

REVIEW

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concerning the dissertation for the award of the scientific degree “Doctor of Sciences”
in the field of Higher Education 3. Social, Economic and Legal Sciences
Professional Area 3.8. Economics

Author: Dr. Bozhena Kush

Topic: “Economic Efficiency of Farms in Poland Depending on Their Size” (in the original Russian: “Экономическая эффективность фермерских хозяйств в Польше в зависимости от экономического размера”)

1. General Description of the Submitted Materials

By Order No. 85 dated February 21, 2025, of the Rector of VUZF University, cor.-member prof. Boris Velchev, DSc, Ph.D., I have been appointed as a member of the academic jury for the procedure of defending the dissertation entitled “Economic Efficiency of Agricultural Farms in Poland Depending on Their Size” (in the original Russian: “Экономическая эффективность фермерских хозяйств в Польше в зависимости от экономического размера”) for the award of the scientific degree “Doctor of Sciences” in the field of Higher Education 3. Social, Economic and Legal Sciences, Professional Area 3.8. Economics. The author of the dissertation is Dr. Bozhena Kush – a candidate from the Department “Finance and Insurance.”

The materials submitted by Dr. Kush include the following documents: the dissertation for the award of the degree “Doctor of Sciences” and its abstract (in the original Russian and in translations into Bulgarian and English languages), a list of scientific publications related to this procedure along with their abstracts, a report on the citations of the works, a report on the fulfillment of the national minimum requirements for the award of the degree “Doctor of Sciences” as set out in the Law on the Development of the Academic Staff in the Republic of Bulgaria (LDASRB) and its implementing regulation, a curriculum vitae, and a declaration of the originality of the works.

The candidate has provided evidence of a significant number of scientific publications related to this procedure: 3 monographs, 4 chapters in monographs, and 33 articles in various scientific journals. These publications considerably exceed the national minimum

requirements for the award of the “Doctor of Sciences” degree, which demonstrates the candidate’s publication activity.

2. **Brief Biographical Data of the Candidate**

Bozhena Kush was born in 1972. She holds a master’s degree in agricultural economics and a doctoral degree in the same field. Since 2008, she has held the academic position of “Assistant” in various departments at Rzeszow University of Technology. Dr. Kush has extensive experience in agricultural economics, as evidenced by the depth of her scientific publications and her dissertation.

3. **Timeliness of the Topic and Suitability of the Stated Goals and Objectives**

Dr. Kush’s work is extremely timely and addresses a topic of crucial importance for Poland’s development. It focuses on the efficiency of agriculture. The topic directly relates to the pressing global issue of improving the productivity and efficiency of agriculture, which is essential for ensuring food security—especially in the context of the growing global population and climate challenges. The study presents an analysis of the importance of resource optimization, with a focus on optimizing the use of resources in line with the global shift toward sustainable development, effective land use, and reduced environmental impact. The significant role of Poland’s agricultural sector for the country’s development is also highlighted – Poland has a unique agricultural structure characterized by the predominance of small farms. The dissertation’s focus on this structure and its inefficiencies makes it directly applicable to the formulation of national agricultural policies. Furthermore, the dissertation examines the issue within a broader European context and analyzes it in light of the European Union (EU)’s goals for sustainable agriculture and rural development.

4. **Understanding of the Problem**

The research demonstrates the author’s very good understanding of the problem – a total of 282 sources are cited and analyzed in the text, which are sufficiently numerous and varied to establish the candidate’s comprehensive knowledge. Her awareness is also evident from the appropriately selected graphical material included in the work.

5. **Research Methodology**

In her dissertation, Dr. Bozhena Kush employs a comprehensive and robust methodological framework for assessing the efficiency of farms and its relationship to their economic size. For the purpose of analysis, the farms are grouped into categories based on their economic size, determined by their standard output (SO) – a measure that reflects the average annual monetary value of production. This classification is in accordance with EU standards and enables meaningful comparisons between different types of farms. A range of methods is appropriately used, including DEA analysis (Data Envelopment Analysis) – a parametric method used for evaluating the technical efficiency of farms by comparing inputs (land, labor, capital) with outputs (production value), the

Malmquist Productivity Index, analysis of partial efficiency indicators, regression and correlation analysis, as well as methods from qualitative analysis.

6. **Characteristics and Evaluation of the Dissertation**

The dissertation has a structure that is appropriate for its objectives. In the introduction, the motives for analyzing the importance of economic efficiency in agriculture are presented, particularly in the context of Poland's agricultural structure. In the section devoted to methodology, which precedes the first chapter and serves as an introduction, the research goals are clearly defined and the hypotheses are well formulated:

1. "A larger economic size leads to higher efficiency,"
2. "Differences in efficiency increase over time between farms of different sizes," and
3. "Due to the rising cost of labor relative to other production factors (land and capital), increasing management efficiency requires substituting labor with capital."

In the first substantive chapter, the theoretical foundations of the problem are examined. Here, the candidate discusses in detail the concept of efficiency, various types of efficiency – economic, technical, and allocative – and reviews methodological approaches to measuring agricultural efficiency. The second chapter presents the main characteristics of the farms under study. In this section, the author provides a comprehensive profiling of the farms based on their economic size, evaluates their production potential, resource utilization, financial indicators, and technical efficiency. This section includes an analysis of trends in land consolidation and the dynamics of farm size. In the third and final chapter, the candidate analyzes the key determinants of efficiency, focusing on issues such as land productivity, the substitution of labor with capital in response to rising labor costs, financial leverage, and technological adoption. The significance of subsidies and their varying impact depending on the size of the farm is emphasized. The results of the empirical study confirm the hypotheses, demonstrating that efficiency increases with larger farm size. The analysis shows discrepancies in efficiency indicators between small and large farms and logically underlines the critical role of technology and organization in improving efficiency.

The candidate also presents some recommendations for the development of farms, such as supporting modernization, improving land use structures, and reducing disparities between classes based on farm size.

7. **Contributions and Significance of the Work for Science and Practice**

The work contains both scientific and applied contributions. Firstly, it advances the understanding of farm efficiency by outlining the relationship between farm size and efficiency based on a detailed empirical analysis. Secondly, it emphasizes the structural and operational dynamics that affect efficiency in the small and medium-sized farms that dominate in Poland. Thirdly, advanced methodologies such as DEA analysis and the Malmquist Productivity Index have been employed to assess technical and dynamic

efficiency, achieving precise results. The integration of these tools with economic indicators provides a holistic approach to measuring farm efficiency. Furthermore, standard efficiency models have been adapted to the specific economic and structural conditions of Polish agriculture.

8. **Evaluation of the Publications Related to the Dissertation**

The significant number of publications presented in connection with this procedure – 3 monographs, 4 chapters in monographs, and 33 articles – represent in-depth research on various current issues in agricultural economics. This demonstrates the candidate's commitment to the subject matter, which has led to a thorough understanding of the topics addressed in her research. All the publications submitted by Dr. Kush for this procedure highlight her profile as an established researcher in the field of agricultural economics.

9. **Assessment of the Fulfillment of the National Minimum Requirements**

The candidate exceeds the national minimum requirements set out in ZRASRB for the award of the AD “Doctor of Sciences” both in terms of scientific output and her visibility – the citation impact of her works in other scientific publications is good.

10. **Personal Involvement of the Candidate**

At the time of preparing this review, there is no reason to question the authenticity of the candidate's works.

11. **Abstract**

The abstract generally reflects the work accurately in a concise form.

12. **Critical Remarks and Recommendations**

I do not have any substantial critical remarks regarding the candidate. I do, however, have the following questions:

- Could you specify some features of small farms in Poland that are uniquely characteristic of them in the European context – what distinguishes them from those in other member countries?
- What is the main problem affecting the efficiency of small farms in Poland?

13. **Personal Impressions**

I have observed Dr. Kush's work since the initial submission of her dissertation project at VUZF University. She demonstrates a commitment to refining her work and addressing the comments of the “Finance and Insurance” Department, which reflects her responsible approach to scientific discussions and her openness to improving her work.

14. **Recommendations for Future Use of the Dissertation Contributions and Results**

I recommend that Dr. Kush publish more frequently in journals indexed in internationally renowned scientific databases.

CONCLUSION

Dr. Kush's dissertation contains scientific, applied, and practical results that represent an original contribution to science and meet all the requirements of LDASRB and its implementing regulation. The submitted materials and the results of the dissertation comply with the specific requirements of the Rules for the Conditions and Procedures for Acquiring the Scientific Degree "Doctor of Sciences" at VUZF University.

For the above reasons, I give my positive evaluation of the research presented in the dissertation, its abstract, the achieved results, and contributions, and I propose that the esteemed academic jury award the scientific degree "Doctor of Sciences" to Dr. Bozhena Kush in the field of Higher Education 3. Social, Economic and Legal Sciences; Professional Direction 3.8. Economics.

March 25, 2025

Reviewer:

(Prof. V. Zhelyazkova)