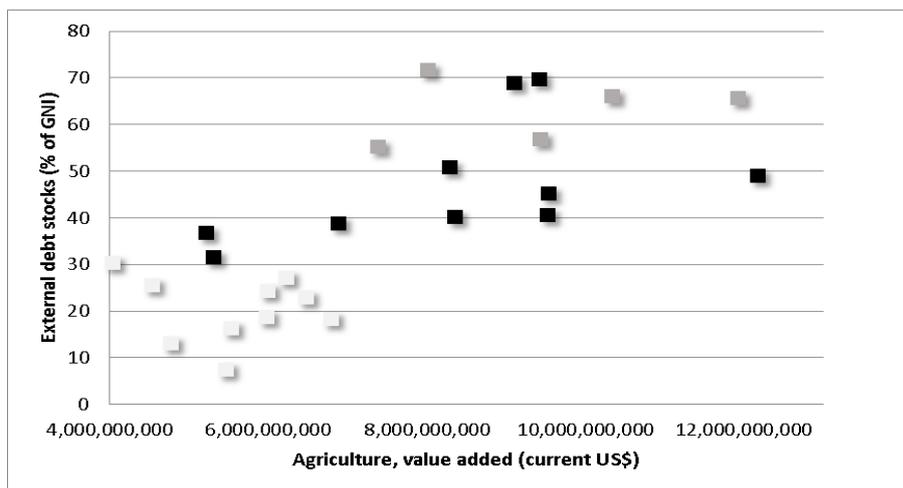

FIGURE 3. THE LINK BETWEEN AGRICULTURE, VALUE ADDED AND EXTERNAL DEBT IN ROMANIA
Source: authors´ own elaboration

Between 1991 and 2000 the relationship between agriculture and external debt reveals the fact that in this period both variables recorded the lowest values (the white squares in figure 3, which are placed in the bottom left-hand corner). Later, between 2001 and 2010, the pace at which external debt increases resembles the pace of the added value in agriculture. More specifically, both the external debt and the added value in agriculture in 2010 are almost double in value as compared to 2001. Within the last three

years (2013-2015) there is a decreasing trend both of the external debt (from 66.13% to 55.21%) and of the added value in agriculture (from 10.3 billion $ to 7.3 billion $).

The graphic representation offers a general overview of the relationship between agriculture and the macroeconomic indicators, and in order to test the formulated hypotheses we shall use a test statistic. The small size of the database (25 observations) indicates that we need to use a non-parametrical test statistic in order to indicate the absence/presence of a relationship between agriculture and the macroeconomic indicators included in this study. Thus, in table 2 the Spearman correlation coefficients are present as a matrix where on the main diagonal the coefficient takes value 1 due to the fact that it represents the intersection of the same two variables.

Before interpreting the outcomes of the test, we choose as significance threshold the value 0.05, which is most often used in statistical analyses. If the Sig. value (2-tailed) is below 0.05 it means there is a significant correlation between the two variables. The first row of the matrix presents the correlation coefficients between the added value in agriculture and the three macroeconomic indicator subjects of this analysis. Here one can notice that all Sig values take 0 value, which means that there is a relationship between the added value in agriculture and the GDP/capita, inflation and the external debt. The nature of this relationship is given by the sign of the Spearman coefficient which is positive when referring to the relationship between the added value in agriculture and the GDP/capita. This means that the relationship is also a positive one, which leads to a growth of the GDP/capita at the same pace as the growth of the added value in agriculture, but also vice-versa, i.e. the decrease of the GDP/capita when the added value in agriculture decreases as compared to previous years. Moreover, the value of the Spearman coefficient (0.820) proves that this correlation is quite strong.

TABLE 2. SPEARMAN CORRELATION COEFFICIENTS

		Agriculture, value added	GDP/Capita	Inflation, consumer prices	External debt stocks
Agriculture, value added	Correlation Coefficient	1.000	.820**	-.735**	.732**
	Sig. (2-tailed)	.	.000	.000	.000
GDP/Capita	Correlation Coefficient	.820**	1.000	-.928**	.913**
	Sig. (2-tailed)	.000	.	.000	.000
Inflation, consumer prices	Correlation Coefficient	-.735**	-.928**	1.000	-.918**
	Sig. (2-tailed)	.000	.000	.	.000
External debt stocks	Correlation Coefficient	.732**	.913**	-.918**	1.000
	Sig. (2-tailed)	.000	.000	.000	.

**correlation is significant at 0.05 level
Source: Own calculations using SPSS 17 software

Similarly strong correlations exist between the added value in agriculture and inflation (the Spearman coefficient = -0.735) and between the former and the external debt (the Spearman coefficient = 0.732).

The sign – in front of the Spearman coefficient shows that the first correlation is a negative one, which means that as the added value in agriculture increases, inflation will decrease, but also that as the former variable decreases, inflation will increase. The correlation created between the added value in agriculture and the external debt is a positive one, and the same holds true for the one created with the GDP/capita. This correlation is translated in the increase of the external debt when the added value in agriculture increases, the same dependence being also valid, yet with an opposite sign, when the performance in the field of agriculture are less favorable.

Moreover, also in table 2, one can also notice the existence of very strong correlations amongst the three macroeconomic indicators analyzed. Of these, two are negative; these are the correlations GDP/capita-inflation, (Spearman coefficient = -0.928) and inflation-external debt (Spearman coefficient = -0.918); and one is positive: GDP/capita-external debt (Spearman coefficient = 0.913).

Thus, all three hypotheses formulated at the beginning of the study have proven to be true, the added value in agriculture highly influencing the evolution of the main macroeconomic indicators. Moreover, one has also noticed the presence of relationships occurring among the three analyzed indicators.

5. CONCLUSIONS

The outcomes of this study can influence the decision makers with regard to the enactment of the agricultural sector which faces various challenges: the lack of irrigation systems, non-profitable markets, poor technology etc. The involvement of the state in regulating this sector plays a key role, especially during times of economic crisis.

The growth of the added value of agriculture positively influences the evolution of the GDP/capita, a macroeconomic indicator used in order to determine a nation's welfare. At the same time, it exercises a major influence on inflation, thus the positive correlation highlights the fact that the annual percentage of the purchase price of a consumer basket will decrease when the internal crop is rich, and it will increase when agriculture production is unsatisfactory. If the first two correlations appeared in other states as well, the relationship between agricultural productivity and the external debt of a country was researched in the specialized literature quite sparsely. It is interesting to notice that Romania's external debt increases when the added value of agriculture records surges as compared to the previous years. This can be explained by the fact that a large proportion of the loans accessed by Romania are invested in subsidies for farmers, aimed at technologizing, and to the youth to encourage them to start a business in agriculture. These situations generate an increase of the added value in agriculture.

The importance of this study is not only limited to Romania; it can also be considered by the leadership of other countries. Some of the limitations of this study refer to the limited number of macroeconomic indicators analyzed and to the fact that, in order to describe performances in agriculture, we only used the added value obtained in this sector. For future research we suggest that one should introduce both new macroeconomic indicators, and other variables which express performances in agriculture. Moreover, if the study relates at global level and there is access to databases that are large enough for such analyses, it is possible to record regressions based on these variables.

REFERENCES

Alam, G. M. (2008). *Impact of the Private Universities on Bangladeshi Education System: an investigation on education policy.* Germany: VDM.

Alexandri, C. & Luca, L. (2008). Romania and CAP reform. *Agricultural Economics and Rural Development, 3*(4), 161-180.

Alston, J. (2010). The Benefits from Agricultural Research and Development, Innovation, and Productivity Growth. *OECD Food, Agriculture and Fisheries Papers, No. 31*.

Andrei, J. V. & Darvasi, D. (2012). Perspectives and Challenges in financing the new Common Agricultural Policy: a new paradigm. *Journal of Food, Agriculture & Environment, 10*(1), 904-907.

Andrei, J., Eftimie, M. & Matei, M. (2014). The role of Romanian farms in valuing the inland agricultural potential. *Journal of Food, Agriculture & Environment, 12*(1), 1532-1535.

Arcand, J. L. (2000, July). Malnutrition and growth: The (efficiency) cost of hunger. *Draft paper for FAO*.

Arnone, M., Bandiera, L. & Presbitero, A. F. (2005). External Debt Sustainability: Theory and Empirical Evidence. *Catholic University of Piacenza, Economics Working Paper, 33*, 1-47.

Ashley, C. & Maxwell, S. (2001). Rethinking rural development. *Development policy review, 19*(4), 395-425.

Barbu, C. M. (2011). The Romanian agriculture-Between myth and reality. *Annales Universitatis Apulensis: Series Oeconomica, 13*(2), 485-496.

Barrett, C. B., Chabari, F., Bailey, D., Little, P. D. & Coppock, D. L. (2003). Livestock pricing in the northern Kenyan rangelands. *Journal of African Economies, 12*(2), 127-155.

Burja, C. & Burja, V. (2010). Sustainable value analysis for Romanian agriculture. *Environmental Engineering & Management Journal (EEMJ), 9*(6), 839-846.

Burja, V. (2011). Regional disparities of agricultural performance in Romania. *Annales Universitatis Apulensis: Series Oeconomica, 13*(1), 115-121.

Byerlee, D., De Janvry, A. & Sadoulet, E. (2009). Agriculture for development: Toward a new paradigm. *Annual Review of Resource Economics, 1*(1), 15-31.

Byerlee, D., Diao, X. & Jackson, C. P. (2005). *Agriculture, rural development, and pro-poor growth: Country experiences in the post-reform era.* Agriculture & Rural Development Department., World Bank.

Christiaensen, L. J., Demery, L. & Khl, J. (2006). *The role of agriculture in poverty reduction: An empirical perspective* (Vol. 4013). World Bank Publications.

Davidova, S., Fredriksson, L., Gorton, M., Mishev, P. & Petrovici, D. (2012). Subsistence farming, incomes, and agricultural livelihoods in the new member states of the European Union. *Environment and Planning C: Government and Policy, 30*(2), 209-227.

Esposti, R. (2007). Regional growth and policies in the European Union: Does the Common Agricultural Policy have a counter-treatment effect? *American Journal of Agricultural Economics, 89*(1), 116-134.

Fan, S., Zhang, L. & Zhang, X. (2002). *Growth,Inequality and Poverty in Rural China: The Role of Public Investments.* IFPRI Research Report 125, International Food Research Institute, Washington, D.C.

Fischer, J., Hartel, T. & Kuemmerle, T. (2012). Conservation policy in traditional farming landscapes. *Conservation Letters, 5*(3), 167-175.

Gabor, M. R. (2007). The stage of Romanian agriculture in the context of Romanian's new status as the member of the European Union. *Lucrări Științifice, Universitatea de Stiinte Agricole Și Medicină Veterinară" Ion Ionescu de la Brad" Iași, Seria Agronomie, Romania, 50*, 364-372.

Giurca, D. (2008). Semi-subsistence farming–prospects for the small Romanian farmer to choose between a "way of living" or efficiency. *Agricultural Economics and Rural Development, 5*(3-4), 215-230.

Gokal, V. & Hanif, S. (2004). Relationship between inflation and economic growth. *Working Paper 2004 of Development Reserve Bank of Fiji, 36*, 58-67.

Hayami, Y. & Ruttan, V. (1985). *Agricultural Development: An International Perspective. Revised and expanded edition.* Baltimore: Johns Hopkins University Press.

Hazell, P. & Haggblade, S. (1993). *Farm-Nonfarm Growth Linkages and the Welfare of the Poor.* In Michael Lipton and Jacques van der Gaag, eds., Including the Poor: Proceedings of a Symposium Organized by the World Bank and the International Food Policy Research Institute. The World Bank, Washington, D.C.

Johnston, B. F. & Mellor, J. W. (1961). The role of agriculture in economic development. *The American Economic Review, 51*(4), 566-593.

Loening, J. L., Durevall, D. & Birru, Y. A. (2009). Inflation dynamics and food prices in an agricultural economy: The case of Ethiopia. *Working Papers in Economics, University of Gothenburg, 347*.

Salasan, C. & Fritzsch, J. (2009). The role of agriculture for overcoming rural poverty in Romania (No. 121). *Discussion Paper, Leibniz Institute of Agricultural Development in Central and Eastern Europe*.

Schultz, T. W. (1964). *Transforming traditional agriculture.* New Haven: Yale University Press.

Sirbu, A. & Kleps, C. (2010). Some issues of Romanian agriculture in the context of climatic changes and economic crisis. *45. hrvatski i 5. Međunarodni simpozij agronoma, 15-19 veljače 2010, Opatija, Hrvatska. Zbornik Radova*, 313-317.

Timmer, C. P. (1988). The agricultural transformation. *In H. Chenery and T. N. Srinivasan, eds., Handbook of development economics, 1*, 275-331.

Timmer, C. P. (2008). Agriculture and Pro-Poor Growth: An Asian Perspective. *Asian Journal of Agriculture and Development*, 1-28.

Zaman, G. & Georgescu, G. (2010). Romania's External Debt Sustainability Under Crisis Circumstances. *Revista Română de Economie, 29*(1), 5-38.