

THE ROLE OF THE GENERAL FACTORS IN THE FORMATION OF THE AGRICULTURAL LAND VALUE

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Abstract: *The analysis of the agricultural land market for a relatively long period (about 20 years) in the Republic of Moldova reveals a major dependence between the value of the land and the social and economic situation in the country.*

We should note the role of the agricultural land value as the country's greatest wealth in the implementation of economic policies such as fiscal policy, credit-banking policy, etc. The instability of the increase in the value of agricultural land leads directly to economic and social instability, especially when agriculture is the main branch of the country.

The dependence of the agricultural land value on the economic situation in the country is an objective reality.

We should identify the factors of influence on value and keep them at the level necessary for the social and economic development.

Obviously, this reality creates a series of exploitation conditions, obligations, rules, which then turn into a legal framework and even into the traditions of the nation. In this context, it is important to know the natural potential, the dynamics of the agricultural land value in correlation (dependency) with the factors of influence on it.

This research is based on the analysis of agricultural land transactions for the period mentioned above. The analysis period has been selected for several reasons. The main condition was the ability to gather and analyze information.

This article doesn't answer only one question: whether the obvious trends for the Republic of Moldova are equally real in another country with less agrarian economy.

Keywords: *agricultural land value, economic crisis, qualitative analysis of agricultural land.*

1. The importance of agricultural land valuation

1.1 The conceptual aspect

The necessity of the social and economic development of the Republic of Moldova (of the whole society) is an axiom, a philosophical conception that cannot be questioned. In this context, knowing the factors of influence on the social and economic situation is of major importance. In the present study the author demonstrates not only the social and economic influence on the agricultural land value but also, which is very important for the problem, the influence of the value on the social and economic situation.

The interaction between these processes, the detailed knowledge of the certain factors of mutual influence means knowing the ways of social and economic development.

If "social and economic development" is a general philosophical notion, then "land value" is a certain dimension that can be identified, determined, measured, and directly influenced.

Thus, the knowledge of the interaction between the agricultural land value, the social and economic development level in an agrarian country, such as the Republic of Moldova, represents an objective necessity, a conceptual problem. At the same time, knowing the agricultural land value is a relatively new but multilateral science in the Republic of Moldova.

1.2 The theme and subject of the study

It is wrong to consider that the social and economic situation in the Republic of Moldova influences only the agricultural land value and vice versa: the agricultural land value influences only the social and economic situation.

This study concerns a narrow segment of social and economic relations, and namely: the interaction between the agricultural land value and the social and economic situation in the Republic of Moldova.

The study period includes the last 19 - 20 years. This period of time is in fact equal to the age of the land market (real estate), including the agricultural land in the Republic of Moldova. During this period the respective state institutions (Land Relations and Land Management Agency, Territorial Cadastral Offices, Real Estate Register, etc.) have been formed, allowing a massive accumulation of quantitative, qualitative, legal etc. information, related to the land and real estate.

Based on the above mentioned theme, the object of the study are all the agricultural lands in the Republic of Moldova, both in the private and the public sector, viewed from the point of view of market relations, of their sale- purchase, values and market prices.

The determination of the agricultural land value as an object of evaluation and of this study has its peculiarities because it has many features. Land is perhaps one of the most complicated objects of study because of its structure, of the way of use, which inevitably, influences the value.

The differentiated analysis of the values of each destination subcategory or way of use also represents a lively interest in analyzing the process of building the value of agricultural land.

This topic will be the subject of another study that will then be integrated into wider studies.

For these reasons, the subject of this study is the agricultural land used for the cultivation of field plants, vineyards and orchards, pastures, hayfields taken as a whole.

1.3 Purpose of the study, materials and methods applied.

The agricultural land value is a derivative of many factors of influence, both general and local. When our goal is to determine the value not only of a separate land sector but of the entire land fund of the country (the Republic of Moldova), the share of the general factors in the final result will have its peculiarities.

The analysis of the agricultural land market, also based on the content of this study, shows that the share of the general factors in different study periods is very different and with a variable influence.

One of the purposes of this study is to track the impact of general factors on the agricultural land value over a period of about 20 years. The 20-year study period allows us to segment it over time depending on other social and economic factors.

In terms of the selected topic, the study period (1999 - 2018) is also interesting because during these years the Republic of Moldova experienced the initiation and development of

economic reforms, the post-privatization period, the negative influence of the economic and political crisis, etc. These moments rarely occur in everyday life and they are poorly analyzed and described in scientific papers.

The purpose of the study is, in general, to determine the agricultural land value during the periods of significant social and economic conditions (growth, fall, and stagnation). Obviously, the influence of the economic crisis on the value of agricultural land is of particular interest in this study. The current stage is also specific by analyzing the artificial (anthropic) impact on the agricultural land value.

In this context, there were used the following informative materials:

-the annual and regular information of the National Bureau of Statistics of the Republic of Moldova;

-the annals of the Agency for Land Relations and Land Management and the Real Estate Register of the State Enterprise "Land Management";

-the annual and periodic information from EU countries in the domain of land management;

-scientific studies of native and foreign authors;

-other information and scientific studies on agricultural lands, value trends, subsidy policy, soil quality in the Republic of Moldova, etc.

In the study, several study methods have been applied by the authors. They are: statistical data analysis; graphical analysis of trends; systematic analysis of ongoing processes (phenomena); method of analysis and synthesis.

2. The process of analyzing the dynamics of the agricultural land value

2.1 The role of agricultural land in the country's economy

The primary role of agricultural land, for the development of the economy of the Republic of Moldova and for the whole society, has had an axiomatic, even indisputable character, for a long time. At the same time, this axiomatic, indisputable, in some cases even dogmatic, situation has turned into statements without arguments, creating a confusing situation when some authors doubt this reality.

Agricultural land is viewed only from the economic point of view, as a source of income, without taking into account its social and ecological aspect. Some authors attempt to raise the role of customs duties, tourism revenues, etc. Obviously, all legal methods of income acquisition are important and necessary to the country's economy, only the role of agricultural land has conceptual content. The Republic of Moldova can consolidate its sovereignty only through social and economic development based on modern agriculture. By addressing such a view, the role of agricultural land is of crucial importance.

This situation has also been created because of the lack of fundamental studies on the "Social and economic aspect of agricultural land in the Republic of Moldova, etc."

2.2 Selection of agricultural land transactions

The agricultural land value as well as other commodities is not fixed it changes under the influence of various factors of influence, see table 1.

Table 1 The selection of transactions for the period 2013 - 2017

Actions for the selection of transactions	Year to which selection actions refer				
	2013	2014	2015	2016	2017
1. Determining the total number of annual land transactions	95972	343906	359004	367414	-
3. Excluding the transactions with low-negative values (0-100 lei) from the calculations	1500	1500	1500	1500	1500
4. Excluding the transactions with excessively high values (greater than 250 thousand / lei / ha) from the calculations	1000	1000	1000	1000	1000
5. The agricultural land value	13300 lei/ha	15400 lei/ha	18600 lei/ha	17700 lei/ha	16800 lei/ha

In the present study, for the period 1999-2012, the author used the results of the analysis of agricultural land value trends carried out in previous publications. The analysis of the information during the years 2013-2017 is shown in the table above.

In order to carry out this analysis, the information from the Real Estate Register concerning transactions was used.

It is necessary to note that the information in the Real Estate Register held by the Agency of Land Relations and Land Management (ASP Land Management Department) has gaps. Most errors are subjective and may be motivated by the level of maturity of the Register.

In order to increase the level of veracity of agricultural land transactions from the total number there were excluded:

- *land for agriculture sold for other purposes*, predominantly for building individual living houses. The sale price of these lands, especially of those used for building living houses, is much higher and, depending on the share of the total surface of these lands, the agricultural land value will be influenced having unjustified increases. Obviously, to release the agricultural land value from the influence of the value of the land occupied by construction, it is necessary to exclude these transactions from calculations;

- *agricultural land sold at an unreasonably low price*. This is another extreme that occurs on the Moldovan agricultural land market. For example, according to the information from the Real Estate Register, a large number of lands with a surface of up to 1 hectare (about 1500 transactions) were sold at a price of up to 100 lei. It is obvious that 100 lei is not the value of one hectare of agricultural land even under the most critical conditions. In this case we are dealing with wrong information about the transaction price. Such transactions are recorded between close relatives;

- *agricultural land sold at a price higher than 250-300 thousand lei (RM) per hectare*. Most transactions at such a price are recorded in the suburbs of cities (towns) and represent hidden purposes. The land is bought for construction, but at the registration stage this goal is not identified. For these reasons, for the first sight agricultural land is sold at the prices specific for construction. The problem of such transactions occurs at the stage of changing the destination category when, for various reasons, the Government refuses this change and the buyer cannot achieve his purpose.

The amount of 250-300 thousand lei is justified by the market value estimated by the income method. One hectare of agricultural land planted with fruit trees or a grape vine reaches the value of 200 - 250 thousand lei (RM) in favorable conditions.

- *transactions with fruit trees plots*. According to the Land Code, fruit trees plots are classified as agricultural land. At the same time, in most of the cases, these lands have expensive constructions, which raise the value of a comparison unit. These plots have no longer the main purpose of cultivating agricultural crops but are more for family rest. Including these plots in the composition of agricultural land brings unjustified changes in the value of one hectare of agricultural land.

The above-described transaction clearing method is not perfect. For example, the transactions with agricultural land for greenhouse farming, etc. at a high price are unjustifiably excluded from the calculation.

At the same time, as the result of this analysis, the transactions applied in the calculation have a relatively high level of credibility.

2.3 Description of the study

The study scenario is as follows:

-determining the total number of agricultural land transactions made annually during the period of study and recorded in the Real Estate Register which were used in the evaluation process;

-determining the total value of agricultural land transactions included in the Real Estate Register;

-determining the total area of purchased - sold land included in the Real Estate Register;

-analyzing the level of veracity of information about agricultural land transactions;

-determining the total area of the agricultural land in the Republic included in the value estimation calculations;

-determining the total value of all lands included in the value estimation calculations;

-estimating the market value of one hectare of agricultural land.

Table 2 presents the information on agricultural land values estimated between 1999 and 2018. This table was elaborated on the basis of Chart 1 which highlights the oscillations in the agricultural land value. At the same time, both Table 2 and Chart 1 show great differences between different time periods that cannot be explained by the factors already known.

Table 2 The dynamics of the market value of the agricultural land in the Republic of Moldova

Period of study 1999-2007			Period of study 2008-2016		
years	Market value of 1 ha		years	Market value of 1 ha	
	thousand lei RM	euros		thousand lei RM	euros
1999	3,4	162	2009	9,4	448
2000	3,1	148	2010	9,3	443
2001	2,9	131	2011	9,6	457
2002	3,8	181	2012	10,1	481
2003	3,7	176	2013	13,3	633
2004	8,0	381	2014	15,4	733
2005	9,0	428	2015	18,6	885
2006	11,0	524	2016	17,7	842
2007	12,1	576	2017	16,8	800
2008	10,2	486	-	-	-

Source. Real Estate Register (RM) Analysis – the author

2.4 The dynamics of value

From Table 2 we can see that the average market value of one hectare of agricultural land on the territory of the Republic of Moldova increased from 3.4 thousand lei per hectare (in 1999) to 18.6 thousand lei (RM) in 2016 during the period of study.

It is natural to ask the question: what were the reasons for the increase in value, under which influence the market value of agricultural land has increased 5 times (5.5 times).

The graphical analysis of the agricultural land value which was carried out on the basis of Chart 1 demonstrates simultaneous increase in value and a pronounced instability in this increase.

Over the years, the level of information quality is also different. If in 1999 only **1933 transactions** were recorded on an area of **232 hectares**, the value estimation calculations for 2016 are based on **367,000 transactions** on the total area of **135,000 hectares**. Obviously, the level of information veracity selected in 2016 is higher.

Among the general factors that have directly influenced the absolute size of the average agricultural land value are:

- the increase in the level of the market maturity;
- the supply and demand ratio;
- investment policy;
- subsidy policy.

At the same time, the graphical analysis of the average agricultural land value shows the periods when the value of the land was not increasing but stagnating and even falling.

The study also tries to answer the question: what factors influenced the decline in the average market value of agricultural land.

One of the most predictable factors that devalue the agricultural land is the stable-high inflation of the national currency. Annually, only because of inflation, the value of the land falls to about 10%. This factor has a negative impact on the agricultural land value.

The author considers that market segmentation over time may help answer the above questions.

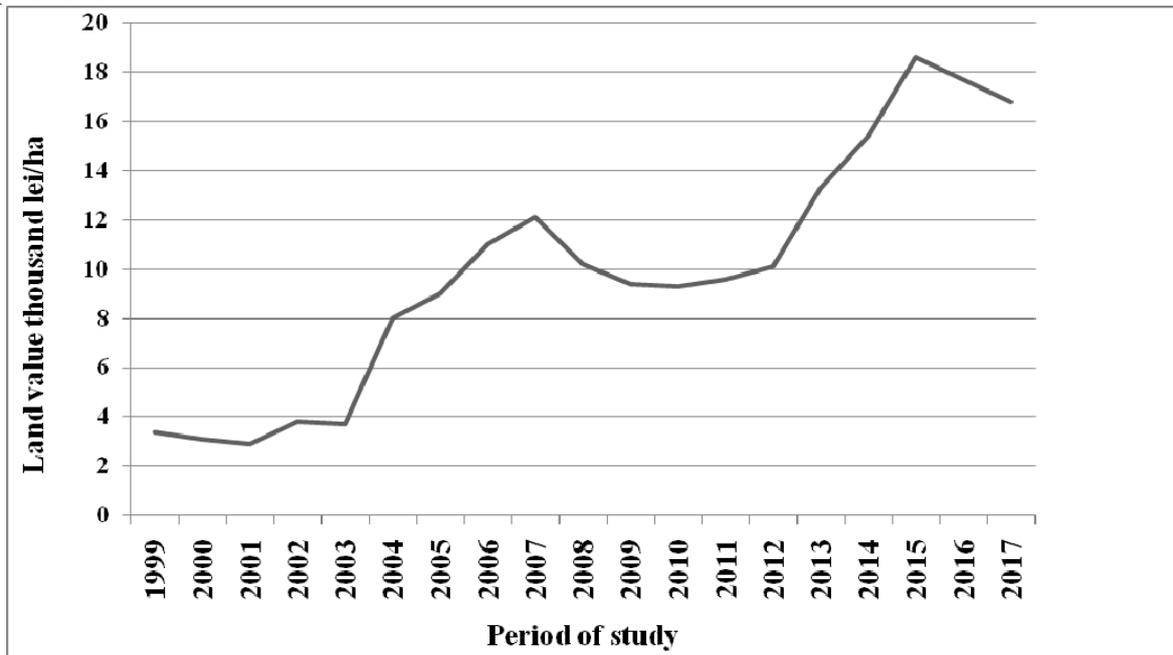


Figure 1. The dynamics of the agricultural land value during the years 1999 - 2018
 Source. The Real Estate Register of RM. The author

2.5 Time segmentation of agricultural land market in RM

Considering the analysis of Chart 1 "Dynamics of the agricultural land value", we can identify four segments where the factors of influence, which are predominantly "general factors", behave evenly in the process of forming the agricultural land value. These factors comprise the time intervals: 1999-2003; 2003-2007; 2007 - 2013; 2013 - 2016; 2016 (17) - ...;

In the author's opinion, the period of time starting with 2016 represents the beginning of a new segment. The perspective of this segment and its peculiarities are the most complicated in the history of Moldova's land market.

It is very important to undertake a profound analysis of each segment of those mentioned. Only this way we can identify the characteristic of these factors of influence on value. At the same time, it is obvious that within the framework of a limited study like the present one, it is impossible to trace all the details of the process, so the subject will be a subject of study for other authors as well.

The period 1999-2003 is characterized by a low level of the social and economic situation. For example, in 1999-2000 the salary of employees was on average of up to 1000 lei (100-150 euros); it was paid with a delay of one year and more. This situation improved in 2003-2004.

The land market was at the initial stage at that time. The Real Estate Register was not the main mechanism of the land right protection. During 1999 there were recorded 1933 transactions on an area of 232 ha.

The bank lending policy (mortgage) had the lowest level due to the mortgage credit insurance. Land by its low value could not be used as a pledge for commercial banks. The budget did not have the means to ensure landowners.

The demand and supply ratio disfavored the value of the land. At a request (buyer) there were at least 10 offers (sellers) of agricultural land. The reason was that landowners were the majority of people who, for various reasons, were deprived of the possibility (age, finances, knowledge, etc.) of working the agricultural land.

For the reasons listed above (budget situation in the banking system), there were limited own investments and subsidies from agriculture.

The situation improved in 2003-2004

Segment 1 (1999-2003).

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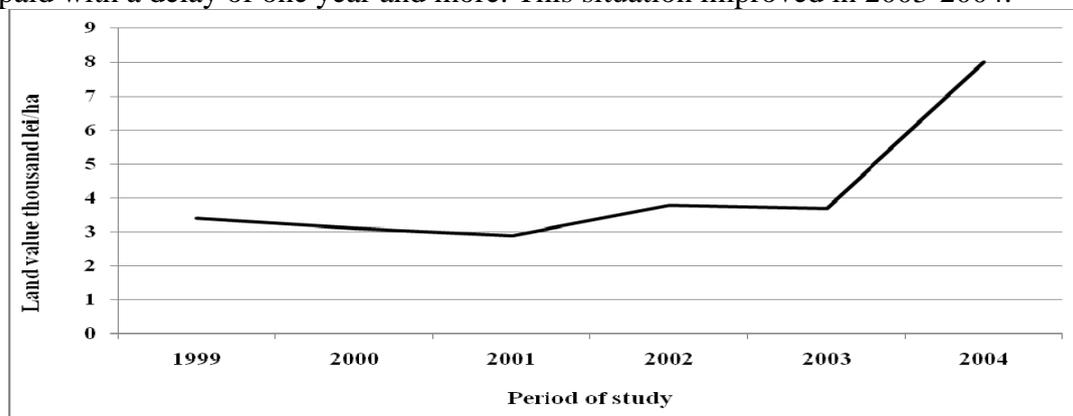


Figure 2. The dynamics of the agricultural land value during time segment 1

Source. Real Estate Register. The author.

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Segment 2 (2003-2008)

The time period 2003-2008 (see Chart 3) is characterized by an essential and even uniform increase in the value of agricultural land from 3-4 thousand lei / ha to 11-12 thousand lei / ha (or 300 - 400%). This period is also characterized by a broad improvement of the social and economic situation in the country, starting with the economic activity of the producers and finishing with the level of the gross domestic product (GDP).

The budget assures agricultural producers. The market is resuming its positions in the Russian Federation. Own investments in vineyards, orchards, law, etc. increase, the state increases state subsidies.

The number of transactions has increased essentially (10 times), which has changed the supply and demand ratio. The Real Estate Register becomes a credible source of information for the bank credit system, this fact has improved mortgage policy on the agricultural land market.

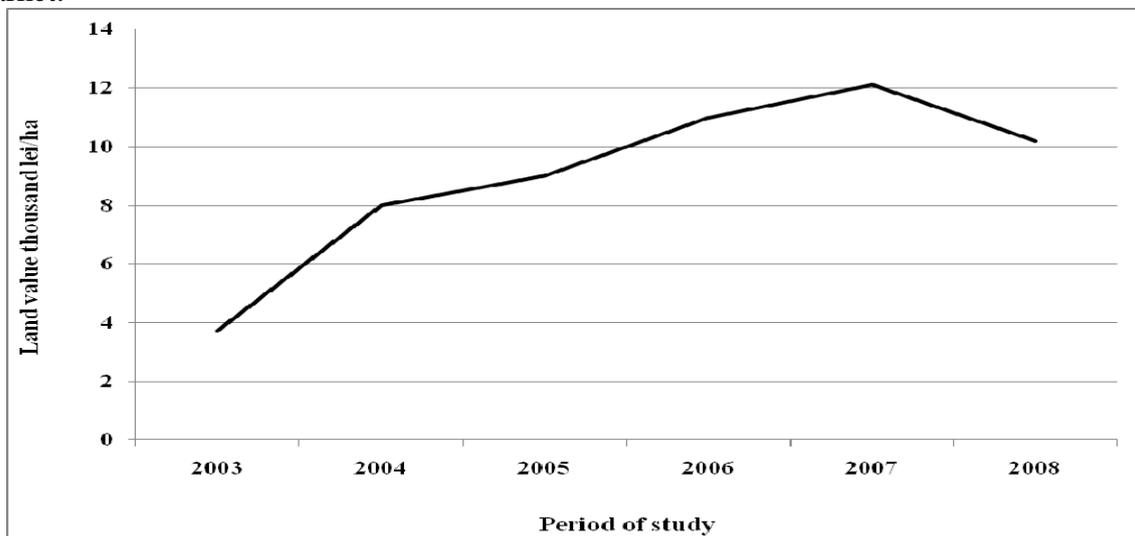


Figure 3. The dynamics of the agricultural land value within segment 2

Source. Real Estate Register. The author.

Segment 3 (2007 - 2012)

Segment 3 (2007 -2012) coincides with the period of global economic crisis in the real estate sector. At the same time, the dynamics of the agricultural land value in this period can be characterized by a stagnation in development. Starting with 2011, the average amount of agricultural land per country has started to increase.

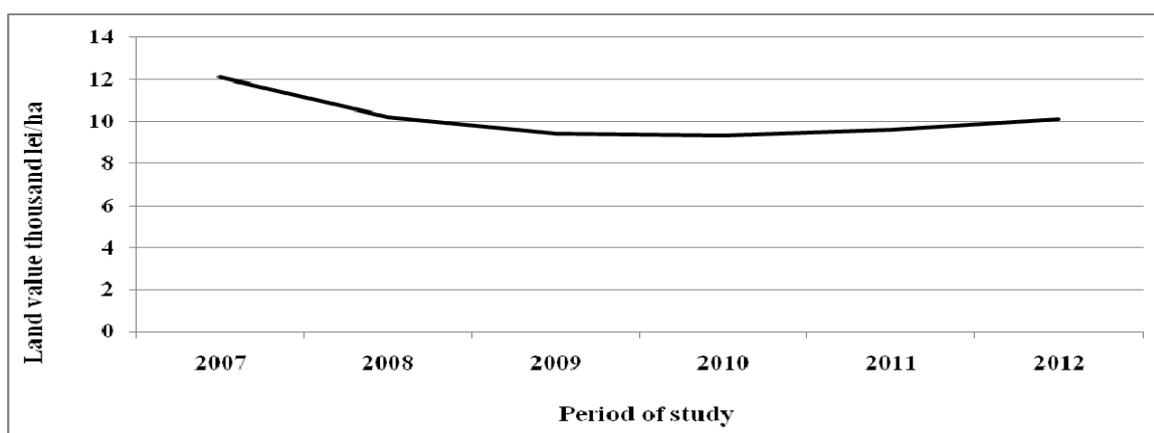


Figure 4. The dynamics of the agricultural land value within segment 3

Source. Real Estate Register. The author.

In the Republic of Moldova, the initial period of the economic crisis (2006-2008) passed characterized by a weak trend of growth, after which, in the absence of anti-crisis measures, an essential decrease of land value (about 25%) followed. Starting with 2010, the situation has stabilized and even a small growth trend is being pursued, which since 2012 has grown in a marked increase.

Segment 4 (2011 - 2016)

The time period 2011 - 2015 is again characterized by a stable increase in the land value reaching about 19 thousand lei RM (885 euros) per hectare (2015), followed by a decrease in value.

Segment 4 can also be characterized by a relatively high maturity of the land market. The number of transactions with agricultural land exceeded 350 thousand in 2016. The demand / supply ratio is becoming more balanced and the volume of subsidies approved by the Parliament for this year exceeds the previous years and is close to one billion.

Segment 5 (2016-2017) represents the current social and economic situation in the Republic of Moldova. The year 2016 is characterized by a sharp decline in the dynamics of the agricultural land value, followed by 2017. The year 2018 being rich in large-scale political events may have a more negative impact.

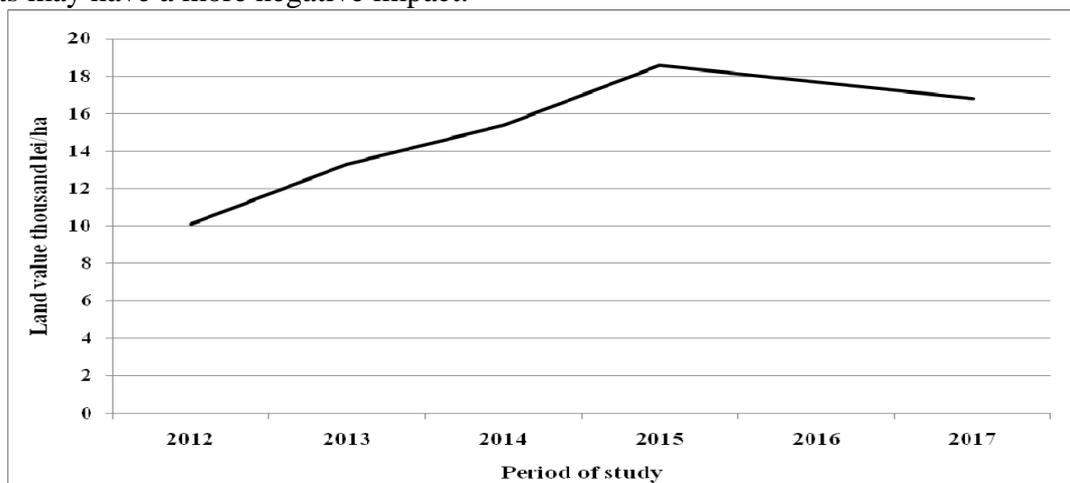


Figure 5. The dynamics of the agricultural land value within segment 4

Source. Real Estate Register. The author.

Segment 5 will give us a specific answer to the question, which are the reasons (factors of influence) on the agricultural land value during this period. It will give us an answer that has not yet been included in all the general factors of influence on value, in the methodology of the evaluation process.

The answer to this question will tell us about the human destructive factor of the society, perhaps the most destructive - corruption.

The social and economic situation, on the one hand, and the value of agricultural land in an unexpected (theoretically unjustified) fall determine a new influence factor with an extraordinary force of destruction we haven't studied so far.

This factor (corruption), which is identified by stealing a billion euros from the country's economy and other actions, affected all economic policies (tax, credit, investment, subsidy, etc.).

3. Conclusions

1. The country's social and economic development is in close interdependence. This study shows an intensive increase in the agricultural land value as a result of increasing social and economic levels. Particular attention is paid to the growth rate - twice (200%) a year in 2003. It is obvious that this increase is due to a general factor that caused the activity (influence) of other factors (regression).

2. Knowing the influence ability of this general factor can enable us to successfully apply it in the land evaluation process, especially in terms of adjusting the values through the methodology of comparable sales.

3. The economic crisis that is graphically reflected in segment 3 during 2-3 years has had a negative impact on the market value of agricultural land in the Republic of Moldova. Considering the analysis of this segment's results we can deduce that the economic policies (in this case the bank lending) manifest a reciprocal complex influence, and namely:

- lack of favorable credits diminishes the value of the land;
- the diminished value of the land reduces the value of the loans.
- only the political decision of the Government can break the vicious circle.

4. The period 2016- 2017 cannot be considered distinct from the previous period. At the same time, segment 5 demonstrates the existence of an unknown and very destructive factor (factors) that has a negative impact on all economic policies - corruption. Such a general factor of influence on land value is poorly studied.

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