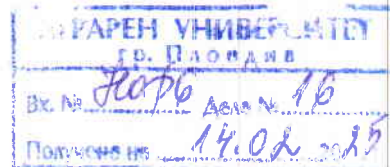


REVIEW



on the dissertation for obtaining the educational and scientific degree "Doctor" in: higher education field 3.0 Social, Economic, and Legal Sciences, professional field 3.8 Economics, scientific specialty "Economics and Management (Agriculture)."

Author of the dissertation: Yordanka Yordanova Mitseva, a full-time doctoral student at the Department of Economics, Agricultural University, Plovdiv

Topic of the dissertation: Assessment of Investments in Agriculture: Systemic Relations and Contextual Influences on Cost Efficiency

Reviewer: Prof. Dr. Dimo Atanasov, Agricultural University - Plovdiv, field of higher education 3.0 Social, Economic, and Legal Sciences, professional field 3.8 Economics, scientific specialty "Economics and Management (Agriculture)," appointed as a member of the scientific jury by Order № RD-16-1429/20.12.2024 of the Rector of AU.

1. Relevance of the Problem

Agriculture plays a key role in ensuring food security, economic growth, social, and environmental sustainability. In the light of global challenges such as a growing population and consumption, limited natural resources, climate change, social inequality, military conflicts, etc., effective management of investments in agriculture is critical to its sustainable development. The topic and research are relevant as they address how investments can be optimized to ensure sustainable development, maximize cost efficiency, and address regional and sectoral challenges. Through a systematic approach and contextual analysis, the study responds to the contemporary needs of policy and practice by offering evidence-based solutions for resource management in agriculture. The systematic approach provides a powerful tool for understanding and managing complex agricultural processes. It is particularly valuable in investment evaluation as it assesses their impact not only on specific aspects of production but also on the overall sustainability and efficiency of the sector, considering contextual and dynamic factors.

2. Objective, Tasks, Hypotheses, and Research Methods

The objective of the research is to clarify the concepts for evaluating investments in fixed assets in agriculture through mathematical and statistical data analysis and the comparative cost efficiency of farms in the EU for the period 2014 – 2020. The focus is on adapting investment evaluation models based on the systematic approach.

The research thesis states that the relationship between investments in fixed assets and comparative cost efficiency in agriculture is complex and highly contextual. It varies depending on regional differences and sectoral characteristics. Evaluation approaches that integrate systemic relations and contextual influences provide a more reliable and applicable understanding of investment effects, significantly improving forecast accuracy.

The main research question in the dissertation is: "Does the inclusion of regional differences and sectoral characteristics improve the model's ability to identify and analyze complex interrelationships?" It focuses on examining the impact of these

contextual factors on the relationship between annually allocated investment expenses in fixed assets and relative cost efficiency.

The dissertation research systematically addresses several tasks:

1. Review of literature and theories on investment evaluation in agriculture.
2. Development of a conceptual framework for investment evaluation in agriculture.
3. Mathematical and statistical data analysis from the agricultural and accounting information system on investments in fixed assets and the costs of agricultural holdings in the EU for the period 2014-2020.
4. Derivation of indices for comparative cost efficiency of agricultural holdings.
5. Development and testing of models reflecting different approaches to evaluating investment effects on comparative cost efficiency.
6. Analysis of the validity of investment evaluations based on the developed models.
7. Examination of the models' ability to make accurate forecasts, considering systemic and contextual influences arising from regional differences and sectoral characteristics of agricultural production.
8. Critical analysis of the theory related to systemic relations in agriculture and their implications for developing evaluation practices and regulating investment activity.

3. Illustration and Presentation of Results

The research results, including theoretical and methodological aspects, are presented at a high level. The style is distinctly scientific and research-oriented. A significant number of figures (19 groups) and graphs, as well as 18 tables, are used.

4. Discussion of Results and Literature Used

In the first chapter of the dissertation, the doctoral student systematizes theoretical concepts and analyzes the dynamic nature of the investment process, emphasizing the necessity of continuous adaptation of farms to changing conditions. The role of the systematic approach is highlighted, based on integration between different levels of evaluation—from individual farms to national and global policy. This encourages the development of sustainable investment strategies that consider both short-term benefits and long-term effects on sustainable development. According to the author, a holistic investment evaluation requires a combination of theory and practice through the dynamic adaptation of evaluation methodologies to the context and specific needs of investment projects.

In the second chapter, a methodology for evaluating the cost efficiency of investments in the agricultural sector, based on Data Envelopment Analysis (DEA), is presented. The analysis of depreciation effects on investment efficiency is also discussed. The importance of contextual factors for formulating effective agricultural policies is emphasized.

In the third chapter, the research results and their analysis are presented, explaining the efficiency of different investment evaluation models. The simplest model, M1, based solely on the logarithm of depreciation costs, shows the lowest efficiency and significantly lags behind more complex models. The complexity of models (from M2 to M6) through the inclusion of regional differences and sectoral characteristics significantly improves their explanatory power. The most successful model, M6, accounts for regional differences, sectoral characteristics, and non-linear U-shaped relationships. The analysis of models (M1-M6) investigates the relationships between

investments in fixed assets and comparative cost efficiency, emphasizing the need to integrate the systematic approach through contextual factors.

The doctoral student also outlines several directions for future research, likely focusing on: parameter analysis of the examined models, predictive impact of fixed asset investments on cost efficiency, factors influencing regional and sectoral contexts, identification of critical points altering investment effects, and an extended efficiency analysis including social and ecosystem indicators.

The cited literature sources are listed at the end of the dissertation, totaling 194 and arranged alphabetically.

5. Contributions of the Dissertation

Scientific-Theoretical Contributions:

- An original concept for holistic investment evaluation integrating static and dynamic aspects of the evaluation process.
- Expansion of investment evaluation criteria at the farm level.
- Introduction of a classification of interrelations between evaluation criteria to improve planning and coordination of intervention tools in agricultural sector regulation.
- Identification of systemic dependencies and contextual influences of investments on comparative cost efficiency in European agriculture through comparative analysis of logistic regression models.

Scientific-Practical Contributions:

- Justification of the importance of the systematic approach in evaluating investment impact on achieving specific comparative cost efficiency.
- Argumentation of the limitations of the unified regulatory approach and the necessity for regional and sectoral adaptation of agricultural policies.

6. Critical Notes and Questions

I have no critical remarks towards the author of the dissertation.

7. Published Articles and Citations

The PhD student has listed two publications related to the dissertation. In both of them, she is the sole author. One was published in 2022, and the other one is accepted for publication in the AU-Plovdiv journal "Agricultural Sciences," indexed in CABI, Web of Science.

CONCLUSION:

Based on the research methods applied by the PhD student, correctly derived experiments, and well-founded conclusions, I consider that the presented dissertation meets the requirements of the Higher Education Act and the regulations of the Agricultural University Plovdiv, which gives me grounds to evaluate it **POSITIVELY**.

I recommend the honorable Scientific Jury to also vote positively and award Yordanka Yordanova Mitseva the educational and scientific degree "Doctor" in the scientific specialty "Economics and Management (Agriculture)."

Date: 17.02.2025
Plovdiv