

Zemės ūkio verslo rizikos vertinimas ir valdymas

1. Keywords: Risk, Risk assessment, Risk management, Risk change, Production risk

2. Area: Agricultural Economics, Business

3. Subarea: Risk management

4. Theme: Risk assessment and management

5. Year: 2016

6. Summary: Research work involved development of the integrated model for risk assessment and management in agriculture, including the integrated risk assessment methodology, risk management model, risk-adjusted farm efficiency assessment methodology. This model enables identifying risk factors of a farm, the change of risk over time, direction and scope of the effect of individual types of risks on the total risks, and, in view of the direction and scope of the effect, selecting the appropriate risk mitigation measures. The Ministry of Agriculture of the Republic of Lithuania recommended applying the model at agricultural companies and farmers' farms.

7. More detailed version of the summary: The aim of this study is to develop the tool (index) for risk assessment under the integrated approach. This tool enables the farmer to assess the level of business risk and identify the factors determining the level of risk. Analyzing risk several problems are encountered: the first one arises at the farm level – assessment of risk in the whole-farm context rather than in a partial context, The second problem is related to the dynamic aspect when determining how the risk changes over time and what the main drivers of these changes are. All these problems are solved in the presented research, creating an integrated risk assessment index (IRAI) and testing it in Lithuanian family farms. This index assesses 4 types of risk: economic, financial, production, and political. The research methodology is developed to make sure that the data collected on the IRAI behavior is as diverse as possible. A model of IRAI variation by farm size illustrating risk evolution at the Lithuanian farms and, at the same time, enabling visual diversification of the dependence of integrated risk on farm size is developed. Hierarchical cluster analysis is applied for identification of the integrated risk evolution models. Assessment of the interaction between the IRAI and output and input using nonparametric Kruskal-Wallis test is used to find out whether the type of integrated risk is based on differential logic. IRAI was tested using official statistical data of 1300 family farms collected in 2004–2013 for institutional purposes. The testing revealed that the designed IRAI allows identifying types of farms by their risk evolution profiles and the key risk (s) acting on the farm in the historical period. Four meaningful clusters representing the changing pattern of the risk are identified during the testing of IRAI: increasing risk farms; reducing risk farms; relatively constant risk farms; varying risk farms. IRAI can be applied both for macro analysis (at a national, EU or other levels) and microanalysis (at the level of a single farm). Macro-level index can be used for selection of support measures for risk reduction, micro-level for economic management decisions: diversification of activities, assessment of loan opportunities, etc.

8. Technology readiness level: TRL 4 - technology validated in lab

9. Effect: Economical

10. Argumentation: IRAI can be applied both for macro analysis (at a national, EU or other levels) and microanalysis (at the level of a single farm). Macro-level index can be used for selection of support measures for risk reduction, micro-level for economic management decisions: diversification of activities, assessment of loan opportunities, etc.

11. Project description: -

12. Project: DEVELOPMENT OF AN INTEGRATED MODEL FOR RISK ASSESSMENT AND MANAGEMENT IN AGRICULTURE

13. Education institution : -

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15. URL: -

16. Images: -

17. YouTube: -

18. Documents: [Practical_calculator_for_integrated_risk_assessment_index.xlsx](#)