

Aims & Scope (Economics)

Article

IDENTIFICATION AND ANALYSIS OF HUMAN RESOURCES RISK ON FARMS, ENCOURAGEMENT FOR SUSTAINABLE DEVELOPMENT

Agim Ndregjoni,

“Aleksander Moisiu” University, Durrës (UAMD), Albania

<https://orcid.org/0009-0002-4786-9726>

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Abstract. The purpose of this study is to identify and analyze the risks associated with human resources in agricultural farms, with a focus on making sustainable development recommendations. To achieve this, a survey was conducted with 260 farmers. The dependent variable was the risk of human resources, and the independent variables were farm worker incapacity, lack of worker training, family members leaving the farm, and disasters such as illness or death of the farmer or farm members. The multiple regression analysis showed that the R² coefficient is determined by these factors, which is valuable information for farmers and responsible bodies to develop efficient strategies and policies for managing human resources in agricultural farms.

Keywords: risk, farm, identification, analysis, management, regression, perception, human resources.

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Introduction

Agricultural production relies on several resources, including the sun, water, land, capital, labour, and management (Meco et al., 2017). The sun is essential for photosynthesis, which is the primary production process in plants. Water is vital for plant growth and for carrying out biological processes. The land is an irreplaceable and indispensable resource. Capital is necessary for purchasing agricultural equipment and technologies required for production. Labour and management utilise these resources to produce as much as possible, with the highest quality and at the least cost, to earn maximum profits (Murrja, 2011). According to Meco et al. (2017), natural resources (sun, water, land) and capital are necessary but insufficient for successful agricultural production. Therefore, the entrepreneurial desire of the farmer and their family plays a crucial role in the process.

However, the entrepreneurial desire of farmers is faced with various and numerous risks. Authors and researchers classify these risks into five main groups: production risk, market risk, financial risk, legal/institutional risk and human resources risk (Drollette, 2009; Schaffnit-Chatterjee, 2010; Carne et al., 2013; Hareood et al., 1999; Hassan et al., 2023; Jankelova et al., 2017; Kahan, 2013; Komarek et al., 2020; Melyukhina, 2011; OECD, 2008a; Sciabarrasi, 2024; Schaffnit-Chatterjee, 2010; Thomas, 2018; Thompson et al., 2019; Ullah et al., 2016; USDA-ERS; Murrja et al., 2019, 2022, 2023, 2024). Entrepreneurship in agriculture is very risky (Duong et al., 2019). Risk management is very important and the study aims to increase the skills of small farmers in risk management (Abdullah et al., 2024).

The study focuses on human resource risk. The subject of the study is the vegetable farms in the “Guri i Zi” administrative unit in the region of Shkodra in Albania. This area is characterized by suitable climatic conditions and has a long tradition in vegetable production. At the moment, this area meets 42% of Shkodra's regional market needs for vegetables (Murrja, Kurtaj, Ndregjoni, Prendi, 2023; Kurtaj et al., 2024; Cerpja and Murrja, 2024).

The study is a continuation of previous studies, where production risk, financial risk and market risk were analyzed (Murrja, Kurtaj, Ndrejoni, Prendi, 2023; Kurtaj et al., 2024; Cerpja and Murrja, 2024). The results of the study will serve area farmers, field researchers, local government, and central government, as well as other countries such as Kosovo and North Macedonia, which have similar climatic conditions and possibilities of comparative advantages between them.

Agriculture is an important sector of the economy of Albania. It contributes 19.6% to the gross domestic product (INSTAT, 2023; Murrja, Kurtaj, Ndrejoni, Prendi, 2023; Kurtaj et al., 2024; Cerpja and Murrja, 2024). Despite the risks and challenges it faces, this sector has great potential for growth and development. Through detailed studies and regular risk analyses, such as our study in the Guri i Zi area, challenges can be identified and addressed to improve agricultural production and its contribution to the local economy.

Literature Review

Human resources are like two sides of a coin. They make the business successful, but they can also bankrupt it (Murrja et al., 2017). The management of human resources on the farm is not the same as the management of human resources in commercial companies (Meco et al., 2017). In commercial companies (limited liability companies and joint stock companies), the management is separated from the investing owner. While on the farm, the owner's responsibilities are greater, because he is the investor himself, the manager himself and the worker himself. Decisions are also influenced by other family members.

But of course, the question arises: "What are the sources of risk of human resources on the farm?" The authors have identified several risks, which are: the managerial incapacity of the farm owner, the premature death of the farm owner, divorce in the family, disputes or conflicts with neighbours, the departure of family members from the farm, the professional incapacity of agricultural workers, lack of communication with visitors and tourists, environmental pollution (chemicals, pesticides, waste), lack of training of employees, lack of payment of employees (Drollette, 2009; Schaffnit-Chatterjee, 2010; Carne et al., 2013; Hareood et al., 1999; Hassan et al., 2023; Jankelova et al., 2017; Kahan, 2013; Komarek et al., 2020; Melyukhina, 2011; OECD, 2008a; Sciabarrasi, 2024; Schaffnit-Chatterjee, 2010; Thomas, 2018; Thompson et al., 2019; Ullah et al., 2016; USDA-ERS; Murrja and Braha, 2021; Murrja, Meco, Maloku, 2021); Murrja, Maloku and Vuniqi, 2023).

Although human resource risk is as important as other risks, it has been overlooked by farm entrepreneurs. Komarek et al., (2020) in their study on the number of research on five risks in agriculture for the period 1974-2019 found that the largest number of studies was done on the production risk, and then the market risk, the risk legal, financial risk and finally, human resources risk.

Consequently, the following hypothesis is put forward in our study:

H1: Risk events, such as employee disability, lack of employee training, family members leaving the farm and disasters (illness/death) of the farmer or family members have serious impacts on human resource risk.

The conceptual research framework, presented in Figure 1, was formulated through a rigorous process of adapting and integrating previous studies by Murrja et al. (2022, 2023). A thorough examination of the existing literature was conducted to identify relevant knowledge and approaches that could be applied to our research. Synthesizing these findings, we were able to develop a comprehensive framework that reflects the concepts and variables under study (Murrja, Ndrejoni, Maloku, Prendi, 2022; Murrja, Ndreca, Maloku, Meço, 2023; Murrja, 2023; Murrja and Ndrejoni, 2022; Ndrejoni et al., 2023; Murrja, Maloku, Vuniqi, 2023). The resulting framework provides a clear and structured overview of the research objectives, methodology and expected results.

From previous studies, the following are recommended as human resource management techniques: practitioner good "people" skills with family members, neighbours and employees; assessment of alternative sources of work (Murrja and Braha, 2021); the training of farm members and employees, as well as the transfer and delivery of knowledge through workshops to English farmers, has been evaluated as an effective way (Heleba et al., 2009); the motivation of employees

at work, where the measurement of satisfaction is essential, since it affects the effective motivation for the success of agricultural companies (Jankelova et al., 2020); talent management, which can be considered a systematic approach to acquire the right people for the right positions at the right time (Vnouckova et al., 2016); and stress management, as well as health and life insurance for farm workers (Murrja and Braha, 2021).

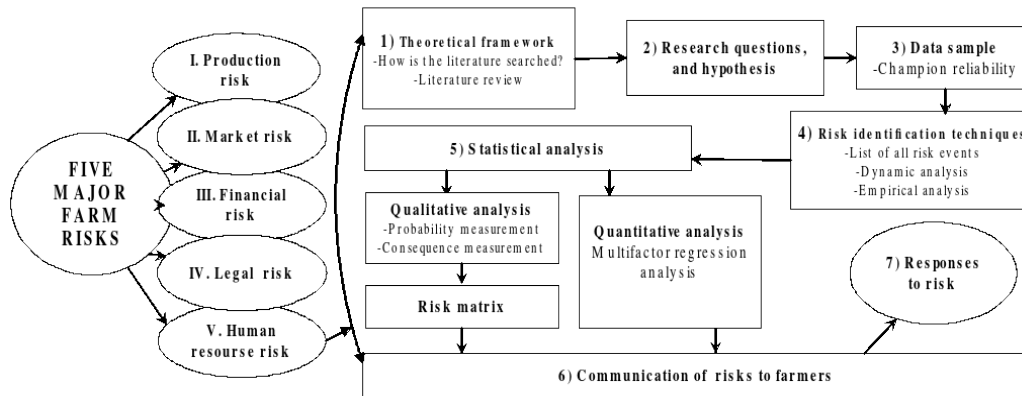


Figure 1. Conceptual framework of the study
 Source: Murrja et al. (2022, 2023); Murrja (2023); Ndrejoni et al. (2023)

Methods

The study is based on primary statistical data. 260 farmers were surveyed. Their perception was measured according to the psychometric assessment of the Likert scale from 1 to 5. In the survey, farmers were asked how they perceive the suggested sources of risk. Table 1 presents the evaluation method.

Table 1. Psychometric assessment according to the Likert scale

Rating according to the Likert scale with:		Evaluation segments
Point	Fjalë	
(1)	Very little important	[1-260]
(2)	Little important	[261-520]
(3)	Moderately important	[521-780]
(4)	Important	[781-1040]
(5)	Very important	[1041-1300]

Source: Murrja et al. (2022, 2023); Murrja (2023); Ndrejoni et al. (2023)

The study involved 3500 farmers from the area. The inability to survey all farmers led to the selection of a sample as follows (Kurtaj et al., 2024; Cerpja and Murrja, 2024; Okoye et al., 2022; Israel, 1992; Cochran, 1977).

$$n_0 = \frac{Z^2 pq}{e^2} \tag{1}$$

Where Z = 1.96; p = 0.5; q = 0.5 and e = 0.05, n₀ is calculated:

$$n_0 = \frac{1.96^2 * 0.5 * 0.5}{0.05^2} = 385 \text{ farmers} \tag{2}$$

In our case, the population consists of 3,500 farmers and we can slightly reduce it (Kurtaj et al., 2024; Cerpjan and Murrja, 2024; Okoye et al., 2022; Cochran, 1977).

$$n_0 = \frac{n_0}{1 + \frac{n_0 - 1}{N}} \tag{3}$$

Where n is the sample size and N is the population size equal to 3,500. The sample size of the study is:

$$n_0 = \frac{385}{1 + \frac{385-1}{3500}} = 260 \text{ farmers} \tag{4}$$

Multifactorial linear regression was used to prove the relationship between the variables. This model has also been used by other researchers (Sulewski and Kloczko-Gajewska, 2014; Murrja et al., 2023; Kurtaj et al., 2024; Cerpja and Murrja, 2024). The multifactorial linear regression equation is:

$$Y = a + bx_1 + cx_2 + \dots + nx_n \tag{5}$$

To verify the hypotheses, we tested the results through the Student's test and the Fisher test. First, we compared the P value with the coefficient α . If $P < \alpha$, the hypothesis will be accepted, which means that the independent variables are important, that is, they affect the dependent variable. Then we compared the actual Fisher test with the critical Fisher where: if the actual Fisher $>$ the critical Fisher then the hypothesis will be accepted, which means that the model as a whole is significant.

Results

3.1. Descriptive statistical analysis

First, we present the farmers' perception of the five farm risks. Table 2 and Figure 2 present the responses of farmers for production risk, market risk, financial risk, legal risk and human resources risk. Farmers feel more threatened by production risk and market risk, they feel threatened by financial risk and human resource risk, while they feel threatened by legal risk on average (Murrja et al., 2023; Kurtaj et al., 2024; Cerpja and Murrja 2024).

Table 2. Farmers' perception of the five main risks on the farm

Segment	The five main risks	Perception	
[1041-1300]	Production risk	1 220	(i) Very important
[1041-1300]	Market risk	1 080	(ii) Very important
[781-1040]	Financial risk	995	(iii) Important
[781-1040]	Human resources risk	850	(v) Important
[521-780]	Legal risk	670	(iv) Significant mean

Source: Murrja, Kurtaj, Ndrejoni, Prendi, 2023; Kurtaj et al., 2024; Cerpja and Murrja 2024

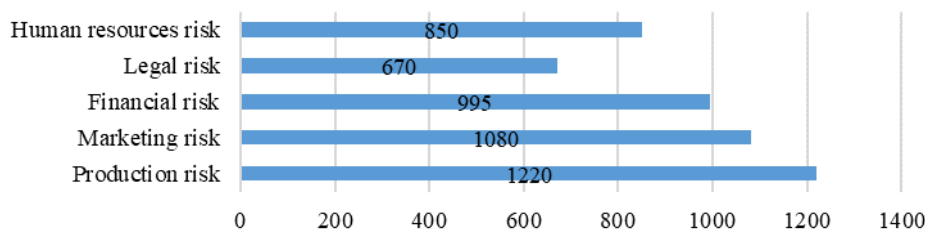


Figure 2. Farmers' perception of the five main risks

Source: Murrja, Kurtaj, Ndrejoni, Prendi, 2023; Kurtaj et al., 2024; Cerpja and Murrja 2024

Table 3. Importance of human resource risk variables

Segment	Source of market risk	Perception	
[1041-1300]	Death or illness of the farmer	1 240	(i) Very important
[1041-1300]	Professional disability of employees	1 060	(ii) Very important
[781-1040]	Lack of employee training	795	(iii) Important
[521-780]	Removal of family members	765	(iv) Moderately important

Source: Author's elaboration

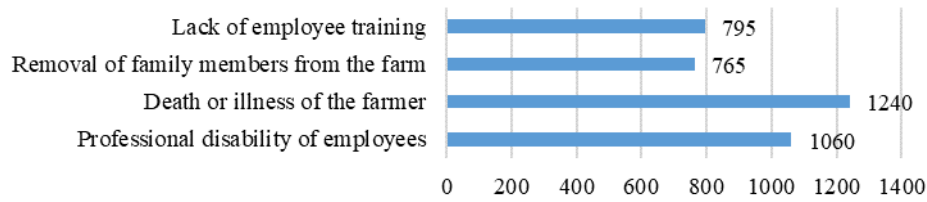


Figure 3. The importance of human resource risk variables

Source: Author’s elaboration

In the study, we have included four variables to measure the risk of human resources in farming, and we present the farmers' perceptions of these variables in this section. The responses of the farmers are presented in Table 3 and Figure 3. According to the farmers, death, illness, and professional disability are very important risks that need to be addressed. Lack of training is also important, while the departure of family members from the farm is moderately important.

3.2. Multifactorial regression analysis

Often the perception of farmers does not correspond to the real trend. To prove this, we performed a multifactorial regression analysis. The dependent variable is the risk of human resources, while the independent variables are the incapacity of farm workers, the lack of employee training, the departure of family members from the farm and the misfortune (illness/death) of the farmer or members of the farm. The results of the multifactorial regression analysis are presented in Table 4.

Table 4. Results of multifactorial regression analysis

	Coefficient	Std. Error	T-ratio	P-Value
Const	-0.388161	0.988494	-0.3927	0.6979
Inability	0.360079	0.14995	2.401	0.0241**
Sampling	-0.0667174	0.213244	-0.3129	0.7570
Leaving	0.105314	0.133929	0.7863	0.4391
Disaster	0.711550	0.193899	3.670	0.0012***
R-squared	0.831234	Adjusted R-squared		0.804231
F	30.78347	P-Value		2.50e-09

Source: Author’s elaboration

Discussion

From the descriptive statistical analysis of the five main risks of the farm, we found that production risk and market risk are perceived as very important by farmers. Financial risk and human resources risk are perceived as important, while legal risk is moderately important (Murrja et al., 2023; Kurtaj et al., 2024; Cerpja and Murrja, 2024).

From the statistical analysis of the four human resources variables, the farmers' perception is as follows: the death or illness of the farmer and professional disability are perceived as very important, the lack of employee training is perceived as important and the departure of family members as moderately important.

As we pointed out above, the perception does not match the real trend. This discrepancy is verified by multifactorial regression analysis. Based on the data in Table 4, we find that illness or death of the owner or family member and disability of farm workers are considered important sources. Removal of family members from the farm and lack of training are considered less important. Farmers reason that they are used to leaving their children and pursuing their personal lives, while for the training of new employees, most farmers reason that they are sufficient. In conclusion, hypothesis H1 is accepted for the variables disability, misfortune from illness or death, and rejected for the variables leaving the farm and having no training.

In addition to the importance of the variables, we also see the importance of the model as a whole. $F_{actual} = 30.78$. $F_{critical} = F(\alpha; k-1; n-k) = F(0.05; 4-1; 30-4) = F(0.05; 3; 26) = 2.98$. So, we have: $F_{actual} > F_{critical}$ and the hypothesis H1 is accepted, the variables disability and misfortune from illness or death. The regression model is $Human\ resource\ risk = -0.38 + 0.36\ Disability + 0.71\ Disaster$. The relationship between these two independent variables is linear with

the dependent variable human resource risk. The coefficient R² shows that 83% of human resource risk is determined by the above factors.

Conclusion

From previous studies, it has been established that farmers perceive production risk as a greater threat, especially in relation to floods (Murrja, Kurtaj, Ndrejoni, and Prendi, 2023). This shows that the impact of environmental conditions and climate change are the main factors that influence the perception of farmers' risks.

In terms of importance, marketing risk is ranked second. In this aspect, the greatest fear of farmers is related to price fluctuations and high competition in the market (Cerpja and Murrja, 2024). This shows that market stability and price certainty are key elements for farm success and sustainability.

One step lower in the ranking of importance is financial risk. Farmers are worried about their profits, debts and interest they have to pay (Kurtaj et al., 2024). This factor shows that financial management and financial stability are important issues for farmers.

In the detailed risk analysis of human resources, the two variables that negatively affect the most are the misfortune of illness or death and professional disability. Farmers have expressed great concern about these two aspects. On the one hand, disasters, such as the death or illness of farm or family members, are often unpredictable and can have a major impact on farm operations. On the other hand, the professional incompetence of employees increases the various risks of wrong interventions or harmful decisions, negatively affecting the performance and sustainability of the farm.

Less dangerous in the farmers' perception is the legal risk (Ndrejoni et al., 2023). This includes legal and regulatory issues that may affect the operation of the farm. This analysis shows that knowledge and enforcement of laws and regulations is an important issue for farmers and can have an impact on the success of their operations.

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