

COMPARATIVE STUDY ON THE GLOBAL EFFICIENCY IN THE AGRICULTURE OF ROMANIA AND THE REPUBLIC OF MOLDOVA

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Summary

The study examines the global economic efficiency in the agriculture of Romania and Moldova for the period 2014-2021. To assess the economic efficiency, the output-input analysis method was used. Global economic efficiency is analyzed through the resulting value indicators: gross added value, the value of intermediate consumption, the evolution of producers' incomes, gross fixed capital formation, net fixed capital formation, as well as labor productivity. The results of the analyzes show that the agricultural sectors in the two countries reach different levels of efficiency, especially those in Moldova, and that the main factors that influence the level of global economic efficiency, corresponding to the analyzed output indicators, are: production yields, intermediate consumption, input prices and outputs, the level of technological development, salary income, labor force, inflation, weather conditions, etc. The major findings showed that the agricultural sector in the two countries faces similar major challenges, what differs is the size and economic size of agrarian production structures and that agricultural activity takes place in different political environments.

Keywords: agriculture, production, global efficiency, economic indicators.

JEL: D2, D24, E1, O1, O57, Q1, Q18

CZU: 338, 338.2, 338.3

Introduction. Agriculture has traditionally been and remains the main pillar of the Moldovan economy. Agricultural land covers 2.48 million hectares or 75% of the country's territory, including 1.82 million hectares of arable land. The agricultural sector employs over 27% of the country's workforce, and agricultural production typically accounts for around 12% of Moldova's GDP. Combined with the food processing industry, the sector accounts for more than 16% of GDP and about 45% of total exports. Moldovan government supports private ownership of land, but foreigners are not allowed to buy agricultural land (Moldova – Country Commercial Guide, *Agriculture*, 2021).

The economy of the Republic of Moldova is not very diversified and remains heavily dependent on the agricultural sector, which makes it less productive and particularly vulnerable to climate change (Directorate-general for Neighbourhood and Enlargement Negotiation, 2022).

In Romania, agricultural land occupies almost 62% of the surface and almost 2 thirds of it is arable. One third of the used agricultural area was classified as a disadvantaged area (the majority located in the mountain area and in the Danube Delta), the other two thirds are mostly medium and high-quality soils. The agricultural sector employs approximately 30% of the employed population.

Compared to other EU countries, Romania's agricultural sector has a relatively high share in GVA, but has lagged behind in terms of labor productivity. Labor productivity in agriculture is only 4,719 euros per full standard equivalent compared to the EU 27 average (MARD, 2015).

On June 23, 2022, the European Council granted the Republic of Moldova the status of a candidate country. The European Council invited the European Commission to submit a report to the Council on the fulfillment of the conditions set out in the Commission's opinion on the application for accession (EU enlargement policy, 2022).

Romania's accession to the European Union and the inclusion of agriculture and rural areas in the mechanisms of the common agricultural policy created an opportunity to improve the economic efficiency of agriculture and the situation of the rural population on the labor market. Due to the EU accession intentions, already expressed by Moldova, we consider that Romania's experience in the field of agricultural development can prove to be valuable for Moldova and its efforts in this field (Rdzanek, D., 2021).

The evaluation of the global efficiency in agriculture is important for the development of appropriate strategies for the development of agriculture and rural areas. The study contributes to the evaluation of the sector situation, both in Romania and in the Republic of Moldova.

Literature review. The concept of economic efficiency, found in specialized literature, is defined as a *fundamental criterion in the options regarding the proportions, the pace of development of the national economy as a whole, of branches and sub-branches, generally in the options of economic policies and planning*. The category of economic efficiency illustrates the useful effect or result obtained in relation to the expenditure of resources carried out in a certain period. There are several approaches to the concept of economic efficiency: *economic efficiency at the level of each economic agent, economic efficiency in the traditional approach, economic efficiency in the systemic approach, economic efficiency in the cybernetic approach*, all of which symbolically reflect the ratio between outputs and inputs or the ratio between effects and effort (Dona, I., 2000).

There are other types of economic efficiency: *allocative efficiency, productive efficiency, technical efficiency, dynamic efficiency, social welfare efficiency* (Economic efficiency: Definition and How it affects Society, 2022).

In another expression, the concept of economic efficiency is approached through the prism of the resources consumed in an economic activity, (Iatisin, T., 2022). Other authors have studied the efficiency of agriculture from the perspective of allocative efficiency or "price efficiency", the level of efficiency being reached when the enterprise is able to use inputs at the lowest cost (Chrastinová, Z. & Burianová, V., 2012).

Regarding the comparative studies in the agri-food sector, between Romania and Moldova, we refer to the analysis of the performance of the agricultural sector, carried out by comparing the dynamics of some agricultural parameters: crop yield, employment rate, total gross value added, the value gross added value of the agricultural sector, etc., aiming to identify the long-term trend in order to develop prediction models

for the development of support strategies and the legislative framework of the sector (Simionov, I. et al., 2020).

Material and method. The present work aims to find answers to the questions: what is the contribution of agriculture to the formation of the Gross Domestic Product? What are the current challenges affecting agriculture? What are the factors influencing global economic efficiency? What the biggest challenge for agriculture?

The economic performance of the agricultural sector is analyzed with the help of a system of resulting value indicators, from the National Accounts of Romania and Moldova. In the analysis we will use the following set of data, which establish the output-input relationship, to quantify the global economic efficiency (Zahiu, L. et al., 2010):

Outputs: the share of intermediate consumption in the value of agricultural production, the share of GVA in the valuation of agricultural production, GVA per 1 leu of intermediate consumption, the share of income in the value of production, global productivity calculated at the value of production, labor productivity valued at GVA.

Inputs: the value of agricultural production, the value of intermediate consumption, the income of agricultural producers, the labor force in agriculture.

In order to highlight the existing differences in the evolution of the mentioned indicators, the following indicators were determined from descriptive statistics: minimum, maximum, average, standard deviation, coefficient of variation (CV %) and annual growth rate (%). The coefficient of variation (CV) is a relative measure of the dispersion of the data. CV represents the evaluation of the standard deviation in relation to the arithmetic mean. In order to compare the data, the classification groups of the coefficient of variability will be used to assess the homogeneity of a statistical population: $CV < 10\%$ homogeneous population; $10\% < CV < 20\%$ relatively homogeneous population; $20\% < CV < 30\%$ relatively heterogeneous population; $30\% < CV$ heterogeneous population (Maniu, D., 2022).

The relationship between the variables was illustrated graphically by the regression equation. The development of the dependence has a form of the second-degree polynomial, expressed by the equation $y = a + bx + cx^2$. The determination index (R^2) was used as a criterion for choosing the mode of the regression function (Chrastinová, Z. & Burianová, V., 2012).

The reference data is for the time horizon 2014-2021.

Results and discussion. The value agricultural production of Romania, in the period 2014-2021, is characterized by the predominance of vegetable production (between 63.4%, the lowest level in 2015 and 71.5%, in 2021, the highest level). The share of animal production in the total value of the production of the agricultural branch stands at an average of 23.1% for the analyzed interval, the minimum values were reached in 2021, due to the restrictions imposed by the pandemic and the reduction of livestock. This structure is not stable, which is also reflected in the level of ensuring the consumption of the population throughout the country. Services occupy an average weight of 1.6%, the maximum of 2.3%, being reached in 2020. Compared to 2020, in 2021 the value of agricultural production is 97.9 million lei, increasing by 31.9%. Vegetable production contributed 71.5% to the value of agricultural production (standing at a difference of 6.6 pp compared to 2020), while animal production and services were decreasing by 4.3 pp, respectively 0, 7 pp, compared to 2020.

Table 1: Structure of the production value of the agricultural branch (at basic prices)

Romania	2014	2015	2016	2017	2018	2019	2020	2021	Average (%)
Agricultural production (million lei)	67,672	62,305	63,028	72,630	80,038	83,384	74,226	97,893	100,0
Vegetable (%)	72,5	63,4	65,1	67,8	70,9	70,0	64,9	71,5	68,2
Animal (%)	26,1	26,0	24,5	23,5	20,4	20,7	24,1	19,8	23,1
Agricultural services (%)	1,5	1,3	1,3	1,2	1,4	2,0	2,3	1,6	1,6

Source: Calculations based on EUROSTAT data series, years 2014-2021,

<https://ec.europa.eu/eurostat/data/database> (accesat 20 iunie 2021) Economic accounts for agriculture - values at current prices [aact_eaa01]

Table 2: The structure of the production value of the agricultural branch

Moldova	2014	2015	2016	2017	2018	2019	2020	2021	Average (%)
Agricultural production (mil. LMD)	27,254	27,193	30,362	34,142	32,637	34,597	30,061	46,387	100,0
Vegetable (%)	63,6	66,5	69,5	71,6	70,1	71,3	67,8	77,9	69,8
Animal (%)	34,6	31,6	28,9	26,9	28,2	26,7	30,4	20,2	28,4
Agricultural services (%)	1,8	1,9	1,6	1,5	1,7	2,0	1,8	2,0	1,8

Source: Calculations based on data series National Bureau of Statistics Republic of Moldova, Global agricultural production by branches of agriculture, categories of households, previous year =100, 1990-2021, <https://statbank.statistica.md/>

In Moldova, the value of vegetable production occupies an average weight of 69.8%, animal production 28.4%, and services occupy an average weight of 1.8% in the value of agricultural production. The value of agricultural production, for the year 2021, was 46.4 million LMD, increasing by 54.3% compared to 2020. Vegetable production contributed 77.2% to the total value (representing an increase of 10 pp compared to the year 2020), while animal production and services contributed 2.4% (the difference compared to 2020 being 10 pp), respectively 70% (the difference compared to 2020 being 0.2 pp). Table no. 2. Compared to 2014, the value of agricultural production increased by 70.2%.

The increase in the value of agricultural production (in 2021 compared to 2020) is due, on the one hand, to the increase in production (yields per hectare), but also to a slight increase in producer prices, and on the other hand, due to the inflation that contributed to the value increase of production (Petre, I.L., 2022). The decrease in the value of animal production is due to the increase in feed purchase prices, restrictions in the transport of animals to processing/direct sale on the market, the decrease in the export of live animals, etc., due to the restrictions of the Covid 19 pandemic. These restrictions have generated losses among livestock breeders, animals by prohibiting labor mobility, the impossibility of delivering raw materials to processors,

stopping processors' deliveries to retail and HoReCa, reasons that contributed to the economic destabilization of farmers (Alexandri, C., 2020). In order to compare and highlight the dynamics of the value of agricultural production, in the period 2014-2021, the information resulting from the calculations reveals the following aspects:

The production value of the agricultural branch has an annual growth rate of 5.4% for Romania and 7.9% for Moldova; The coefficient of variability calculated as the ratio between the standard deviation and the mean, ($10\% < CV < 20\%$) defines the threshold for the data sample of the production value of the agricultural branch, as being a relatively homogeneous grouping from a statistical point of view; Table no. 3 col. 6 and col. 7.

Table 3: The value of the production of the agricultural branch

Nr. Crt.	The value of the production of the agricultural branch (million lei)	Indicators of descriptive statistics					
		Min	Max	Media	Stdev	Coefficient of variability (%)	Annual growth rate (%)
0	1	2	3	4	5	6	7
1	Romania	62305 (2015)	97893 (2021)	75147	11856	15,8	5,4
2	Moldova	27193 (2015)	46387 (2021)	32829	6156	18,8	7,9

Source: Own calculations

Gross value added (GVA) at basic prices corresponds to the value of production minus the value of intermediate consumption. The basic price is defined as the price received by the producer after deducting all product taxes, including all product subsidies (INSSE: Economic Accounts from Agriculture (EAC), 2022).

Romania's GVA, in 2021, was 25.4% higher than in 2020, and 58.9% higher than in 2014, and Table no. 4.

Table 4. Gross value added (millions of lei)

	Romania	2014	2015	2016	2017	2018	2019	2020	2021
1	GDP	669704	711930	763653	857896	951729	1058973	1058926	1181918
2	GVA agriculture	31595	28901	29358	35244	38761	41711	40035	50218
3	% of GDP	4,7	4,1	3,8	4,1	4,1	3,9	3,8	4,2

Source: Database Eurostat, 2022 - Economic accounts for agriculture - values at current prices [aact_eaa01] <https://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do> (accesat 31 mai 2022)

	Moldova	2014	2015	2016	2017	2018	2019	2020	2021*
1	PIB	131964	146740	159010	176007	189063	206256	199734	241871
2	GVA agriculture	18569	18814	19844	21472	19184	20957	18708	25119
3	% of GDP	14,1	12,8	12,5	12,2	10,1	10,2	9,4	10,4

Source: Economic statistics >> National accounts Resource categories >> Reconciliation of quarterly GDP calculations with annual ones, resource categories, current prices, 2014-2020, <https://statbank.statistica.md>

* Source: Trends in the Economy of Moldova, National Institute of Economic Research, No, 44/2022 (trim, IV, 2021), ISSN 1857-3126, page, 98.

Moldova's GVA was 34.3% higher than in 2020, and 35.3% higher than in 2014. Table no. 4.

The contribution of agriculture to the formation of the gross domestic product (GDP) shows an overall reduction trend and a slight increase, in 2021 compared to 2020, of 1 pp for Moldova and 0.4 pp for Romania. Table no. 4. The evolution is a normal one, but as investments in agriculture increase, the weight of agriculture will decrease, and according to analysts, agriculture will remain an important engine for local economies, representing a potential for growth and attracting investments (Rosca, C., 2021).

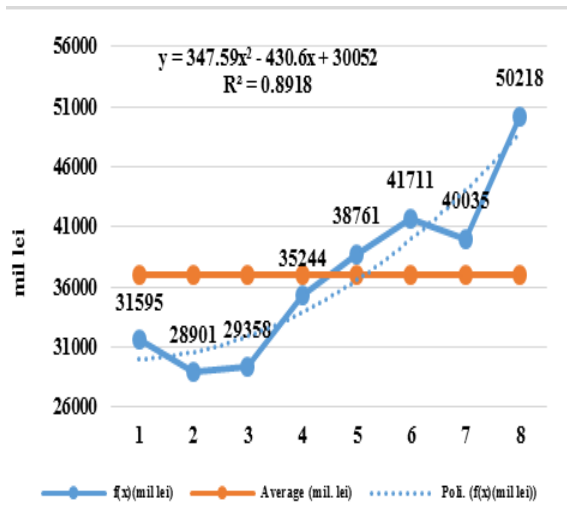


Fig. 1: The evolution of GVA in Romanian agriculture

Source: Database Eurostat, 2022 - Economic accounts for agriculture - values at current prices [aact_eaa01] <https://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do> (accessed 31 May 2022)

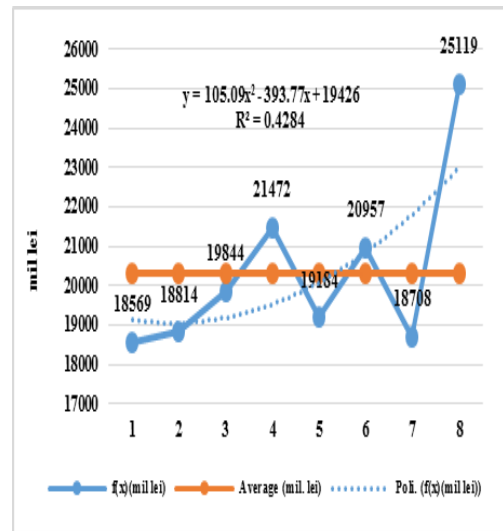


Fig. 2: The evolution of GVA in Moldovan agriculture

Source: Economic statistics >> National accounts >> Resource categories >> Reconciliation of quarterly GDP calculations with annual ones, resource categories, current prices, 2014-2020, <https://statbank.statistica.md>
 * **Source:** Trends in the Economy of Moldova, National Institute of Economic Research, No. 44/2022 (trim, IV, 2021), ISSN 1857-3126, page, 98

The regression equation expresses statistically how the outcome characteristic y (VAB) changes as a result of the change in the factor characteristic x (year of production). Regarding the evolution of GVA, we can appreciate the fact that the dependent variable (GVA) is expressed by the independent variable (year) in a proportion of about 89.18% for Romania and in a percentage of 42.84% for Moldova. When there is an increase in the independent variable x by one year, there is a decrease in the dependent variable y by 430.6 million lei/year in the case of Romania (figure no. 1) and a decrease, on average, of 393.77 million lei/year for Moldova (figure no. 2)

Table 5: Gross Value Added (GVA)

Nr. Crt.	Gross value added (million lei)	Indicators of descriptive statistics					
		Min	Max	Media	Stdev	Coefficient of variability (%)	Annual growth rate (%)
0	1	2	3	4	5	6	7
1	Romania	28901 (2015)	50218 (2021)	36978	7226	19,5	6,8
2	Moldova	18569 (2014)	25119 (2021)	20333	2211	10,9	4,4

Source: Own calculations based on the INSSE Tempo-online statistical series and on the basis of the National Bureau of Statistics data series of the Republic of Moldova

The gross added value has an annual growth rate of 6.8% for Romania and 4.4% for Moldova. Table no. 5, col. 7.

The coefficient of variation calculated as the ratio of the standard deviation to the mean, ($10\% < CV < 20\%$) defines the threshold for the gross value added data sample as a statistically relatively homogeneous grouping. Table no. 5, col 6.

Intermediate consumption represents the value of goods and services (excluding consumption of fixed capital), which are either transformed or consumed entirely during the production process (INSSE: Economic accounts from agriculture (CEA), 2022). Inputs are important for agricultural production and for the competitiveness of agriculture, because they make possible the application of more and more efficient production technologies (Alexandri, C., 2020). Intermediate consumption includes the main inputs used in agricultural technologies, as follows: energy, fertilizers, plant protection products, veterinary drugs, feed, agricultural services, others. In the 2020-2021 period, the input market represented a way of transmitting the disturbances on international markets caused by the Covid crisis, and starting from 2022, the geopolitical conflict in Ukraine.

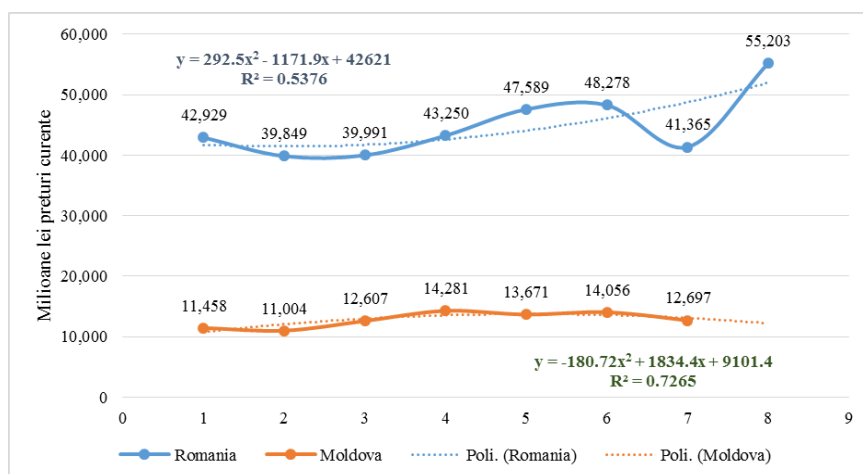


Fig. 3. Intermediate consumption in the agriculture of Romania and Moldova

Source 1 (Romania): Calculations based on EUROSTAT data series, years 2014-2021, <https://ec.europa.eu/eurostat/data/database> (accesat 20 iunie 2021),

Source 2 (Moldova): Intermediate consumption, CAEM Rev.2 on Economic Activities, Years and Prices <https://statbank.statistica.md/>

The regression coefficient b highlights that the value of intermediate consumption is decreasing in Romanian agriculture, on average by 1171.9 million lei/year, the coefficient of determination being 53.76%, which means that the year of agricultural production had a greater influence little significant on intermediate consumption, their decrease being determined, in proportion of 46.24%, by other factors. In Moldova's agriculture, there is an increase in intermediate consumption, on average by 1834.4 million lei/year, the coefficient of determination being 72.65%, and the contribution of other factors 27.35%. (Fig. no. 3).

Table 6: Intermediate consumption

Nr. Crt.	Intermediate consumption (million lei)	Indicators of descriptive statistics					
		Min	Max	Media	Stdev	Coefficient of variability (%)	Annual growth rate (%)
0	1	2	3	4	5	6	7
1	Romania (2014-2021)	39849 (2015)	55203 (2021)	44807	5257	11,7	3,7
2	Moldova (2014-2020)	11004 (2015)	14281 (2019)	12825	1265	9,9	1,7

Source: Own calculations based on the INSSE Tempo-online statistical series and on the basis of the National Bureau of Statistics data series of the Republic of Moldova

Intermediate consumption has an annual growth rate of 3.7% for Romania and 1.7% for Moldova. Table no. 6, col 7;

The coefficient of variability calculated as the ratio between the standard deviation and the mean, ($10\% < CV < 20\%$) defines the threshold for the data sample of the intermediate consumption value, as being a relatively homogeneous (Romania) and homogeneous grouping ($CV < 10\%$), (Moldova) from a statistical point of view. Table no. 6, col 6.

Output indicators

In Romania, *the share of intermediate consumption in the value of the production of the agricultural branch* varies from a minimum of 50.8% (in 2020) to a maximum of 58% in 2015, compared to Moldova, where the shares are below 50%. The explanation lies in the fact that they register high values as a result of the increase in purchase prices, with negative effects on the efficiency of their use under conditions of increased production yields. This means that the output achieved and, respectively, its value per unit of input have a low level; Fig. no. 4.

Figure no. 5, illustrates the share of GVA in the production value of the agricultural branch. For Romania, this remains at a low level (42% in 2014, with an increasing trend from 2019) although agriculture procures part of its inputs from within the branch. Due to the increase in the prices of inputs from the industry, the trend of the indicator shows an increase in efficiency under the conditions of an increase in average returns (L. Zahiu, et al., 2010). Compared to Romania, in Moldova the share of GVA in the value of the production of the agricultural branch exceeds the value of 50%.

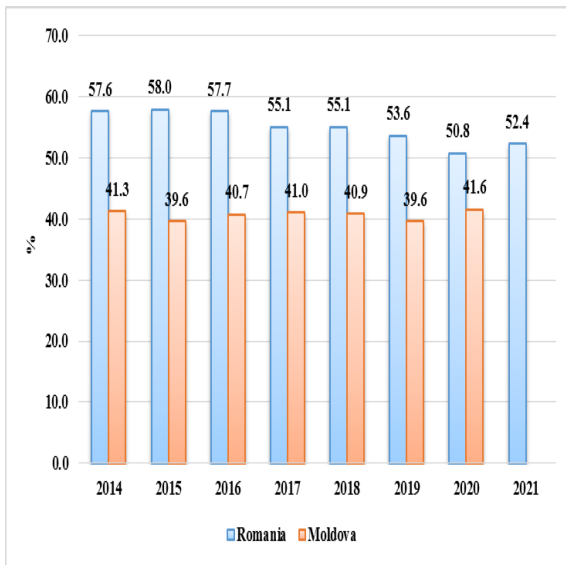


Fig. 4: The share of intermediate consumption in the value of agricultural production

Source 1 (Romania): Calculations based on EUROSTAT data series, years 2014-2021,

<https://ec.europa.eu/eurostat/data/database> (accessed June 20, 2021) Economic accounts for agriculture - values at current prices [aact_eaa01]

Source 2 (Moldova): Calculations based on data series National Bureau of Statistics Republic of Moldova,

<https://statbank.statistica.md/>

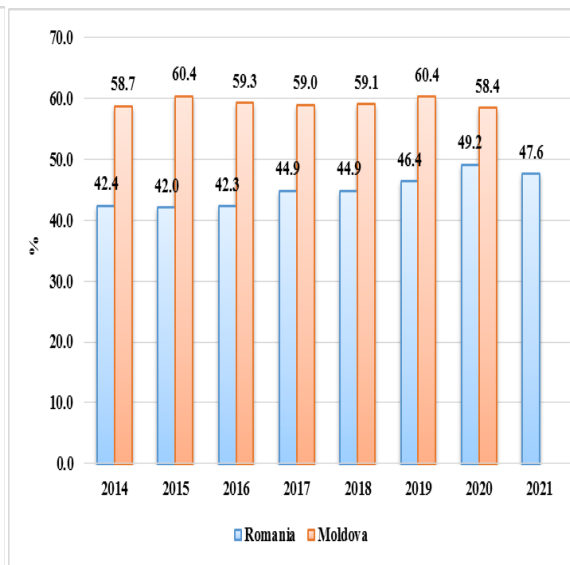


Fig. 5: The share of GVA in the value of agricultural production

In comparison with Moldova, for Romania, the GVA per 1 leu intermediate consumption varies from 0.73 in 2015 and 2016 to 0.97 in 2020, which means that we produce with decreasing gross added value or that the development of the Romanian economy is achieved with a decrease in the contribution of agriculture to the total gross added value, compared to Moldova where this coefficient is above unitary for the entire analyzed period Fig. no. 6.

The gross fixed capital formation shows the net procurement of goods and services by resident units, produced in the considered period, but not consumed. It includes the gross formation of fixed capital, the variation of stocks (INSSE: Economic accounts from agriculture (CEA), 2022).

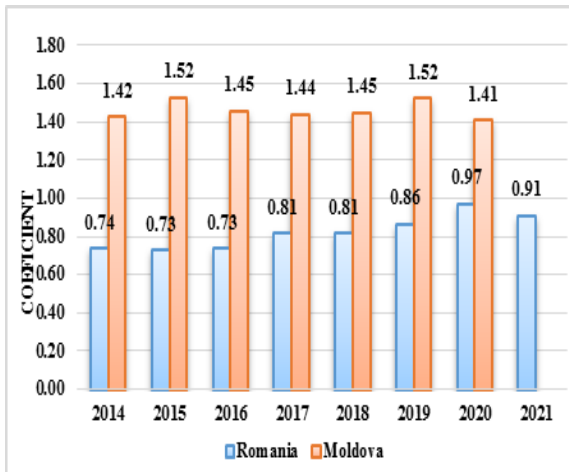


Fig. 6: VAT per 1 leu intermediate consumption

Source 1 (Romania): Calculations based on EUROSTAT data series, years 2014–2021, <https://ec.europa.eu/eurostat/data/database> (accessed 20 June 2021) Economic accounts for agriculture - values at current prices [aact_eaa01]

Source 2 (Moldova): Calculations based on data series National Bureau of Statistics Republic of Moldova <https://statbank.statistica.md/>

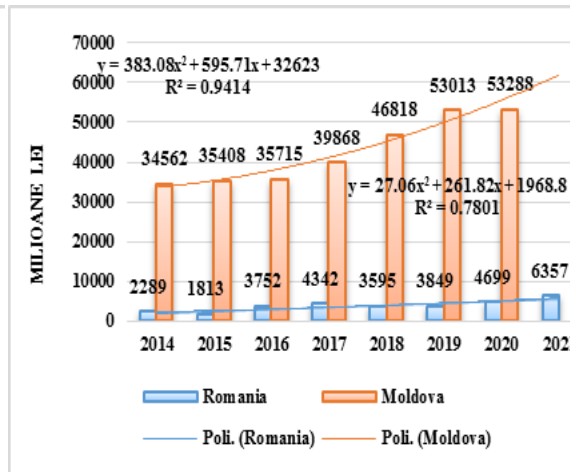


Fig. 7: Gross fixed capital formation

According to the regression equation, in Romania, *gross fixed capital formation* represents an increase, on average, of 261.82 million lei/year, the coefficient of determination, which signifies what percentage of the dependent variable is explained by the regression equation, being of 78.01%. In Moldova, the gross formation of fixed capital registers an average increase of 595.71 lei/year, the coefficient of determination being 94.14%, which means an increase in the pace of investments that contribute to the efficient use of intermediate consumption Fig. no. 7.

Producers' incomes (compared to 2014) tend to increase in conditions where the growth of intermediate consumption is lower than these trends, and the stock of fixed capital decreases. The share of producers' income in the value of production is 34.9% in 2021 compared to 31.6% in 2014. The lowest level of income is recorded in 2015 (30.2%) Fig. no. 8 and Fig. no. 9.

Labor productivity, representing the ratio between the value of agricultural production and the agricultural labor force with total working time, was on average 4843 lei/month in Romania, and 33.9% lower in Moldova (1642 lei/month/person occupied with total working time), which means that in the case of small agricultural producers the level of labor productivity is extremely low. For the maintenance of families and the performance of a minimum of agricultural work, the amounts achieved are insufficient, even in the conditions in which direct subsidies and other forms of support are added to them. On the other hand, the ratio of the gross added value to the labor force in agriculture in Romania was 2195 lei/month/employed person, and in Moldova it was 13.4% less (a difference of 295 lei).

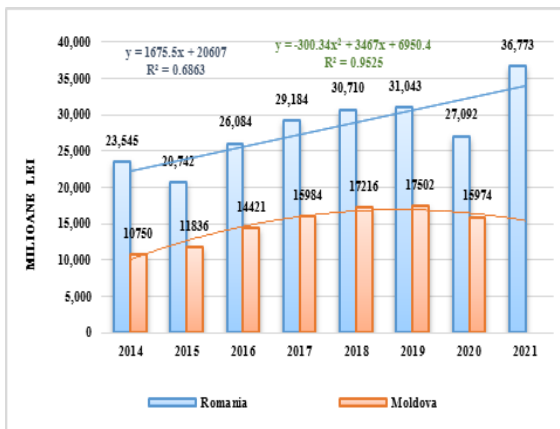


Fig. 8: Dynamics of producers' incomes

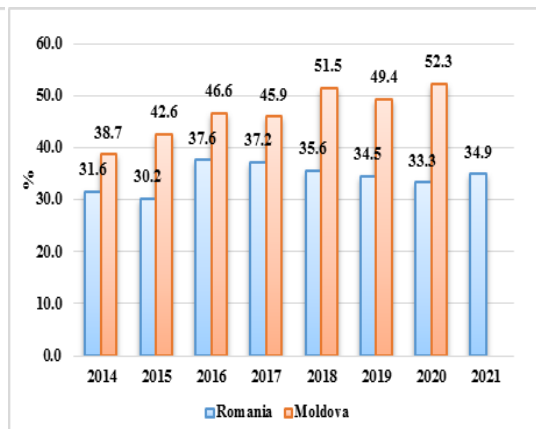


Fig. 9: Share of producers' incomes in the value of agricultural production

Source 1 (Romania): Calculations based on EUROSTAT data series, years 2014-2021, <https://ec.europa.eu/eurostat/data/database> (accessed June 20, 2021) Economic accounts for agriculture - values at current prices [aact_eaa01]

Source 2 (Moldova): Calculations based on data series National Bureau of Statistics Republic of Moldova, Economic Statistics >> Entrepreneurship >> Administrative data sources >> Activity of economic agents by size and types of activity, <https://statbank.statistica.md/>

The level and evolution of labor productivity in agriculture reflects a variation in labor efficiency in the conditions where labor occupies a significant share in the agricultural economy. These amounts represent the average for agriculture as a whole. Due to the dependence of agriculture on climatic factors, the annual variation of agricultural production strongly influences the level of economic efficiency.

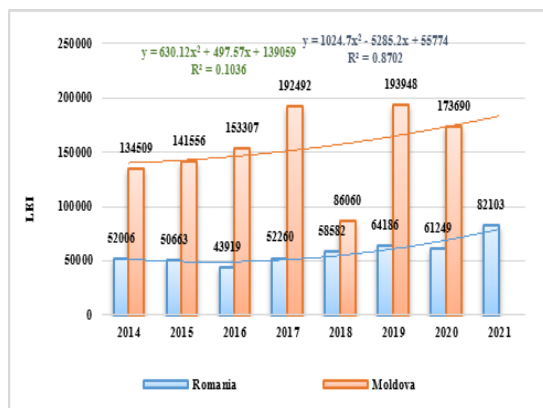


Fig. 10: Labor productivity in agriculture calculated at the value of agricultural production

Source 1 (Romania): Calculations based on EUROSTAT data series, years 2014-2021, <https://ec.europa.eu/eurostat/data/database> (accessed June 20, 2021) Economic accounts for agriculture - values at current prices [aact_eaa01]

Source 2 (Moldova): Calculations based on data series National Bureau of Statistics Republic of Moldova, >> Social statistics >> Labor force and wage earnings >> AFM - Employment and *unemployment*, <https://statbank.statistica.md/>

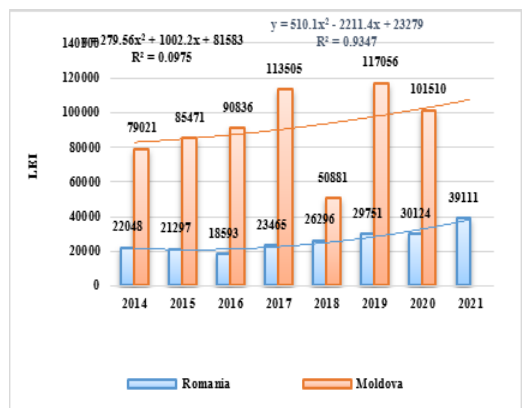


Fig. 11: Labor productivity in agriculture calculated at the GVP value

In the period 2014-2021, *labor productivity in Romania* is decreasing, on average, by 5285.2 lei/year Romania, while *in Moldova labor productivity* was increasing, on average by 497.57 lei/year. Decreases are also recorded in labor productivity calculated at the gross added value, on average by 2211.4 lei/year, compared to Moldova where labor productivity increases, on average by 1002.2 lei/year. In Moldova, the factors that led to the increase in labor productivity calculated at the GVP value are due to the increase in the quantity of goods and services, for the same number of employed persons, but also due to lower intermediate consumption in agriculture and salary expenses Fig. no. 8.

Conclusions. The study highlights the existing differences at the level of the resulting value indicators in the agricultural sector in the economy of Romania and Moldova, for the time horizon 2014-2021. From the point of view of the input factors that contribute to obtaining agricultural goods and services, the value dimension of the indicators, expressed as a percentage, was followed, making their comparison possible. The reason would be a simple one, presented in the introduction, namely that the agricultural land in Moldova represents 2.48 million hectares, which in Romania represents only the arable surface cultivated with corn. The study indicates the increase in labor productivity, calculated at the GVP value, which means that the agricultural sector of Moldova is a producer of goods and services with increasing value, the sector being efficient from an economic point of view. In Romania, the negative values of labor productivity indicators are due both to the large number of labor force working in agriculture, as well as due to the high intermediate consumptions found in the high purchase prices of inputs.

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CONSUMERS' PERCEPTION TOWARDS QUALITY CERTIFICATIONS: IS THIS THE KEY TO HELP RURAL AREAS' RESILIENCE?

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Summary

The still ongoing COVID-19 pandemic and the current Russia-Ukraine war have deeply impacted the world, with aftermath that will long last. The whole EU food supply chain has been placed under unprecedented stresses and consumers are one of the most impacted stakeholders as, on the one hand, they have concerns related to price increase, and on the other they are attracted by certified food, characterized by a combination of environmental and human factors which are linked to a specific territory.

Purpose: The purpose of this paper is to investigate in two different EU countries the extent to which voluntary quality marks such as Protected Designation of Origin (PDO) and Protected Geographical Identification (PGI) may influence consumers' choices, trying to evaluate if their use can help the resilience of the agri-food supply chain.

Research methods: The method consists of an empirical survey of young consumers in Italy and Poland. The sample groups were chosen from University students in both countries. A statistical evaluation of the differences found between the two sample groups is provided. The survey includes a preliminary qualitative research phase with personal dialogues useful for the formulation of the questionnaire, based on the real needs and expectations of consumers.

Results: The answers are slightly different in the two analysed countries. In Poland, the COVID-19 pandemic has been perceived as an average factor of habits changes while the Russia-Ukraine conflict has not influenced shopping behaviours. For the Italians, instead, these two crises have not changed University students' attitudes. The results show the importance of quality labels in consumer choice and the interest in PDO and PGI certifications which play a crucial role in the resilience of the rural economy by keeping those areas populated and rural traditions alive.