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GOVERNANCE OF LAND SUPPLY IN BULGARIAN FARMS – MODES, FACTORS, POST-TRANSITION EVOLUTION[1]

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***Abstract**:* There has been enormous development in land supply governance in Bulgarian farms during the last two decades. However, due to insufficient (statistical, official, etc.) information and traditional inadequate (Neo-classical economics, Agency theory, etc.) approaches, there is no complete knowledge of dominating modes and driving factors of land governance. This chapter fills the gap and identifies dominating modes and factors of land supply in Bulgarian farms. Interdisciplinary New Institutional Economics methodology is incorporated, and original new representative data from the managers of farms of different types and locations is analyzed. The study found that rent and lease contracts are the most common forms of farmland supply, followed by ownership mode and joint cultivation. The importance of different governance modes, forms of supply contracts, the intensity of transactions, types of partners, and kinds of land rent and price varies considerably depending on the juridical type, size, specialization, and geographical and ecological locations of holdings. The main factors for the governance choice are frequency, uncertainty, asset specificity of transactions, and professional experience of farm managers. The amount of transaction costs for finding needed lands and natural resources is among the critical factors strongly restricting the development of many Bulgarian farms, particularly of sole traders and cooperatives, farms with large sizes, holdings specialized in permanent crops and mix crops, those located in plain regions, protected zones, and near big cities, and enterprises in North-east, North-central, and South-central regions of the country. Most problems and costs for land (purchase, rent, and lease) deals of farms are consequences of the lack of available lands, high prices, great fragmentation of land plots, and needs for deals with numerous (co)owners. A comparative analysis with a similar study demonstrated enormous modernization in land supply and overall governance of farms in the last two decades.

***Keywords**: land supply; farms; governance; modes; factors; transaction costs*
***JEL:** Q12; Q13; Q15*

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1. Introduction

Land tenure in agriculture has been among the central topics of analysis in Economic science since its classical period up to the present days (Babajanov et al., 2023; Beingessner, 2023; Bigelow et. Al, 2016; Currie, 1981; Daudu et al., 2022; Georgiev, 2024; Guo et al., 2023; Hayami and Otsuka, 1993; He and Collins, 2021; Léger-Bosch, 2019; Mdoda and Gidi, 2023; Mihailova, 2023; Murken and Gornott, 2022; Onofri et al., 2023; Otsuka et al., 1992; Shouying, 2019; Singirankabo, 2022; Sykuta and Cook, 2001; Zang et al., 2022; Yovchevska et al., 2021). Lands and associated water, ecosystem services etc. are the most important resources in agriculture and therefore the (type and efficiency of) governance of their supply is crucial for the overall development.

In the models of Neoclassical Economics, the market (price) competition is the only mechanism for governing relations between land owners and farm entrepreneurs. The maximum efficiency is easily reached since property rights on lands and other resources are well defined and costlessly transferred. The farm is studied as a "production function" while efficiency of land management is largely determined by technological parameters (selecting profitable product, exploration of economies of scale and scope, etc.). In that "institutions and transaction costs free world", the most important decision for the farm managers related to land supply is to "buy or lease land", and it is easily calculated depending on the market prices of land, rent and capital (Reiss, 1972; Onofri et al., 2023). That approach, ignoring comparative efficiency of diverse governing modes for land supply, still dominates in the most textbooks in farm (agri-business) management (Royer, 2014).

In more sophisticated models of Agency Theory, acknowledging importance of behavioral characteristics and transaction costs, the central issue related to land supply is to design an "optimal contract" between land owner and user (farmer) (Bigelow, Borchers, and Hubbs, 2016; Hayami and Otsuka, 1993; He and Collins, 2021; Liu et al., 2020; Roumasset and Uy 1986). Depending to information asymmetry and risk preferences of parties either fix rent, sharecropping and hybrid contract is selected to protect the principal (the owner of land) interests, and it is easily formally enforced by a third party. At the same time, alternative and efficient for all parties' modes of governance of land supply (short-term or long-term lease, ownership, cooperation, private ordering, etc.), and significant transaction costs for contract enforcement during implementation stage are largely ignored.

In the advanced models of New Property Rights theory, the focus is put on creating ex-ante incentives for performance and innovation though efficient distribution of property rights in the firm (farm) as core assets supply (such as firm specific land plots) is governed by ownership (”residual rights”) while universal assets by short or longer term contracts (Daudu et al., 2022; Feeny and Feder, 1990; Léger-Bosch, 2018; Zang, Yang, and Li, 2022). However, assumptions of "self-fulfillment of contracts" and simplified notion of the firm as "a nexus of contracts" does not pass the realty check. In modern agrarian economy, most contracts are "incomplete", and there are diverse mechanisms for ex-post governance (credible commitment, control, trust) as well as other modes for governing transactions such as public regulations, relation (framework) contracts, trilateral modes, collective forms, etc. Besides, there are various types of farms (individual, family, cooperative, corporative,

hybrid) evolving as a distinct mode of governance and different ("something more") than a simple mix (nexus) of contracts (Bachev, 2022; Ménard and Shirley, 2022).

The New Institutional Economics overcomes deficiency of other approaches and gives more realistic insights on diverse mechanisms, modes and factors governing distribution (supply) of agrarian resources and activities in modern economy (Bachev, 2022, 2023; Guo et al., 2023; James et al., 2011; Sykuta and Cook, 2001). It identifies behavioral, institutional, technological, natural, and transaction costs factors for choice of governance mode, and assesses the comparative efficiency of alternative (practically possible) modes of governance in the specific socio-economic and natural environment. For instance, it demonstrated why in the conditions of unspecified private property rights during post-communist transition in Bulgaria, the short-term (seasonal) rent and production cooperation were the most effective form for land supply and extension of farm size (Bachev and Tsuji, 2001). This framework also helps understand the "logic" of development of contemporary (new) forms of land supply such as lease to buy, lease of entire farm, simultaneous lease-in/purchase and lease out/sell deals, interlinking land supply with inputs and/or credit supply and marketing, ownership integration outside the farm gates, hybrid (public-private) organizations, etc. (Bachev, 2024).

There are few comprehensive studies on dominating governance forms of land supply in Bulgarian farms during EU integration and CAP implementation (Bachev, 2025; Bachev and Terziev, 2001; Ivanova, 2023; Georgiev, 2013, 2024; Georgiev et al., 2023; Kirechev, 2024; Marinov, 2020; Mihailova, 2022; Yovchevska et al., 2021). Most publications focus on land supply in a particular type of farm (family, cooperative), a specific type of contracts (long-term lease, sells), formal modes (written forms, registered deals), only direct (rather than the overall[3]) transaction costs, and are predominantly not representative. At the same time, real factors, modes and efficiency of land supply in country's farms are not properly identified. Consequently, there is no adequate knowledge on the contemporary system of land governance in Bulgarian agriculture, and driving factors and trends of its development.

The goal of this article is to fill the existing gap and identify the modes and factors of land supply in Bulgarian farms. This study is based on incorporation of interdisciplinary New Institutional Economics methodology (Bachev, 2010; Bachev and Ivanov, 2024; Coase, 2009; Furubotn and Richter, 2005; Ménard and Shirley, 2022; Ostrom, 2009; Williamson, 2005) and analysis of new first-hand data collected from the managers of farms of different type and locations.

[3] For instance, transaction costs for land supply could be low but the high costs for external finance supply (e.g. bank credit) deter farm expansion (Bachev, 2022).

2. Methodology and information

The New Institutional Economics puts individual transaction (in our case land supply) in the center of analysis, identifies feasible modes of its governance (e.g. lease, ownership, etc.) in the specific institutional, market, technological and natural environment, and assesses their comparative efficiency in a discriminating (predominately transaction costs minimizing) way (Williamson, 2005). Typically, agents can choose between a range of alternative forms for governing a particular transaction, generic among them being the free market (e.g. seasonal rent, spot purchase-sell deal), a special contract mode (e.g. long-term lease, interlinked land supply against marketing of output), and internal organization (e.g. land ownership, partnership, etc.). Usually, the process of changing the system of agrarian governance is very slow (Bachev, 2023). Therefore, domination of certain modes of governance of particular agrarian activity and transactions means that they are the most efficient[4] for participating agents in the specific conditions of carrying farming activities and exchanges (Bachev, 2010).

In the specific socio-economic and natural environment, the choice of governance form principally depends on the agents' characteristics (preferences, capability, bounded rationality, opportunism[5], etc.) and "critical dimensions" of transactions (such as frequency, uncertainty and assets specificity)[6] . For instance, when uncertainty and assets specificity of transactions are high, a special (contract or internal) mode of governance is needed to increase rationality and safeguard specific investments from possible opportunism. Repetition of transactions between the same agents reduces bounded rationality and opportunistic behavior, and justifies costs for a special governance ("regime of bilateral trade"). Universal transactions are more effectively governed by "invisible hand of market" (high competition, partner can be changed at low costs). A high uncertainty, occasional exchanges between parties, and relation specific investment increase transaction costs and can block otherwise mutually beneficial exchange (needs for a third party and public intervention in private transactions).

Unspecified or badly specified and enforced property rights, and unperfect institutional environment also increase agents' transaction costs. When transaction costs for supply of needed resources and/or marketing of output are significant the potential of exploration of technological economies of scale and scope cannot be realized within a farm, and there is a need for a special external organization. When there is a need for a third-party involvement but required public or private intervention does not come then evolution of agriculture is strongly deformed (less exchanges, low efficiency, missing markets, gray structures, unsustainable development). Detailed adaptation and operationalization of the New

[4] in terms of transaction and production costs and benefits.

[5] transaction costs have behavioral origins - bounded rationality and tendency for opportunism of agents (Williamson, 2005).

[6] They cause variation of transaction costs among principal governing modes (Williamson, 2005).

Institutional Economics methodology into analysis of agrarian structures is presented by Bachev (2010, 2022, 2024).

There is no available statistical and other data for comprehensive analysis of governance structures in Bulgarian agriculture[7] and that requires collection of new micro-economic data about agents, critical dimensions, dominating modes, factors and costs of carrying out farming activities and transactions.

Main agents who govern agrarian transactions and activities are the managers of different type of farms – individual, family, cooperative, corporative etc. Nobody knows better than farm managers the status and conditions of resources, activities and relations, the actual reasons for managerial choices, practically used governing forms (for resource supply, marketing, etc.), specific and overall costs and benefits for the enterprise, key factors facilitating or restricting development of farms, etc. That is why this study is based on first hand data provided by the farm managers.

During November-December 2023 a large-scale survey was carried out with the managers of 345 commercial farms[8] of different juridical type, size, product specialization, and ecological and geographical locations. Farmers were interviewed by the local experts of the National Avicultural Advisory Service and selected as typical for the relevant region of the country. Surveyed farms account for 0,26% of all farms in Bulgaria (MAF, 2023). Majority of studied farms (94,2%) are "Registered Agricultural Producers" comprising 0,5% of all registered agricultural producers in the country (Agrarian Paper, 2023). The structure of interviewed farms approximately corresponds to the contemporary structure of Bulgarian farms. The summary of major characteristics of surveyed farms is presented on Table 1.

[7] That is also true for other countries despite enormous progress in data collection in that respect in the last decades.

[8] Authors express their graduate to all farm managers and experts participated in the survey.

Table 1. Characteristics of surveyed farms (percentage)

Type of farm	Field crops	Vegetables, flowers, mushrooms	Permanent crops	Grazing livestock	Pigs, poultry and rabbits	Mix crops	Mix livestock	Crops - livestock	Bee keepers	Share in total
Physical persons	23,9	90,4	76,8	67,8	50	60,4	57,1	54,6	85,7	67.8
Sole traders	17,4	7,7	9,8	11,3	0	12,5	28,6	15,2	10,7	11.3
Cooperatives	13	0	0,9	4,4	12,5	6,2	0	12,1	0	4.4
Corporations	43,5	1,9	11,6	15,4	37,5	20,8	14,3	18,2	1,8	15.7
Associations	2,2	0	0,9	0,6	0	0	0	0	1,8	0.6
Mostly subsistence	0	2	1,8	2,1	12,5	0	0	0,0	1,9	2.1
Small size	11,6	71,4	60,6	47	25	44,4	50	34,4	43,4	47
Middle size	58,1	26,5	33,9	42,8	62,5	44,4	50	59,4	52,8	42.8
Big size	30,2	0	3,7	8,1	0	11,1	0	6,2	1,9	8.1
Plain regions	88,4	70	67	68,3	75	76,1	85,7	46,4	61,1	68.3
Mountainous regions	11,6	30	33	31,7	25	23,9	14,3	53,6	38,9	31.7
Protected zones	1,2	1,7	3,8	9	0	0,9	0,3	1,2	2,6	9
Near big cities	0,9	2,3	7	13	0	1,4	0	0,9	0,9	13
North-west region	32,6	7,7	7,1	20,3	50	18,8	0	27,3	23,2	20.3
North-central region	15,2	7,7	9,8	9	25	6,2	14,3	12,1	8,9	9
North-east region	17,4	17,3	19,6	19,7	12,5	35,4	57,1	21,2	32,1	19.7
South-west region	15,2	34,6	27,7	19,7	0,00	12,5	0	18,2	8,9	19.7
South-central region	10,9	26,9	22,3	21,7	0,00	16,7	14,3	21,2	17,9	21.7
Soth-east region	8,7	5,8	13,4	9,6	12,50	10,4	14,3	0	8,9	9.6
Shate in total	13.3	15.1	32.5	9.9	2.32	13.9	2	9.6	16.2	

Source: Interviews with farm managers, 2023.

The questionnaire contained 29 main questions and multiple sub-questions on general characteristic of the farm (juridical status, size, specialization, location, etc.) and farm manager/owner (age, gender, education, experiences, etc.), specific modes and factors of governance of all major type farm transactions (supply of land, water, labor, services, short-

term and long-term material and biological assets, finance, knowledge and innovation; marketing of farm output and services, and risk management), and factors facilitating and restricting farm development. The questions and possible responses were designed after extensive literature review and numerous in-depth interviews with farm managers. It was discussed with leading experts in the area, tested with managers of different type of farms in two regions of the country (Plovdiv and Blagoevgrad), and further improved. An option is also given for a new response and comments to all questions.

The goal was to "translate" the basics New Institutional Economics categories (governance, bounded rationality, opportunism, transaction costs, institutional regulations and restrictions, etc.) to the everyday language of the managers in order to avoid any confusion and make a proper analysis. Both formal and informal arrangements, including interlinked, complex and hybrid modes are taken into account. All critical institutional, market, personal, technological, natural, etc. factors for governance choice are accounted for. Total institutionally and personally determined transaction costs are included into analysis (information, learning, precontractual, post-contractual, coalition management and development, etc.). The governance of agrarian transactions (land supply included) is studied holistically since not only specific (direct) but the overall costs of the farm is taken into consideration[9].

In order to improve the precision and avoid misunderstandings, the interviewers were trained by authors and constantly consulted throughout the survey process in person or by telephone. The honesty of farmers responses was ensured by guarantying anonymity, since some concerns were raised about detailed questionnaire and leaking individuals' data to other interested parties (government and tax authority, competitors, etc.).

The land supply section of the questionnaire includes agricultural lands and water governance issues. It comprises five principal questions (with a number of sub questions): Amount of managed land, Frequency of deals with agricultural lands, Type of contract and partner in land and water deals, Type of land price and rent, Problems in land and water supply deals.

Agricultural land is a natural resource and the principal modes of its supply to the farm are external (purchase or lease) and internal (individual or collective ownership)[10]. Therefore, the alternative forms of land governance identified and studied are: a short-term (seasonal) rent contract, a long-term lease contract, farm ownership, and collective cultivation with other farms (coalition contract). For instance, renting from another agent a pasture for one or more seasons for grazing farm's livestock is studied as a lease-in contract. On the other hand, buying the grass harvest from another agent's land by a livestock farmer is classified as an inputs supply contract. Similarly, a contract for transferring land's farming rights to another farm (or solar panel installation rights on farmland) is considered as a lease-out contract,

[9] In fact, the manager optimizes not the individual (e.g. land supply) transactions but the governance of entire farm – all activities and transactions of the enterprise.

[10] Unlike rights on other material and biological assets which could be bought, leased but also "produced" on farm.

while the contract for harvesting farm's yield by another agent (e.g. self-picking cherries by customers) is studied as a marketing contract[11].

The questionnaire used in this survey was updated version of an old questionnaire from a similar large-scale study carried out during pre-accession period to the EU in 2001. The latter gave extraordinary opportunity to compare the results from both studies and analyze the evolution of modes and factors of land supply governance in the last two decades (before and during EU CAP implementation).

The responses of farm managers were summarized and grouped according to the farms' type and personal characteristics of managers. In addition, correlation between important indicators was determined (e.g. between gender, age, education, and professional experience of manager, and form of contract) in order to specify importance of certain factors on the type and costs of governance.

For checking the survey representativeness, estimation of the statistical error is performed indicating discrepancy between the survey results and the whole population. The statistical test for measuring the error is carried out using a two-step procedure and equations suggested by Ivanov et al. (2022):

$$SS = \frac{Z*(1+CV*p)}{C^2} \quad (1)$$

$$SS_{FN} = \frac{SS}{1+\frac{(SS-\sqrt{P})}{(SS+\sqrt{P})}} \quad (2)$$

where:

SS is sample size;

SS_{FN} – final sample size;

Z – Z-test statistics for sample confidence level;

CV- coefficient of variation;

p - probability for appearance;

P – population set;

C – statistical error.

The sample size is counted on 345 questionnaires and the statistical error is estimated for confidence level of 95%, where p value is 0,05 for two tail sample and z test statistic score is equal to 1,96. The population set is taken up to 132742, which is the number of farms in Bulgaria according to the last 2020 Census. The statistical error of the field survey is obtained to 0,106 meaning that there is 10,6% chance the generated results from the field survey to be

[11] Similarly, the contact for pay or free access to farm's territory or assets (e.g. for collecting pollen by bees of another farmer, hunting, trespassing, organizing events, etc.) is considered as provision of agro-ecosystem services rather than as a land lease-out contract.

different from the real results of the entire population. The size of the statistical error is quite acceptable for the purpose of this study and therefore demonstrated survey facts and figures can be accepted with a high confidence and reliability[12].

A hypothesis test is also implemented, where based on the sample error, Z test and confidence level estimation is pursued to verify the level of reliability and significance of the received answers and figures by the survey respondents. The results from the hypothesis test carried out on the question "Frequency of land deals" are shown in Table 2. That question covers several subtopics with total number of possible answers up to 5. In order to implement the hypothesis test different standard methods are used to estimate the confidence level of the sample survey, along with determining the confidence interval of the results, including carrying out z-test statistics.

Table 2. Test of sample hypothesis of the obtained results on the question related to frequency of deals with agricultural land

Hypothesis sample statistics	Observations	Sample average $\bar{X}$	Standard deviation σ	Sample error	Lower confidence limit X-X*%CI	Upper confidence limit	Confidence level	Z score	Z critical value
Purchase	331	20%	3,55%	0,41%	2,56%	2,58%	99%	0,75	2,63
Sale	324	20%	2,65%	0,1%	1,98%	1,99%	99,2%	0,38	2,69
Short-term lease-in	328	20%	4,67%	0,91%	3,18%	3,24%	98,7%	1,66	2,50
Long-term lease-in	326	20%	4,26%	0,01%	2,95%	2,95%	98,9%	0,76	2,53
Lease-out	310	20%	2,66%	0,59%	1,89%	1,91%	99,3%	1,21	2,68

Source: Bachev and Ivanov (2025)

The results designated to test on the significance and reliability of obtained responses by farm managers demonstrate that figures are quite consistent. This test is done dividing the whole sample into two subgroups randomly with preliminary structuring of questionnaires by criteria of legal status and localization. The confidence levels in the covered 5 sub-questions are ranged between 98,7% up to 99,3%, which testifies for an almost full coverage of the possible cases. The z test shows that there is not principal difference between those two subgroups and despite of little divergences between they have same meaning and root results. Such analysis proves with high level of confidence that estimated results and distribution between optional answers are quite reliable which means that it can be assumed that similar distribution of responses can be seen in the whole population.

Therefore, with a high confidence can be suggested that survey results give realistic insights on the dominating modes, factors and trends in land supply governance of Bulgarian farms. Statistical representativeness of the sample is significant; trust of farmers was ensured by

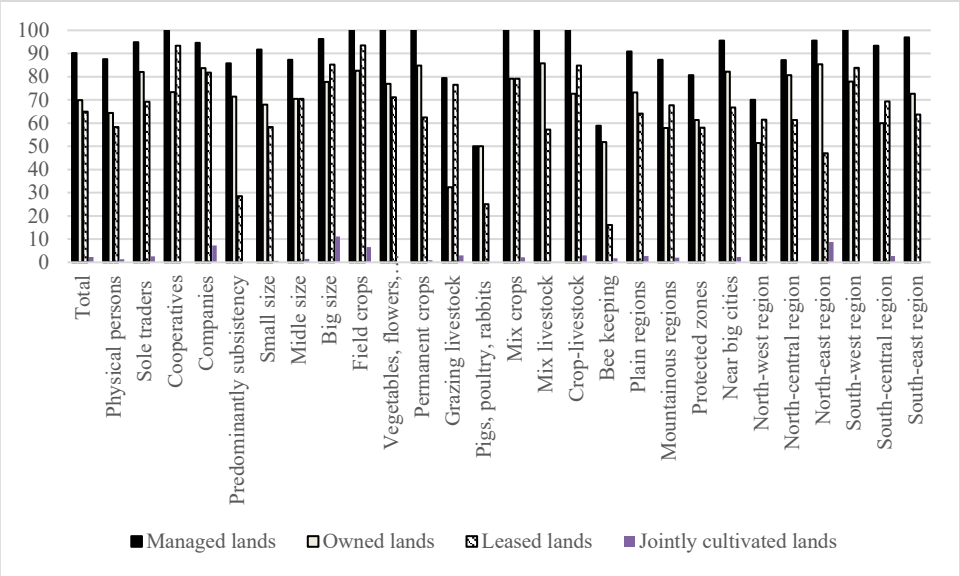
[12] Conducted survey works with a good representativeness and moderate statistical error, which does not mean that given responses by the managers are plausible and truly correct (some information concerns personal preferences and perceptions, and responses can vary in different situation and environment).

guaranteeing anonymity; the data collection and processing were implemented professionally; and the big number of surveyed farms diminished the importance of cases of misunderstanding or misinforming. Besides, similar results have been demonstrated with multiple in-depth case studies of different type of farms in recent years (Agro-Governance Project, 2024).

3. Agents and modes of agricultural land governance

A great majority of Bulgarian farms manage agricultural lands and participate in some type of land supply governance and transactions (90,1%) (Figure 1). The main forms of land supply in farms are (available or acquired by purchase) ownership, some type of (short, long-term, hybrid) lease contract, and coalition contract for joint cultivation. Land ownership and lease contract are dominant modes of land governance - almost 70% of all holdings in the country are farming own lands, and a significant share are leasing lands (65%). On the other hand, only a small proportion of holdings (2,3%) apply collective mode cultivating land jointly with other farms.

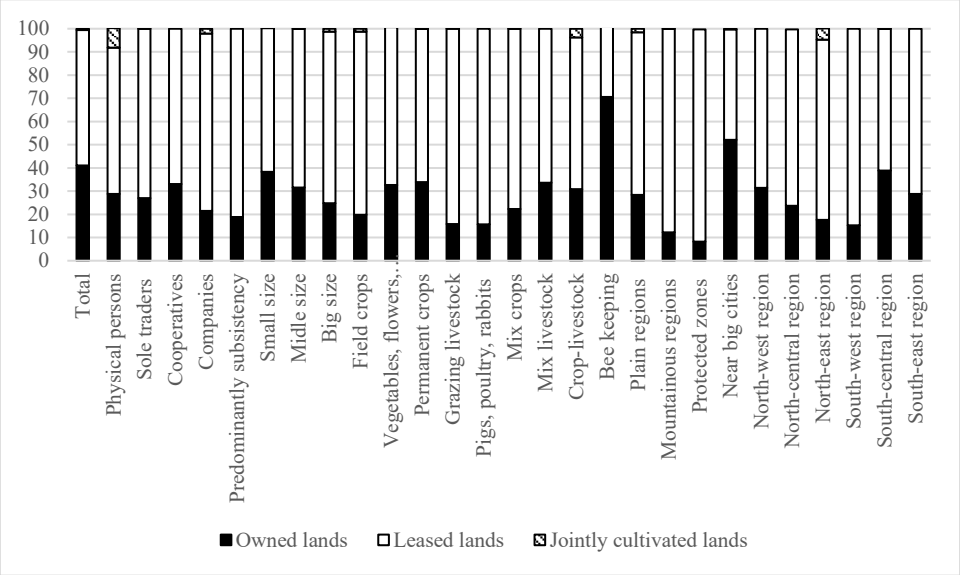
Figure 1. Share of farms with managed, owned, leased and jointly cultivated lands in Bulgaria (percent)



Source: Interviews with farm managers, 2023.

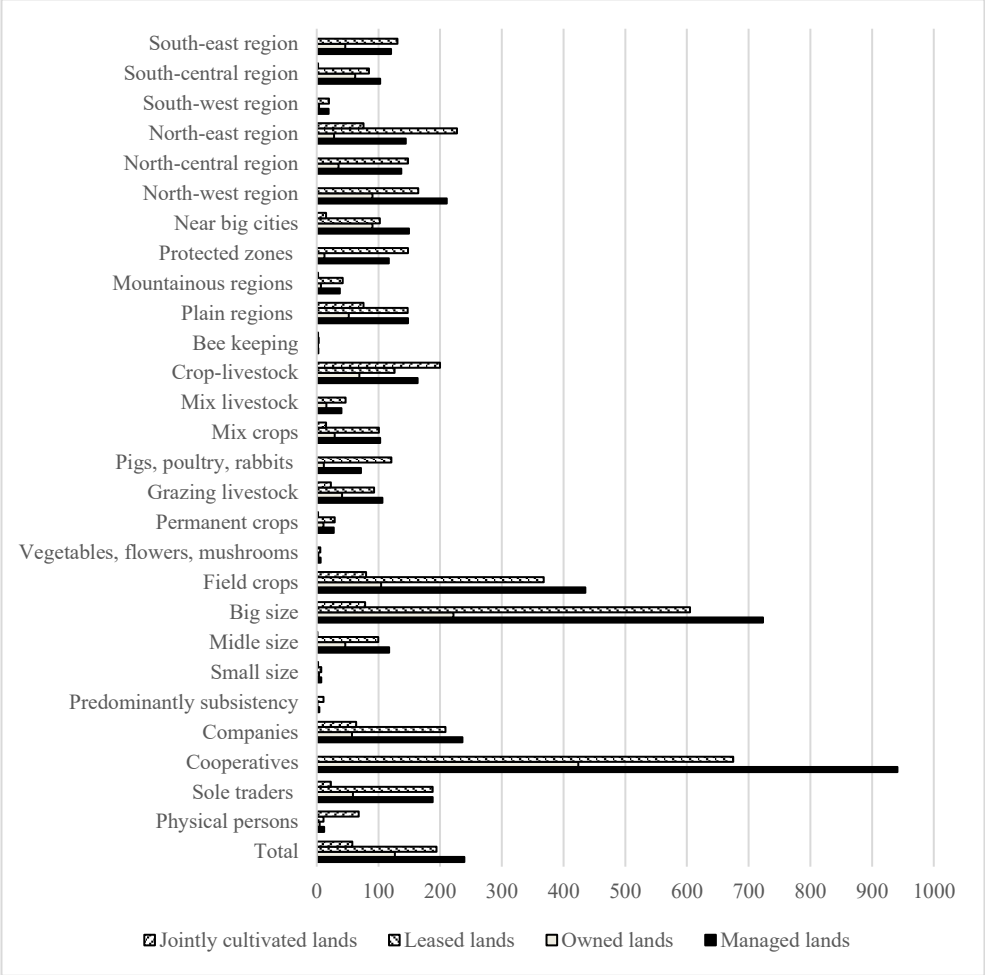
The lease contract is the most important form for land supply in agriculture accounting for 58,3% of total lands used by Bulgarian farms (Figure 2). The average size of leased lands in farms using that mode is 193,8 ha (Figure 3). It is also much higher than the average size of owned lands (126,9 ha) indicating even greater importance for applying holdings. At the same time, merely a tiny portion of overall lands in the country (0,7%) are jointly used by farmers and the average operational size is much smaller than other two modes (75,4 ha).

Figure 2. Share of owned, leased and jointly cultivated lands in total managed lands of Bulgarian farms (percent)



Source: Interviews with farm managers, 2023.

Figure 3. Average size of managed, owned, leased and jointly cultivated lands in Bulgaria (ha)



Source: Interviews with farm managers, 2023.

Individual modes of land supply governance are with different importance for different type of farms. The biggest proportion of farms with owned lands are among firms (sole traders and companies[13]), and with leased lands among the cooperatives and companies. Jointly cultivated land is more important for companies and practiced by just over 7% of them.

There is correlation between the farm size and the applications of three modes of land supply governance as all forms are used by larger proportion of holdings with a big size. Most

[13] Companies include both Corporations and Associations, registered under Trade Law of Bulgaria.

subsistence holdings are farming owned land, relatively few leased lands, and none practice joint cultivation.

Relatively smaller number of farms in pigs, poultry and rabbits and in bee keeping participate in land supply management, and they mostly employ the ownership mode. That is a result in smaller needs for lands in these operations, mostly for installing other specialized assets like buildings for livestock, beehives, etc. The largest proportion of farms in permanent crops use ownership mode due to the need to safeguard a long-term investment in wine yards, fruit trees, other specialized assets such as irrigation, plat supporting constructions, fans, etc. On the other hands, larger share of farms in field crops and grazing livestock employ lease mode to effectively supply needed (universal) plots of arable lands and pastures. That mode allows easy optimization of farms size, change of land plots according to needs of crop rotation, land consolidation, moving to high quality (unexhausted, less eroded, etc.) lands, and replacing costly or unreliable land supplier.

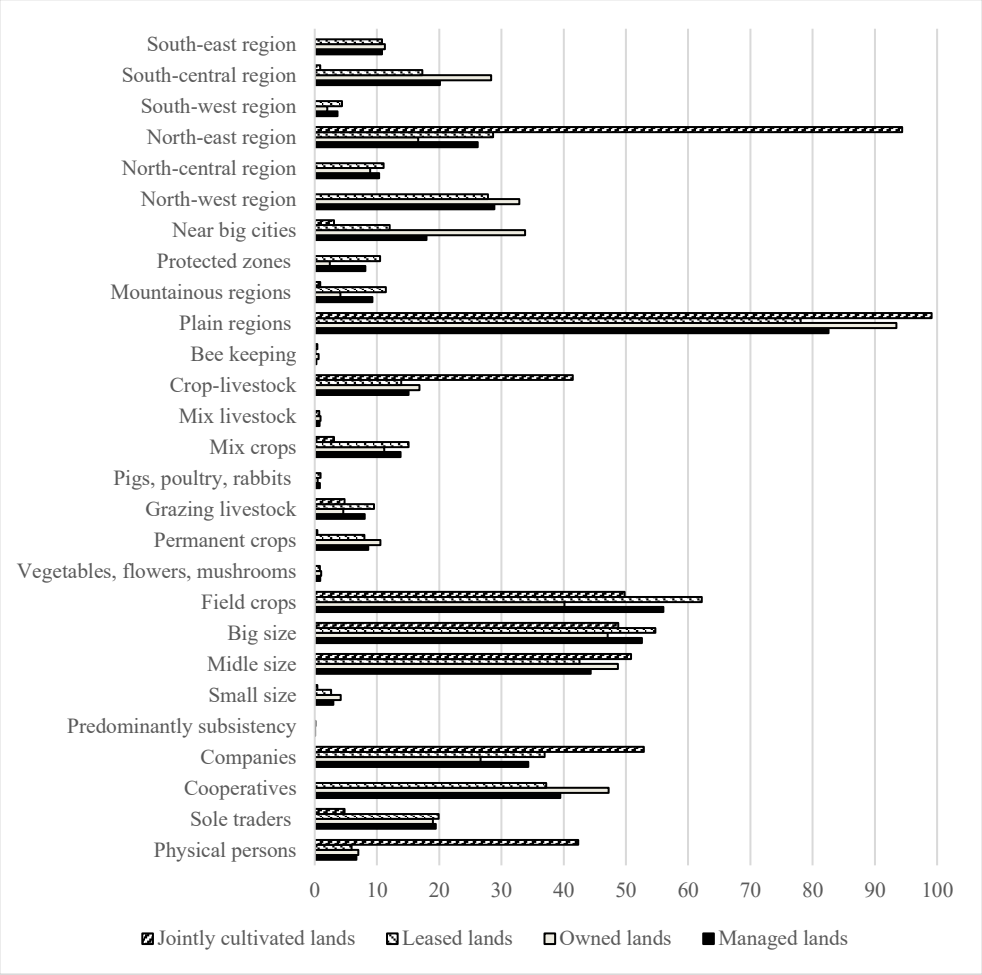
Smaller proportion of farms in mountainous regions and in protected zones use land supply governance comparing to the holdings in plain regions and around big cities. At the same, time, the share of farms leasing land in mountainous regions and around big cities is higher because most landowners in these areas are not farmers and lease out lands to professional operators.

The smaller proportion of farms in North-west region are involved in land supply governance and apply ownership mode comparing to the rest of the country. In the North-east region are located biggest proportion of holdings using ownership and joint cultivation modes, and the smallest fraction employing lease contracts. On the other hand, the South-west region comprises of the greatest proportion of farms involved in land lease deals.

The distribution of agricultural lands between different type of farms indicates their comparative importance (and efficiency) in land governance. The biggest amount of the agricultural land in the county is currently under cooperative (39,5%) and corporative (34,3%) governance (Figure 4). The most part of leased lands is also under cooperative (37,2%) and corporative (37%) management. A significant proportion of owned land is in the cooperative structures (47,2%) and firms - companies (26,6%) and sole traders (19%). That proves that cooperatives and firms demonstrate higher comparative advantages in land governance comparing to physical persons due to their greater capability to integrate and manage more resources (land, labor, finance, etc.), introduce innovation and explore economies of scale and scope, effective marketing of products and services, bigger lobbying capability for public support, etc.[14]

[14] Governance advantages and disadvantages of different type of farms in Bulgarian conditions are analyzed in detail by Bachev and Tsuji (2000) and Bachev (2010, 2022).

Figure 4. Share of different type of farms in total managed, owned, leased and jointly cultivated lands in Bulgaria (percent)



Source: Interviews with farm managers, 2023.

The share of leased lands is much higher than the owned lands for all juridical type of enterprises accounting from 63% of the managed lands in physical persons up to 76,5% in companies (Figure 2). The average size of leased land by all type of farms is considerably higher than the owned land - from 11,1 ha in physical persons up to 675 ha in cooperatives (Figure 3).

Almost all jointly cultivated land in the sector is done by the companies (52,9%) and physical persons (42,3%). That type of governance accounts for 8,5% of the managed land of the physical persons and 2,1% in companies. The later indicate that applying that mode holdings have some needs and mutual interests (benefits) to cooperate with other farms in land

management in order to explore certain production and/or transaction opportunities. Most common reason for joint cultivation are increasing operational size, sharing investments and risks, jointly use available machineries, labor, and know how, participating in public support programs, etc. The important of this type of land supply governance is most significant for applying physical persons where the average size of land under joint cultivation (68 ha) exceeds significantly owned and leased lands. For companies the size of jointly cultivated lands (63,7 ha) is also higher than the owned lands.

Basically, the mode of joint land cultivation with other farms is efficient for highly mechanized and standardized operations where less labor inputs is required and individuals' performance easily verified. In more complex operations information asymmetry is significant and opportunism ("free riding") can occur. That requires building of a special (and costly) governance for collective organization preventing a wider use of such mode in farming sector.

The biggest proportions of all type (managed, owned, leased, and jointly used) lands in the country are governed by big and middle size enterprises, demonstrating their greater comparative efficiency in land supply and operational management. The average size of lands under different type of governance varies considerably from few single digits in subsistent and small farms to hundreds of hectares in big enterprises. The lease lands accounts for the greatest part of the total lands in all size enterprises, being highest for predominantly subsistent holdings (81%) and companies (74%).

The governance of the greatest amount of country's agricultural lands (56%), and leased lands (62,2%) as well a half of jointly cultivate lands and 40% of owned lands is done by farming enterprises specialized in field crops. In the contemporary market, institutional, technological, etc. environment (possibilities to apply mechanization and explore economies of scale/scope, favorable price dynamics and profit margin, area-based and other supports from CAP, etc.) field crops farms continue to demonstrate the highest efficiency in all type of land governance. The average land size in all type of governance is highest in these farms with exceptions of jointly cultivated lands in which crop-livestock holdings are superior (200 ha) to all other specializations. On the other hand, holdings specialized in vegetables, flowers and mushrooms and in bee keeping have much smaller average size of lands under overall management and the three major modes of governance.

The owned land comprises the biggest fraction of managed land in bee keepers (71%) and around a third of the managed lands in farms specialized in vegetables, flowers and mushrooms, permanent crops, and mix-livestock, where a high assets dependency with other assets (green houses, beehives, buildings, etc.) prevails. At the same time, in more standardized operations in farms specialized in field crops, grazing livestock, and pigs, poultry and rabbits, the amount of the lease lands accounts for the major share in the overall managed lands.

The greatest proportion of the total managed, owned, leased and jointly cultivate lands is in the farms in plain regions since most of the agricultural lands in located in such regions. The average size of lands under all type of governance is much higher in plain regions comparing to farms in mountainous regions and in protected zones. The exception is the average size of

leased lands in protected zones which is the biggest. The share of leased lands in managed lands of farms in all regions in higher reaching up to 91,4% in the protected zones.

The managed and owned lands in farms closed to big cities averages higher than in more remote regions, while leased and jointly cultivated land lower. The share of owned land in total managed lands of farms is also much greater in these areas overpassing the fraction of leased lands. All these indicating preferences to ownership modes by farmers in such areas which is a consequence of easy (and cheap) access to big markets and critical (services, know-how, labor, capital, etc.) resources, smaller lands availability and offer on markets, higher agricultural and non-agricultural demands, faster growth in land prices and rents, possibilities to live in the city and work in nearby farm, etc.

The largest land governance is carried in North-west, North-East and South-central regions of the country. The farms in the North-west and North-East regions are with the biggest average size of managed and lease lands, while in the South-west region with the smallest sizes for overall and specific land supply governance (due to restricted agricultural lands in the region). The owned lands accounts for the greatest share (38,9%) of managed lands in farms of South-central region while the leased lands reach 84,8% in the total lands of holdings in South-west region.

4. Frequency of land deals

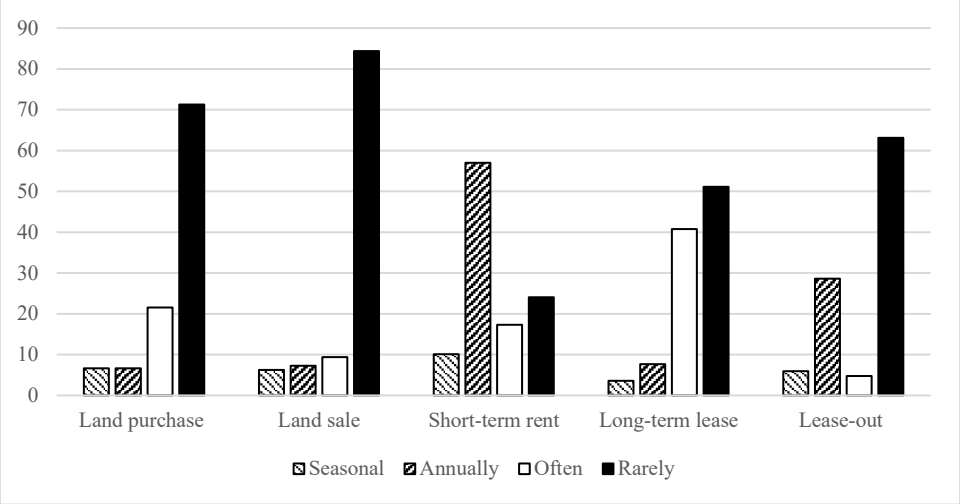
A good proportion of Bulgarian farms do not participate in land supply deals since they either possess needed lands (individual, family or collective ownership) for effective farms operations or face a high transaction cost to supply needed lands. Just above 37% of farm managers reported not purchasing lands, 27,8% not selling lands, 51,9% not practicing short-term rent and 64,1% long-term lease, and 65,2% not leasing out lands. That is often consequence of high market and private costs to find partners, negotiate effective deals, enforce contracts, and/or insufficient capability to expend operations and resources use.

However, a significant part of all farms participates in some kind of land supply deals in order to expand or optimize farm size and operations. Major forms for land supply in farms are: (1) purchase or sells deals by which permanent transfer of ownership rights on land is negotiated and concluded, and (2) rent or lease contract by which certain (user, income generation, etc.) rights are partially or fully transferred for a particular period of time – a short-term (seasonal, one calendar or agronomical year) rent or a long-term (two and more years) lease contract (Bachev, 2024).

Most Bulgarian farms practicing in land purchase and sale, and long-term lease-in and lease out deals do it rarely (Figure 5). Agricultural lands are usually in high mutual and longer-term dependencies (e.g. a high site, assets or knowledge specificity) with other capital of the enterprises - managerial, organizational, know-know, material and biological investments[15]. Therefore, there is no need for frequent changes in the size or locations of utilized land plots through new deals. That is why effective (long-term) land supply is ensured by the ownership or long-term lease modes saving costs on repeated contracting, frequent renegotiations, minimizing uncertainty, safeguarding specialized investments from possible opportunism (e.g. not renewing short-term rent contract before the end of lifespan of highly specific to the particular plot(s) investments), and needs to dispute and enforce contractual terms though a court or another way.

[15] Specific assets have a lower value in transaction with alternative agent (Williamson). For instance, long-term investment of a tenant farmer for improving quality of a rented land plot (irrigation equipment, fruit trees, etc.) become highly specific to transaction with the owner of particular land plot. If rent contract is not renewed the specific assets cannot be easily (causelessly) redeployed to transaction with the owner of another land plots. On the other hand, a tractor is not a specific to transaction with a particular partner asset since it can be effectively used in any land plot.

Figure 5. Frequency of participation in land deals by Bulgarian farms (percent of farms)



Source: Interviews with farm managers, 2023.

Furthermore, the majority of farms (57%) practice short-term contracting annually. The preference for the short-term rent contract is determined by the strategy of farm managers in a seasonal or one-year crops and pastures not to enter in "less flexible" long-term agreements[16]. Short-term rent allows an easy adjustment of farm size, and plots location and consolidations with appropriate or more productive lands, open options for negotiating new terms according to dynamic market conditions (yield and rent prices), etc. Larger operations have specialized staff while smaller scale holdings do not apply multiple contracts, and usually rent agreements are with same terms and between the same agents. Therefore, a high repetition of contracting does not impose considerable transaction costs while keeping options for flexibility.

In addition, a short-term rent contract is often determined by preferences or unwillingness of landowners to sign a long-term contract due to other plans for lands in future, expectation for better contracting offers, etc. In certain cases, that mode of governance is a consequence of the formal institutional requirements – e.g. in renting municipal or state lands (e.g. pastures), farming operations in protected zones, etc. Basically, when a high mutual dependency between parties exists (e.g. neighboring to a farm land plots for rent) there are strong incentives to continue (repeat) relations and renovate the contract - thus the annual mode of contract works well.

A good proportion of farms (40,7%) also indicate they apply long-term lease often. The latter are mostly bigger size operators (cooperatives, companies, etc.) with intensive and land-specific investments in multiple areas requiring frequent long-term land supply deals.

[16] The minimal period of rent contract is determined by technological factors ranging from few days in mobile beekeeping, 1-2 months for vegetables, up to 6-8 and more months for grains and other crops.

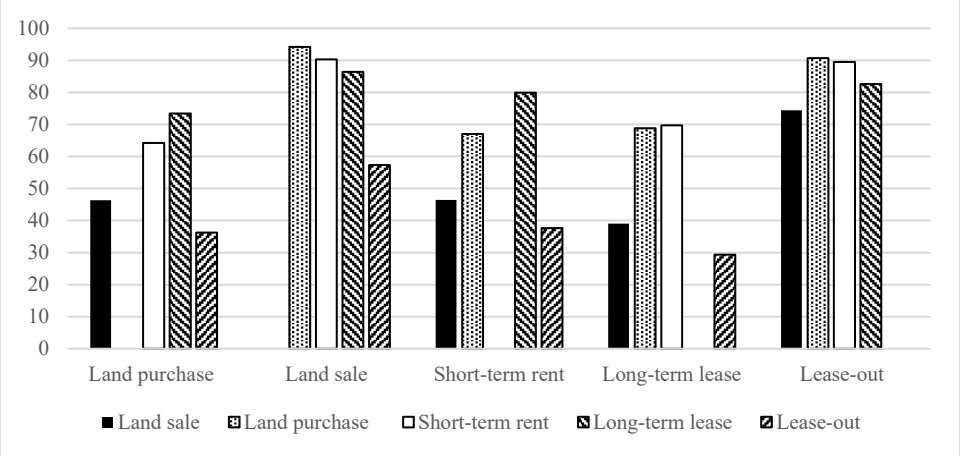
Besides, a long-term land lease contract is mandatory for cooperatives (Cooperative Law) while a minimum 5-year duration of lease is regulated by the Agricultural Land Lease Law. Furthermore, not compliance with formal regulations is easily detected ("public knowledge" in rural communities) for big operations renting lands from dozens, hundreds or thousands of small land owners.

On the other hand, smaller scale holdings usually have few and same suppliers and that mode allows a rapid expansion of farm size with insignificant production (investment for purchase of land) and transaction costs. Besides, most investment in farming (fertilizer inputs, land improvements, green houses, etc.) and agronomic principles (e.g. crop rotation requirement) require a longer period of land management to pay back on capital investments - commonly 3-5 and more years. Furthermore, terms of many land supply deals interlinked with other critical assets such as greenhouses, permanent crops, etc. (high assets and site dependencies) is (pre)determined by the lifespan of related material and/or biological assets.

Finaly, the share of farms applying lease out deals annually is also considerable (28,6%). Some farms use sale and lease out deals to reduce farms size due the shift to other agricultural or not-agricultural activities, diminished capabilities (e.g. lack of finance, workforce, advance age, forthcoming retirement, etc.).

However, a good proportion of holdings apply regularly opposite land deals both integrating new lands in the farm (buying or leasing-in lands) simultaneously excluding (selling or leasing out) other land plots from farm operations (Figure 6). It means that a significant proportion of enterprises employe diverse opposite forms of land supply governance to optimize rather than to reduce farm size - shifting to land intensive agriculture, changing quality or locations of farmed plots, changing permanent with temporary transfer of land rights, transition to new "collective" modes of land supply or farm organization, etc.

Figure 6. Share of farms with simultaneous land deals in Bulgaria (percent)

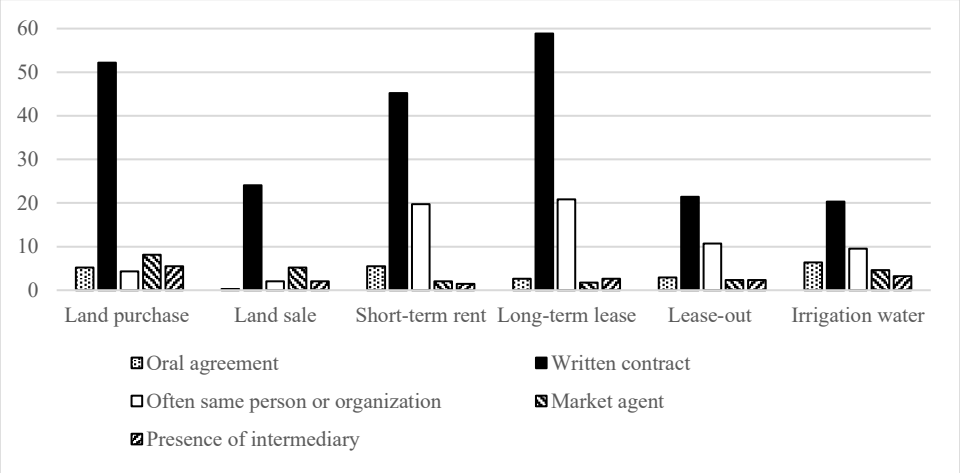


Source: Interviews with farm managers, 2023

5. Type of land contracts, partners and prices

A written contract is used by most farms in different type of agreements related to land and water supply (Figure 7). The written form of contracts is often imposed by the formal regulations (Contract Law, Land Lease Law, Cooperative Law, Trade Law, etc.)[17] or are required by funding (e.g. commercial banks), supporting (subsidizing public, private, international) or supplying (municipality, public institutions, etc.) agencies.

Figure 7. Type of contract and partner in land deals of Bulgarian farms (percent of farms)



Source: Interviews with farm managers, 2023

The written form imposes additional costs for formulating and specifying contractual terms, hiring experts, formal registration, requires fees and tax payments, etc. However, it has also a number of transacting advantages such as facile prove of ownership (title), dispute and enforce contracted terms including though a third party (court, authority, independent expert), possibilities to participate in other deals (e.g. register a firm or cooperative, join collective organization, use land as a collateral against bank credit), interlinked and hybrid forms (e.g. contract for land with or against service and inputs supply, marketing, etc.), legitimate transfer of ownership or contracted rights to heirs or other (including remote, international, institutional) parties, etc. Besides, the written form is mandatory for registered organizations and enforced strictly by members and shareholders of cooperatives and companies with complex governance and separation of ownership from management (and possibility to misuse organization in the interests of hired managers, administration or associates). Most (irrigation) water suppliers are also state (e.g. Irrigation system), private or

[17] According to Contract Law all contracts must be is a written form, while Agricultural Land Lease Law further require registration in local authority. However, the formal requirements are very difficult (very costly) to enforce and informal (oral) agreements are widespread in agricultural and rural sector.

collective organizations (e.g. Water supply associations) requiring or obliged to use written contracts for services.

Large lease land users are usually big enterprises having great capability (internal experts, means) and applying a standard contract form for identical transitions with multiple land owners every year. Therefore, they have no significant costs for preparing written land supply contracts. That is why written form of contract in purchase-sale deals and lease agreements is preferred governing modes for a good fraction of farms.

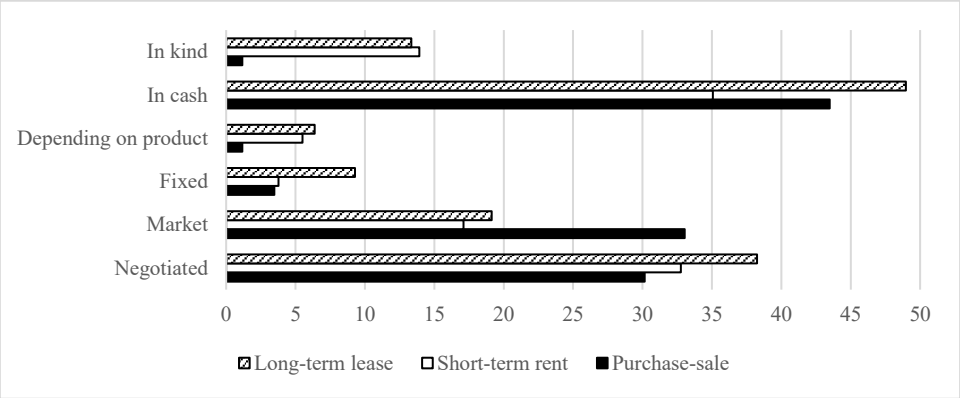
Nevertheless, due to high costs for occasional transactions and low efficiency of outside (e.g. court system) enforcement, some farms practice oral ("gentlemen") agreement in land supply deals. Besides, often there is mutual interests to hide and not formalize agreements in order to avoid paying income tax or other reasons. Oral contracts are efficient for remote rural communities, often concern standard land plots, and are properly enforced by private modes (family, business and friendships), interlinked deals or economic hostages, good reputation, power positions, community pressure or other means.

An important factor for reducing the costs of land deals is the repetition of transactions between the same counterparts. Here, both side of transactions develop "close" relations, get to know each other, build trust and mechanisms to adapt transactions and resolve disputes. Besides, both sides are interested in continuing relations in a long-term, they avoid opportunism and cooperate in adaptation of contractual terms along with changing conditions of exchange. Situation of frequent land deals with the same person or organization ("personality of partner matters") is reported in a considerable fraction of farms in short-term rent and long-term lease-in contracts, and a good part of lease-out deals.

Furthermore, in the last two decades sale markets for agricultural lands have evolved and many farmers use market agent ("faceless exchange") in purchase and sale land deals, and to a lesser extent in other land and water supply transactions. In addition, some farms indicate a "presence of intermediary" is land-supply deals, and that trilateral mode is more important for facilitating transactions between seller and buyer of agricultural lands.

The price of land supply transactions is important parameter governing land relations. Land sale markets have developed significantly during EU membership and market prices are widely applied by a third of farms for purchase-sale deals (Figure 8). Nevertheless, a great proportion of farms also negotiate price for purchase-sale transactions due to high specificity of land plots in term of quality, locality, complementary biological and material assets, ecosystem services, access to infrastructure (roads, electricity, irrigation), market positioning, geographical location, etc.

Figure 8. Type of price and rent in land deals of Bulgarian farms (percent of farms)



Source: Interviews with farm managers, 2023

For short-term rent and long-term lease contracts for lands the negotiated price is the dominant form. In such transactions general market price do not work well since only certain rights of lands are transferred for a particular period of time, different terms of contract can be specified according to the needs of counterparts, and many important characteristics of a particular land plot can be priced. Besides, leased land prices often change annually in all directions and negotiated price reduce uncertainty and risk for both sides.

Crop-sharing is a major form of negotiated price of rent as different ratio of participation of land owner in the yield are used - e.g. 50:50, 30:70, etc. This mode connects the rent level with the land productivity and it is widely used when it is easy to verify (observe, measure, control, etc.) the quality of land by leasing farmer and the farm output by the land owner (opportunism, no place for disputes).

For more standard land plots (arable, pasture, etc.) a market price of lease contracts is applied since it is "taken" (found) easily and governs relations effectively during contract period. Here bounded rationality of land owner (e.g. a non-farmer, living away or abroad) or renting farmer (e.g. unexperienced farmer, land plots in unknown areas) does not matter, nor opportunism and disputes occur – rent price simply reflect market fluctuations during the lease period. However, for certain long-term lease deals a fixed price is used reducing risk and uncertainty and facilitating transactions. In other instances, the land deal price depends on the product reflecting the valued of yields, pressure on land quality (agro-technic, erosion, nutrition uptake, etc.) or other factors.

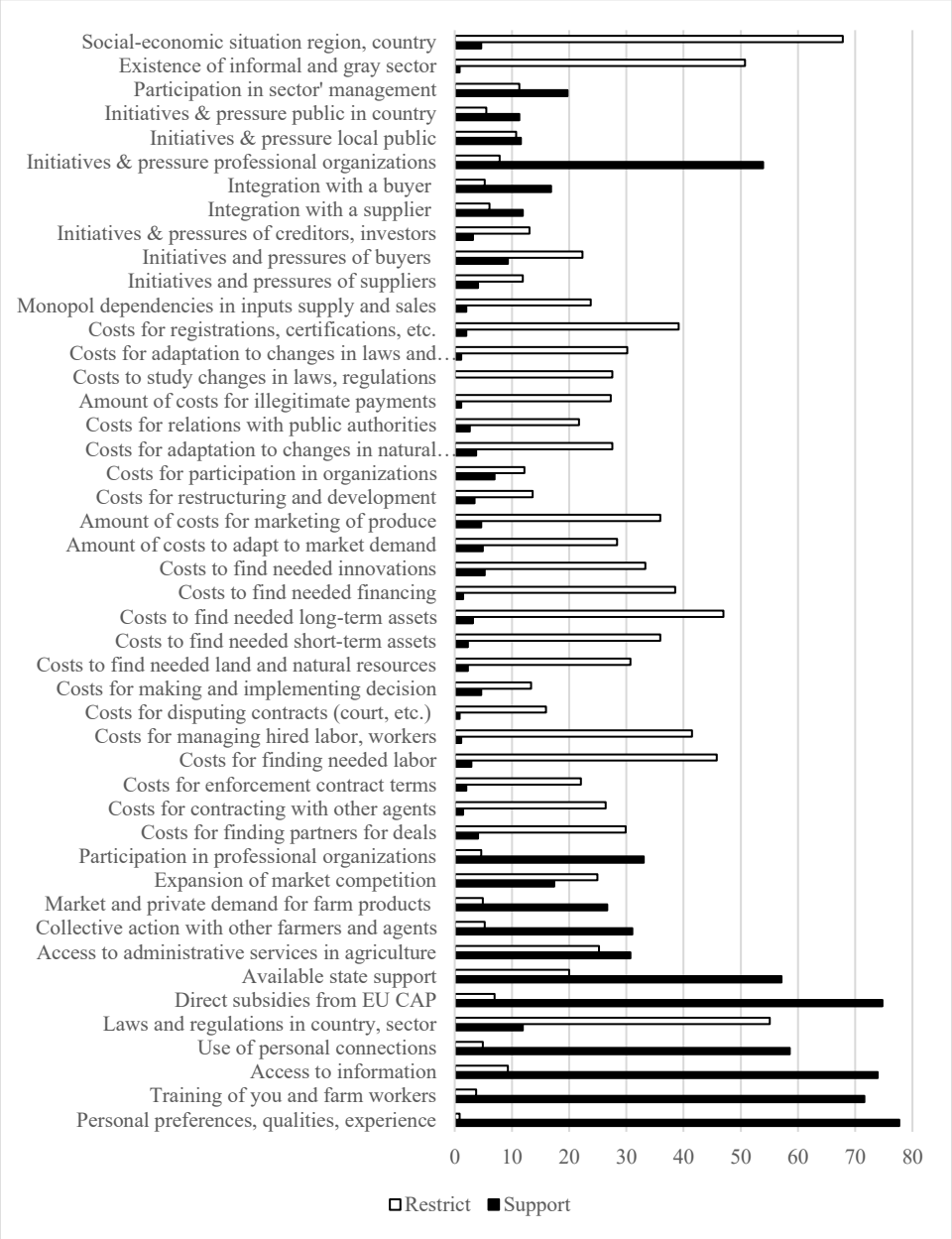
For all land supply transactions payment in cash is the preferred choice. Nevertheless, in rural communities some land owners give priority to rent in kind. That is either because the land owners get needed amount of farm product(s) for household consumption and domestic livestock, or receive higher quality of local fresh or process (e.g. fruits, cheese, vine etc.) products, or receive the rent faster (immediately after harvest) instead of waiting completion of marketing and cash transfers. Another reason for choosing tin kind mode of payment is that farmer and land owner are interested to share the surplus (income, not paid value added tax) rather than paying it to the authority (like in monetary transactions).

6. Factors and evolution of land governance during EU integration

The study has found out that a good proportion of Bulgarian farms does not have any significant problems in land deals, including 19,7% for sale-purchase, 16,8% for short-term rent, 16,2% for long-term lease, and 11,3% for irrigation water. The most farms with no important issues in land supply governance are among physical persons, small scale holdings, specialized in permanent crops, and located in plain regions. It means that for these farms, the system of land market, private, collective, public and hybrid governance works well.

However, for a significant number of Bulgarian farms (30,7%) the amount of costs for finding needed lands and natural resources is a critical factor strongly restricting development of their enterprise (Figure 9). The latter is particular important for a good proportion of sole traders and cooperatives, farms with large size, holdings specialized in permanent crops and mix crops, those located in plain regions, protected zones, and near big cities, and enterprises in North-east, North-central, and South-central regions of the country.

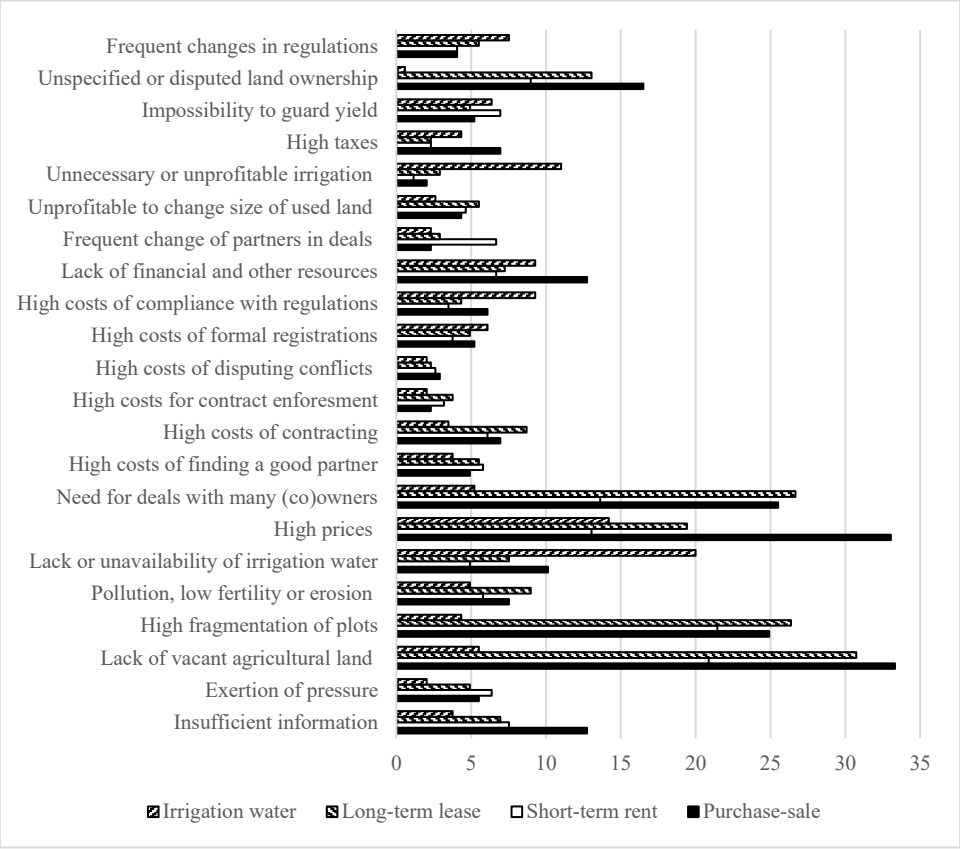
Figure 9. Factors strongly supporting or restricting development of Bulgarian farms (percent of farms)



Source: Interviews with farm managers, 2023

The major factors creating problems and costs for land purchase and sale transactions of most Bulgarian farms are lack of available agricultural lands (for every third one), high prices (33%), big fragmentation of land plots (24,9%), and need for deals with numerous (co)owners (25,5%) (Figure 10).

Figure 10. Problems in deals with agricultural lands and waters of Bulgarian farms (percent of farms)



Source: Interviews with farm managers, 2023

In the short-term rent transactions the main issues relate to lack of vacant agricultural lands (20,1%), and big fragmentation of land plots (22,4%), while in the long-term leasing deals to lack of available agricultural lands (for every third farm), high prices (30,7%), big fragmentation of land plots (26,4%), and need for deals with numerous (co)owners (26,7%).

In irrigation water supply major problems of most Bulgarian farms are caused by the lack of availability or access to water for irrigation (for one fifth of all) and a high price (14,2%).

In addition to effective land supply, other personal, social, economic, institutional, etc. factors are (even more) important for the overall development of farms. The critical factors (and transaction costs) strongly restricting development of many Bulgarian farms at present stage are: legislation and regulation environment in the country and sector, amount of costs for finding needed labor force, amount of costs for managing the hired labor and workers in the farm, amount of costs for finding needed short-term and long-term assets, amount of costs for finding needed finance for the farms, amount of costs for finding needed innovations, amount of costs for marketing of output, amount of costs for registration, certification, etc., existence of informal and gray sector in agriculture, and socio-economic situation in the region and in the country (Figure 9).

The study has not found any significant variations in the applied modes, intensity and problems (costs) in land supply transactions depending on the gender, age and education of farm managers (owners). However, there is a strong correlation between the period of professional experience and the land supply intensity and efficiency, and exploitation of the potential for farm development.

The study has not found any strong relations (interdependency, interlinking, correlation) between dominant modes of land supply with governance of other types of farm's transactions such as supply of labor, services, material and biological assets, and innovation, financing, marketing of output, ecosystem services, and risk management.

Application of identical framework (methodology, questionnaires) in this and a previous 2001 study give a real possibility to assess the fundamental evolution of land governance in Bulgarian agriculture during the last two decades. The major forms of land supply in farms changed enormously during the period of pre-accession and EU membership (Table 3). In the beginning of the century, there were a huge number of a smaller scale farms, including enormous "semi-market" and subsistence sector, mostly operating with small family resources and dispersed plots of owned lands (Bachev and Treziev, 2001). The main mode of acquiring land ownership was restitution (privatization) of agricultural lands, consequence of liquidation and privatization of ancient public farms. Private property rights on lands (and other resources, services, waters, etc.) were not completely defined, and restored in real borders, disputed and properly enforced. Therefore, the seasonal (annual) rent contracts with hundreds and thousands of landowners, and small member partnerships (joint cultivation of lands) were dominant (the most effective) modes for farm extension.

Table 3. Evolution of land supply governance in Bulgarian farms

Characteristics	Pre-accession period (2001)	Present (2023)
Private ownership	Unspecified, provisional, disputed, individual and family ownership, small scale, only Bulgarian citizens, major form for land supply, no private rights on waters and other natural resources, big entities without land ownership, large share of under or unused agricultural lands, unregulated access to public lands	Established, legally enforced, open to foreign agents, diverse ownership (entities, non-agrarian agents, international), concentration in small and large structures, one of alternative forms of land supply, new private rights on waters, ecosystem services, intellectual products, geographical indications, deficiency of lands in certain regions, land contract for use of public lands
Farming structures	Numerous, under development, low efficiency and sustainability, small scale, owned and family (land, labor, savings) resources, high cooperation in land use, high subsistence, strategy for survival, widespread part-time farming	Decreased number of farms, more formally registered farms, smaller importance of unregistered and cooperative farms, established, highly efficient and competitive, intensive external market and private (lands, labor, finance, innovation) supply of resources, inputs and services, diverse type of coalitions, strategy for long-term development, professional farmers
Markets	Undeveloped, missing, fragmented, informal, lack of adequate infrastructure, primitive and personalize exchanges, monopoly positions, insufficient and asymmetric information, no public support and regulations	Well-developed resource and products markets, competitive, modernized infrastructure, open to EU, formally registered and accounted transactions, publicly supported, regulated and enforced (standards, rules, etc.), intensive faceless exchanges, specialized agents, reduced market information asymmetry
Modes of land supply	Own land, provisional titles, seasonal and annual rent contract, joint cultivation of land, quasi and fully integrated, restriction for maximum land ownerships and land lease size, no incentives for long-term investment in land, occasional deals between friends, family and close communities, illegitimate use of private and public lands	Ownership, purchase and sale, short-term rent, long-term lease, lease out, collective cultivation, pure and simple forms, strong incentive for investments for land improvements, protected zones specificity, intensive contracting depending on asset specificity and needs for farm extension, informal forms in smaller scale and remote areas
Form of contract and rent	Informal, standard (“classical”), complex and hybrid (interlinked) forms, privately enforced, rent in	Written, registered, legally enforced, publicly regulated (form, terms, period, registration), tailored to needs of agents (special, “neoclassical”), cash payments, governed by trust

	kind, delayed, reduced or no payment of promised rent	and reputation, supported and enforced by a third (private or public) parties
Institutional environment	In the process of harmonization with EU, high (institutional, market, behavioral) uncertainty, dynamic and (often) controversial changes, outdated and badly enforced environmental standards, lack of sufficient public support, high corruption	Modernized according to EU, huge CAP public support (subsidies, crediting, training, market intimation, etc.), area-based CAP payments, cross compliance requirements (including environment and biodiversity protection, etc.), improved enforcement and punishment of offenders
Transaction costs and factors for farm development	Low transaction costs for land supply, very high transaction costs in general, most critical factors - high costs for contract enforcement, credit supply and marketing of produce	Moderate or low transaction costs for land supply, critical factors - legislation and regulation environment, high costs for labor supply, high costs for inputs and finance supply, marketing, registration and certification, existence of informal sector, socio-economic situation

Source: author.

Most markets were undeveloped and dynamic, while governing structures highly unsustainable (part-time farming, multiple failures, bankruptcies, mergers, take-overs, temporary organizations under privatization, short term contracts, cash and carry deals, etc.). There appeared many new agents with no history, reputation or strategy to stay in agriculture. Market, institutional and behavioral uncertainty were enormous deterring potentially mutually exchanges between entrepreneurs, resource owners, and consumers.

There was no efficient public system for law and contract enforcements and less formal private (inwritten, unregistered, illegitimate) modes were widespread to govern land supply and safeguard transactions – interlinked modes (e.g. land supply against marketing), barters deals, personalized (instead of faceless market) exchanges, private enforcements modes, illegitimate use of private and public lands, etc. Land sale and long-term lease markets were practically missing and application of such modes of land supply were very rare.

Transaction (information, implementation, enforcement, learning from mistakes, etc.) costs associated with external land supply (and other farm transactions) were very high due to rapid modernization of institutional environment (introduction and enforcement of EU laws and regulations, multiple changes and amendments), markets liberalization, inadequate market infrastructure, low efficiency of the system for enforcement of private contracts, restructuring of farming structures and production, little managerial experience of farmers, primitive technologies, insufficient public support (training, advice, subsidies), monopoly positions of state or private agents, widespread corruption, etc. Furthermore, the effective optimization of farm size was severely restricted by the high enforcement costs of contracts in general, and enormous credit supply and marketing costs.

7. Conclusion

There has been enormous development in land supply governance in Bulgarian farms during the last two decades. However, due to insufficient (statistical, official, etc.) information and traditional inadequate (Neo-classical economics, Agency theory, etc.) approaches of analysis, there is no complete knowledge on dominating modes and driving factors of land governance. That impedes decision making at all levels - from farm and agri-business management and strategy formation to collective actions, third party (local authority, NGO, etc.) involvement, and government and EU policies design and implementation.

This study has proved that the New Institutional Economics methodology allow to better study and understand the real agents, modes, process, resulting order, efficiency and progress of the (land and overall) governance in agrarian sphere. Particularly, it revealed the formal and informal modes of land supply governance applied by Bulgarian farms of different type and locations, and critical factors for their development. Therefore, it has to be more widely and periodically used in economic analysis at different level – farms of different type, size and location, international comparisons, etc.

The study has found that rent and lease contracts are the most common forms for farms' land supply in Bulgaria, followed by the ownership mode and joint cultivation. The importance of different governance modes, forms of supply contracts, intensity of transactions, types of partners, and kinds of land rent and price varies considerably depending on juridical type, size, specialization, and geographical and ecological locations of holdings. Major factors for the governance choice are frequency, uncertainty, and assets specificity of transactions, and professional experience of farm managers. The amount of transaction costs for finding needed lands and natural resources is among the critical factors strongly restricting development of many Bulgarian farms, particularly of sole traders and cooperatives, farms with large size, holdings specialized in permanent crops and mix crops, those located in plain regions, protected zones, and near big cities, and enterprises in North-east, North-central, and South-central regions of the country. Most problems and costs for land (purchase, rent, and lease) deals of farms are caused by the lack of available lands, high prices, big fragmentation of land plots, and needs for deals with numerous (co)owners. A comparative analysis with a similar study demonstrated enormous modernization in land supply and overall governance of farms during EU accession and integration.

Application of suggested holistic framework requires collection of new type of (micro) economic data about important characteristics of agrarian agents, diverse modes of governance of their relations, and critical dimensions and costs of transactions. That calls for significant changes in the official data collection system in the country and EU (national and international agro-statistics), a bigger cooperation of various interested parties (farm managers, professional organizations, National Agricultural Advisory Service, government

and international agencies), and application of more holistic and interdisciplinary approaches in the economic analysis of scholars, experts, professional organizations and public agencies.

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