



Вх. № PD 20-791 / 23.05.2025

REVIEW

of a PhD dissertation for the award of the educational and scientific degree of "Doctor"

Field of Higher Education 3.8 "Economics"

Doctoral programme "World economy and international economics relations"

at the University of Economics – Varna

Prepared by: Assoc. Prof. Dr. Valentina Genova Makni, PhD, Department of "International Economic Relations", University of Economics – Varna

Basis for the preparation of the review: This review has been prepared pursuant to Rector's order № RD 06-71/23.04.2025 and in accordance with the decision of the academic jury dated 25.04.2025.

Author of the dissertation: Gergana Kamenova Kaloyanova

Title of the dissertation: "Impact of Brexit on the Supply Chains in Great Britain."

1. General Presentation of the Dissertation

The dissertation is structured in a conventional academic format, comprising an introduction, three main chapters, a conclusion, references, and appendices. The total length is 170 pages, of which 142 constitute the main body of text. The author has consulted 207 Bulgarian and international sources, all of which are appropriately cited throughout. A plagiarism report confirms the manuscript's originality, indicating similarity coefficients of 6.15% for Level 1 and 1.71% for Level 2. Accordingly, the dissertation represents an authentic and independently produced academic work by Gergana Kaloyanova.

The chosen topic is highly relevant, with its significance arising from the impact of Brexit on supply chains in the United Kingdom, particularly in the context of the emerging trend of "deglobalisation." The evolving trade relationship between the UK and the EU has necessitated substantial business adaptation, providing a solid foundation for analysing post-Brexit practical experiences and for developing resilient strategies amid regulatory and economic transformation.

The dissertation is scientifically robust, well-argued, and demonstrates a high level of awareness and analytical depth. It is a work of doctoral calibre and fulfils the requirements

stipulated in Article 48, Paragraph 1 of the Regulations for the Implementation of the Law on the Development of the Academic Staff in the Republic of Bulgaria.

2. Evaluation of the Structure and Content of the Dissertation

The introduction clearly defines the object, subject, aim, and objectives of the research. The scope and limitations are explicitly and appropriately justified. The three chapters follow a logical sequence and are coherently interconnected. The language used is precise and contemporary, employing relevant terminology from the fields of international economics, logistics, and supply chain management.

A comprehensive theoretical overview is provided, addressing key concepts related to supply chains, management strategies, and their transformation in response to external shocks such as Brexit. Chapter Three is particularly noteworthy for its innovative analytical framework used to evaluate Brexit-related factors impacting supply chains, which serves as a basis for formulating practical managerial recommendations for business adaptation. From a methodological perspective, the dissertation employs a multi-method approach, combining both quantitative and qualitative techniques, which enhances the depth and reliability of the analysis. A rich analytical toolkit supports the author's thesis and provides a statistically grounded framework for the study.

The abstract accurately reflects the structure and content of the dissertation. Portions of the work have been published in peer-reviewed academic journals and conference proceedings, including one article and three papers presented at national and international scientific forums. These meet the quantitative publication criteria set out in Article 57, Paragraphs 1–4 of the Regulations for Academic Staff Development at the University of Economics – Varna. The overall content of the dissertation complies with Article 56, Paragraphs 1 and 2 of the same regulations and meets the national minimum requirements for awarding the educational and scientific degree of “Doctor.”

3. Identification and Evaluation of the Dissertation's Contributions

The author presents two groups of contributions, both of which are well defined and substantiate the scientific value of the work:

Group I: Theoretical and Theoretical-Applied Contributions

1. The author offers original insights into the nature and management of supply chains, grounded in thorough theoretical analysis, with a particular focus on the relationship between

supply chain resilience and the application of “just-in-time” (JIT) systems and Lean Six Sigma methodology in achieving competitive advantage.

2. The dissertation explores the effects of Brexit on supply chains, both before and after the UK’s departure from the EU, including the impact of the new immigration framework and the Trade and Cooperation Agreement.

Group II: Methodological and Practical Contributions

3. The application of the Fuzzy AHP methodology extends the use of econometric tools for assessing and ranking Brexit-related factors affecting supply chains in the UK.

4. Drawing on the empirical findings, the dissertation proposes practical recommendations for business decision-making in times of crisis.

4. Critical Remarks and Recommendations

The study focuses exclusively on the United Kingdom, which is fully justified by the nature of the research topic. Nevertheless, to further distinguish Brexit as a unique and decisive factor, the inclusion of a brief comparative perspective with selected EU countries could have enhanced the analysis. For instance, a comparison with analogous sectors in Germany or the Netherlands – both highly integrated and export-oriented economies – could have more clearly highlighted the specific challenges faced by the UK following its withdrawal from the EU.

This comment is intended as a constructive suggestion rather than a criticism and does not, in any way, diminish the scientific merit of the dissertation.

5. Question to the PhD Candidate

While the dissertation addresses the issue of digitalisation, the following question arises. To what extent can it be argued that Brexit served as a catalyst for digital transformation within UK supply chains, and which sectors have demonstrated the most significant advancements in this regard?

6. Conclusion

The dissertation by Gergana Kaloyanova, entitled **“Impact of Brexit on the Supply Chains in Great Britain,”** is well structured, scientifically rigorous, and presents clearly articulated contributions. The research is highly relevant and of practical significance, reflecting independent academic work. It fully satisfies the criteria for awarding the educational and scientific degree of “Doctor, in accordance with the Law on the Development of the Academic Staff in the Republic of Bulgaria and the regulations of the University of Economics – Varna.

In light of the above, I give my firm positive recommendation and encourage the esteemed members of the academic jury to vote in favour of awarding **Gergana Kamenova Kaloyanova** the educational and scientific degree of “Doctor” in the doctoral programme „World Economy and International Economic Relations“.

Date: May 22, 2025

City of Varna

Signature:

Заличена информация съгласно
ЗЗЛД и регламент (ЕС) 2016/ 679

/Assoc. Prof. Dr. Valentina Makni/

OPINION

on the acquisition of the educational and scientific degree "Doctor"
under the procedure announced by the University of Economics – Varna

1. General Information

Author of the opinion: Prof. Dr. Galina Zaharieva – field of higher education: 3. Social, Economic and Legal Sciences; professional field: 3.8 Economics; scientific specialty: *World Economy and International Economic Relations*; Department of International Economic Relations, D. A. Tsenov Academy of Economics – Svishtov.

Grounds for issuing the opinion: Participation as a member of the academic jury for the defense of the dissertation, in accordance with Order No. RD-06-71/23.04.2025 of the Rector of the University of Economics – Varna and the decisions from the first meeting of the academic jury held on 25.04.2025.

Doctoral candidate: Gergana Kamenova Kaloyanova – full-time PhD student at the Department of International Economic Relations, University of Economics – Varna; scientific supervisor: Prof. Dr. Veselina Vasileva Dimitrova.

Topic of the dissertation thesis: Impact of Brexit on the supply chains in Great Britain

2. General Presentation of the Dissertation

The dissertation "Impact of Brexit on the supply chains in Great Britain" comprises 170 pages. It includes an introduction (6 pages), three chapters (131 pages), a conclusion (5 pages), a bibliography (17 pages), and appendices (10 pages). The illustrative material presented in the dissertation includes 14 figures and 40 tables. A total of 207 sources in both Cyrillic and Latin scripts have been used.

The relevance of the dissertation is indisputable and well substantiated by the doctoral candidate. The goal, research questions, scientific tasks, and the main thesis are clearly and precisely formulated. The subject, object, and scope limitations of the research are accurately defined. The methodology is thoroughly described, and the choice of methods is well justified. The dissertation is distinguished by its analytical depth, originality of reasoning, and the clarity of its conclusions and recommendations.

3. Publications and Participation in Scientific Forums

Four scientific publications are presented, two of which have been published in academic journals, and the other two – in the proceedings of scientific conferences held in Bulgaria and abroad. All publications are directly related to the topic of the dissertation and present key aspects of the overall research. They are single-authored and ensure sufficient dissemination of the doctoral candidate's scientific views and findings.

The materials submitted under the announced procedure provide grounds to conclude that Gergana Kamenova Kaloyanova **meets the requirements of Article 57, items 1-4 of the Regulations for the Development of Academic Staff at UE-Varna** and the minimum national requirements for awarding the educational and scientific degree "Doctor", according

to Article 2b, para. 2 and para. 3 of the Law on Development of Academic Staff in the Republic of Bulgaria.

4. Assessment of the Structure and Content of the Dissertation

The presented dissertation, titled „Impact of Brexit on the supply chains in Great Britain“, comprises three logically connected and well-balanced chapters.

The first chapter outlines the theoretical framework of the research. It examines the essence, participants, and structure of supply chains. Various definitions of supply chain management are systematized. Special attention is devoted to the “just-in-time” (JIT) concept and the Lean Six Sigma methodology, both of which are widely applied in the United Kingdom. The challenges and risks to supply chains and their management are analyzed in the context of the concept of “resilience.” Based on the analysis and synthesis of a range of academic sources, the doctoral candidate proposes two original definitions—of “supply chain” and “supply chain management.”

The second chapter analyzes the different Brexit scenarios and the challenges they pose to the United Kingdom’s trade relations. The state of supply chains is traced both before and after the 2016 referendum, including the changes following the official departure from the EU. The new Trade and Cooperation Agreement (TCA) and the country’s immigration system are examined in detail. Drawing on secondary sources from the past five years, the author identifies the specific consequences of Brexit for businesses, the economic environment, and supply chains.

The third chapter presents the conceptual framework of the empirical study, including the methodology of classical AHP and Fuzzy AHP analysis. The choice of Fuzzy AHP for investigating the Brexit-related factors affecting supply chains in the United Kingdom is well justified. AHP and Fuzzy AHP are particularly suitable for this type of research, as they allow the differentiation of multiple factors and the assessment of their relative influence, even when the number of respondents is limited. The selection of criteria and alternatives is justified based on the literature and sources analyzed in the previous chapters. Through an in-depth analysis of the empirical results by individual criterion, the most influential factors affecting supply chains are identified. Based on the empirical findings and the analyses from the first and second chapters, adaptation strategies are proposed for professionals in the country, aimed at improving the state of supply chains and addressing Brexit-related challenges.

The bibliography is sufficient in both scope and quality, and it has enabled the doctoral candidate to produce an original, scientifically grounded, empirically supported study of practical relevance.

The writing is characterized by clarity, consistency, and the use of appropriate terminology, in line with academic standards. It is supported by a sufficient volume of illustrative material.

The conclusions drawn in the dissertation are well-reasoned and based on the processed data and source material. The stated goals and research tasks have been achieved, and the main scientific thesis has been confirmed. The abstract accurately and fully reflects

the structure and content of the dissertation. The contributions of the research are properly formulated in it.

The formal and qualitative characteristics of the dissertation thesis provide grounds to conclude that it **meets the requirements of Article 56, para. 1 and para. 2 of the Regulations for the Development of Academic Staff at the University of Economics – Varna.**

5. Identification and Evaluation of Scientific and Applied Scientific Contributions in the Dissertation

I accept the contributions identified by the doctoral candidate. I believe they are appropriately formulated and correspond to the actual results achieved in the dissertation.

6. Verification of Plagiarism in the Dissertation, Its Publications, and the Abstract

I have not identified any instances of plagiarism in the presented dissertation, the abstract, or the attached publications. All sources used are properly and accurately cited.

7. Critical Remarks and Recommendations

I have no substantial critical remarks regarding the work of the doctoral candidate. I recommend that she continue her research in the chosen field, expanding both the geographical and thematic scope of supply chain-related issues.

8. Questions to the Doctoral Candidate

I have the following question for the doctoral candidate: How do reshoring and diversification strategies relate in the context of the examined topic?

9. Conclusion

The presented dissertation meets the requirements for awarding the ESD “Doctor” in accordance with the Law on the Development of Academic Staff in the Republic of Bulgaria, the Regulations for its implementation, as well as the specific requirements of the University of Economics – Varna. It contains scientific and applied research results that represent an original contribution to science and clearly demonstrate the doctoral candidate’s ability to conduct independent scientific research.

In view of the above, I give a positive assessment of the research and recommend that the esteemed members of the academic jury vote in favor of awarding the educational and scientific degree “Doctor” to Gergana Kamenova Kaloyanova in field of higher education 3. Social, Economic and Legal Sciences; professional field 3.8. Economics, doctoral program “World Economy and International Economic Relations.”

12.05.2025

Prepared by:

/Prof. Dr. Ganna Zaharieva/

Заличена информация съгласно
ЗЗЛД и регламент (ЕС) 2016/ 679

OPINION

by Assoc. Prof. Dr. Valentina Grigorova Grigorova-Gencheva,
Department of Finance and Insurance, VUZF

on the dissertation for the award of the educational and scientific degree "Doctor"
in the Field of Higher Education 3. Social, Economic and Legal Sciences
Professional Field 3.8. Economics

Author: Gergana Kaloyanova, Varna University
Topic: "Impact of Brexit on Supply Chains in the UK"

1. General description of the submitted materials

For an opinion, I received a dissertation with a volume of 170 pages and an abstract with a volume of 46 pages, in Bulgarian, entitled "Impact of Brexit on the supply chains in the United Kingdom".
Scientific supervisor Prof. Dr. Vesselina Dimitrova.

By order of the rector of the University of Varna for determining the composition of the scientific jury No. RD 06-71/23.04.2025, I have been appointed as a member of the scientific jury for ensuring a procedure for defending a dissertation on the topic "Impact of Brexit on the supply chains in the United Kingdom" for acquiring the educational and scientific degree "doctor" in the Field of Higher Education 3. Social, Economic and Legal Sciences, Professional Direction 3.8. Economics. The author of the dissertation is Gergana Kaloyanova - a doctoral student in the doctoral program "World Economy and International Economic Relations" at the Department of "International Economic Relations".

The materials submitted by Gergana Kaloyanova include documents according to the presented list: autobiography, dissertation work and abstract in Bulgarian and English, as well as a declaration of the originality of the dissertation.

The doctoral student has attached a list and copies of her publications on the topic of the dissertation in non-refereed scientific publications.

2. Characteristics and evaluation of the dissertation work

Gergana Kaloyanova's dissertation work consists of an introduction, three chapters and a conclusion, a list of used literature and appendices. Its volume is 170 pages, of which 142 pages are the main text and 28 pages are the list of used sources and appendices. The text includes 14 figures and 40 tables. 9 Bulgarian and 198 foreign sources of information on the topic under consideration were used. The appendices contain a survey for an empirical study and 21 tables with data to it.

The dissertation uses quantitative and qualitative methods for collecting and analyzing data, providing a comprehensive approach to studying the problem. The author performs a documentary

and comparative analysis of official data, agreements, regulatory documents and opinions of experts in the field of supplies. The Fuzzy AHP method is also applied in the data analysis.

According to G. Kaloyanova, the limitations of the study are related to the influence of other factors that also affect supply chains in the UK, such as the Covid 19 pandemic and military operations in Ukraine. Taking these factors into account makes it difficult to more clearly define the consequences arising from the UK's departure from the EU. The doctoral student's studies cover the period 2016 - 2025 (the period from the referendum on UK membership in the EU until February 2025) and the territory of the UK, as the main research interest is focused on changes in domestic British supply chains.

In the first chapter, Kaloyanova outlines the theoretical framework, scope and features of supply chains. Already at the beginning of this part, she comments on publications by Bulgarian and foreign authors on the topic of the dissertation, analyzing the evolution of the concept of "supply chain" and introducing her own definition. The author rightly notes that "modern definitions of supply chains are more complex and encompass a wider range of aspects, including technology, resilience, flexibility and social responsibility". She examines in detail the nature, participants and structure of supply chains, devoting a particularly important place to the topic of the scope of strategic supply chain management and makes suggestions for optimization through "just in time" JIT chains and Lean Six Sigma methodology. At the end of this chapter, Kaloyanova formulates the main challenges and risks facing supply chains and their management in the context of the concept of a "resilient" supply chain.

Chapter two is dedicated to the challenges facing Britain's trade relations before and after Brexit and their impact on supply chains. The candidate examines possible Brexit scenarios and their effects on supply chains in the UK upon leaving the EU. Special attention is paid to the changes in them, as well as in the country's economy as a whole after the official exit from the EU in relation to: customs regime and tariffs, dependence on imported raw materials, regulatory inconsistencies and differences in standards, cybersecurity, data protection and the environment. In the last part of chapter two, Kaloyanova examines the effects of the UK's new immigration system on supply chains with an emphasis on labor shortages as a key consequence of the UK's exit from the EU.

In the third chapter, the author examines the Brexit factors of influence on supply chains in the UK through fuzzy AHP analysis. She presents the theoretical foundations and methodology of AHP and fuzzy AHP analysis as a combination of the classical analytic hierarchy process (AHP) and the theory of fuzzy sets for modeling uncertainty (Van Laarhoven and Pedrycz, 1983). Applying the

Fuzzy AHP methodology, Kaloyanova compares the opinions of experts in the field of supply chains in the UK (an author's questionnaire with 11 questions was sent to 18 professionals aged 27-42) on the factors of influence resulting from the country's exit from the European Union. The purpose of the analysis is to verify which factors related to Brexit have the strongest impact on supply chains in the UK, to provide recommendations for improving supply chains in the country and to propose adaptation strategies. The third chapter includes the most tables and diagrams, which present the values of the various elements of the analysis conducted and other data relevant to the topic of the scientific research.

In the conclusion of her research, Kaloyanova emphasizes that she achieves the set goals and objectives of the dissertation and successfully proves the thesis that Brexit has a significant impact on supply chains in the UK, expressed in increased operating costs, labor shortages, extended delivery times and complicated administrative procedures. Proving the thesis and applying the Fuzzy Analysis method emphasizes both the critical role that Brexit plays for the UK's trade relations with EU countries, and the urgent need for periodic analysis of the factors with the strongest impact on supply chains in the event of a crisis.

3. Contributions and significance of the work for science and practice

The topic of BREXIT and its impact on the economy, including the supply chain in the UK, is extremely relevant. Increasingly, researchers and entrepreneurs from different countries are examining the theory and practice of supply chains in the context of the COVID-19 pandemic and contemporary geopolitical and economic crises.

Gergana Kaloyanova formulates two theoretical and theoretical-applied contributions and two methodological and practical-applied contributions of her dissertation.

Theoretical and theoretical-applied contributions

1. As a result of the in-depth study and analysis of theoretical views on the nature and evolution of supply chains and their strategic management, author's views with a broader contemporary context have been defined. The author emphasizes the relationship between the resilience of supply chains in the face of negative events and the use of "just in time" JIT chains and Lean Six Sigma methodology in search of competitive advantages in supply chain management.
2. In an applied aspect, the candidate examines the situation before and after Brexit, the new immigration system and proves the effects on supply chains as a result of the new trade and cooperation agreement between the UK and the EU in terms of customs checks and tariffs; dependence on imported raw materials in the food, pharmaceutical and automotive sectors;

regulatory inconsistencies and potential divergence of standards; FDI and financial services and digital transformation, cybersecurity, data protection and the environment.

Methodological and practical contributions

1. The dissertation expands the scope of econometric methods used in the field of the relationship between supply chains and the effects of Brexit through fuzzy AHP analysis for ranking Brexit factors with an impact on supply chains in the UK.
2. As a result of the conducted empirical study, the dissertation provides professionals in the UK with specific proposals for decision-making in a crisis, namely proposals for dealing with the labor shortage as a consequence of the significant impact of the new rules for seasonal workers and the new visa points system and proposals for cost optimization and supply diversification as a consequence of the significant impact of increased production costs and administrative bureaucracy.

4. Assessment of publications on the dissertation work

The candidate's works contain original scientific and applied contributions that have received international recognition, some of which have been published in journals and proceedings of scientific conferences published by prestigious academic publishing houses. Gergana Kaloyanova has 4 (four) publications on the topic of the dissertation: scientific articles published in non-refereed scientific publications - 4, conference reports - 2. Three of the publications are in English.

5. Assessment of compliance with minimum national requirements

The documents and materials submitted by Gergana Kaloyanova meet the requirements(s) of the Act on the Development of the Academic Staff in the Republic of Bulgaria (ADSRB), the Regulations for the Implementation of the ADSRB and the relevant Regulations of VUZF for the Acquisition of the Educational and Scientific Degree "Doctor" in the Professional Field 3.8. Economics.

6. Abstract

The abstract is 46 pages long. It contains a description of the main characteristics of the dissertation work, including structure and content, relevance of the chosen topic, a summarized presentation of the dissertation and publications on the topic of the dissertation. The abstract of the dissertation work is prepared in accordance with the requirements adopted for similar types of scientific works. The abstract clearly states the research methods, problems and limitations of the dissertation work in the context of theoretical generalizations and solutions to major scientific or applied scientific

problems, in accordance with modern achievements in this field. Gergana Kaloyanova precisely formulates the subject and purpose, as well as the main hypothesis of her research. In conclusion, the main conclusions, recommendations and scientific and practical contributions of the dissertation work are presented.

A Declaration by Gergana Kaloyanova is also attached, in which the author declares the originality of her dissertation, the lack of infringement of the copyrights of other persons, and the complete absence of copied elements from her master's thesis.

7. Critical remarks and recommendations

Gergana Kaloyanova's dissertation has a number of merits, I have no specific remarks or recommendations. I would like to formulate the following question to the author:

How did the UK react to the disrupted supply chains after Brexit, cumulated with the effect of the COVID 19 pandemic, and did it finally overcome the difficulties?

Conclusion

The dissertation contains scientific, applied science and applied results that represent an original contribution to science and meet the requirements of the Act on the Development of Academic Staff in the Republic of Bulgaria (ADSRB) and the Regulations for the Implementation of the ADSRB. The presented materials and dissertation results comply with the specific requirements of the Regulations for the Admission and Training of Doctoral Students at the Higher School of Insurance and Finance.

The dissertation shows that the candidate Gergana Kaloyanova possesses theoretical knowledge and professional skills in Professional Field 3. 8. Economics, demonstrating qualities and skills for independent conduct of scientific research.

Due to the above, I confidently give my positive assessment of the conducted research, presented by the above-reviewed dissertation, abstract, achieved results and contributions, and I propose to the esteemed scientific jury to award the educational and scientific degree "doctor" to Gergana Kaloyanova in the Field of Higher Education 3. Social, Economic and Legal Sciences; Professional Field 3. 8. Economics.

05/14/2025

Reviewer: .

Заличена информация съгласно
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Assoc. Prof. Dr. Valentina Grigorova-Gencheva