

THE EVOLUTION OF AGRICULTURE AND ITS POSITION IN THE ROMANIAN ECONOMY

Associate Professor PhD Camelia-Cătălina MIHALCIUC
Stefan cel Mare University of Suceava, 720229, Romania
camellia.mihalciuc@usm.ro

Abstract

In the current economic context, it is important to be aware that agriculture is the only branch of the economy that provides us with most of the food and raw materials for industry. Therefore, the purpose of the paper is to highlight this branch of the economy, from the perspective of its importance and role in the economy of our country, the objective of the paper being to present the evolution of agriculture. In order to achieve this goal, the methodological approach aims first at a brief foray into the history of agriculture by analyzing both written sources and archaeological discoveries, and then considered determining the role and place of the agricultural sector in Romania's economy based on statistical research.

Key words: *agriculture, CAEN code, Romanian economy, CON103I Matrix, CON103G Matrix*

JEL Classification: *E01, O12, Q10*

I. INTRODUCTION

The term agriculture includes different sciences and occupations, "such as: aquaculture, agrophytotechnics, beekeeping, poultry, horticulture, mollusk farming, fish farming, sericulture, forestry, animal husbandry" (see wikipedia.org). Regarding the inclusion of agriculture in the activities of the national economy, it is included in "CAEN code: 01 Agriculture, hunting and ancillary services" (Ghionu, 2012), with the following subdivisions: "011 Cultivation of non-permanent plants, 012 Cultivation of plants by permanent crops, 013 Cultivation of plants for breeding, 014 Animal husbandry, 015 Activities on mixed farms (vegetable cultivation combined with animal husbandry), 017 Hunting, trapping of game and service activities ancillary to hunting". Given the generic term agriculture, this category also includes "CAEN code 02: Forestry and logging", as well as "CAEN code: 03 Fisheries".

Group 011 Cultivation of non-perennial plants "includes the growth of non-perennial plants, i.e. plants that do not last from one agricultural season to the next, including the cultivation of these plants for the purpose of seed production" (Ignat, 2012).

Reforms adopted in the 19th and early 20th centuries led to a decline in agricultural production, so in 2013 the European Commission set up a system of direct payments to farmers through agricultural policy support schemes (subsidies) for to cover part of the costs of manufacturing agricultural products (Cosmulese, 2019). These subsidies are "financial aid granted by the government, government agencies or other national and international institutions to entities carrying out agricultural activities" (Mateş, 2017). "Subsidies should not be recorded directly in the capital and reserve accounts because they represent amounts granted subject to the fulfillment of certain conditions by the company" (OMFP 1802/2014). In the literature "agriculture can be defined as both art and science" (Stan, 2013: 7), if we refer to art we can say that it is the most beautiful view, and the definition as a science is given by the fact that agriculture can be done without knowledge.

II. LITERATURE REVIEW

Referring to the evolution of agriculture, a succinct presentation of this is capture in Table 1:

Table 1. The evolution of agriculture

No.	Stages in the evolution of agriculture	The year (Century)	Features
1.	The emergence of agriculture	Approximately in the year 10000-12000 BC.	It is the period when man becomes steady. The transition is from harvesting wild berries, gathering berries with roots or leaves, from hunting and fishing to raising animals and cultivating plants. That period was the beginning of the development of human civilization.

No.	Stages in the evolution of agriculture	The year (Century)	Features
2.	The agricultural and industrial revolution	The end of the 18th century and the beginning of the 20th century	During that period, the agrarian society was replaced by the industrial one. The innovations brought about by the industrial revolution began to be used in agricultural practices, increasing yield and thus generating the agricultural revolution. The nineteenth century is characterized by the emergence of agronomy. At the end of the twentieth century, in Romania there was no strict accounting system in the agricultural field.
3.	Agriculture of the twentieth century	20th century	This is the period when the USA asserts itself as a great agricultural power. The lease is developing. The area of agricultural land is beginning to decline. The financial reporting focuses on the balance sheet.
4.	The agriculture of our century	The 21st century	In this century, agriculture is an important branch of the economy, although it does not participate most in the formation of GDP. Organic farming is on the rise, with consumer awareness that health depends on the consumption of organic products.

Source: Own Processing

In the following it is realized an descriptively analyze of each situation presented in the previous table.

II.1. THE EMERGENCE OF AGRICULTURE

Agriculture is thought to have originated about 12-14 thousand years ago, when man realized that it would be much more convenient to have a stable settlement and work the land than to move from one place to another in search of game. Data on what can really be called agriculture "is located during the years 8000-3000 BC, when on large areas were grown wheat, grain, lentils, pomegranates, apples, bananas, vines, figs and dates" (Ionescu, 1982: 26). In the opinion of Gaspar (2018: 15) "Adopting a sedentary lifestyle by practicing agriculture meant an ontological break from the arbitrary life of hunter-gatherers". Cultivation of land was an important step in the evolution of mankind. At the beginning, agriculture was limited to land preparation, sowing, fruit care by removing unwanted weeds and then transporting the fruits home. "The most primitive and usual form of agriculture was that made with hoe or hoe, certainly a method used throughout the Middle Ages" (Bilavschi, 2013: 128).

Becoming steady, man began to domesticate animals. Archaeological discoveries have shown that "raising domestic mammals was a basic occupation" (Haimovici, 2009: 301). Given that the written sources do not provide us with sufficient information on production, agricultural techniques, the evolution of tools, cereal plants, archeology has tried to fill these gaps. Thus, archaeologists discovered that the first plants to be cultivated were wild wheat, barley and millet. In Maramureş, in Oarţa de Sus, plant remains were discovered, and the analyzes established that they belonged to the species *Chenopodium* (wild spinach) in a proportion of 12%, and the rest belonging to species such as *Triticum monococcum* (alac), *Triticum dicocum* (wheat), *Hordeum vulgare* (barley)" (Golea, 2016: 134).

Over the years, agriculture has evolved slowly with human evolution. It is cultivated only for own consumption. People have gone through a lifelong learning process, growing more and more nutritious plants and domesticating more and more animals. Beekeeping, fish farming, fruit growing and viticulture are developing. The period presented above "is known as the agrarian society, which falls within the parameters of the medieval era, constituting the feudal system" (Popescu, 2009: 61-62).

II.2. THE AGRICULTURAL AND INDUSTRIAL REVOLUTION

The industrial revolution began in the late 18th century in Britain and then spread throughout the world. It is the moment when "The industrial society appeared in the arena, replacing the agrarian one" (Popescu, 2009: 63).

The boom in agriculture occurred in the eighteenth and nineteenth centuries, when innovations began to be used in agricultural practices. During this period, the first drill for planting was invented. Farmers began to use yield-enhancing techniques, and land that could not be cultivated because it was not fertile was aided by fertilizers,

thus contributing to the disappearance of the hive. "Investments and the introduction of new technologies had to be done in step with the preparation of a workforce ready to carry them out" (Maier, 2015: 163).

Agronomy was the new science of the nineteenth century. The manifestations of agronomy in the nineteenth century were isolated and uneven. Only in the first half of the twentieth century, knowledge of agronomy began to spread more and more, both directly to the population through agronomists, but also through publications. In this sense, "a whole series of official "ordinances" or "instructions", printed and directed by the government are spread in all peasant circles" (Bădescu, Cucu-Oancea & Şişeştean, 2011: 507). Agronomy as a science introduced the technique of crop rotation, fodder crops, selection of seed quality and animal breeds, specialization of the livestock sector, specialized and paid labour, land fencing, farm building, intensive farming, customization of farms, etc.

In the period presented above, in Romania there was no strict accounting system in the agricultural field. It was only after 1864 that this need began to be felt, with the agrarian reform, when a large number of small and medium-sized foreman appeared.

II.3. AGRICULTURE OF THE TWENTIETH CENTURY

This is the period when the USA asserted itself as a great agricultural power. This country has shown the strength of its agricultural economy by achieving a significant share of world wheat, cotton and maize production, due to the fact that it benefits from natural conditions for high-yield agriculture.

Also during this period, the lease developed, which probably appeared since the 18th century, but was very little practiced, due to the shape of the land fund. With the ownership of land and institutions, the lease began to increase. Thus, the lands of royal families, churches and boyars (estates) were leased to peasants, who worked them with their own tools and animals. The latter had small land holdings or no agricultural land at all. The peasants were exploited to the maximum by the boyars and "the uprising of 1907 was the result of the cruel exploitation of the peasantry for centuries by the ruling class" (Constantin & Gheonea, 2014: 73). The uprising of 1907 brought important agrarian changes.

As previously mentioned, "the large farm was composed of estates", but the agrarian reform of 1921 and 1945 aimed to "deconcentrate large farms and transform the peasant into a small producer" (Lup & Miron, 2012: 54-55).

Regarding the order of preference for ownership, "Law for Agrarian Reform in Bukovina of July 30, 1921, "stated that "Land expropriated under this law is parceled out for sale in lots to working peasants, Christian Orthodox parishes, cottage for cooperators, singers and plumbers and schools as a field of agricultural experiences" (Costea, Larionescu & Tănăsescu, 1996: 176).

The twentieth century is characterized by the fact that ordinary peasants lose ground in favor of farmers, who have a better technique. The introduction of tractors and other agricultural machinery has led to a reduction in the active population in agriculture, and a significant role in reducing agricultural production has been played by extreme weather events (Toma, 2010). Given that only 36% of the large agricultural holdings kept records, the information obtained from them was not sufficient to draw conclusions about their profitability.

Regarding the financial reporting, it can be said that "during this period, the informational importance of the income statement was not highlighted", considering that it is much more important the balance sheet that had the role of presenting the results and the way they were used (Zlati, Grosu, 2020). Over time, the balance sheet has not undergone changes in form: on the left side of the balance sheet were presented assets and on the right side liabilities, both sides "were structured in four distinct groups" (Băviță, 2011: 40).

II.4. 21ST CENTURY AGRICULTURE IN THE ROMANIAN ECONOMY

Romania's economy includes the following sectors: industry, construction, agriculture, tourism, communications, finance, the budget sector, transport and natural resources.

Agriculture "has been and continues to be a sector of prime importance in Romania" (Luca, Cionga & Giurcă, 2012: 15), which provides most of the food and raw materials for industries. It is the economic branch on which human survival depends directly, representing one of the main incomes generating pillars to the state budget (Mihalciuc, Socoliuc, 2008). According to the National Institute of Statistics, the area cultivated with the main crops had various variations over time as follows: in 1990 this measure 9.402.113 hectares after which it decreased reaching 8.499.830 hectares in 2000, respectively 7.777.174 hectares in 2007 and in 2018 there is a new increase to 8.466.658 hectares.

The fact that agriculture is particularly important for the economy of our country (Mihalciuc, 2017), although it is not the branch of the economy that participates most in the formation of GDP, is clear from the following: “it is the only branch of production capable of accumulating energy through labour, (...) is the primary branch of material production from which the other branches have been detached”, the resulting products have a safe sale (because they provide most of the food and raw materials in industry) and last but not least it must be specified that agriculture leads to an increase in the country's wealth, because “at the same gross domestic product, higher gross value added is obtained in agriculture” (Celac, 2017).

Nowadays, the term "organic farming" is used more and more often. Although there was talk of organic farming since the nineteenth century, being called at that time "agriculture of tomorrow" (Ionescu, 1982: 118), in our century it is gaining special importance due to consumer awareness "of health insurance through the consumption of products ” (Ministry of Agriculture and Rural Development, 2014: 3).

III. THE POSITION OF AGRICULTURE IN THE ECONOMY OF THE N-E REGION OF ROMANIA

Before determining the position of agriculture in the economy of the N-E region of the country, the author considered first it necessary to determine the position of the N-E region in the Romanian economy, according to the data structured in Table 2, and the graphical presentation is highlighted in Figure 1:

Table 2. GDP in total and in the N-E Region (CON103I Matrix)

No.	Year	Total GDP (thousand lei)	N-E region GDP (thousand lei)	Share of GDP in the N-E regime in total GDP (%)
1	2012	593742,9	61199,7	10,30
2	2013	635459,4	65081,5	10,24
3	2014	668590,1	67211,2	10,05
4	2015	712587,8	71454,4	10,02
5	2016	765135,4	77167,7	10,08
6	2017	857895,7	88847,7	10,35

Source: Processing after: INS, Tempo Online, 2020

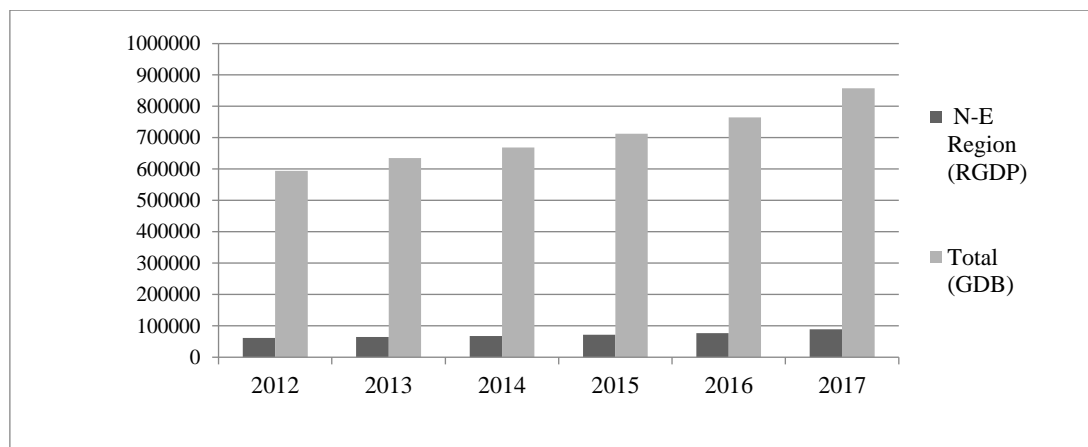


Figure 1 – Comparative situation between total GDP and RGDP (reg N-E)

Source: Processing after: INS, Tempo Online, 2020

As can be seen in Table 2, the NE Region of Romania registered, in 2017, a GDP value of 88847.7 million lei, which represents 10.35% of Romania's GDP. Considering the analyzed period, in 2017, the NE Region contributed the most to the GDP achievement, followed by 2012 with 10.30%, 2013 with 10.24%, 2014 with 10.05%, 2015 with 10.02 % and 2016 is the year with the lowest contribution, namely 10.02%.

Analyzing the aspects presented in Table 2. as well as in Figure no. 1. it is observed that the N-E Region has a constant contribution to the achievement of GDP, with small variations from year to year. Of these, in 2012 the NE region had the lowest contribution, compared to the other years of the analyzed period, but the share of total GDP in that year was the highest, because the value of GDP in 2012 was the lowest.

There is a slight increase in GDP from one year to the next, directly proportional to the increase in total GDP.

Agriculture is the branch of the Romanian economy that contributes differently to the formation of GDP for each region, as can be seen in Table 3:

Table 3. The contribution of agriculture to the formation of RGDP in the different regions of the country (CON103G Matrix) UM: thousand lei

Development regions	Years						Total
	2012	2013	2014	2015	2016	2017	
N-V Region	3297,4	3903,7	3780,4	3590,8	3703,9	4149,1	22425,3
Center region	3017,3	3823,5	3745,5	3539,1	3580,7	3948,6	21654,7
N-E Region	4487,1	5612,6	5019,9	4713,9	4763,9	5876	30473,4
S-E Region	4545,2	5985,7	5372,8	5370,5	5653,3	6701,3	33628,8
S-Muntenia Region	5521,7	6926,5	5735,1	5858,4	5850,3	6859,5	36751,5
S-V Oltenia Region	3133,2	3713,5	3421,3	3327,7	3374,9	4525,5	21496,1
Bucharest-Ilfov Region	416,2	497,3	1223,8	464,8	807,6	1084,9	4494,6
V Region	3336,7	3710,4	3268,8	2961,9	3343,2	3858,7	20479,7
TOTAL	27754,8	34173,2	31567,6	29827,1	31077,8	37003,6	191404,1

Source: Processing after: INS, Tempo Online, 2020

Table 3 shows that in the S-Muntenia Region agriculture has the largest contribution to the achievement of GDP, followed by the S-E Region. The N-E region ranks third in terms of the contribution of agriculture to the formation of GDP, followed by the N-V Region, the Central Region, the S-V Oltenia Region, the V Region.

The proportion in which the different regions of the country participate in the achievement of GDP does not vary much from one year to another. In the S-Muntenia Region the share varies between 18.16% in 2014 and a maximum of 20.26% registered in 2013. In the SE Region it varies between 16.37% in 2012 and 18.19% in 2016. In the Region NE varies between 15.32% in 2016 and 16.42% in 2013. In the NV Region it varies between 11.42% in 2013 and 12.03% in 2015. In the SV Oltenia Region this share varies between 10.83% registered in 2014 and 12.22% in 2017. In Region V it varies between 9.93% in 2015 and 12.02% in 2012. The region with the lowest activity in the agricultural field is Bucharest Ilfov. Here the share varies between 1.45% in 2013 and 3.87% in 2014.

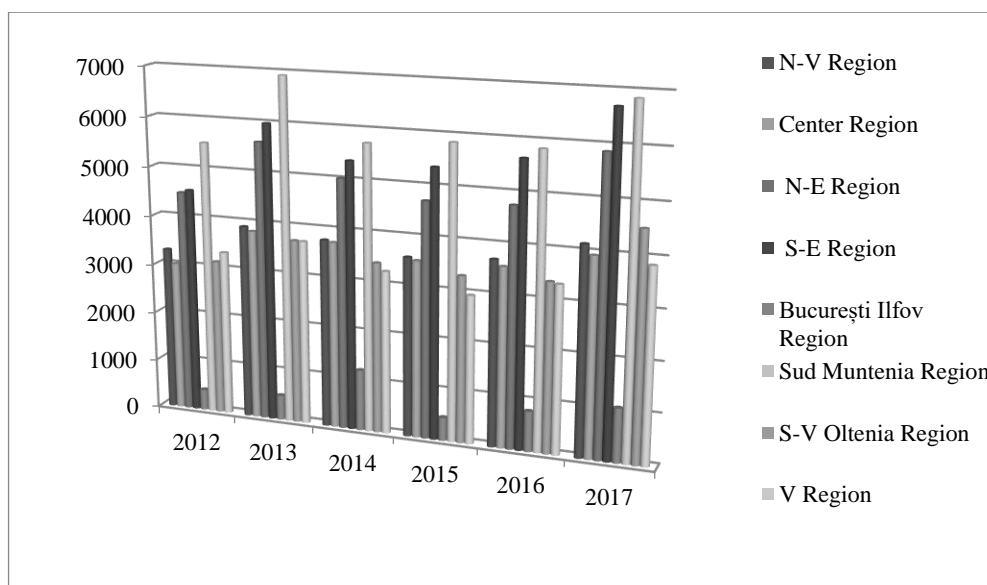


Figure 2 – The contribution of agriculture to the formation of GDP by region

Source: Processing after data presented in Table 3

As in Table 3, from Figure no. 2, it is observed that in the S-Muntenia Region agriculture occupies the first place in the realization of RGDP, followed by the S-E Region and the N-E Region, as well as the fact that the Bucharest Ilfov Region contributes the least.

The 6 counties that make up the N-E Region have a different contribution of agriculture to the formation of RGDP as can be seen from Table 4 and Figure no. 3.

Table 4. The contribution of agriculture to the formation of GDP per counties (CON103I Matrix)

UM: thousand lei

No.	Year	County						
		Bacău	Botoșani	Iași	Neamț	Suceava	Vaslui	N-E Region
1	2012	3297,4	3903,7	3780,4	3590,8	3703,9	4149,1	22425,3
2	2013	3017,3	3823,5	3745,5	3539,1	3580,7	3948,6	21654,7
3	2014	4487,1	5612,6	5019,9	4713,9	4763,9	5876	30473,4
4	2015	4545,2	5985,7	5372,8	5370,5	5653,3	6701,3	33628,8
5	2016	5521,7	6926,5	5735,1	5858,4	5850,3	6859,5	36751,5
6	2017	3133,2	3713,5	3421,3	3327,7	3374,9	4525,5	21496,1

Source: Processing after INS, Tempo Online, 2020

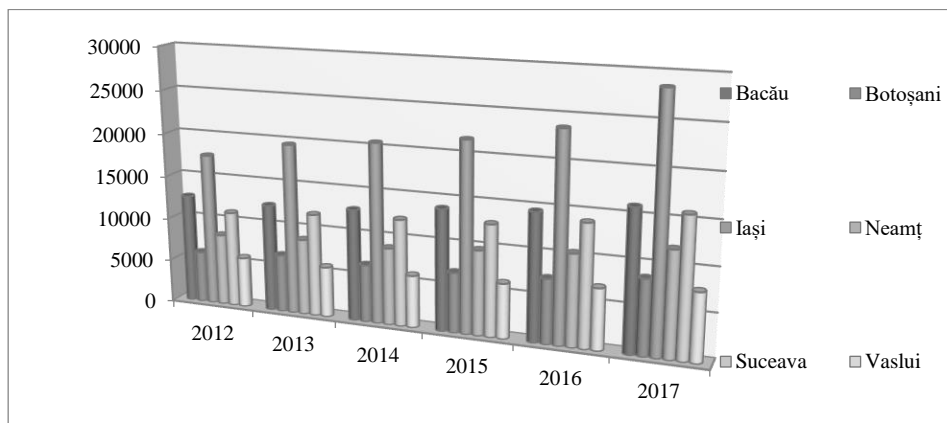


Figure 3 – The contribution of agriculture to the formation of RGDP by counties in Reg N-E

Source: Processing after data presented in Table 4.

As can be seen in Table 4, as well as in Figure 3, only one of the 6 counties registers significant contributions of agriculture to the achievement of GDP, namely Iași county with a power between 28.70% (registered in 2012) and 32.09% (registered in 2017). The contributions of this county are clearly superior to the other 5 counties: Bacău with a share between 18.93% in 2016 and 20.5% in 2012, Suceava with a share between 17.80% in 2017 and 18.09% in 2016, Neamț with a share between 13.17% in 2014 and 13.61% in 2015, Botoșani with a share between 9.59% in 2016 and 10.24% in 2013. The lowest contribution of agriculture to product formation internal regional register is registered in Vaslui County: between 8.78% in 2017 and 9.48% in 2012.

IV. CONCLUSION

During the analyzed period, Romania registered a constant increase of GDP, a trend that is also observed in the contribution of the N-E Region to the achievement of GDP.

The contribution of agriculture to the realization of the regional gross domestic product in the N-E Region is quite significant, ranking third after the S-Muntenia Region and the S-E Region. Analyzing the NE Region by sectors of the economy, there is a decrease in the volume of work in the period 2015-2016 in the agricultural field. Of the 6 counties that make up the N-E Region, only one registers significant contributions of agriculture to the realization of the regional gross domestic product, namely Iași County.

The main conclusion of the this paper is that fluctuations in agricultural production still induce changes in GDP, although agriculture is a sector in which, in recent years, the volume of activity has decreased.

End notes

- [1] CON103I – matrix indicating the gross domestic product (in millions of lei) by macro-regions, development regions and counties for the period between 2000-2017
- [2] CON103G – matrix indicating the gross domestic product by regions (in millions of lei) for the period between 2008-2017
- [3] E, N, S, V – East, North, South, West
- [4] GDP – gross domestic product
- [5] INS – National Institute of Statistic
- [6] RGDP – regional gross domestic product

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