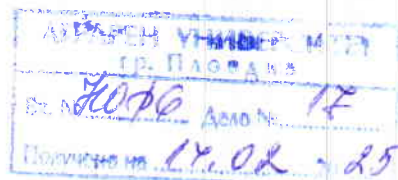


REVIEW



of the dissertation for obtaining the educational and scientific degree "Doctor" in: Higher Education Area 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, full-time PhD student at the Department of Economics, Agricultural University, Plovdiv.

Title of the dissertation:

EVALUATION OF INVESTMENTS IN AGRICULTURE: SYSTEMIC RELATIONS AND CONTEXTUAL INFLUENCES ON COST EFFICIENCY

Reviewer:

Assoc. Prof. Dr. Minko Atanasov Georgiev, Agricultural University Plovdiv, Higher Education Area: 3. 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 No. RD-16-1429/29.12.2024 of the Rector of AU.

1. Brief presentation of the candidate.

Yordanka Yordanova Mitseva was born in 1981 and has been living in Asenovgrad, Plovdiv Region, in recent years. She has been qualified as an accountant since 2001, which enabled her to work as an accountant in a tourism company from 2003 to 2007. In 2003, she obtained a bachelor's degree in Marketing from Plovdiv University. In 2008, she earned a master's degree in financial management from Plovdiv University, and in 2020, she obtained another Master's degree in English Language and Methodology from the same institution. This educational background allowed her to work as an agricultural producer from 2008 to 2020, establishing herself as an entrepreneur who successfully combines her financial skills with knowledge of the European Union's structural funds and the economic characteristics of Bulgaria's agricultural sector. She pursued further professional and educational qualifications by applying for a PhD at the Department of Economics at the Agricultural University Plovdiv (Decision of the Academic Council at the Department of Economics – Protocol 196 of 16.12.2020). Yordanka Mitseva was

enrolled as a full-time PhD student in the same department by Order RD-116-610 of 16.12.2020 of the Rector of AU-Plovdiv.

2. Relevance of the problem.

The dissertation focuses on investments in agriculture and their related productivity, efficiency, and competitiveness. The PhD candidate has assessed that the effect of investments may not always be positive, as results can be influenced by socio-economic, geopolitical, demographic, climatic, environmental, and other factors. This leads to the conclusion that a comprehensive approach is necessary for analysis. The author has termed this approach "contextual," and during the research process, has indirectly distinguished it by finding similarities and differences with somewhat similar approaches: systemic, comprehensive, semantic, holistic, and multifunctional. This assessment by the candidate is correct.

3. Objective, tasks, hypotheses, and research methods.

The objective of the research is classical economic science. The author has examined the impact of investments in long-term tangible assets (LTA) on the comparative cost efficiency in agriculture. In this sense, their dualistic impact is explained – once on cost efficiency and second, on broader (market) effects. Due to the specific impact of the factors described above (climatic, environmental), the PhD candidate has also demonstrated the hybrid nature of investments. On one hand, they are described as having a classic, positive economic interaction character. On the other hand, the dissertation explains investments as "noise factors" – negative impacts affecting the final result. This makes the candidate's assessment innovative in many respects, pointing out the essence of this economic category simultaneously as a prerequisite and consequence, with positive and negative effects. The object of the research is investments in LTA for groups of European agricultural holdings for the period 2014-2020. The object is formulated to allow the formulation of research boundaries. The subject of the research, presented in the introduction, is outlining the relationships and dependencies related to formulating models for the cost efficiency of investments in agriculture. The subject is presented more schematically rather than extensively. The essence of social relations is analyzed in the three subsequent parts of the dissertation. The research tasks are three. They follow the stages through which the dissertation passes. The first is related to demonstrating theoretical knowledge. The second, methodological, aims to illustrate the means for solving the problem, linking theory with analysis, and the third – the final – analytical-constructive, providing solutions. The final task is divided into three sub-tasks, formulating synthetic characteristics and transforming them into mathematical models, substantiating multiple conclusions derived from them. It presents the final summarized

proposals for solutions arising from the main idea of the dissertation – solving problems related to investments and their cost efficiency.

4. Illustration and presentation of the obtained results.

Although not always easy to present due to the large volume of synthetic information used, the text is relatively easy to read. The research uses numerous figures and tables, which make the problem clearer. Some figures represent conceptual logical structures for the order and hierarchy of the research. For example, Figure 1: "Conceptual Framework for Choosing an Approach in Investment Evaluation." Others are figures combining several similar studies with which results are compared: Panel with Graphs 5. "Criteria Differences Δ " (pp. 161-162 of the dissertation). The research uses 25 types of equations, 19 figures, 19 tables, and 6 panels consisting of synthetic data from the statistical methods used. All this indicates that the PhD candidate can manage and present a complex and relatively large scientific text.

5. Discussion of results and used literature.

The dissertation consists of three chapters: theoretical, methodological, and analytical-constructive. The first chapter is entirely theoretical.

The theoretical part represents the candidate's choice of how a problem should be conceptually solved. In this case, the PhD candidate has chosen several main theories explaining the processes and phenomena, including neoclassical theory explaining cost efficiency, accounting theory for explaining LTA in agriculture, and statistical theory for explaining dependencies after acquiring an objective (synthetic) form. The candidate has chosen a standard style for explaining the concept of investment. The PhD candidate has correctly explained the differences between criteria, aspects, models, systems, and related evaluations. At the same time, some concepts are formulated in the context of the research process's goals – clarifying the differences between conceptual and statistical models. In this part of the dissertation, the PhD candidate has demonstrated sufficient theoretical knowledge to conduct scientific debates and substantiate scientific theses.

The second chapter is methodological. The methodological part explains why the described means for explaining the problem of investments in LTA and their efficiency in Bulgarian agriculture are used in detail. The research uses numerous econometric models for the impact of certain factors on investments and their cost efficiency, including descriptive statistics, process modeling methods – logistic, regression; comparative method for model evaluation, similarity tests, and pseudo-R-squares, among others, which should not be exhaustively listed. This part of the dissertation shows that the PhD candidate has mastered sufficient scientific means, and possesses a scientific toolkit to achieve research goals.

The third chapter is analytical-constructive. It unfolds several significant empirical analyses. The third part of the dissertation concludes with the integration of systemic relations in evaluation practices and investment regulation. Such an approach to solving investment-related problems is undoubtedly systemic and conceptual. The conclusions of the PhD candidate are substantiated, following the logical structure of the research, which is correct. The dissertation's citation rules are followed. The APA citation style is used. The research lists 194 foreign and Bulgarian scientific sources. This indicates a thorough knowledge of the scientific literature on the research problem. The arrangement of the text, tables, figures, choice and adaptation of methodology, the way different parts of the scientific content interact, and the subordination between used approaches, concepts, and goals – all show a mature way of scientific thinking. This means that the PhD candidate can independently conduct scientific research. This indicates that the educational process has achieved its goals.

6. Contributions of the dissertation.

The PhD candidate has correctly assessed that her dissertation includes two types of contributions: scientific contributions and scientific-applied contributions. The contributions are correctly formulated.

Scientific contributions:

The first scientific contribution is related to the author's proposed new conceptual evaluation of investments. It is holistic and comprehensive regarding holistic evaluation, integrating static and dynamic aspects of the evaluation process, and adapting several approaches into one.

The second scientific contribution is related to creating criteria for evaluating investments in LTA at the farm level. It is a good justification for an approach integrating the links between individual investments in micro-organizations and sectoral/industry-level investments.

The third scientific contribution can be used to improve planning, and coordination, i.e., as a tool for indicating the direction for changing the regulation of the agricultural sector. The fourth scientific contribution is related to adapting new systemic, comprehensive solutions for evaluating cost efficiency.

Scientific-applied contributions:

The first scientific-applied contribution shows the practical link between regional, sectoral, and organizational identifiers, reflecting the cumulative influence of climatic, environmental, technological, political, and socio-economic factors.

Second. Models for U-shaped and inverted U-shaped dependencies are proposed, reflecting the negative impact of excessive or insufficient investments.

Third. The limitations of the unified approach in regulation and the need for regional and sectoral adaptation of agricultural policies are argued. The contributions are correctly formulated.

7. Critical Remarks and Questions.

The models are well-constructed. However, it is noticeable that the analysis is sometimes reduced to brief explanations of the synthetic parameters themselves, meaning that the statistical explanation of the model is predominant. This implies that the explanations could be supplemented with details describing the causal economic relationships: variables – outcomes – economic conditions – consequences over time and space from these states (equilibria) for agriculture. Without undermining the doctoral candidate's work, an additional explanation of these dependencies could be provided. Some of the models suggest the development of a future concept for investment research.

The use of artificial intelligence for the analysis of scientific economic works is not prohibited by national legislation in the field of academic advancement at this stage. However, the scope of such tools must be clearly delineated and explicitly described in the dissertation. If artificial intelligence was not used, the software used for the creation of mathematical (econometric) models should be explained.

Questions for the Candidate:

How were the conclusions drawn that a model is "good" or that it yields positive results? Or conversely, a negative model.

What should be invested in?

What is the feedback loop between "better" investments and regulations in agriculture? What should an improved financial framework look like? Provide a specific example derived from the dissertation.

8. Published Articles and Citations.

The author has proposed two publications related to the implementation of the scientific plan for the dissertation:

Mitseva, Y. Y. (2022). Efficiency of using environmentally harmful inputs in field crop production in Bulgaria. *Agricultural Sciences/Agrarni Nauki*, 14(35). <http://dx.doi.org/10.22620/agrisci.2022.35.007>

Mitseva, Y. Y. (2024). Systemic Aspects of Agricultural Investments: Regional Variability and Sector-Specific Characteristics in Cost Efficiency. *Agricultural Sciences/Agrarni Nauki*, 16(43), (in press).

It is noteworthy that both publications are in the Web of Science - CAB International scientific database, which is more than sufficient to meet the minimum science

metric requirements for obtaining a PhD degree, as introduced by national regulations and those concerning the acquisition of scientific degrees and positions at the Agricultural University of Plovdiv. The presented abstract objectively reflects the structure and content of the dissertation.

CONCLUSION:

Based on the various research methods learned and applied by the doctoral candidate, the correctly conducted experiments, and the summaries and conclusions made, I consider that the presented dissertation meets the requirements of the Law on the Development of the Academic Staff and the regulations of the Agricultural University for its application, which gives me grounds to evaluate it **POSITIVELY**.

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

Date:

12.02.2025

Plovdiv

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във връзка с чл.4, т.1 от Регламент (ЕС) 2016/679

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(Assoc. Prof. Dr. M. Georgiev)