



CONTRACTUAL AND GOVERNING MODES USED BY BULGARIAN AGRICULTURAL FARMS

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Abstract: There has been an unprecedented development in governance of the supply of resources, services, innovations and marketing of products of Bulgarian farms over the last two decades. However, due to insufficient (statistical, official, etc.) information and inadequate traditional (Neoclassical Economics, Agent Theory, etc.) approaches to analysis, there is a lack of complete knowledge of the dominant forms and driving factors of governance in the main functional areas of farm management. This article incorporates the interdisciplinary New Institutional Economics framework and identifies the structure of governance and contractual modes used by Bulgarian farms. It is based on original and representative data collected through a survey with the managers of typical farms of different types and locations. The contemporary structure, factors and evolution of market, contract, internal, collective and hybrid modes of governance used by country's farms in the supply of natural, material, biological, financial and human resources, short-term assets, services, innovations, risk management, marketing of farm produce and services, and provision of ecosystem services, are all specified. A comparative study of the governance structures during the period before EU accession of the country is also made. The systemic application of an integrated approach is needed, but it requires the collection of new types of (micro) economic data on important characteristics of agricultural agents, different forms of governance of farm activities and relations, and critical dimensions and costs of transactions.

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INTRODUCTION

The analysis of types and structure of contractual and governing modes used in agriculture has been at the centre of economic science from its classical period to the present day (Bachev & Terziev, 2001, 2002; Furuboth & Richter, 2000; Georgiev et al., 2023; Goodhue, 2022; Michler & Wu, 2020; Massey et al., 2020; Mishra et al., 2022; Otsuka et al., 1992). This is due to the important economic role the governance plays as a means of coordination, stimulation, distribution of risk, minimisation of costs and maximisation of benefits of farmers' relations with other agents – owners of land and other resources, hired labour, creditors, buyers of produce, etc.

In Bulgaria, studies of agrarian contracts and governance are episodic and focused on particular forms (e.g. land lease contracts, credit supply contracts, sales contracts, etc.) while the entire governing structure used by farms is rarely analysed. Moreover, the analyses are based on official (statistical and other) information, which gives an idea of only a part (formally registered land transactions, labour employment contracts, bank credits, etc.), and not of the overall relations of agrarian agents. Existing case studies are limited to certain farms or types of contracts used by them and, as a rule, are not representative.

This paper presents the results of a large-scale study of the structure, factors and evolution of contractual and governing modes used by agricultural farms in Bulgaria, including the management of supply of natural, material, biological, financial and human resources, short-term assets, services, innovations, risk management, marketing of farm produce and services, and provision of ecosystem services. The study is based on a survey of managers of typical farms of different types and locations conducted at the end of 2023.

METHODOLOGY OF STUDY

The study incorporates interdisciplinary New Institutional Economics to overcome the shortcomings of other (Neoclassical Economics, Agency Theory, Law, Sociology, Political sciences, etc.) approaches for identifying the governance modes in modern agriculture (Bachev, 2024; Bachev, 2022, 2023; Guo et al., 2023; James et al., 2011; Sykuta & Cook, 2001). It places individual transaction at the centre of the analysis, identifies possible forms of its governance (e.g., market, contract, internal, etc.) in the specific institutional, market, technological, and natural environment, and assesses their comparative

efficiency in a discrete (primarily in terms of minimising transaction costs) manner (Williamson, 2005).

Usually, economic agents can choose between several alternative forms of governance for a specific transaction (say land supply), the main ones being:

- a free market - e.g., seasonal rent, a short-term purchase-sale deal, etc.;
- a special contractual form - e.g., long-term lease of land, interconnected supply of land against marketing of the produce, etc.;
- internal organisation - e.g., land ownership, partnership, etc.;
- coalition – e.g. a contract or organisation for collective land cultivation, etc.;
- some hybrid mode – e.g. leasing public lands, public-private partnership.

Since the process of changing the system of agrarian governance is very slow (Bachev, 2023), domination of certain forms of governance of a given agricultural activity and transaction means that they are most effective for the participating agents in the specific conditions of implementation of agricultural activities and exchange (Bachev, 2010).

In the specific socio-economic and natural environment, the choice of a form of governance depends in principle on the characteristics of the agents (preferences, abilities, bounded rationality, opportunism, etc.) and the “critical dimensions” of the transactions (such as frequency, uncertainty, specificity of assets). For example, when the uncertainty and specificity of assets related to transactions are high, a special (contractual or internal) form of governance is needed to increase rationality and protect specific investments from possible opportunism. The repetition of transactions between the same agents reduces bounded rationality and opportunistic behaviour, and justifies the costs of special governance (“bilateral trade regime”). Universal transactions are managed more efficiently by the “invisible hand of the market” (high competition, the partner can be replaced at low cost). High uncertainty, random (single) exchanges between parties, and the need for investment in relationships with a given partner increase transaction costs and can block otherwise mutually beneficial exchanges (need for third-party intervention and public intervention in private transactions).

Unspecified or poorly defined and sanctioned property rights and an imperfect institutional environment also increase the transaction costs of

agents. When the transaction costs of procuring the necessary resources and/or marketing the output are significant, the potential for exploiting technological economies of scale and size cannot be realised within the boundaries of the farm. In this case, a special external organisation is needed to effectively carry out the necessary transactions. When there is a need for intervention (inclusion, support, etc.) by a third party, but the necessary public or private intervention is not made, then the development of agriculture is severely deformed (less exchange, low efficiency, missing markets, gray structures, unsustainable development).

The main agents who govern agrarian transactions and activities are the managers of different types of farms – individual, family, cooperative, 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. There is no available statistical and other data for comprehensive analysis of governance structures of Bulgarian farms. That is why this study is based on first-hand data provided by the farm managers.

During November 2023 – January 2024, a large-scale survey was carried out with the managers of 345 commercial farms of different juridical types, sizes, product specialisation, 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 accounted for 0.26% of all farms in Bulgaria (MAF, 2023). The majority of studied farms (94.2%) were “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 in Tables 1 and 2.

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

Table 1: General 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
Registered Agricultural Producer	95,65	98,08	97,32	94,20	87,50	97,92	42,86	90,91	96,43	94,20
Registered livestock producer	13,04	3,85	4,46	26,09	87,50	2,08	85,71	66,67	48,21	26,09
Organic producer	2,17	9,62	24,11	13,33	0,00	4,17	0,00	6,06	35,71	13,33
Share 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.

Table 2: Geographical and ecological 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
Mainly plain regions	88,4	70	67	68,3	75	76,1	85,7	46,4	61,1	68,3
Mainly mountainous regions	11,6	30	33	31,7	25	23,9	14,3	53,6	38,9	31,7
Protected zones and territories	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
South-east region	8,7	5,8	13,4	9,6	12,50	10,4	14,3	0	8,9	9,6
Share 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.

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 field, tested with managers of various types of farms in two regions of the country (Plovdiv & Blagoevgrad), and subsequently refined. An option was also given for a new response and comments to all questions.

The goal was to “translate” the basics of 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, were taken into account. All critical institutional, market, personal, technological, natural, etc., factors for governance choice were accounted for. Total institutionally and personally determined transaction costs were included in the analysis (information, learning, precontractual, post-contractual, coalition management and development, etc.). The governance of agrarian transactions was studied holistically since not only specific (direct) costs but also the overall costs of the farm were taken into consideration.

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 guaranteeing anonymity, since some concerns were raised about the detailed questionnaire and leaking individuals’ data to other interested parties (government and tax authority, competitors, etc.).

The questionnaire used in this survey was an updated version of an old questionnaire from a similar large-scale study carried out during the pre-accession period to the EU in 2001. The latter gave an extraordinary opportunity to compare the results from both studies and analyse 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 summarised and grouped according to the farms’ type and personal characteristics of managers. For checking the survey representativeness, estimation of the statistical error was performed,

indicating a discrepancy between the survey results and the whole population. The statistical test for measuring the error was carried out using a two-step procedure and equations suggested by Ivanov et al. (2022):

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

$$[SS]_{FN}=SS/(1+((SS-\sqrt{P}))/((SS+\sqrt{P}))) \quad (2)$$

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 was counted on 345 questionnaires, and the statistical error was estimated for a confidence level of 95%, where the p-value was 0.05 for a two-tailed sample, and the z test statistic score was equal to 1.96. The population set was 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 was obtained to 0.106, meaning that there was a 10.6% chance that the generated results from the field survey to be different from the real results of the entire population. The size of the statistical error is quite acceptable for this study, and therefore, demonstrated survey facts and figures can be accepted with high confidence and reliability.

A hypothesis test was also implemented, where, based on the sample error, z test and confidence level estimation were 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 3. That question covers several subtopics with a total number of possible answers up to 5. In order to implement the hypothesis test, different standard methods were 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 3: 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: author's calculations

The results, which test the significance and reliability of the obtained responses by farm managers, demonstrate that the figures are quite consistent. This test was done by dividing the whole sample into two subgroups randomly, with preliminary structuring of questionnaires by criteria of legal status and localisation. The confidence levels in the covered 5 sub-questions range between 98.7% to 99.3%, which testifies to an almost full coverage of the possible cases. The z test shows that there is no principal difference between those two subgroups, and despite little divergence between they have the same meaning and root results. Such analysis proves with a high level of confidence that estimated results and distribution between optional answers are quite reliable, which means that it can be assumed that a similar distribution of responses can be seen in the whole population.

Therefore, it can be suggested with high confidence 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 guaranteeing anonymity; the data collection and processing were implemented professionally; and the large 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 types of farms in recent years (Agro-Governance Project, 2024).

GENERAL CHARACTERISTICS OF THE SURVEYED FARMS

The majority of the surveyed farms were unregistered Physical Persons (67.8%), with the majority of the rest having the legal status of firms – 15.4% were Corporations and other companies, 11.3% were Sole Traders, and 0.6% were Associations (Table 1). Just over 4% of the surveyed farms were Cooperative farms. The majority of all surveyed farms were registered as agricultural producers, and 26% of them had a livestock breeder registration. Just over 13% of the surveyed farms had certification as organic producers.

The majority of the surveyed farms' managers defined their enterprise as rather small for the industry (47%), and the remaining significant part was of medium size for the sector (42.8%). Just over 8% of all farms were large for the industry, and about 2% were mainly for self-sufficiency.

A large part of the surveyed farms was specialised in perennial crops (32.5%), followed by farms with bee colonies (16.2%), and those specialised

Table 4: General characteristics of the surveyed farm managers (percentage)

Characteristics	Field crops	Vegetables, flowers, mushrooms	Permanent crops	Grazing livestock	Pigs, poultry and rabbits	Mix crops	Mix livestock	Crops-livestock	Bee keepers	Share in total
Male	84,44	59,62	56,60	68,07	71,43	69,39	85,71	79,31	69,23	68,07
Female	15,56	40,38	43,40	31,93	28,57	30,61	14,29	20,69	30,77	31,93
Partnership	1,74	0,29	1,16	4,93	0,29	28,57	0,00	1,16	0,00	4,93
Young farmer (up to 40 years old)	18,00	40,82	45,95	32,56	25,00	40,82	0,00	19,35	39,29	32,75
Age 41 to 54 years old	42,00	44,90	35,14	38,90	50,00	18,37	42,86	45,16	32,14	39,13
Age 55 to 65 years old	34,00	4,08	8,11	17,58	12,50	12,24	57,14	22,58	14,29	17,68
Over 65 years old	6,00	10,20	10,81	10,95	12,50	28,57	0,00	12,90	14,29	11,01
Primary	2,32	2,32	2,32	32,75	2,32	2,32	2,32	2,32	2,32	2,32
Secondary	48,12	48,12	48,12	39,13	48,12	48,12	48,12	48,12	48,12	48,12
Higher	46,38	46,38	46,38	17,68	46,38	46,38	46,38	46,38	46,38	46,38
Professional agricultural qualification	86,38	85,22	69,28	11,01	97,39	86,67	98,55	91,01	84,35	3,19

Source: Interviews with farm managers, 2023.

in vegetables, flowers and mushrooms (15.1%), mixed crop production (13.95%), and field crops (13.3%). Farms specialised in herbivores and those with mixed crop and livestock production each had about 10% share in the total number of surveyed farms. Slightly over 2% of all farms were specialised in pigs, poultry and rabbits. The majority of the surveyed farms of agricultural producers were located in mainly plain regions of the country (68.3%), and every ninth had land in protected areas and territories (Table 2). Slightly over 13% of the surveyed farms were located near large cities. The largest number of farms was surveyed in the south-central and north-western regions of the country (21.7% and 20.3%, respectively), and the smallest number in the north-central (9%) and south-eastern (9.5%) regions.

The majority of surveyed farm managers and owners were men (68.1%), almost 32% were women, and nearly 5% of the farms were partnerships (Table 4). The majority of surveyed managers (39.1%) were aged 41 to 54, a significant proportion were young farmers up to 40 years old (32.8%), and 11% were of retirement age, over 65 years old.

The majority of surveyed managers had secondary education (48.1%), and a significant proportion also had higher education – 46.4%. Only a small proportion of surveyed farms had managers with only professional agricultural qualifications (3.2%) or primary education (2.3%).

More than half of the farms surveyed had been in existence for over 10 years (53.3%), and 19% for over 20 years. Just over 15% of the farms surveyed were established 5 years ago (Figure 1). The majority of the surveyed managers had over 6 years of professional experience in farming (80.3%), including more than half with over 10 years of farming experience. However, almost one-fifth of all surveyed managers had up to 5 years of professional experience in farming.

Every fifth of the surveyed managers was a member of a professional organisation of agricultural producers (Figure 2). A small part of the surveyed farms participated in collective organisations, including 3.8% in a production cooperative, 1.7% in a marketing cooperative, and 1.4% in a supply cooperative.

Just over 7% of all surveyed farmers owned other farms (Figure 2). At the same time, only 1.4% of the surveyed farms owned other farms. Furthermore, a small part of the surveyed managers indicated that their farm was owned by another farm (1.2%) or another firm (0.6%).

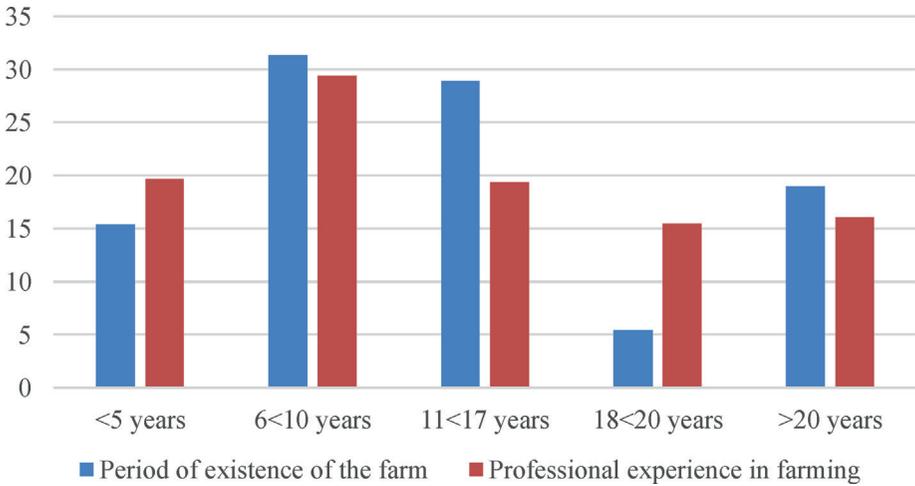


Figure 1: Farm existence period and professional farming experience of the surveyed managers (percentage)

Source: Interviews with farm managers, 2023.

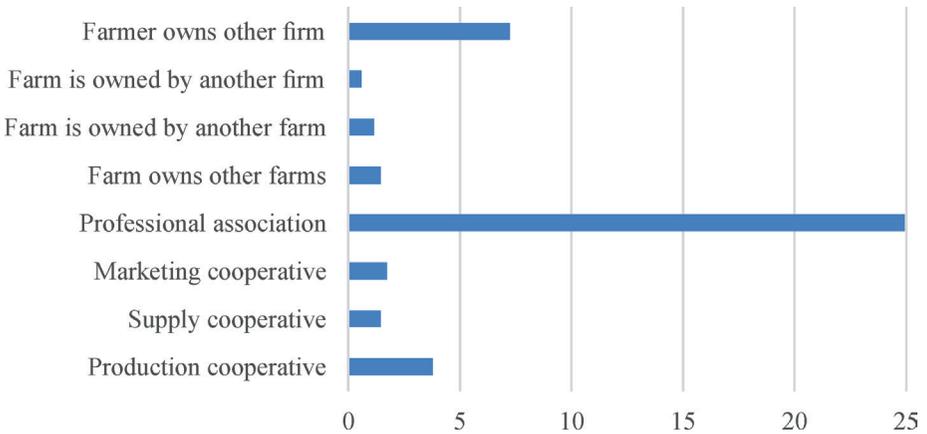


Figure 2: Membership of farm in organisations and ownership of other agents (percentage)

Source: Interviews with farm managers, 2023.

GOVERNANCE MODES IN THE MAIN FUNCTIONAL AREAS OF FARM MANAGEMENT

The survey found that slightly more than 90% of farms managed agricultural land. Almost 70% of farms owned their land - individual group or firm property, acquired by inheritance, donation, purchase, etc. Nearly 65% of all farms used leased land through short-term or long-term rental or lease agreements. Only

2.3% of all farms cultivated land jointly based on some kind of joint activity agreement.

A significant part of Bulgarian farms participated in transactions for the purchase or sale of agricultural land - 62.9% and 72.2% of all farms, respectively (Figure 3). A large share of farms (48.1%) used short-term rental agreements to secure the necessary agricultural land. Nearly 36% of agricultural producers practised long-term lease-in of land. A significant proportion of Bulgarian farms also leased out land through short-term rental or long-term lease agreements.

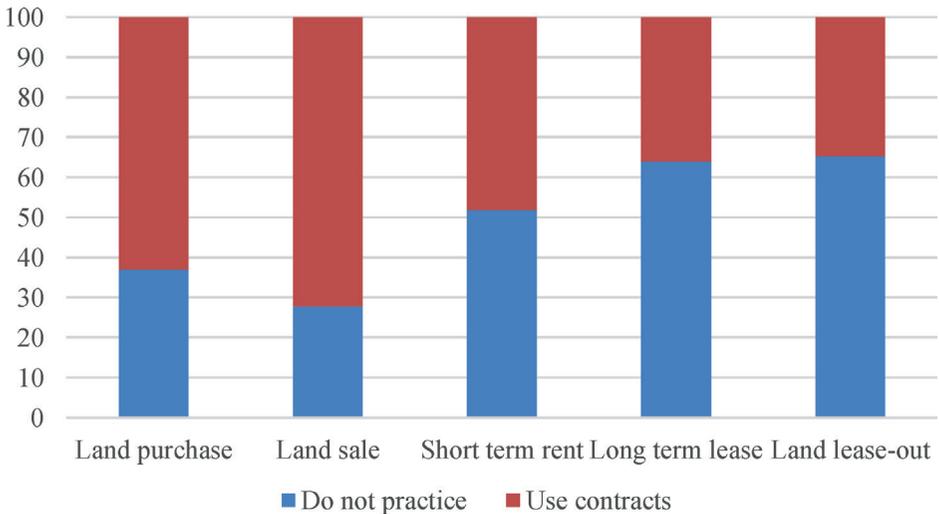


Figure 3: Share of farms using different types of contracts for the supply of agricultural land (percentage)

Source: Interviews with farm managers, 2023.

Slightly over 93% of the surveyed farms practised labour contracts. The dominant form of providing the necessary labour force in the majority of farms (97.1%) was permanent employment, with almost all of them being farm owners, and for a large part (43.9%), family members (Figure 4).

Nearly 46% of the farms used part-time employment contracts, with over half preferring family members. A form of seasonal employment was practised by 57% of the farms, with the majority of this type of contract being with non-owners or family members.

Just over half of the farms surveyed used labour primarily for management, with the majority being the farm owners. Nearly 56% of all farms employed

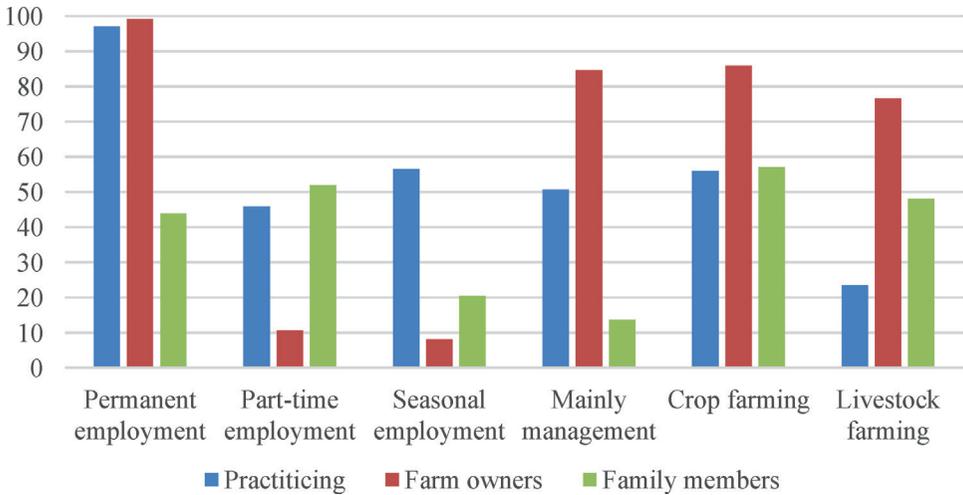


Figure 4: Share of farms using different types of labour contracts (percentage)

Source: Interviews with farm managers, 2023.

labour primarily in crop production, and just over 23% primarily in livestock production. Farm owners or family members were preferred for a large portion of these specialised activities.

The majority of the farms surveyed used an external provider of services necessary for the farm – respectively 91% for veterinary and medical services, 83% for training, information, and advice, 82% for fertilisation and treatment with chemicals, 75% for maintenance of machinery and equipment, 64% for mechanised services, and 97% for some other type of service (Figure 5).

A standard or special contract for purchasing from a market supplier was the most widely used form, practiced by a large part of farms in terms of fertilisation and treatment with chemicals (55%), mechanised services (47%), and maintenance of machinery and equipment (43%), and to a lesser extent in terms of veterinary services (21%), and training, information, and advice (17%).

Joint purchasing with other farms was a less common form, which was more important in mechanised services, and fertilisation and treatment with chemicals – for about 9% and 7% of farms using external services.

A significant part of the surveyed farms (22.4%) received the necessary training, information, and advice from an organisation to which they were a member, and this form was less common for other types of services.

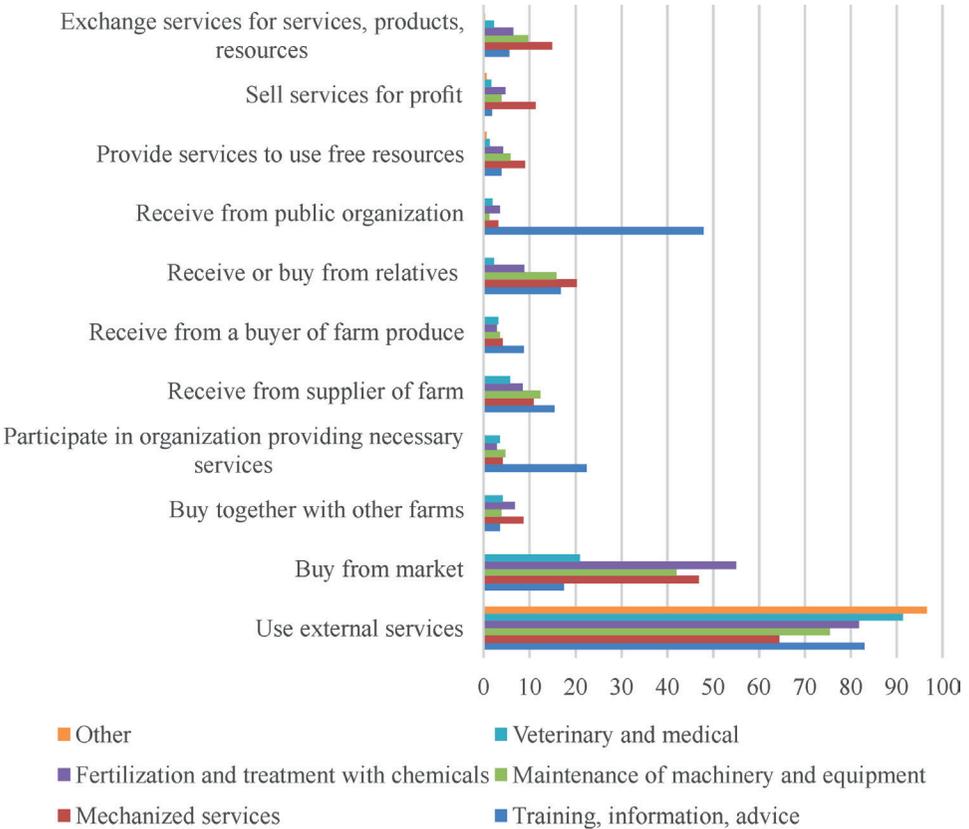


Figure 5: Share of farms using a certain type of contract for receiving or providing different types of services (percentage)

Source: Interviews with farm managers, 2023.

A significant proportion of farms received the necessary services from a supplier of farm inputs, resources or finances through an interlinked contract “in a package” with the necessary services – 15.4% of farms in terms of training, information and advice, 10.8% for mechanised services, 12.3% for maintenance of machinery and equipment, 8.5% for fertilisation and treatment with chemicals, and nearly 6% for veterinary-medical services.

An interlinked contract for the provision of a service together with the purchase of the farm produce was practised by about 9% of holdings in terms of training, information, and advice and to a lesser extent by the other farms.

A relatively large share of farms received or purchased the services they needed from relatives, including every fifth mechanised services, 17% training,

information and advice, 16% maintenance of machinery and equipment, and 9% fertilisation and treatment with chemicals.

The provision of necessary services by a public organisation free of charge or for a certain fee or undertaking of some commitments was practised by almost 48% of the surveyed farms.

Many farms provided services to others to use free resources or as a specialised activity aimed at profit, with this most commonly applied to mechanised services – by every ninth or eleventh of the farms, respectively.

A significant part of the farms provided the necessary services through a contract for exchange of services, inputs or resources. This was most commonly applied to mechanised services (15% of the farms) and maintenance of machinery and equipment (every tenth farm).

A significant part of the surveyed farms applied their own supply of the necessary long-term and short-term assets (Figure 6). The share of farms with internal (own) production of the necessary assets was particularly high in terms of buildings and equipment (27.2%), feed (22.9%), and seeds and planting material (13%).

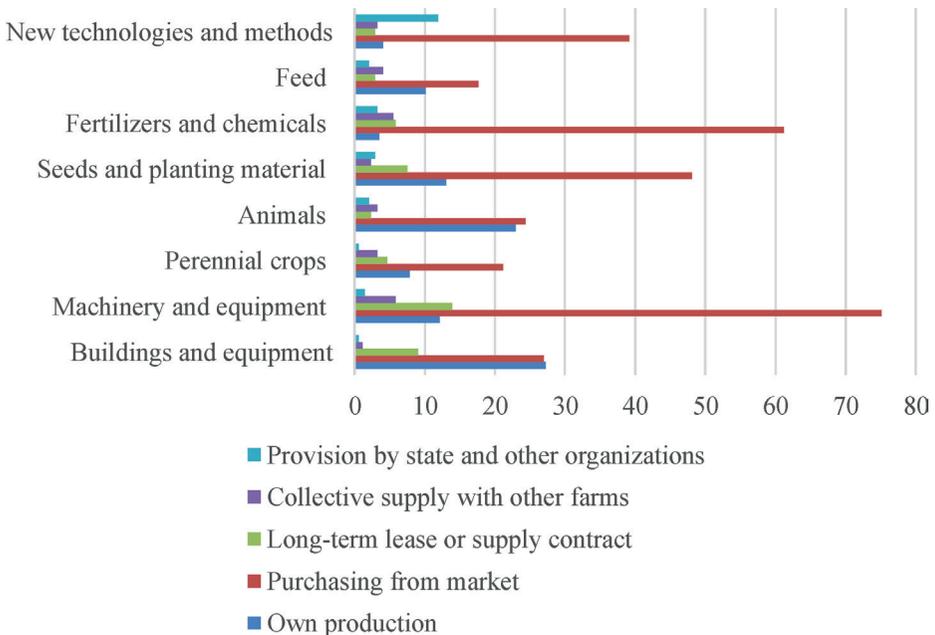


Figure 6: Share of farms using certain modes to procure necessary assets and innovations (percentage)

Source: Interviews with farm managers, 2023.

The main form of procurement of the necessary assets and innovations for the majority of Bulgarian farms was purchase from the market through a spotlight or standard contract – for three quarters of them in terms of machinery and equipment, for 61.2% for fertilisers and chemicals, for just over 48% for seeds and planting material, slightly more than 39% for new technologies and methods, for 27% for buildings and facilities, 24.4% for animals, 21.2% for permanent crops, and nearly 18% for feed.

A long-term lease or supply contract was used by a larger proportion of farms in terms of machinery and equipment (14%), buildings and facilities (9%), and seeds and planting material (8%).

A relatively small part of Bulgarian farms used some form of collective procurement of necessary assets and innovations, which was more common for machinery and equipment (5.8%), fertilisers and chemicals (5.5%), and feed (4.1%).

Provision by government and other organisations was used by nearly 12% of all farms for new technologies and methods, by almost 3% of farms for seeds and planting material, and to a small extent for other assets.

Only a small proportion of the farms surveyed reported that they did not need external financing for farm activities. At the same time, the majority of holdings needed external funding to effectively finance their activities, including slightly more than 93% for long-term investments, nearly 85% for soil, water, air, biodiversity protection and climate change adaptation, 82.3% for short-term assets, and almost 76% for training, information, and innovation.

The main form of financing the activities of a large part of Bulgarian farms was savings or non-farm activities – for short-term or long-term assets for 31%, for training, information, and innovation for 21%, and for soil, water, and biodiversity protection and climate change adaptation for 16.3% of them (Figure 7).

Another important form of financing was the income from farm activities, as this source was of particular importance for 76% of farms in terms of long-term investments in material and biological assets, for slightly more than 74% of them for short-term investments, for nearly 47% of farms for financing soil, water, biodiversity protection and climate change adaptation, and for almost 32% of them for financing training, information and innovation.

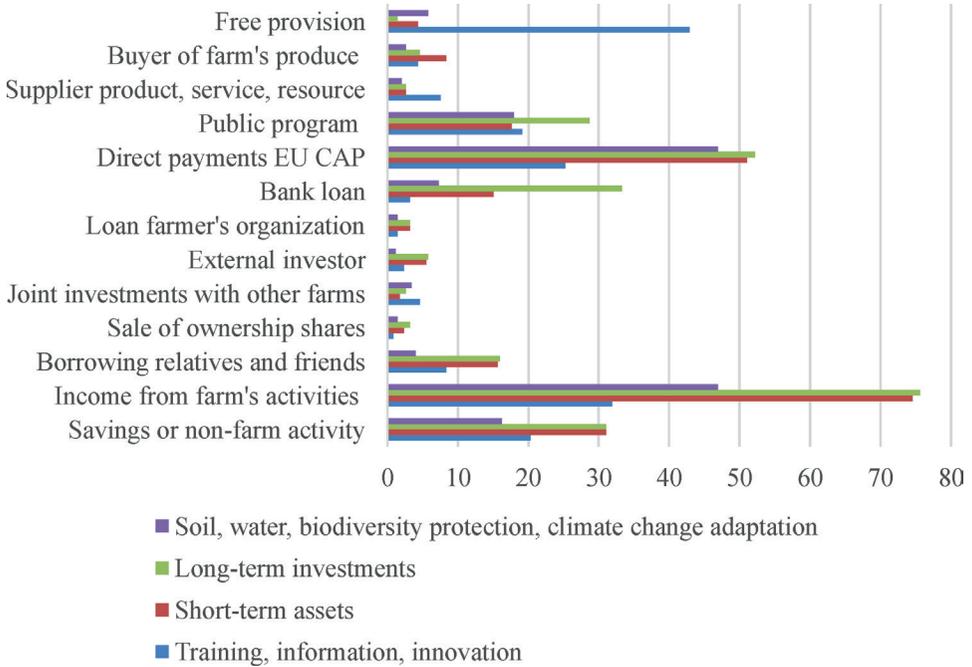


Figure 7: Share of farms using certain modes to finance farm activities (percentage)

Source: Interviews with farm managers, 2023.

Direct payments from the EU CAP were a source of financing for long-term and short-term assets for 52.2% and 51% of all farms, respectively, for soil, water, biodiversity protection and climate change adaptation activities for 47% of them, and for training, information and innovation costs for 22.2% of farms.

Participation in various public programs was a form of financing the long-term investments of 28.7% of Bulgarian farms, the costs of training, information, and innovation of slightly more than 19% of them, the activities for soil, water, biodiversity protection and climate change adaptation of 18% of them, and the acquisition of short-term assets of 17.7% of them.

The use of a bank loan agreement was a mode of financing the long-term investments of every third Bulgarian farm, the short-term assets of slightly more than 15% of all farms, and the costs for soil, water, biodiversity protection and climate change adaptation of 7.2% of them.

The application of a loan agreement with relatives and close friends and firms was practised by nearly 16% of agricultural farms in terms of financing

short-term and long-term assets, and 8.4% of them for financing their training, information, and innovation.

A loan from a farmer organisation was used by just over 3% of Bulgarian farms to finance short-term and long-term assets, a negligible part of them for training, information, and innovation, and eco-management and adaptation.

The sale of shares in the ownership of the farm was a little-used mode of funding, as it was important for 3.1% and 2.3% of farms, respectively, to finance their long-term and short-term investments.

An external investor was a source of financing for the short-term assets of about 6% of Bulgarian farms, a very small part of them being for training, information, and innovation, and soil, water, biodiversity protection and climate change adaptation.

Joint investments with other farms were a way of financing training, information, and innovation for 4.6% of Bulgarian farms, activities for soil, water, biodiversity protection and climate change adaptation for 3.5% of them, and for a small part of holdings in terms of costs for acquiring short-term and long-term assets.

The majority of surveyed farms received funding for training, information, and innovation from a supplier of a product, service, or resource (7.5%), and from a buyer of the farm's production for acquiring short-term assets (8.4%). Also, a significant share of all farms received free provision of the necessary training, information, and innovation – nearly 43%.

A significant proportion of the surveyed farms did not take any measures to prevent and minimise farm risk, including almost 32% for the risk of natural disasters, nearly a quarter for the risk of damage from wild animals, just over 20% for the risk of accidents to personnel or property, just over 17% for theft of property, almost 11% for market and contractual risk, and for price fluctuations, and just over 8% for the risk of diseases and pests of plants and animals.

A large proportion of farms maintained a reserve as a form of risk management, including nearly 45% to protect against market and contractual risk and price fluctuations, almost 21% to protect against the risk of diseases and pests of plants and animals, just over 17% to protect against the risk of theft of property, nearly 16% to protect against the risk of natural disasters, just over 13% to protect against the risk of accidents to personnel or property, and just over 10% to protect against the risk of damage from wild animals (Figure 9).

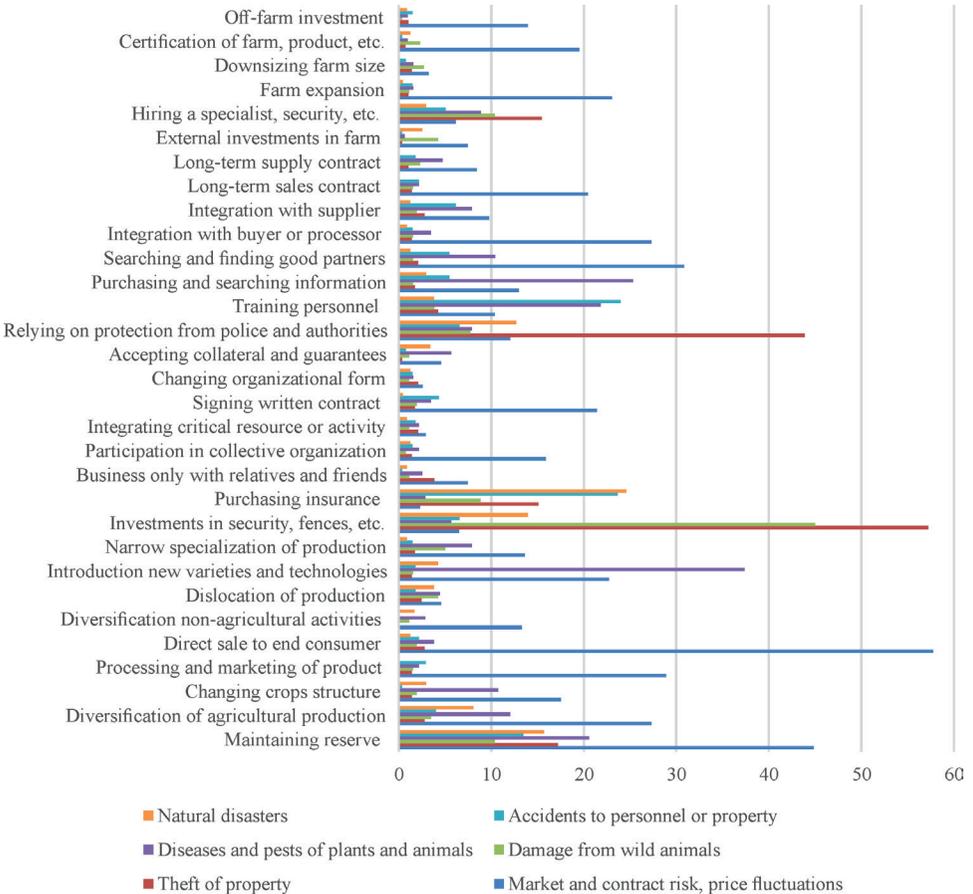


Figure 9: Share of farms using certain modes to protect and minimise farm risk (percentage)

Source: Interviews with farm managers, 2023.

Other main forms of protection and minimisation of farm risks were diversification of production and change of crop structure, which were used by the majority of farms to manage market and contractual risk and price fluctuations (27.3% and 17.5% of all producers, respectively), and to protect against diseases and pests of plants and animals (12% and 10.8% of farms, respectively). Diversification of production was also applied to protect against natural disasters by slightly more than 8% of farms.

Along with this, diversification in non-agricultural activities was practised by 13.3% of farms to minimise market and contractual risk, and protect against price fluctuations. On the other hand, narrow specialisation of production was

undertaken by 13.6% of farms to overcome the risk of market and contractual risk, and market price fluctuations.

Other important forms primarily for preventing and minimising market and contractual risk, and price fluctuations were the processing and marketing of the product, and direct sale to the end consumer, which were applied by nearly 29% and 58% of Bulgarian farms, respectively.

The introduction of new varieties and technologies was an important strategy for preventing and minimising the risk of diseases and pests of plants and animals for 37.3% of farms, and for reducing market and contractual risk, and price fluctuations for 22.7% of them.

Investments in security, fences, etc., were a way to prevent and minimise the risk of property theft, damage by wild animals, and natural disasters for 57.2%, 45% and 14% of all farms, respectively.

Purchasing insurance or “selling the risk” was an important form for a larger share of farms in terms of protection against the risk of natural disasters (24.5), accidents to personnel or property (23.6%), theft of property (15.1%), and damage by wild animals (8.8%).

Other forms of protecting and minimising market and contractual risk, and the risk of price fluctuations for a significant part of Bulgarian farms, were signing a written contract (21.4%), participating in a collective organisation (15.9%), and practising transactions only with relatives and acquaintances (7.5%).

A large part of Bulgarian farms relied on protection from the police and the authorities to prevent and minimise risks to their farms, including property theft – 43.9%, natural disasters - 12.7%, market and contractual risk, and price fluctuations – 12%, diseases and pests of plants and animals – 7.9%, and damage from wild animals – 7.7%.

Staff training was an important form of managing the risk of accidents to personnel or property, diseases and pests of plants and animals, and market and contractual risk, and price fluctuations for 24%, 21.8%, and 10.4% of farms, respectively. In addition, some farms employed a specialist, security guard, etc. to protect against property theft (15.4%) and protect against damage from wild animals (10.4%).

Purchasing and searching for information, and searching for and finding good partners was practiced by a larger share of Bulgarian farms in terms of

preventing and minimising the risk of diseases and pests of plants and animals (by 25.3% and 10.4% of farms, respectively), and of market and contractual risk, and price fluctuations (13% and 30.8% of farms, respectively).

Integration with a buyer or processor of farm produce, integration with a supplier of resources, products, or services, and the use of a long-term sales contract, signing a long-term contract for the supply of products or services, external investments in the farm, farm expansion, certification of the farm, product, etc., and investment outside the farm were important forms of protection against market and contractual risk, and price fluctuations for 27.3%, 9.7%, 20.4%, 8.4%, 7.5%, 23%, 19.5%, and 14% of all farms, respectively.

A relatively small share of farms used forms of risk management such as dislocation of production, integration of a critical resource or activity, change of organisational form, acceptance of collateral and guarantees, and reduction of farm activity.

A small share of the surveyed farms used their production for on-farm consumption, with most of them doing so with the produced fruits and grapes (9%) and vegetables (5.8%) (Figure 10).

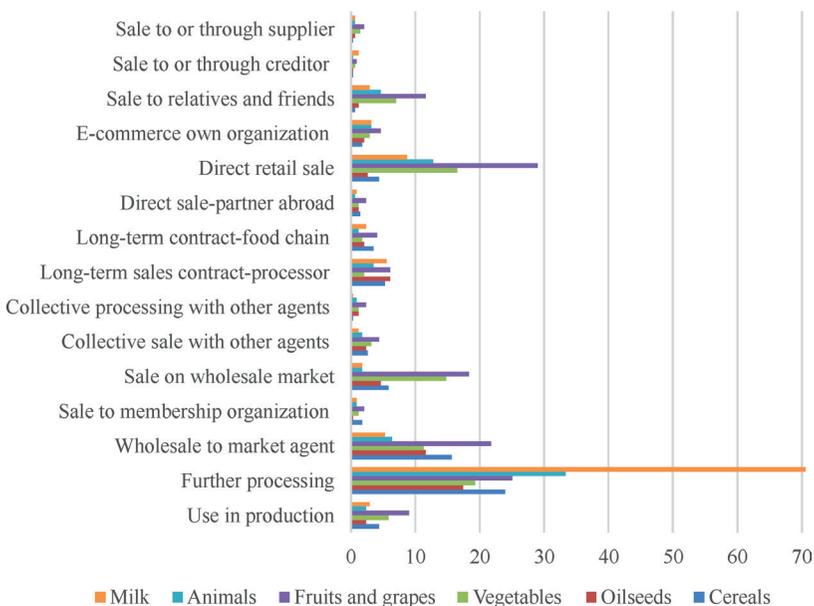


Figure 10: Share of farms using certain modes of marketing their produce (percentage)

Source: Interviews with farm managers, 2023.

At the same time, a significant part of the farms used their output for further processing – nearly 71% of the farms for milk, one-third for animals, every fourth for fruits and grapes, 24% for cereals, just over 19% for vegetables, and just over 17% for oilseed crops.

Wholesale sales to a market agent were another main form of marketing of the produce of Bulgarian farms, and it was most common for fruits and grapes (21.7% of farms), cereals (15.6%), oilseed crops (11.6%), and vegetables (11.3%).

Sales on wholesale markets were practised by most farms for fruits and grapes (18.35%) and vegetables (14.8%).

A long-term contract with a processor for the marketing of farm produce was used to a greater extent for fruit and grapes, oilseeds, milk, and cereals - by 6.1%, 6.1%, 5.5% and 5.2% of farms, respectively.

A long-term contract with a food chain for the sale of produce was used to a greater extent in the marketing of fruit and grapes by slightly more than 4% of Bulgarian farms.

Direct retail sale of the produce produced by the farms was a widely practised form of marketing, which was most common in fruit and grapes (29% of farms), vegetables (16.5%), animals (12.8%), and milk (8.7%).

E-commerce by the farmer or his organisation was applied by a small part of Bulgarian farms, with their share being the largest in fruit and grapes - 4.6%.

Sales mainly to relatives and friends were a form of marketing of produce for the majority of holdings for fruit and grape farms (11.6%), vegetables (7%) and livestock (4.6%).

Other forms of marketing such as sales to an organisation of which the farmer was a member, collective sales together with other farms and agents, collective processing together with other farms and agents, direct sales to a partner abroad, sales to or through the farm's creditor, and sales to or through the farm's supplier were practised by a small part of Bulgarian farms.

A large part of the surveyed farms provided different types of ecosystem services (Figure 11). To a great extent, farms contributed to the preservation and improvement of soil fertility, the preservation and improvement of water purity, the preservation of natural biodiversity, and the preservation of traditional landscapes – 85.5%, 83.8%, 77.7% and 63.2% of all farms, respectively.

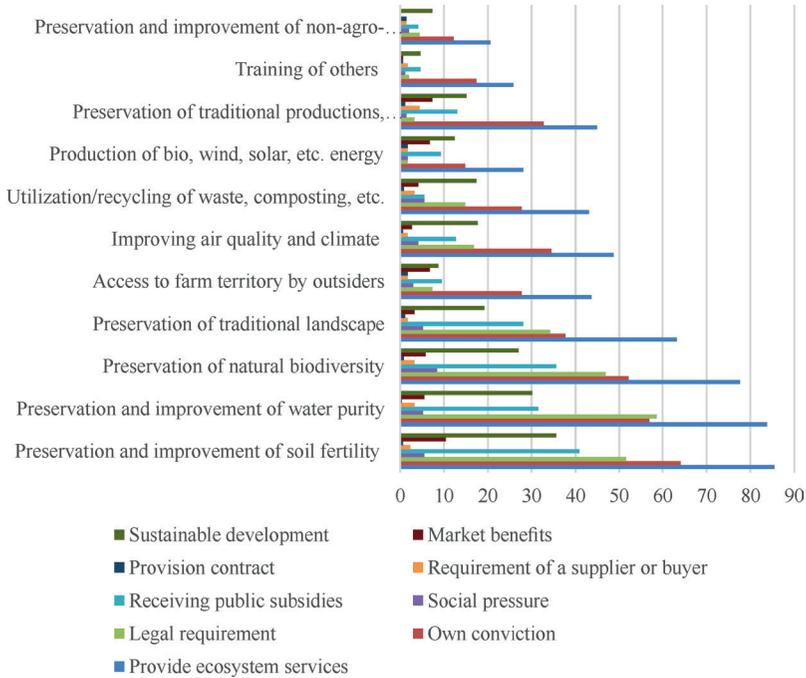


Figure 11: Share and motivation of farms for providing different types of ecosystem services (percentage)

Source: Interviews with farm managers, 2023.

A large share of Bulgarian farms also took measures to improve air and climate quality (48.7%), preserve traditional productions, varieties, and breeds (44.9%), provide access to the farm territory for outsiders (43.8%), and use and recycle waste, composting, etc. (43.2%).

In addition, many farms produced bio, wind, solar, etc., energy (28.1%), train other people (25.8%), and contribute to the protection and improvement of non-agricultural ecosystems (20.6%).

The farmer’s own conviction was an important factor in the provision of a large part of agro-ecosystem services, as it was important for the majority of farms in terms of preserving and improving soil fertility (64.1%), preserving and improving water purity (56.8%), preserving natural biodiversity (52.2%), preserving traditional landscapes (37.7%), improving air and climate purity (34.5%), preserving traditional productions, varieties, and breeds (32.7%), providing access to farm territory for outsiders (27.8%), and using and recycling waste, composting, etc. (27.8%).

Legal and regulatory requirements were another important factor motivating the production of ecosystem services on Bulgarian farms. It was indicated as an important factor by a large part of farms for the protection and improvement of water purity (58.6%), protection and improvement of soil fertility (51.6%), protection of natural biodiversity (47%), and preservation of traditional landscape (34.2%).

Receiving public subsidies was a significant factor in stimulating the activity of a significant share of farms for the protection and improvement of soil fertility (40.9%), protection and improvement of water purity (31.6%), protection of natural biodiversity (35.6%), and preservation of traditional landscape (28.1%).

Sustainable development of the farm was reported as a motivation for the provision of ecosystem services by many farms for the protection and improvement of soil fertility (35.6%), protection and improvement of water purity (30.1%), and protection of natural biodiversity (27%).

For slightly more than 10% of farms, obtaining some market benefits was an important factor in stimulating their activities to protect and improve soil fertility.

At the same time, social pressure, the requirement of a supplier or buyer, and the presence of a special contract for provision were indicated as factors in the provision of ecosystem services by a small part of Bulgarian farms.

The main contractual forms used by Bulgarian farms in the supply of the necessary resources and services and in the marketing of their products and services are summarised in Table 5.

Table 5: Main types of contracts used by Bulgarian farms in the supply of necessary resources and services and in the marketing of products and services

<i>Functional area of the farm</i>	<i>Main contract forms</i>			
	<i>Market contract</i>	<i>Special contract</i>	<i>Coalition contract</i>	<i>Public contract</i>
Supply of land and other natural resources	Purchase Short-term rent	Long-term lease with fixed rent Long-term lease with share rent Long-term lease with market rent	Cooperation Partnership	Lease of state and public lands Lease of reservoirs and irrigation systems

<i>Functional area of the farm</i>	<i>Main contract forms</i>			
	<i>Market contract</i>	<i>Special contract</i>	<i>Coalition contract</i>	<i>Public contract</i>
Supply of labour	Daily hire Seasonal hire	Permanent employment contract with fixed remuneration Permanent employment contract with output-based remuneration	Partnership Cooperation	Public subsidies for hiring labour (disables, interims, COVID pandemic, etc.)
Supply of short-term material assets	Purchase with spotlight contract Standard contract	Long-term supply contract A supply contract interlinked with supply of credit, services, and/or purchase of farm produce	Cooperation	Public subsidies for short-term input purchase
Supply of long-term material assets	Purchase with spotlight contract Standard contract	Long-term lease agreement Purchase agreement with crediting (leasing) and/or services (maintenance)	Partnership Cooperation	Public subsidies for long-term input purchase Leasing of state property Leasing of irrigation systems
Supply of services	Purchase with spotlight contract Standard contract	Long-term supply contract A supply contract linked with other services, products or credit	Partnership Cooperation	Agricultural information and advice Training
Supply of innovations and know-how	Purchase with spotlight contract Standard contract Free consultation by Advisory System	Long-term supply contract Supply contract interlined with material assets and/or credit	Cooperation	Scientific products and innovations

<i>Functional area of the farm</i>	<i>Main contract forms</i>			
	<i>Market contract</i>	<i>Special contract</i>	<i>Coalition contract</i>	<i>Public contract</i>
Financing	Bank loan Loan from a private individual Loan from a private organisation	Joint-investment Crediting is interlinked with the supply of material assets and services Grants from private individuals and organisations (charity, NGOs, etc.)	Partnership Credit Cooperative Grants from collective actions by private individuals and organisations (charity, NGOs, etc.)	State program International program CAP subsidies based on utilised agricultural land, livestock heads, etc.
Insurance	Purchase of an insurance policy Purchase of an “insurance service”	Insurance is interlinked with material assets. Long-term insurance contract	Cooperation Collective insurance	Public reserve fund
Marketing of farm products and services	Retail sale Wholesale Standard Contract Digital Marketing	Long-term marketing contract Interlinked marketing contract against crediting, supply of material assets and/or services Trade in organic, eco, etc. products with independent certification and audit	Partnership Cooperation	Public marketing contract (military, state reserve, school lunches, etc.)
Provision of services with collective and public good character	Retail sale	Membership contract Long-term contract with a private organisation Long-term contract with a non-governmental or other organisation	Partnership Cooperation Collective codes of behaviour	Public eco-contracts Cross-compliance requirement for participation in public support program

Source: Author.

EVOLUTION OF GOVERNANCE FORMS COMPARED TO THE PRE-ACCESSION PERIOD OF THE COUNTRY TO THE EUROPEAN UNION

The application of the same approach (methodology, questionnaire) in the present and previous study in 2001 (Bachev & Terziev, 2001, 2002; Bachev & Tsuji, 2001) provides a real opportunity to assess the fundamental evolution of governing modes in Bulgarian agriculture over the past two decades.

The main forms of governing resource supply and marketing of produce in agricultural holdings have changed significantly over the past twenty-five years (Table 6). At the beginning of the century, there were a huge number of smaller farms, including a huge “semi-market” sector and subsistence farming, based mainly on limited family resources and fragmented plots of their own lands. The main form of acquiring ownership of agricultural land and long-term assets was the restitution and privatisation of agricultural lands and assets, as a result of the liquidation and privatisation of the old public farms (APK, TKZS, DZS, etc.). Private property rights to land and other resources, services, waters, etc., were not fully defined, and completely restored “within real boundaries”, well contested and adequately enforced. Therefore, seasonal (annual) lease contracts with hundreds and thousands of landowners and partnerships with small membership (joint cultivation of land and use of large-scale assets such as orchards, vineyards, irrigation and other facilities) were the dominant (most effective) forms of farm expansion.

Table 6: Evolution of agrarian governance in Bulgaria

<i>Characteristics</i>	<i>Pre-accession period (2000-2001)</i>	<i>Present (2023-2024)</i>
Private property rights	Unspecified, temporary, disputed, individual and family ownership, small scale, farmland ownership restricted to Bulgarian citizens, main form of land supply, no private rights to water and other natural resources, large farms without ownership of the land, significant share of under-utilised or unused agricultural lands, unregulated access to public lands	Established, legally enforced, farmland ownership open for EU agents, diverse form of ownership (organisational, non-agricultural agents, international), concentration in small and large structures, one of the alternative forms of land and resource supply, new private rights to waters, ecosystem services, intellectual products, geographical origins, land scarcity in certain areas, contracts for use of public lands

<i>Characteristics</i>	<i>Pre-accession period (2000-2001)</i>	<i>Present (2023-2024)</i>
Farming structures	Numerous, in the process of development, low efficiency and sustainability, small size, based on own and family (land, labour, savings) resources, strong cooperation in land use, high degree of self-sufficiency, survival strategy, widespread occasional and part-time employment in agriculture.	Reduced number of agricultural holdings, more formally registered farms, less importance of unregistered and cooperative farms, established, highly efficient and competitive, intensive external market and private supply of (land, labor, financial, innovation) resources, inputs and services, diverse types of coalitions, long-term development strategy, professional farmers
Markets	Underdeveloped, missing, fragmented, informal, lack of adequate infrastructure, primitive and personalised exchanges and clientalisation, monopoly positions, insufficient and asymmetric information, lack of public support and regulations	Well-developed markets for resources and products, competitive, modernised infrastructure, open to the EU, officially registered and reported transactions, publicly supported, regulated and sanctioned (standards, rules, etc.), intensive impersonal exchange, specialised agents, reduced asymmetry of market information.
Modes of resource supply	Ownership, provisional property rights, seasonal and annual lease contracts, joint land cultivation and assets use, quasi and fully integrated, limitation on maximum size of land ownership and leased lands, no incentives for long-term investment in land, casual transactions between friends, family members and closed communities, illegitimate use of private and public lands and assets.	Ownership and joint ownership, purchase and sale, short-term rent, long-term lease, collective cultivation, clear and simple forms, strong incentive for investments in land and farm improvement, specificity in protected areas and territories, intensive negotiation depending on the specificity of the assets and the needs for farm expansion, informal forms on a smaller scale and in remote areas
Type of contracts and prices	Informal, standard ("classic"), complex and hybrid (interlinked) forms, privately enforced, payment of rents and other in kind, delayed, reduced or non-payments of promised rents, salaries, interests, and other obligations	Written, formally registered, legally enforced, publicly regulated (form, terms, period, registration), tailored to the needs of agents (special, "neoclassical"), paid in cash, governed by trust and reputation, assisted and enforced by a third (private or public) party

<i>Characteristics</i>	<i>Pre-accession period (2000-2001)</i>	<i>Present (2023-2024)</i>
Institutional environment	In the process of evolution and harmonisation with the EU, high (institutional, market, behavioural) uncertainty, dynamic and (often) contradictory changes, outdated and poorly implemented environmental standards, lack of sufficient public support, and high corruption	Modernised according to the EU standards, huge public support through the CAP (subsidies, credit, training, market information, etc.), CAP payments based on utilised agricultural area, cross-compliance requirements (including environmental and biodiversity protection, etc.), improved enforcement and punishment of violators
Transaction costs and factors for farm development	Low transaction costs for land supply, very high overall transaction costs, the most critical factors - high costs for enforcement of contracts, credit supply and marketing the produce	Moderate or low transaction costs for land supply, most critical factors - legislative and regulatory environment, high costs for labour supply and supervision, high costs for inputs and finance supply, and marketing of produce, for registration and certification, presence of informal and gray sector, socio-economic situation in the region and country

Source: Author.

Most markets were underdeveloped and dynamic, while governance structures were highly unstable (part-time farming, numerous failures, bankruptcies, mergers, takeovers, temporary organisations undergoing privatisation, short-term contracts, cash-and-carry deals, etc.). Many new agents emerged without a history, reputation, or strategy to remain in agriculture. Market, institutional, and behavioural uncertainties were enormous and prevented potentially mutually beneficial exchanges between entrepreneurs, resource owners, and consumers.

There was no effective public system for enforcement of laws and contracts, and informal private (unregistered, illegitimate) forms of resources supply and transaction protection were widespread – interlinked modes (e.g., land supply against marketing of produce), barter transactions, personalised (rather than impersonal market) exchanges, private enforcement forms, illegal use of private and public lands and resources, etc. Land sales and long-term lease markets were practically absent, and the implementation of such forms of land supply and associated long-term investments in lands was very rare.

Transaction (information, implementation, enforcement, learning from mistakes, etc.) costs associated with external resources supply (and other farm transactions) were very high due to the rapid modernisation of the institutional environment (introduction and implementation of EU laws and regulations, numerous changes and amendments to regulatory documents and state institutions), market liberalisation, inadequate market infrastructure, low efficiency of the system for enforcement of private contracts, restructuring of agricultural structures and production, little management experience of farmers, primitive technologies, insufficient public support (training, advice, subsidies), monopoly positions of state or private agents, widespread corruption, etc. Furthermore, effective optimisation of farm size was severely limited by the high costs of enforcement of contracts in general, and by the enormous costs of credit supply and marketing the produce.

The study found that the critical factors (and transaction costs) that strongly limit the development of many Bulgarian farms at the current stage of implementation of the EU CAP are: the legislative and regulatory framework in the country and the sector, the cost of finding the necessary workforce, the cost of managing hired labour and workers on the farm, the cost of finding the necessary land and natural resources, the cost of finding the necessary short-term and long-term assets, the cost of finding the necessary financing for the farm, the cost of finding the necessary innovations, the cost of marketing the farm's products and services, the cost of registration, certification, etc., the presence of an informal and gray sector in agriculture, and the socio-economic situation in the region and the country (Figure 9). In the period before accession to the EU, the main factors limiting the development of agricultural holdings were the high costs of securing bank credit and selling the produced outputs.

CONCLUSION

There has been an unprecedented development in the governance of the supply of resources, services, innovations and marketing of products of Bulgarian farms over the last two decades. However, due to insufficient (statistical, official, etc.) information and traditional inadequate (Neoclassical Economics, Agent Theory, etc.) approaches to analysis, there is a lack of complete knowledge of the dominant forms and driving factors of governance in the main functional areas of farm management. This hinders the efficient decision-making at all

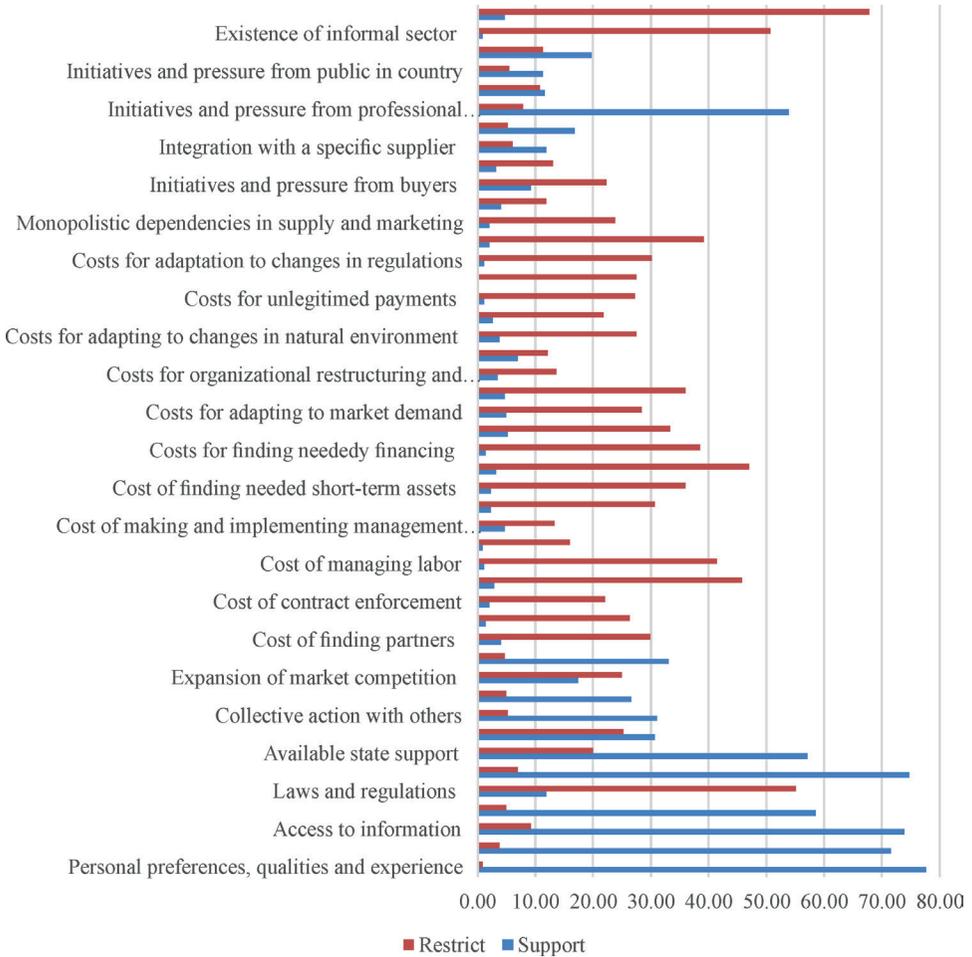


Figure 9: Factors strongly supporting or limiting the development of Bulgarian farms (percentage of farms)

Source: Interviews with farm managers, 2023.

levels- from the management of agricultural holdings and agrarian business and the formation of their strategies to collective actions, the involvement of third parties (local authorities, non-governmental organisations, etc.), and the development and implementation of government and EU policies.

This study has proven that the methodology of the New Institutional Economics allows for a better study and understanding of the real agents, forms, processes, resulting order, efficiency and progress of (specific and overall) governance of the agrarian sphere. Therefore, it should be used more widely

and periodically in economic analyses at different levels – farms of different types, sizes and locations, international comparisons, etc.

The application of the proposed holistic approach requires the collection of a new type of (micro) economic data on important characteristics of agricultural agents, the different forms of governance of their activities and relations, and critical dimensions and costs of transactions. This requires significant changes in the official information collection system in the country and the EU (national and international agricultural statistics), greater cooperation of different stakeholders (farm managers, professional organisations, the National Agricultural Advisory Service, state and international agencies), and the application of more holistic and interdisciplinary approaches in economic analysis by scientists, experts, professional organisations and public agencies.

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