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# FINANCIAL RISKS AND MANAGEMENT PRACTICES IN AGRICULTURE: EVIDENCE FROM RURAL TOURISM FARMERS IN SERBIA

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## ABSTRACT

The aim of this paper is to investigate how farm owners engaged in rural tourism in Serbia perceive financial risks, adopt financial management practices, and evaluate the effectiveness of those practices in mitigating financial challenges. Data were collected through a structured online questionnaire administered between April and May 2026, using a random sampling approach. A total of 230 farm owners participated in the research. Data analysis was conducted using SPSS 26.0, incorporating descriptive statistics, reliability analysis, and inferential techniques. A one-way ANOVA was employed to examine differences across socio-demographic groups, with Tukey HSD post-hoc tests applied to identify specific contrasts. The results revealed that education is a significant determinant of financial management practices, with higher levels of formal education consistently linked to more advanced and effective approaches. Age demonstrated a non-linear effect, as middle-aged respondents perceived financial risks more strongly than both younger and older groups. In contrast, years of experience in rural tourism did not significantly influence perceptions of financial management practices, indicating that longevity in the sector alone does not necessarily enhance confidence in risk mitigation.

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## Introduction

Agricultural producers operate within environments characterized by diverse and interrelated sources of risk (Allahverdiyev, Rao, & Trujillo-Barrera, 2025; Liu, Ren, & Jin, 2025; Yang et al., 2022). These risks encompass production-related uncertainties such as droughts or excessive rainfall, market risks linked to price volatility, and institutional risks arising from policy shifts. The interaction of these risks often destabilizes farm operations and undermines long-term sustainability (Girma, Kuma, & Bedemo, 2023; Komarek, De Pinto, & Smith, 2020). Rural regions face additional constraints, as limited financial resources and insufficient human capital, which restrict opportunities for innovation and diversification into activities regarding rural tourism (Dejanović, Lukić Nikolić, & Ljubojević, 2024; Ostojić, Petrović, & Despotović, 2025; Vučić, 2024). Small and medium-sized agricultural enterprises frequently encounter financial challenges that impede growth and performance. Persistent barriers include restricted access to finance, low levels of financial inclusion, and disproportionately high transaction costs. Moreover, weak financial management practices often stemming from inadequate skills or financial illiteracy led to poor decision-making, reduced efficiency, and in some cases, business failure (Mangana, Ndyetabula, & Hokororo, 2023).

Among all these challenges, financial risk is particularly critical. Disruptions in production or markets can quickly translate into repayment difficulties, diminished access to credit, and broader financial instability (Duong et al., 2019). In agriculture, financial risk encompasses uncertainties in meeting obligations due to fluctuating interest rates, lenders' willingness to extend capital, cash flow volatility, and changes in collateral value (Wolf & Karszes, 2023). Effective financial risk management is therefore indispensable for sustaining operations, enabling investment, and fostering resilience (Musah, Gakpetor, & Portia, 2018). Strengthening financial literacy and expanding access to formal credit channels not only stabilize farm income but also promote balanced financial management (Dašić, 2025; Komarek, De Pinto, & Smith, 2020), while simultaneously supporting rural tourism development (Ostojić, Sekulić, & Mićović, 2025).

High levels of perceived risk such as uncertain demand, volatile prices, or rising input costs can discourage innovation and reduce investment in marketing activities, thereby limiting opportunity recognition (Komarek, De Pinto, & Smith, 2020). In such contexts, the potential benefits of marketing strategies, including branding, promotion, or collaboration with retailers, are overshadowed by concerns about financial exposure (Wolf & Karszes, 2023). Consequently, farmers who perceive financial risks as overwhelming often prioritize risk avoidance over opportunity exploitation, making them less inclined to adopt marketing as a pathway for growth and competitiveness (Gottlieb & Hansson, 2024; Hasan et al., 2024).

Agritourism has increasingly been recognized as a pathway to sustainable rural development (Turtureanu et al., 2025), with the potential to encourage farmers to adopt organic practices (Baby & Kim, 2024). However, financial barriers remain a

major obstacle to this transition. In developing countries, financial considerations play a decisive role in shaping agricultural diversification. The availability of capital, alongside resources such as labor and materials, is a fundamental prerequisite for farmers seeking to expand or adapt their activities (Paunić et al., 2025). Institutional and financial challenges are therefore central to the regulation and development of the rural tourism sector (Mihailović et al., 2025). Moreover, empirical studies consistently demonstrate that effective planning and management of financial resources enhance farm performance (Vanhuyse, Bailey, & Tranter, 2021). Limited access to capital and the high costs associated with converting to organic methods often deter farmers from pursuing such strategies. Combined with knowledge gaps and weak institutional support, these financial constraints significantly hinder diversification into organic farming and limit the economic potential of agritourism (Grillini et al., 2025).

The aim of this paper is to investigate how farm owners engaged in rural tourism perceive financial risks, adopt financial management practices, and evaluate the effectiveness of those practices in mitigating financial challenges. By analyzing the relationships between socio-demographic characteristics, farming experience, and attitudes toward risk management, this paper seeks to provide a comprehensive understanding of the determinants shaping financial resilience in rural tourism enterprises. This research is particularly significant as it addresses a critical gap in the literature on rural tourism and agricultural entrepreneurship, where financial risk management remains underexplored. Rural tourism enterprises are highly vulnerable to external shocks such as seasonal demand fluctuations, rising input costs, and policy changes. Understanding how farm owners perceive and respond to these risks offers valuable insights into the sustainability of rural tourism as a diversification strategy for agricultural households (Yusriadi, Cahaya, & Masriadi, 2024).

### **Theoretical framework and hypotheses development**

Financial literacy is widely recognized as a critical dimension of human capital, reflecting an individual's capacity to acquire and apply financial knowledge for effective decision-making (Twumasi et al., 2026). It enables individuals to plan budgets over time, assess risks and returns, manage debt, and accumulate assets, thereby contributing to long-term economic stability (Dwangu & Mahlangu, 2021; Božić & Knežević, 2025; Rosić & Vilma Getman, 2025; Klapper & Lusardi, 2020). Within the tourism sector, financial literacy plays a pivotal role by facilitating access to financial services, strengthening asset accumulation, and fostering sustainable business engagement. Empirical evidence highlights its importance, showing that individuals with stronger financial skills are better equipped to navigate competitive markets such as tourism (Koomson et al., 2022). For farmers and entrepreneurs, investing in financial literacy as part of human capital development not only enhances productivity but also expands opportunities for resilient market participation.

Diversification of agricultural activities into tourism has increasingly been acknowledged as a sustainable strategy for strengthening farm finances (Ndhlovu & Dube, 2024),

particularly in developing economies such as Serbia. Through agritourism initiatives such as offering accommodation services or selling products directly to visitors, farms can generate supplementary income streams, stabilize earnings amid market volatility, and enhance long-term financial resilience (Dejanović & Lukić Nikolić, 2024; Janković & Golubović, 2025). Evidence from both developed and developing contexts suggests that farmers often perceive diversification not only as a means of improving household income but also as a pathway to greater financial stability and reduced dependence on traditional production systems (Paunić et al., 2025).

Strengthening financial literacy and management capacity is therefore essential for improving resilience and ensuring sustainable performance in agriculture (Mangana, Ndyetabula, & Hokororo, 2023). Adequate financial resources allow farmers to meet material requirements, reinforce economic security, expand purchasing power, and ultimately enhance overall well-being (Lin & Lai, 2025). Given that tourism represents a significant source of income and stability, improving the financial literacy of farmers is of tremendous importance (Dašić, Kostadinović, & Ilievska Kostadinović, 2024).

Financial risk in farming arises from uncertainties related to interest rates, lender support, cash flow adequacy, and collateral value. Modern dairy production, for instance, is highly capital-intensive, requiring sound investment in productive assets to ensure long-term viability. Borrowed funds or external equity introduce risks tied to debt servicing, asset valuation, and liquidity pressures, which may be further exacerbated by rising interest rates, household cash demands, income disruptions, and limited reserves. Effective management of these risks relies on tools such as savings, credit lines, financial reserves, and well-structured farm business models (Wolf & Karszes, 2023).

Ultimately, financial risk management constitutes one of the most critical decisions farmers make, as it directly influences farm viability and the stability of the broader food system. Anticipating potential outcomes and developing strategies proactively rather than reacting after adverse events ensures income stability and safeguards agricultural resilience (Michels et al., 2025). In this context, risk management has become a strategic priority for agricultural enterprises seeking to navigate increasingly complex financial systems, evolving technologies, volatile markets, and climate-related uncertainties (Kesanta, Makuya, & Makona, 2025).

Previous research indicates that farmers' perceptions of financial risk are shaped by demographic and experiential factors. Age often plays a decisive role, as older farm owners - having lived through crop failures, market volatility, and policy shifts tend to adopt more cautious approaches. In contrast, younger farmers, particularly those familiar with contemporary education and technology, are generally more open to experimentation and innovation (Agriculture Institute, 2025). From these differences arises the first hypothesis of this paper:

***Hypothesis 1: There is a statistically significant difference in perceived financial risk across age groups of farm owners.***

Education also influences financial management and decision-making. Farmers with higher levels of education are typically better equipped to evaluate risks objectively, which reduces excessive risk aversion. At the same time, their awareness of potential consequences fosters more calculated and deliberate risk-taking. Studies consistently show that education is negatively associated with risk aversion, suggesting that more educated farmers adopt more advanced financial management perspectives (Agriculture Institute, 2025). From this evidence emerges the second hypothesis:

***Hypothesis 2:*** *Education level has a significant effect on financial management perspectives, with higher education associated with more advanced management perspectives.*

Experience in rural tourism further shapes financial risk management practices. Farm owners with long-term involvement in agritourism often refine their operations over time, adopting structured business plans, insurance coverage, and diversified activities to safeguard against financial uncertainty. Sustained experience enables them to integrate strategic planning, marketing, and liability protection more effectively than less experienced counterparts (Stearns, Ghimire, & Lentz, 2025). From this observation follows the third hypothesis of the paper:

***Hypothesis 3:*** *Farm owners with more than 10 years of experience in rural tourism perceive their management practices as more effective in mitigating financial risks compared to less experienced owners.*

## Materials and methods

**Data collection.** Data were gathered through a structured online questionnaire administered during April and May 2026. The survey was disseminated using a random sampling approach and made accessible online, thereby enabling broad participation among farm owners across Serbia.

**Questionnaire.** The questionnaire was structured into two main sections. The first section collected data such as: gender, age, education, and farming experience. The second section assessed respondents' attitudes across three domains using a five-point Likert scale (1 = strongly disagree, 5 = strongly agree): Financial Risks (4 items) - measuring perceived exposure to seasonal demand fluctuations, infrastructure investment risks, rising input costs, and external threats such as policy changes or extreme weather; Financial Management Practices (4 items) - evaluating the extent to which farmers engage in budgeting, diversification, maintaining reserves, and collaboration with other businesses; and Perceived Effectiveness of Financial Management (4 items) - assessing how effective farmers believe their practices are in reducing risks, improving resilience, strengthening financial positions, and stabilizing income. This structure allowed for both descriptive profiling of farm owners and statistical measurement of their financial risks, financial management practices, and perceived effectiveness of those practices. A pilot study conducted with 40 respondents confirmed the reliability and validity of the proposed scales, with Cronbach's Alpha coefficients exceeding 0.80, indicating strong internal consistency.

**Sample.** The final sample comprised 230 farm owners from Serbia who voluntarily completed the questionnaire. The random sampling approach and online administration ensured accessibility and broad participation, capturing a representative cross-section of farm owners engaged in rural tourism.

**Data Analysis.** Data were processed using the Statistical Package for the Social Sciences (SPSS), version 26.0. To test the proposed hypotheses, both descriptive and inferential statistical techniques were employed. Descriptive statistics summarized socio-demographic characteristics and provided an overview of responses across the constructs of financial risks, financial management practices, and perceived effectiveness of financial management. Reliability analysis was conducted using Cronbach's Alpha to ensure internal consistency of the Likert-scale items. As shown in Table 1, all scales demonstrated high reliability, with coefficients well above the recommended threshold of 0.70 (DeVellis, 2003).

**Table 1.** Cronbach's Alpha coefficients

| Scale                                                  | N | Cronbach's Alpha |
|--------------------------------------------------------|---|------------------|
| Financial Risks (FR)                                   | 4 | 0.926            |
| Financial Management Practices (FMP)                   | 4 | 0.916            |
| Perceived Effectiveness of Financial Management (PEFM) | 4 | 0.925            |

*Source:* Authors' calculations

For inferential analysis, one-way ANOVA was applied to examine differences in perceptions of financial risks, financial management practices, and perceived effectiveness of those practices across socio-demographic groups (e.g., age, education, and farming experience). Where statistically significant differences were identified, Tukey's HSD post-hoc tests were conducted to determine which specific groups differed from one another.

## Research results

*Table 2* presents the basic information about the sample. The sample consisted of 230 farm owners engaged in rural tourism. The majority of respondents were male (55.65%). In terms of age, the largest proportion of participants were in the 41–50 years old (31.30%), indicating that middle-aged farm owners were most strongly represented. With respect to education, the highest percentages were observed among those with a high school (37.39%) or college background (36.52%), suggesting that most participants had attained at least secondary or post-secondary education. Finally, regarding engagement in farming, the majority of respondents reported having more than 10 years of experience (39.57%).

**Table 2.** Key information about respondents

|                                            | Answers            | N   | %     |
|--------------------------------------------|--------------------|-----|-------|
| Gender                                     | Male               | 128 | 55.65 |
|                                            | Female             | 102 | 44.35 |
| Age                                        | Up to 20           | 11  | 4.78  |
|                                            | From 21 to 30      | 45  | 19.57 |
|                                            | From 31 to 40      | 58  | 25.22 |
|                                            | From 41 to 50      | 72  | 31.30 |
|                                            | Above 50           | 44  | 19.13 |
| Education                                  | Primary School     | 18  | 7.83  |
|                                            | High School        | 86  | 37.39 |
|                                            | College            | 84  | 36.52 |
|                                            | University         | 42  | 18.26 |
| How long have you been engaged in farming? | Less than 5 years  | 50  | 21.74 |
|                                            | From 5 to 10 years | 89  | 38.70 |
|                                            | Above 10 years     | 91  | 39.57 |

Source: Authors' calculations

Table 3 presents the responses to the statements in the measurement scale "Financial Risks". The results indicate that respondents generally perceive financial risks as high across all statements. The highest mean values were observed for rising costs of inputs ( $M = 4.33$ ) and external factors such as policy changes or extreme weather conditions ( $M = 4.33$ ), suggesting that these are considered the most pressing financial threats. In terms of percentages, nearly half of the respondents selected the highest category (5 – strongly agree) for both rising input costs (48.70%) and external factors (48.70%), underscoring the widespread concern about these issues. Seasonal fluctuations in tourist demand ( $M = 4.03$ ) and infrastructure investments ( $M = 4.08$ ) were also perceived as significant risks, with the majority of respondents agreeing or strongly agreeing (over 75% combined in categories 4 and 5).

**Table 3.** Results regarding the scale "Financial Risks"

| Statements                                                                                        | Answer | N   | %     | M    | SD    |
|---------------------------------------------------------------------------------------------------|--------|-----|-------|------|-------|
| Seasonal fluctuations in tourist demand significantly affect the financial stability of the farm. | 1      | 4   | 1.74  | 4.03 | 0.896 |
|                                                                                                   | 2      | 9   | 3.91  |      |       |
|                                                                                                   | 3      | 37  | 16.09 |      |       |
|                                                                                                   | 4      | 105 | 45.65 |      |       |
|                                                                                                   | 5      | 75  | 32.61 |      |       |
| Investments in infrastructure carry high financial risk due to uncertain returns.                 | 1      | 2   | 0.87  | 4.08 | 0.837 |
|                                                                                                   | 2      | 8   | 3.48  |      |       |
|                                                                                                   | 3      | 36  | 15.65 |      |       |
|                                                                                                   | 4      | 108 | 46.96 |      |       |
|                                                                                                   | 5      | 76  | 33.04 |      |       |
| Rising costs of inputs (e.g., food, energy, maintenance) threaten the profitability of the farm.  | 1      | 2   | 0.87  | 4.33 | 0.801 |
|                                                                                                   | 2      | 6   | 2.61  |      |       |
|                                                                                                   | 3      | 18  | 7.83  |      |       |
|                                                                                                   | 4      | 92  | 40.00 |      |       |
|                                                                                                   | 5      | 112 | 48.70 |      |       |

| Statements                                                                                     | Answer | N   | %     | M    | SD    |
|------------------------------------------------------------------------------------------------|--------|-----|-------|------|-------|
| External factors such as policy changes or extreme weather conditions increase financial risk. | 1      | 2   | 0.87  | 4.33 | 0.805 |
|                                                                                                | 2      | 6   | 2.61  |      |       |
|                                                                                                | 3      | 19  | 8.26  |      |       |
|                                                                                                | 4      | 91  | 39.57 |      |       |
|                                                                                                | 5      | 112 | 48.70 |      |       |

Source: Authors' calculations

Table 4 provides insights into respondents' perceptions of their financial management practices. The results show that respondents generally report strong engagement in financial management practices aimed at mitigating financial risks. The highest mean values were observed for maintaining financial reserves or savings ( $M = 4.31$ ) and collaborating with other farms or local businesses ( $M = 4.27$ ), indicating that these practices are perceived as particularly important. In terms of percentages, nearly half of the respondents strongly agreed with maintaining financial reserves (45.65%) and collaborating with others (43.48%), underscoring the widespread adoption of these practices. Preparing financial plans and budgets ( $M = 4.17$ ) and diversifying income sources ( $M = 4.22$ ) also received high levels of agreement, with more than 80% of respondents selecting the top two categories (4 and 5).

**Table 4.** Results regarding the scale "Financial Management Practices"

| Statements                                                                                | Answer | N   | %     | M    | SD    |
|-------------------------------------------------------------------------------------------|--------|-----|-------|------|-------|
| I regularly prepare financial plans and budgets to manage farm operations.                | 1      | 3   | 1.30  | 4.17 | 0.864 |
|                                                                                           | 2      | 8   | 3.48  |      |       |
|                                                                                           | 3      | 27  | 11.74 |      |       |
|                                                                                           | 4      | 100 | 43.48 |      |       |
|                                                                                           | 5      | 92  | 40.00 |      |       |
| I diversify income sources (e.g., agriculture, tourism, crafts) to reduce financial risk. | 1      | 2   | 0.87  | 4.22 | 0.798 |
|                                                                                           | 2      | 8   | 3.48  |      |       |
|                                                                                           | 3      | 17  | 7.39  |      |       |
|                                                                                           | 4      | 113 | 49.13 |      |       |
|                                                                                           | 5      | 90  | 39.13 |      |       |
| I maintain financial reserves or savings to cover unexpected expenses.                    | 1      | 2   | 0.87  | 4.31 | 0.790 |
|                                                                                           | 2      | 7   | 3.04  |      |       |
|                                                                                           | 3      | 14  | 6.09  |      |       |
|                                                                                           | 4      | 102 | 44.35 |      |       |
|                                                                                           | 5      | 105 | 45.65 |      |       |
| I collaborate with other farms or local businesses to share financial risks.              | 1      | 2   | 0.87  | 4.27 | 0.813 |
|                                                                                           | 2      | 9   | 3.91  |      |       |
|                                                                                           | 3      | 14  | 6.09  |      |       |
|                                                                                           | 4      | 105 | 45.65 |      |       |
|                                                                                           | 5      | 100 | 43.48 |      |       |

Source: Authors' calculations

Table 5 presents respondents' answers regarding perceived effectiveness of financial management practices. The results suggest that respondents generally perceive their financial management practices as effective in mitigating financial risks. The highest

mean values were observed for marketing and promotional activities ( $M = 4.38$ ) and collaboration with local stakeholders ( $M = 4.36$ ), indicating that these practices are considered particularly impactful. In terms of percentages, more than half of the respondents strongly agreed that collaboration strengthens their financial position (51.74%) and that marketing activities help stabilize farm income (50.87%). Preparing financial plans and budgets ( $M = 4.17$ ) and diversification ( $M = 4.17$ ) were also rated positively, with over 80% of respondents agreeing or strongly agreeing (categories 4 and 5).

**Table 5.** Results regarding the scale “Perceived Effectiveness”

| Statements                                                                            | Answer | N   | %     | M    | SD    |
|---------------------------------------------------------------------------------------|--------|-----|-------|------|-------|
| My current financial management practices adequately protect me from financial risks. | 1      | 3   | 1.30  | 4.17 | 0.879 |
|                                                                                       | 2      | 9   | 3.91  |      |       |
|                                                                                       | 3      | 27  | 11.74 |      |       |
|                                                                                       | 4      | 97  | 42.17 |      |       |
|                                                                                       | 5      | 94  | 40.87 |      |       |
| Diversification has improved the financial resilience of the farm.                    | 1      | 2   | 0.87  | 4.17 | 0.826 |
|                                                                                       | 2      | 10  | 4.35  |      |       |
|                                                                                       | 3      | 20  | 8.70  |      |       |
|                                                                                       | 4      | 113 | 49.13 |      |       |
|                                                                                       | 5      | 85  | 36.96 |      |       |
| Collaboration with local stakeholders strengthens my financial position.              | 1      | 3   | 1.30  | 4.36 | 0.833 |
|                                                                                       | 2      | 7   | 3.04  |      |       |
|                                                                                       | 3      | 14  | 6.09  |      |       |
|                                                                                       | 4      | 87  | 37.83 |      |       |
|                                                                                       | 5      | 119 | 51.74 |      |       |
| Marketing and promotional activities help stabilize the farm’s income.                | 1      | 2   | 0.87  | 4.38 | 0.793 |
|                                                                                       | 2      | 9   | 3.91  |      |       |
|                                                                                       | 3      | 6   | 2.61  |      |       |
|                                                                                       | 4      | 96  | 41.74 |      |       |
|                                                                                       | 5      | 117 | 50.87 |      |       |

Source: Authors’ calculations

### Hypotheses testing and discussion of research findings

A one-way ANOVA (Table 6) was conducted to examine the effect of age on financial risk (hypothesis 1). The analysis revealed a statistically significant difference in perceived financial risk across age groups,  $F(4,225) = 3.62, p = 0.007$ . This means that age of the respondents influences how they perceive financial risk.

**Table 6.** One way ANOVA results for Hypothesis 1

| Source         | Sum of Squares (SS) | df  | Mean Square (MS) | F    | Sig.  |
|----------------|---------------------|-----|------------------|------|-------|
| Between Groups | 7.909               | 4   | 1.977            | 3.62 | 0.007 |
| Within Groups  | 122.891             | 225 | 0.546            |      |       |
| Total          | 130.799             | 229 |                  |      |       |

Source: Authors’ calculations

The Tukey HSD results (Table 7) reveal that significant differences in perceptions were found between certain age groups. Specifically, respondents up to 20 years reported significantly lower values compared to those aged 41–50 years ( $p < 0.05$ ), indicating that younger farm owners perceive financial risks less strongly than middle-aged owners. Similarly, respondents aged 31–40 years differed significantly from those aged 41–50 years ( $p < 0.05$ ), with the middle-aged group again reporting higher values. No other pairwise comparisons reached statistical significance, as indicated by non-significant  $p$ -values across the remaining age categories.

These findings suggest that middle-aged farm owners (41–50 years) consistently perceive financial risks more strongly than both younger (up to 20 years) and slightly younger middle-aged groups (31–40 years).

**Table 7.** Tukey HSD: Multiple comparisons for Hypothesis 1

| (I) Age           | (J) Age | Mean Difference (I-J) | Std. Error | Sig.  | 95% Confidence Interval |             |
|-------------------|---------|-----------------------|------------|-------|-------------------------|-------------|
|                   |         |                       |            |       | Lower Bound             | Upper Bound |
| 1 (Up to 20)      | 2       | -0.569                | 0.249      | 0.153 | -1.25                   | 0.11        |
|                   | 3       | -0.384                | 0.243      | 0.512 | -1.05                   | 0.28        |
|                   | 4       | -.747*                | 0.239      | 0.017 | -1.41                   | -0.09       |
|                   | 5       | -0.477                | 0.249      | 0.312 | -1.16                   | 0.21        |
| 2 (From 21 to 30) | 1       | 0.569                 | 0.249      | 0.153 | -0.11                   | 1.25        |
|                   | 3       | 0.185                 | 0.147      | 0.717 | -0.22                   | 0.59        |
|                   | 4       | -0.178                | 0.14       | 0.709 | -0.56                   | 0.21        |
|                   | 5       | 0.091                 | 0.157      | 0.977 | -0.34                   | 0.52        |
| 3 (From 31 to 40) | 1       | 0.384                 | 0.243      | 0.512 | -0.28                   | 1.05        |
|                   | 2       | -0.185                | 0.147      | 0.717 | -0.59                   | 0.22        |
|                   | 4       | -0.363*               | 0.13       | 0.046 | -0.72                   | 0           |
|                   | 5       | -0.093                | 0.148      | 0.97  | -0.5                    | 0.31        |
| 4 (From 41 to 50) | 1       | 0.747*                | 0.239      | 0.017 | 0.09                    | 1.41        |
|                   | 2       | 0.178                 | 0.14       | 0.709 | -0.21                   | 0.56        |
|                   | 3       | 0.363*                | 0.13       | 0.046 | 0                       | 0.72        |
|                   | 5       | 0.27                  | 0.141      | 0.316 | -0.12                   | 0.66        |
| 5 (Above 50)      | 1       | 0.477                 | 0.249      | 0.312 | -0.21                   | 1.16        |
|                   | 2       | -0.091                | 0.157      | 0.977 | -0.52                   | 0.34        |
|                   | 3       | 0.093                 | 0.148      | 0.97  | -0.31                   | 0.5         |
|                   | 4       | -0.27                 | 0.141      | 0.316 | -0.66                   | 0.12        |

\* The mean difference is significant at the 0.05 level.

Source: Authors' calculations

The results of homogeneous subsets (Table 8) indicate a split: younger/older groups perceive less risk, while middle-aged groups perceive more.

**Table 8.** Tukey HSD: Means for groups in homogeneous subsets (Hypothesis 1)

| Age               | N  | Subset for alpha = 0.05 |      |
|-------------------|----|-------------------------|------|
|                   |    | 1                       | 2    |
| 1 (Up to 20)      | 11 | 3.66                    |      |
| 3 (From 31 to 40) | 58 | 4.04                    | 4.04 |
| 5 (Above 50)      | 44 | 4.14                    | 4.14 |
| 2 (From 21 to 30) | 45 |                         | 4.23 |
| 4 (From 41 to 50) | 72 |                         | 4.41 |
| Sig.              |    | 0.095                   | 0.32 |

*Source:* Authors' calculations

Furthermore, another one-way ANOVA (Table 9) was conducted to examine the effect of education level on financial management practices (hypothesis 2). The analysis revealed a statistically significant difference among the groups,  $F(3, 226) = 46.65$ ,  $p < 0.001$ , indicating that education level accounts for a considerable proportion of the variance in financial management practices.

**Table 9.** One way ANOVA results for Hypothesis 2

|                | Sum of Squares (SS) | df  | Mean Square (MS) | F      | Sig. |
|----------------|---------------------|-----|------------------|--------|------|
| Between Groups | 46.655              | 3   | 15.552           | 46.654 | 0    |
| Within Groups  | 75.335              | 226 | 0.333            |        |      |
| Total          | 121.99              | 229 |                  |        |      |

*Source:* Authors' calculations

The Tukey HSD analysis (Table 10) reveals strong and consistent differences across education levels. Respondents with primary school education reported significantly lower values compared to all other groups ( $p < 0.001$ ), indicating that limited formal education is associated with weaker perceptions of management practices. In contrast, those with university (faculty) education scored significantly higher than all other groups, underscoring the positive influence of advanced education on financial risk awareness and management practices. Differences between secondary school and college were not statistically significant, suggesting that these two groups share similar perceptions. However, both groups reported significantly lower values than university graduates, highlighting a clear stepwise progression in perceptions as education level increases.

Overall, the findings emphasize that education is a critical determinant of how farm owners perceive and evaluate financial risks and management practices.

**Table 10.** Tukey HSD: Multiple comparisons for Hypothesis 2

| (I) Education        |   | Mean Difference (I-J) | Std. Error | Sig.  | 95% Confidence Interval |             |
|----------------------|---|-----------------------|------------|-------|-------------------------|-------------|
|                      |   |                       |            |       | Lower Bound             | Upper Bound |
| 1 (Primary school)   | 2 | -1.464*               | 0.150      | 0.000 | -1.85                   | -1.08       |
|                      | 3 | -1.579*               | 0.150      | 0.000 | -1.97                   | -1.19       |
|                      | 4 | -1.871*               | 0.163      | 0.000 | -2.29                   | -1.45       |
| 2 (Secondary school) | 1 | 1.464*                | 0.150      | 0.000 | 1.08                    | 1.85        |
|                      | 3 | -0.116                | 0.089      | 0.559 | -0.35                   | 0.11        |
|                      | 4 | -0.408*               | 0.109      | 0.001 | -0.69                   | -0.13       |
| 3 (College)          | 1 | 1.579*                | 0.150      | 0.000 | 1.19                    | 1.97        |
|                      | 2 | 0.116                 | 0.089      | 0.559 | -0.11                   | 0.35        |
|                      | 4 | -0.292*               | 0.109      | 0.040 | -0.57                   | -0.01       |
| 4 (Faculty)          | 1 | 1.871*                | 0.163      | 0.000 | 1.45                    | 2.29        |
|                      | 2 | 0.408*                | 0.109      | 0.001 | 0.13                    | 0.69        |
|                      | 3 | 0.292*                | 0.109      | 0.040 | 0.01                    | 0.57        |

Source: Authors' calculations

The analysis presented in Table 11 revealed three homogeneous subsets. Education level 1 ( $M = 2.78$ ) formed its own subset, reflecting significantly lower financial management practices compared to all other groups. Education levels 2 ( $M = 4.24$ ) and 3 ( $M = 4.36$ ) clustered together, indicating no significant difference between them. Education level 4 ( $M = 4.65$ ) formed a separate subset, reflecting the highest perceptions of management practices.

**Table 11.** Tukey HSD: Means for groups in homogeneous subsets (Hypothesis 2)

| Education            | N  | Subset for alpha = 0.05 |       |       |
|----------------------|----|-------------------------|-------|-------|
|                      |    | 1                       | 2     | 3     |
| 1 (Primary school)   | 18 | 2.78                    |       |       |
| 2 (Secondary school) | 86 |                         | 4.24  |       |
| 3 (College)          | 84 |                         | 4.36  | 4.36  |
| 4 (Faculty)          | 42 |                         |       | 4.65  |
| Sig.                 |    | 1                       | 0.813 | 0.119 |

Source: Authors' calculations

Finally, a one-way ANOVA was conducted to examine whether farm owners' years of experience in rural tourism influenced their perceptions of financial management practices effectiveness in mitigating financial risks (hypothesis 3).

The results (Table 12) indicated that there was no significant effect of experience level on perceived financial management effectiveness,  $F(2, 227) = 0.16$ ,  $p = 0.848$ . The between-groups variance ( $MS = 0.094$ ) was negligible compared to the within-groups

variance ( $MS = 0.571$ ), suggesting that differences in experience did not account for meaningful variation in financial management practices effectiveness scores.

**Table 12.** One way ANOVA results for Hypothesis 3

|                | Sum of Squares (SS) | df  | Mean Square (MS) | F     | Sig.  |
|----------------|---------------------|-----|------------------|-------|-------|
| Between Groups | 0.188               | 2   | 0.094            | 0.164 | 0.848 |
| Within Groups  | 129.724             | 227 | 0.571            |       |       |
| Total          | 129.912             | 229 |                  |       |       |

*Source:* Authors' calculations

Across the conducted statistical analyses, Hypotheses 1 and 2 were supported, while Hypothesis 3 was rejected. Results from the one-way ANOVA revealed significant differences across socio-demographic groups, and subsequent Tukey HSD post-hoc tests clarified the specific group contrasts. Education emerged as a particularly strong determinant of financial management practices, with higher levels of formal education consistently associated with more advanced and effective management approaches. Age demonstrated a non-linear influence: middle-aged respondents perceived financial risks more acutely than both younger and older groups. In contrast, years of experience in farming did not significantly affect perceptions of management practices, suggesting that longevity in the sector alone does not necessarily translate into greater confidence in financial risk mitigation. Taken together, these findings highlight that education and life stage are more influential than experience in shaping how farm owners conceptualize and evaluate financial management practices in the context of risk.

The implications of these findings are multifaceted. The findings underscore the need for targeted training and capacity-building programs, as formal education and life-stage factors appear more decisive than experience alone in shaping effective financial management practices. These insights can inform the design of support initiatives by rural tourism associations and policymakers. Finally, the findings highlight the necessity of integrating financial risk management into broader rural development policies, ensuring that farm owners are equipped not only with practical skills but also with strategic approaches to sustain their enterprises in the face of uncertainty.

## Conclusion

The findings presented in this paper highlight the complex interplay between age and education in shaping financial management practices and perceptions of financial risk among farm owners engaged in rural tourism. Education emerged as the most consistent and influential factor, with higher levels of formal education associated with more advanced and effective financial management practices. Age demonstrated a non-linear effect, with middle-aged groups perceiving financial risks more strongly than both younger and older groups, suggesting that life-stage responsibilities may heighten sensitivity to financial uncertainty. In contrast, years of experience in rural tourism did not significantly influence perceptions of financial management practices, indicating

that longevity in the field alone does not necessarily translate into greater confidence in financial risk mitigation. Taken together, these results underscore the importance of formal education and additional training of farmers to financial risk mitigation and financial literacy.

Overall, the findings highlight that farm owners view external, uncontrollable factors and increasing operational costs as the most critical financial risks, while also acknowledging the substantial impact of tourism seasonality and infrastructure investments. Furthermore, farm owners place considerable emphasis on proactive financial planning, diversification, savings, and collaboration, reflecting a comprehensive approach to managing financial risks in rural tourism.

This research has certain limitations. First, reliance on an online questionnaire may have excluded farm owners with limited internet access, potentially biasing the sample toward more digitally connected respondents. Second, the research was conducted within a single national context (Serbia), which restricts the generalizability of findings to other regions with different agricultural, economic, or policy environments.

Future research should therefore consider employing mixed method approaches to capture richer insights into farmers' perceptions, while also expanding to cross-country comparative studies to examine how cultural, institutional, and market differences shape management perspectives. Additionally, longitudinal research could provide valuable evidence on how perceptions of financial risks and financial management practices evolve over time, particularly in response to external shocks such as policy changes or climate events.

### **Conflict of interests**

The authors declare no conflict of interest.

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