

BULGARIAN FARMER'S PERCEPTION TOWARDS RISK

Hristina HARIZANOVA-BARTOS, Zornitsa STOYANOVA

University of National and World Economy, Bulgaria Sofia 1700, Studentski grad, Emails:
hharizanova@unwe.bg; zstoyanova@unwe.bg

Corresponding author: hharizanova@unwe.bg

Abstract

The characteristics that influence farmer's behavior and attitude toward risk should be identified in order to explain inconsistencies between the farmer's perception of risk and the accurate measurement of the probability of the occurrence of a risk event. The article investigates the various types of responses of farmers to risk-related decision-making. The paper's goal is to highlight various types of farm characteristics in terms of risk and on this basis to be prepared general conclusions. The following tasks were assigned to achieve the goal: 1) a literature review is associated with the risk perception; 2) application of methodology for research the farmer's behavior regarding their perceptions of risk taking; 3) determining and evaluating farm types; and 4) main conclusions and statements.

Key words: risk appetite, agrarian risk, risk management, Bulgaria

INTRODUCTION

For better understanding the farmer's risk behavior and perception, it is necessary first to understand their strategy and management approaches. Farmer's risk attitudes can be influenced by their market orientation, family involvement (a person with family commitments and responsibilities may be more willing to take the risk than one who does not), and age. Farmers who are older and more experienced would be more willing to take the risk than inexperienced farmers [11]. On the other hand, [15] note that knowing the farmer's attitude toward risk is of significant importance for: 1) agricultural producers to manage their farms better; 2) national advisory services for better support and for more targeted assistance to farmers; 3) industry by providing the necessary inputs for agricultural production and 4) policy makers to increase the efficiency of the use of public funds. [13] identified two key elements of farmer's risk perception. The first one is the individual's assessment of the probability of the occurrence of risk event. The second is the farmer's perception of the seriousness of this risk event. [16] expresses a different point of view, that the perception of risk is influenced by socio-cultural factors that predetermine the values, thinking, behavior of the farmer. [1] also define the individual characteristics of the

farmer and his family as important factors for the farmer's behavior towards risk, such as education, experience, family size, income, but also the author adds land status and land size as a factors that influence on farmer's risk perception.

Concerning specialization, some researchers investigate the link between farm investment and production, and it can be discovered that the more the technology of an operation is known, the less risk can be gained [10].

[3] categorize risk attitudes into four categories:

1. Risk aversion: people who see risk as a threat and are hesitant to take risks. These people frequently try to avoid or mitigate potential threats. According to the literature, this attitude is typical for small farms because of their inability to withstand financial losses associated with risk [11]. Farmers who are risk averse are neutral towards all proposed agricultural risk-reduction strategies [2].

2. Risk takers: These individuals are at ease with risk and see it as an opportunity. Even if the outcome is uncertain, they will feel good. According to [17] risk-taking farmers are willing to maximize their production factors regardless the risk of not obtaining optimal production results.

3. Risk resistant-individuals who believe that risk is neither an opportunity nor a threat, but

nevertheless engage in risky activities when exposed to them.

4. Risk-neutral: These are those who do not find long-term risk to be comfortable and are prepared to take immediate actions to reduce it. According other authors [6] the absence or presence of risk don't affect the neutral farmers, when they managed their farm. They neither seek the risk nor avoid it.

Variances between the farmer's perception of risk and the correct measurement of the probability of occurrence of a risk event suggest that these discrepancies should be resolved by identifying the factors that influence the farmer's behavior and attitude toward risk. The following are the factors that influence risk perception:

- Collective actions. The general consensus is that engaging in voluntary activities is considered less "risky" than dealing with an incurred risk by the farmer. The new risks are perceived differently than the old ones. In his article, [4] consider that market or collective management has advantages related on one hand to the prevention of risk and on the other to bearing its negative consequences. The author adds that despite the great opportunities for risk minimization that arise from collective action, the creation of collective organizations is difficult process, and small farms are reluctant to join them. Another research pointed out that the sharing of experience, knowledge, technique and other material assets among a group of farmers is one of the main benefits of collective action, but at the same time, the results of the study show the low degree of collective action that is implemented in Bulgaria [14].

- Historical perception of risk. This response is based on the historical approach, with the assumption that farmers would cope better if they could see how others or themselves have dealt with a risk in the past. If there is no data on previous similar events and how the owners have dealt with them, the opposite reaction occurs.

- Conservative risk perception. Statements in the literature frequently classify the agricultural sector as traditional, and farm owners are slower to adopt risk-reduction

innovations. The main barriers faced by farmers is the high cost of innovation. In the literature, many authors provide solutions for overcoming this main constrain, through the purposeful use of European and national financial resources [5] and lending for improving the investment potential and modernization of agricultural holdings [12].

- Risk as obligations and responsibilities. Improved communication among stakeholder's aids in adoption and proper management. [7] considers that it is extremely important to determine the right sources of information, which can be scientists, advisory services, media such as family, neighbors etc.

- Incorrect focus. Farmers frequently focus on studying a risk that would have significant consequences for the sector (or the economy), but the probability for the occurrence of such an event is low. Also, the desire to avoid a certain type of risk and the incurred costs for risk mitigation lead in a number of cases to diverting the focus from the most effective solution to deal with the risk [8].

MATERIALS AND METHODS

The purpose of the paper is to generate various types of farm characteristics in terms of risk attitude. Figure 1 displays the primary elements determining "risk appetite". To accomplish the purpose, we suppose that the elements are broadly classified as external and internal. Internal factors will be divided into two primary divisions for the purposes of the research, namely, internal directed to social features of the farmer and internal directed to farm activity. The intersection of these two internal groups can also explain which types of farmers, based on size and activity, are most willing to take risks.

At this point, no extensive research has been conducted in Bulgaria on farmer's risk-taking proclivity. For this reason, literature review is used to introduce differences in risk response among different types of farmers to a theoretical level. As a result, in order to select relevant questions, a literature study is suggested to aid in the design of appropriate questions.

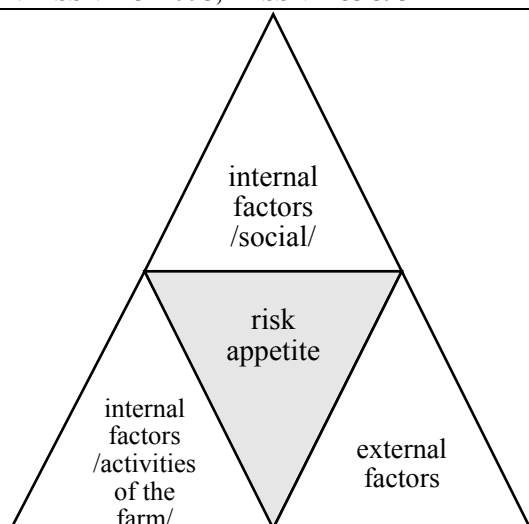


Fig. 1. Risk appetite explanation
 Source: Own conception.

A study was conducted using a questionnaire developed in order to determine and evaluate the different types of farms based on their attitude to risk. The survey was conducted in 2021, and the respondents were chosen using the following criteria:

1. Crop production and livestock breeding are the agrarian sectors in Bulgaria. The major types of holdings are divided into 11 major sub-sectors. Three farms were chosen from each sub-sector, with production volumes ranging from 1 to 8,000, 8,001-20,000, and over 20,000, respectively. According to previous research (MAF, 2018), this classification corresponds to small, medium, and large farms.

2. There are two groups of prepared questions. The first group of questions relates to the manager's and the farm's characteristics in terms of age, education, gender, and so on, while the second group refers to their /farm managers / attitude toward the occurrence of risks.

3. A relation between social characteristics of the farmer, size, and specialization of holdings in terms of risk management will be pursued based on survey data.

4. The information is summarized, and the main conclusions are obtained.

According to the methodology used, the sample consists of 50 respondents, based on the determined holding's relation to economic size and specialization. The study doesn't claim to be comprehensive, but it might

generate some recommendations for further in-depth analyses.

RESULTS AND DISCUSSIONS

According to the results of the study, the average age of the owners of the small farms is 62.5 years, of the middle 48 years, and of the large farms 53 year (Table 1). The age of the farmers also explains the fact that small farm owners are less willing to take risks. The share of owners with higher education is the largest in medium-sized farms, and the owners of small and large farms with higher education are respectively 36%. The majority of farm owners are men. With female sex are 9 % of the owners in small farms, 6% in meddle-sized farms and only 3% in large farms. 91% of the owners of large farms take decisions independently, followed by 82% of small farm owners and 45% of middle farms. It can be concluded that the most risk-oriented farmers (large farm's owners) have an average age of 53 years, one-third have higher education, take their decisions alone and are male.

Table 1. Distribution of farmers by farm size and characteristics of the manager

Characteristics	small farms	middle farms	large farms
Age	62,5	48	53
Education- higher %	36%	55%	36%
sex- woman %	9%	6%	3%
self-decision taking	82%	45%	91%

Source: Own calculation by data of [9].

In order of time spent in agricultural activities, large farms have full employment in agricultural activities (Table 2). 70 % from them diversify in agricultural activities, only 15 % are vertical diversified and 100% applies market diversification. 38 % from the large farms use insurances and also 38 % of them use monitoring and control system. 36 % of small farms are full employed in agricultural activities. 65 % of them diversify in agricultural activities, as 8 % practice vertical diversification and 15 % market diversification. Only 8 % from the small agricultural producer use insurances and no

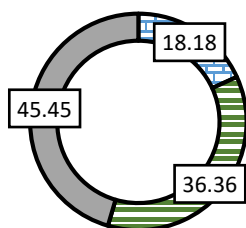
one practice monitoring and control system. 70 % from the middle farms are full employed in agricultural activities. 60 % of them diversify their activity, 66 % practice vertical diversification, 60 % - market diversification. Middle farms use insurances the most (45%).

Table 2. Distribution of farmers by farm size and time spent in agricultural activities, %

Characteristics	small farms	middle farms	large farms
Full employment in agricultural activities	36	70	100
Diversification of agricultural activities	65	60	70
Vertical diversification	8	66	15
Market diversification	15	60	100
Insurances	8	45	38
Monitoring and control systems	0	18	38

Source: Own calculation by data of [9].

According to the results of the study, which are summarized in Figure 2 for the entire sample, most Bulgarian farmers underestimate risk by neglecting to pay attention to it (45%).



- I am a risk taker, even though I am aware that if something goes wrong, I may suffer significant losses.
- I avoid risky investments because it is important to me that the risk be conservative and that the losses be minimal in the occasion of a negative event.
- I don't actively seek out or avoid risky activities. I'm not very concerned about the topic.

Fig. 2. Self-evaluation of Bulgarian's farmer
 Source: Own calculation by data of [9].

This part of the respondents doesn't actively seek out or avoid risky activities. 36% of the respondents make every effort to stay away from situations that could put their activity at risk. They avoid risk, because it is important for them to minimize the losses if negative event occurred. About 18% from the farmers indicate they are willing to take chances in the hopes of increasing their revenue from

farming. They are risk taker regardless of the negative consequences that may occur in case of risky event.

Figure 3 displays the average score of the responses of 50 farms in order to assess personal perception of risk taking and risk avoidance. For this purpose, a scale of 1 to 10 was used, and respondents had to rate how they define themselves in terms of risk taking. The score of 1 means that they are not at all willing to take risks to 10, which means that the farmer is very risk-oriented. The average rating from the investigated holdings reveals a comparative balance in terms of personal perception and preparation for taking and avoiding risks.

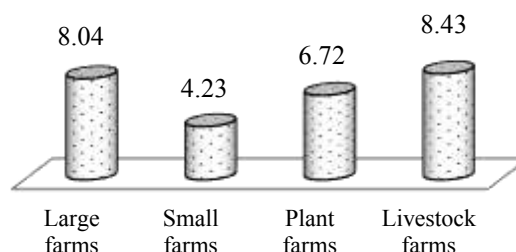


Fig. 3. Average score to determine personal perception regarding preparedness to take and avoid risks.
 Source: Own calculation by data of [9].

An intriguing relationship is discovered as large farms tend to take risks. Their average score is 8.04, which is much higher than the average in the examined sample. This is largely explained by the ability of large farms to diversify their activities and compensate for risky events. Farmers who manage large farms have more resources to prepare for probable risk events and reduce losses. On the other hand, the diversity of activities and orientation of large farms allows riskier behavior and the ability to overcome the repercussions.

Small farms receive an average score of 4.23, which is close to the respondent's average score of 5.04. Small farms are risk-averse and adopt a more conservative approach. In large part, the reason is related to alternatives for avoiding harmful situations in addition to a lack of adequate chances and resource allocation.

From the perspective of the question (YES/NO), it is clear from the table that small farms are not likely to take risks (Table 3).

Table 3. Self-assessment of the risk perception, %

Self-assessment	small farms		middle farms		large farms	
	YES	NO	YES	NO	YES	NO
I am a risk taker, even though I am aware that if something goes wrong, I may suffer significant losses.	17	83	33	67	50	50
I avoid risky investments because it is important to me that the risk be conservative and that the losses be minimal in the occasion of a negative event.	8	92	42	58	50	50
I don't actively seek out or avoid risky activities. I'm not very concerned about the topic.	60	40	27	73	13	87

Source: Own calculation by data of [9].

However, the majority of these farms (60%) do not understand the risk and are not overly interested in the topic. Medium-sized farms are often conservative, but they also frequently take risks in order to make profit. Except for the fact that they are knowledgeable about the subject of risk, large farms do not have a fixed weight for their answers (50 to 50%) when it comes to these issues.

100 % from the farmers meet risk event last 5 years (Table 4).

Table 4. Distribution of farmer's opinion about the occurred risk, its effect and the received government support

Characteristics	small farms	middle farms	large farms
Occurred risk event last 5 years	100%	100%	100%
Effect /1 low effect to 10 catastrophic/	3	4	5
Received government support	0%	35%	64%

Source: Own calculation by data of [9].

Owners with small farms evaluate the effect with score 3, for the middle farmers the effect is 4 and the strongest effect occurred in large farms. According to government support, small farmers didn't receive such kind of support, 35 % from the middle farmers and 64 % from the large farms were supported by the government.

CONCLUSIONS

The analysis shows that there are differences across various farm types in terms of their tendency to take risks. The key findings may be summarized as follows:

- ✓ According to the study's findings, the majority of Bulgarian farmers' underestimate risk by failing to pay attention to it.
- ✓ Around 18% of farmers consider they are prepared to take risks in the expectation of boosting their farming profitability. They are risk takers regardless of the potential negative effects of a dangerous occurrence.
- ✓ Small farms avoid risks, and the ratio decreases as farm size grows. Large farms, on the other hand, are more likely to take chances; nevertheless, medium-sized farms are seen to be adequately adaptable, with around one-third prepared to take risks.
- ✓ The average age of small farm owners is 62.5 years, 48 years for middle farm owners, and 53 years for large farm owners. The small farm owners are less inclined to take risks. The proportion of owners with a higher education is highest in medium-sized farms, with 36% of small and large farm owners having a higher education.
- ✓ Men make up the vast majority of farm owners. Females hold 9% of small farms, 6% of medium-sized farms, and only 3% of large farms. 91% of large farm owners make their own choices, followed by 82% of small farm owners and 45 % of small farms. It may be inferred that the most risk-averse farmers (large farm owners) are 53 years old on average, have a higher education, make their own decisions, and are male.
- ✓ Large farms have full employment in agricultural activities in terms of time spent on agricultural operations. 70% of them diversify in agricultural operations, 15%

vertically, and 100% use market diversification. 38% of large farms have insurance, and 38% have a monitoring and control system. 36% of small farms are entirely devoted to agricultural activity. Agricultural operations account for 65% of their diversification, whereas vertical diversification accounts for 8% and market diversification accounts for 15%.

✓ Insurers are only used by 8% of small farmers, and no one uses a monitoring and control system. 70 % of the medium farms' workforce is fully devoted to farming. Sixty-six percent of them engage in vertical diversification, sixty percent in market diversification. 45% of middle-sized farms use insurance.

✓ In the previous five years, 100% of farmers experienced danger.

✓ According to government assistance, small farmers didn't get this sort of help; instead, the government sponsored 64% of large farms and 35% of middle-sized farms.

✓ These shows that large and middle sized farms have better access to government financial support.

Although many authors have proposed an analysis of farmers' risk behavior on a theoretical level, there is not enough empirical evidence to support their claims.

Despite the fact that there is similarity between the study's findings and those from the literature, some of the factors relating to Bulgarian traditions in agriculture that are concealed in the particulars of the country's agriculture cannot be explained.

Future research will have the option to observe how farmers behave in terms of their attitude toward risk.

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