

AGRICULTURAL LAND MARKET IN THE REPUBLIC OF MOLDOVA: RETROSPECTIVE FACTOR-ANALYSIS AND DEVELOPMENTAL FORECAST

Tudor BAJURA, PhD., Professor, National Institute for Economic Research, Academy of Economic Studies of Moldova, Republic of Moldova, bajura2020iefs@gmail.com

Efim ZUBCO, PhD., Associate Professor, Technical University of Moldova, Republic of Moldova, efim.zubco@gcg.utm.md

Abstract: *Along with forest areas, aquatic areas and/or located under different infrastructure components (residential spaces, those intended for industry, transport, etc.) agricultural land constitutes: the largest share of the local land fund (61.2%); the largest physical area – 2496.4 thousand hectares and (as will be shown later) – the greatest natural wealth of the country. Being revitalized at the beginning of the current century (summer of 2000), the above-mentioned market showed dynamic rates of development, having as the main evaluation indicators both the sale-purchase areas and their market prices, the integral sums of money, reserved for carrying out transactions respectively and (as the end result) the stable functioning of domestic agriculture as a whole.*

Keywords: *farmland; forest fund; market prices; sale-purchase transactions; privatization of agricultural land; concentration of agricultural areas.*

1. Introduction

Being at the stage of almost a quarter of a century of operation, the agricultural land market in the Republic of Moldova can obviously have both successes and shortcomings regarding the execution of its main tasks. It should be emphasized that one of the basic tasks is "...the transmission through the use of market mechanisms and instruments (sale-purchase, exchange, pledging, lease, etc.) of agricultural land in private ownership (temporary use) to the most skilled farmers, able to use them with maximum economic efficiency" [1].

If we also recall the fact that the economic-financial conditions, in which the operation of the domestic land market was launched, were really very tough (for example, the practically canceled subsidies of the state and the average annual interest rates for bank loans at the level of 20÷30%), it is easy to conclude the presence of extraordinary difficulties in carrying out the first sales-purchase transactions of agricultural land on the local market. Also in this context, we remind you that the sale of these lands to foreign investors was and is prohibited, making the starting situation for this market even more difficult.

With all these difficulties, associated with another series of economic and financial problems (first of all - the enormous, usually – historical, debts of the former kolkhozes and/or state farms), right from the first day after the completion of the National "Land" Program (summer of 2000), we can note the successful revitalization of the agricultural land market in the Republic of Moldova almost from the "zero" level. At the same time, it should be emphasized that not all land market problems have been definitively resolved, which is why this article was developed.

2. Materials and methods

Being analyzed in detail, the agricultural land market in the Republic of Moldova shows us some common trends, specific to all areas and/or geographical regions, which allow us to study it as an integral. At the same time, having the absolute and/or relative dimensions of domestic agriculture not too large, we draw attention to the fact that a large part of analytical indicators differs disproportionately from one another. For example, the highest market price of agricultural land in the Republic of Moldova exceeds the lowest analogue price by 13.2 times, the annual number of sales-purchase transactions from one district to another differs almost 100 times, etc.

So, along with the influence of the objective factors, either of the formation of market prices, or the intensity of the participation of the current owners of the agricultural land, as well as the potential investors in this market, in its successful day-to-day operation, we can find the existence of the enormous difference in terms of the organizational factor, more precisely, the complete lack (in some places or temporary – in other) of this important factor in the functioning of the land market. In the previous publication [2] we drew the reader's attention to the lack of transparency of the agricultural land market in the Republic of Moldova. Given that the situation, regarding transparency and access to information, has practically not changed, that a lot of important decisions both from the part of buyers (investors) and (especially) from the part of potential sellers are made randomly, without any detailed familiarization of the parts of the sale-purchase deed with all the subtleties of the respective process as such, many of the potential participants simply refuse to start the procedure for the sale-purchase of agricultural land. As a consequence, as shown by the last General Agricultural Census, on that date out of the total of 1285137.85 ha of privately owned agricultural land, 571503.71 ha or 44.5% were and are fully leased [3].

Obviously, the overwhelming majority of these lands are devoted to the production of field crops, primarily wheat, barley, corn and sunflower for the final realization of which local farmers usually have no market. Overcoming the situation of excessive dominance of extensive crops, crops with relatively and absolutely low added value on the fields of the Republic of Moldova cannot be practically achieved without the reduction through levers and market mechanisms of the leased areas, especially with the short term lease, which is widely practiced in the country. Along with solving a whole series of organizational problems, the local land market must also have a well-argued methodological apparatus, permanently updated and, as has already been pointed out, functional in "on-line" regime with open access (without any payment for the use of the respective database) for all interested persons.

Along with the ones highlighted above, this article provides for the finalization of the updated database regarding the current dimensions of some of the main factors forming the market prices of agricultural lands, including:

- inflation factor (devaluation of the Moldovan leu, lei MD);
- the geographical placement factor of the assessed lot of agricultural land;
- soil quality factor.

Obviously, the general list of factors named above is much wider and much more diverse, for which reason the authors will be recognized by their colleagues for any contribution regarding the improvement of the methodological part of this work.

3. Results and discussion

Any economic activity around the globe is currently and/or must be carried out under the following conditions:

- inflationary economy;
- deflationary economy;
- the economy with so-called - "zero" inflation.

Being indisputable this simple finding is easily acceptable theoretically, but with much difficulty realized practically. Anyway, it's no big secret to anyone about existing annual inflation levels of 100% and more. Negative levels of inflation (called - deflation) can be encountered, but more - as the exception. This situation also prevails with the "zero" inflation case.

So, the inflationary mode of operation of economic agents absolutely prevails. From here, unequivocal conclusion: the overwhelming majority of situations in which the market price of one or another asset is established, including - agricultural land, constitutes an inflationary economy, that is, an economy - based on the lower or higher, but permanent, devaluation of the money. And, as before, all this money serves as a tool (indicator) to evaluate different types of material and/or immaterial assets.

Obviously, if the analysis periods of the respective markets are relatively and/or absolutely short (for example – 2-3 years), and inflation rate (devaluation of money) – relatively and/or absolutely non-essential (symbolic), then the interdependence and their mutual influence can be ignored. In the overwhelming majority of cases, however, they must be taken into account (tab.1, fig.1).

Table 1. Trends and dynamics of agricultural land market development in the Republic of Moldova at the current post-privatization stage

Years	Area of land transacted, ha	Market price of agricultural land, lei MD/ha	Total amount of transactions for the sale and purchase of agricultural land, million lei MD	Annual inflation rate [5], %
2000	7338,0	3687,0	27,1	31,7
2001	8539,0	2958,0	25,3	10,0
2002	1616,0	3138,0	5,1	5,2
2003	32323,0	3693,0	119,4	11,9
2004	43878,0	3216,0	141,1	12,5
2005	21825,0	4778,0	104,2	10,0
2006	28096,0	6965,0	195,7	14,1
2007	34101,0	9539,0	325,3	13,1
2008	35949,0	8511,0	306,0	7,3
2009	25214,0	8911,0	224,7	0,4
2010	19021,0	16502,0	313,9	8,1
2011	19930,0	13444,0	267,9	7,8
2012	10159,0	13719,0	139,4	4,1
2013	12906,0	16785,0	216,6	5,2
2014	15652,7	19851,0	311,1	4,7
2015	18379,9	17669,0	326,4	13,6
2016	17937,0	18570,0	333,1	2,4
2017	18082,0	19624,4	354,8	7,3
2018	17463,2	19893,1	347,4	0,9
2019	18574,9	24570,9	456,4	7,5
2020	19851,0	28641,5	568,6	0,4
2021	15660,6	40078,9	627,7	13,94
2022	11483,3	55610,8	638,6	31,34
Total	453979,5	-	6375,8	-

Example of the land market in the Republic of Moldova, being analyzed from the beginning of the revitalization stage (year 2000) until the last year, for which we have the respective data (year 2022), having a period of operation of 22 years and the range of rate fluctuations of inflation of the Moldovan leu from 0.4% to 30.34% annually, allows us to conclude that under the aforementioned conditions, the effect of money devaluation is the most important factor in boosting the dynamic functioning of the land market.

According to the data in table 1, the total amount of agricultural land sale-purchase transactions during the entire above-mentioned period constituted more than 6.3 billion. lei MD or more than 277.2 mln. lei MD annually. Regarding the area of agricultural land, drawn into its market circuit exclusively through sales-purchase transactions, it is necessary to emphasize that reaching the highest peak in the first decade of the current century (first of all - the years 2003-2009), the absolute and the weighted size of the sold-bought areas show a gradual decrease, with an area of barely 11.5 thousand ha in 2022. Obviously, such a dramatic decrease in relative and absolute sales-purchase areas, reflected in tab. 1 and fig.1, is stipulated primarily by the increase in their market prices. As a consequence, the total amount of sales-purchase transactions in the last years permanently exceeds the figure of 600 mln. lei MD. Considering the relatively stable number of these transactions (21154 units in 2022), the average surface of each of them is 0.54 ha, i.e. – approximately 1/3 of the average share of agricultural land privatization, which, in turn, constituted during the privatization years (1998-2000) – 1.7 ha per one person and, as a rule, was divided into three lots: arable land; orchard and vine yard plantations.

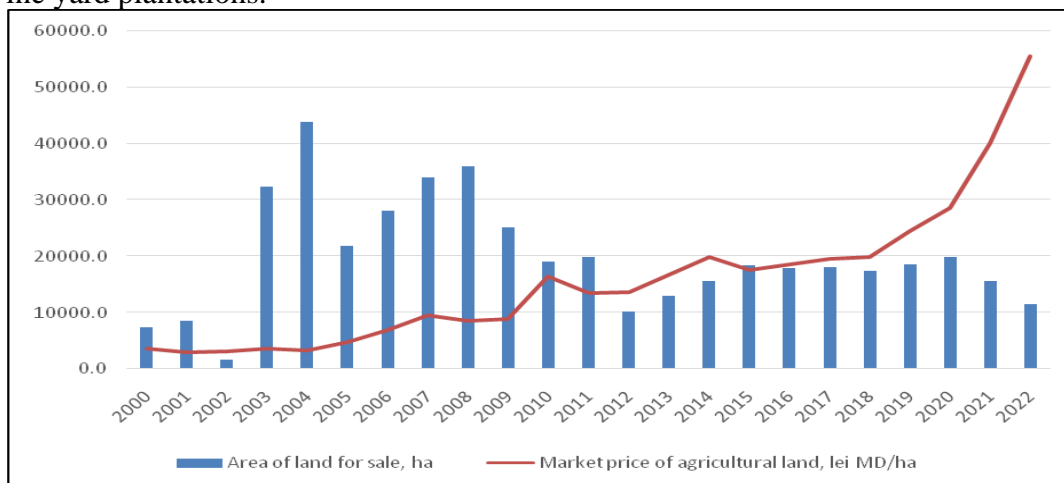


Fig. 1. The dynamics and interdependence of the main operating characteristics of the agricultural land market in the Republic of Moldova

As a preliminary result, we can state that at the current stage of development of the agricultural land market in the Republic of Moldova, through the functioning of this market there is an initial concentration of agricultural areas, in most cases, the lots of land, previously obtained in the process of the privatization. At the same time, along with qualitative assessments regarding the interdependence of the main dimensions of the agricultural land market, it is also necessary to establish some of its quantitative dimensions. The discount indicator (ID) evaluation formula is used as the calculation algorithm:

$$ID(n; r) = \frac{1}{(1 + r)^n} \tag{1}$$

where:

n – number of periods (years);

r – the annual rate of inflation, %.

Taking into account the fact that the year 2000 must be excluded from the respective calculations, we have as the final result of using formula (1) the transformation (as a consequence of the devaluation) of one lei MD from 01.01.2001 into 16.6 bani - at the end of a.2022. So, the total devaluation of money in that period is 6.02 times. Also during this time period, the market price of agricultural land in the Republic of Moldova increased from 3687.0 lei MD/ha to 55610.8 lei MD/ha or 15.08 times, almost 40.0 percent of which are

stipulated by the effect of devaluation of money, and the rest – 60.0 percent by other phenomena, first of all – by the positive (profitable) effect of using money, invested in the purchase of agricultural land. It should also be noted that a good part of this positive effect is simply imaginable. Investors are convinced that the market prices of agricultural land will continue to rise in the coming periods of time as well.

Another part is based on more or less concrete facts. From our investigations we can draw the conclusion that the most tangible of the latter is the geographical location of the plot of agricultural land (tab.2).

Table 2. The regional aspect of the agricultural land market in the Republic of Moldova, year 2022

District	Area, ha	Total amount of transactions, MD lei	Price, MD lei/ha	Number of transactions, un.
Northern Region				
Balti municipality	42,1479	3756155,75	89118,46	117
Briceni	504,86289	19345038,26	38317,41	940
Donduseni	315,6913	14902148,81	47204,81	292
Drochia	393,9281	12753452,95	32375,08	531
Edineti	519,3931	19772507,59	38068,48	764
Falesti	200,7225	8349879,95	41599,12	337
Floresti	11,7374	355638,9	30299,63	19
Glodeni	337,381	20374428,75	60389,97	680
Ocnita	467,5758	55084193,01	117808,05	770
Rascani	775,9544	32025966,32	41273,00	1372
Sangerei	429,0403	31951696,44	74472,48	632
Soroca	1104,4022	41757357,52	37809,92	1899
Total NORTH	5102,83689	260428464,3	51036,02	8353
Central Region				
Chisinau municipality	237,3593	66248943,34	279108,27	828
Anenii Noi	320,00037	13936992,35	43553,05	623
Calarasi	199,6796	6105559,46	30576,78	467
Criuleni	80,9104	7113153,91	87913,96	266
Dubasari	176,1916	10025662,06	56902,04	570
Hancesti	226,5591	6914474,25	30519,52	480
Ialoveni	602,0635	72136771,28	119815,89	1826
Nisporeni	267,6085	13069296,77	48837,38	653
Orhei	393,8454	13471004,5	34203,79	981
Rezina	356,4198	16476312,84	46227,27	469
Straseni	236,5198	19445266,05	82214,12	839
Soldanesti	508,2061	20564866,49	40465,60	974
Telenesti	178,3989	6630936,52	37169,16	461
Ungheni	252,704	10741475,78	42506,16	346
Total CENTER	4036,46637	282880715,6	70081,28	9783
Southern Region				
Basarabasca	87,5055	8270263,63	94511,36	119
Cahul	692,8457	30135031,02	43494,58	969
Cantemir	174,5394	6748603,73	38665,22	277
Cainari	26,0168	549801,6	21132,56	46
Causeni	336,0855	10572769,87	31458,57	477
Ceadir Lunga	46,9888	1199977	25537,51	79
Cimislia	116,0587	4338401,12	37381,09	154
Comrat	161,9891	7371408,56	45505,58	174
Leova	201,9789	6248467,2	30936,24	118
Taraclia	149,1482	5529659,06	37074,93	177
Stefan Voda	110,1816	4043914,53	36702,27	196
Vulcanesti	240,686	10279662,87	42709,85	232
Total SOUTH	2344,0242	95287960,19	40651,44	3018
Total on the Republic of Moldova	11483,32746	638597140	55610,81	21154

According to the data of tab.2, we can draw a simple conclusion regarding the scenario of attracting considerable investments in the development of the two main municipalities of the country: Chisinau and Balti. Being surrounded by a whole series of suburbs (previously – ordinary villages), these municipalities have enormous areas of agricultural land, which, having undoubted prospects of being transformed (with time) into residential spaces, infrastructure spaces, etc., demonstrate advanced increase in the market prices of the respective lands, even if the latter are recognized (today) as agricultural lands.

Table 3. The correlation between soil quality and the market price of agricultural land in the Republic of Moldova (except for municipal units), the dates of 2022

Range of soil quality, points	Number of administrative-territorial units, one.	Total agricultural land sold-bought, ha	Weighted average credit score [4], points	Weighted average market price of agricultural land	
				lei MD /ha	lei MD / points-ha
70 and more	10	4969,77	72,4	44380,5	613,0
60÷69,9	10	2488,82	63,8	54907,5	860,6
59,9 and less	11	3029,65	56,9	43047,9	756,6
Total	31	10488,23	63,6	46493,6	705,7

The cities of Ialoveni (suburb of Chisinau) and Ocnița (strong railway junction of the Republic of Moldova) can also be highlighted by their geographical location. Taken as a whole, the market prices of agricultural land in these 4 administrative-territorial units (both municipalities and/or districts) in 2022 recorded more than 3.5 thousand sales-purchase transactions of agricultural land with the total area of 1350.0 ha with the average price of 146093.38 lei MD/ha, which is 2.6 times higher than the average price in total on the territory of the Republic of Moldova.

With regard to the creditworthiness of the soil, within this publication, the grouping of administrative-territorial units (except those on the left bank of the river Dniester) was carried out on three ranges of creditworthiness: 1 range – 70 points and more; 2 range - 60÷69.9 points; 3 range – 59.9 points and less (tab.3).

As shown by the data in tab.3, unlike the first two factors of agricultural land market price formation (inflation level and/or place of placement), the correlation between these prices and the soil quality indicator is not so obvious to us and is often not even taken into account. It should be emphasized that at the beginning of the process of privatization of agricultural land, the respective indicator was evaluated (theoretically) at the level of 289.53 lei MD, calculated for one point-hectare. We remind you that the calculations were made starting from the exchange rate of the national currency against the US dollar – 4:1. So, the market price of a point-hectare was set at the level of 72.38 US dollars for a point-hectare, that is, it was approximately two times higher in comparison with its real size today, given the current exchange rate - 18.15 lei MD for one US dollar [6;7].

4. Conclusions

Although the agricultural land market is a commodity market, unlike other commodities these lands are not produced by human labor. Hence the conclusion regarding the need to intensify the land market (not only agricultural ones) with the aim of achieving the most stable balance between goods and money on the local market of the Republic of Moldova and, as a result, reducing the inflation rate of the national currency.

Two ways of influencing land markets on the level of devaluation of the national currency are highlighted:

the first - in the case of insurance of the free, open and transparent operation of the land market, when the responsible state authorities ensure the participants in sales-purchase transactions with truthful and permanently updated information, the above-mentioned market attracts the largest (possible) sums of money, reducing their pressure on other forms of goods and/or services, as a result – reducing the level of inflation in the country. This modality represents a passive form of combating the rate of money devaluation in the country (the rest of the factors being recognized as neutral);

the second - taking into account the fact that a good part of the agricultural lands and, practically, the entire surface of the forests of the Republic of Moldova, as they were and still remain in the property of the state, the continuation of the process of their privatization (this time - through auctions, against money, etc.) will cause the withdrawal of enormous sums of money from the market of other forms of goods and/or services, will intensify the process of extinguishing the state's debts without accelerating the speed of printing new money to ensure the state's current payments.

Regarding the forecast of the development of the agricultural land market in the Republic of Moldova, the most likely scenario will be the gradual reduction of sold-purchased agricultural areas with the further increase of their market prices at the level of 6-7% annually in case of compliance with the inflation corridor of the national currency within previously planned limits of 3-5% annually.

Obviously, more pronounced fluctuations in the inflation rate (in the first place) or dramatic changes in important legislative acts from the respective field can cause essential deviations from this forecast.

5. Acknowledgments

Developed as part of the State Program "Elaboration of new economic instruments for evaluating and stimulating the competitiveness of the Republic of Moldova's agriculture for the years 2020 - 2023" (number - 20.80009.0807.16).

6. References

1. *Development strategy of the agri-food sector in the period 2006-2015*, Ministry of Agriculture and Food Industry of the Republic of Moldova, Academy of Sciences of Moldova, Chisinau, 2006, p.8
2. Bajura, T.; Zubco, E.: *20 years of operation of the agricultural land market in the Republic of Moldova: achievements and perspectives*, RevCAD Journal of Geodesy and Cadastre, Romania, 2022, volume 33, p.93-100, 0.4 c.a. ISSN 1583-2279, <http://revcad.uab.ro/index.php?pagina=-&id=2&l=en>; http://revcad.uab.ro/upload/54_851_12_bajura_zubco.pdf
3. *General Agricultural Census 2011 in the Republic of Moldova*, Chisinau, NBS, 2016, pg. 57
4. *Decision of the Government of the Republic of Moldova no. 391/2022, Annex no. 4 "Qualitative characteristics of agricultural land for completing the Land Cadastre of the Republic of Moldova at the level of administrative-territorial unit, district, municipality and republic (situation on January 1, 2022)"*
5. <https://infomarket.md/ru/marketpuls/278181>
6. *The Official Gazette of the Republic of Moldova, Law on the normative price and the method of sale and purchase of land*, September 4, 1997, no. 57-58, pp. 4-12
7. <https://bnm.md/ro/content/ratele-de-schimb>, visited on 31.10.2023

Annex1

The qualitative characteristic of agricultural land for completing the Land Cadastre of the Republic of Moldova at the level of administrative-territorial unit, district, municipality and republic (situation on January 1, 2022)

Name of administrative-territorial units	Total agricultural land, ha	Of which subject to pedological research, ha	Average weighted credit score, points
Anenii Noi district	89329	66264	61
Basarabeasca district	29454	21637	56
Briceni district	81446	58116	74
Cahul district	154525	121125	58
Cantemir district	86782	65725	59
Calarasi district	75353	41461	51
Causeni district	129861	100528	62
Cimislia district	92370	73068	62
Criuleni district	68773	51512	70
Donduseni district	64414	50445	73
Drochia district	99662	82867	76
Dubasari district	31321	21597	68
Edinet district	92026	72029	75
Falesti district	107258	78331	62
Floresti district	110818	87922	68
Glodeni district	75618	54717	71
Hincesti district	147200	93474	59
Ialoveni district	78353	53652	60
Leovadi district	76461	58440	57
Nisporeni district	62896	39272	53
Ocnita district	59747	42379	69
Orhei district	122830	81979	65
Rezin district	62179	43322	66
Riscani district	93604	72203	74
Singerei district	102660	77590	70
Soroca district	104779	78190	70
Straseni district	72909	32240	55
Soldanesti district	59808	42184	70
Stefan Vodai district	99838	80423	63
Taraclia district	67395	57119	57
Telenesti district	84866	62671	57
Ungheni district	106466	70529	55
Chisinau municipality	43301	26761	64
Balti municipality	7801	3060	70
Bender municipality	3870	1236	75
The autonomous territorial unit of Gagauzia	181844	151972	59
Total	3027817	2216040	64