

## OPINION

by Assoc. Prof. Stoyan Dimov Kirov, Ph.D.

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on a dissertation for the awarding of the educational and scientific degree "**Doctor**" in:

Field of Higher Education: 3. *Social, Economic and Legal Sciences*

Professional Field: 3.8. *Economics*

Doctoral Program: *Finance and Accounting*

**Author:** *Todor Slavchev Anev*

**Title:** *Financial and Economic Effects of Stimulating Climate-Neutral Growth*

**Scientific Supervisor:** *Prof. Stanimir Ivanov Kabaivanov, Ph.D., Plovdiv University*

### 1. General Overview of the Procedure and the Doctoral Candidate

By Order No. ПД-21-2369 dated December 19, 2024, issued by the Rector of Paisii Hilendarski University of Plovdiv, the academic jury has been appointed for the dissertation defense procedure on the topic "Financial and Economic Effects of Stimulating Climate-Neutral Growth", authored by Todor Anev, a full-time doctoral student in the Department of Finance and Accounting. The set of materials submitted by the doctoral candidate complies with Article 36 (1) of the Regulations for the Development of the Academic Staff at the university. All required documents, as stipulated in the regulations, have been provided. The doctoral candidate has submitted one journal study, one scientific article, and one conference paper. The documents *are complete and allow for an assessment of the candidate's readiness* for defense.

Todor Anev is a professional with extensive managerial experience in the corporate sector. Born in Bulgaria, he earned a bachelor's degree in Macroeconomics from the University of National and World Economy and later continued his education with a master's degree in Economic Modeling and Business Analysis at Plovdiv University. His career began as a Project Coordinator at Vestas Wind Systems (Varna), after which he relocated to Denmark, where he further developed his professional expertise as a Data Management Specialist in the maritime industry (A.P. Moller – MAERSK). Later, he joined the Danish division of UNICEF, initially as an Accountant and later as a Financial Manager. His practical experience, combined with his economic knowledge and analytical skills, enables him to approach research with a *comprehensive and multidisciplinary perspective*. He is fluent in English and Italian, which facilitates access to a wide range of academic and professional research sources.

## **2. Relevance of the Topic**

Stimulating climate-neutral growth is among the leading global challenges of the century. The development of effective mechanisms to address environmental challenges is crucial for achieving balanced growth, which minimizes the negative impact on the environment without compromising economic stability and social well-being. The introduction of regulations that limit carbon emissions and other pollutants creates the need for modeling and forecasting the effects of such interventions on national economies.

The present study analyzes the economic and financial effects of the transition to climate-neutral growth, examining the relationships between environmental constraints, value-added in key industries, and financial indicators in both the private and public sectors. The research is particularly relevant in the context of global efforts to achieve sustainable development and the necessity of balancing economic activity with environmental protection. It provides quantitative assessments of the impact of environmental regulations on the national economy, which is of critical importance for making informed managerial and policy decisions.

## **3. Understanding of the Problem**

The doctoral candidate demonstrates a profound understanding of the dissertation topic. In his research, he has reviewed 202 literary sources, encompassing both classical theoretical works and contemporary empirical studies on the subject. The dissertation *cites publications indexed in Scopus and Web of Science*, indicating the use of reliable scientific sources. The candidate references the works of Philippe Aghion and Peter Howitt, who are widely recognized researchers in the field of economic growth and innovation, incorporating their growth model into the analysis. The literature review is presented analytically, with the candidate systematizing existing approaches and evaluating their relevance to the research objectives.

Regarding quantitative methods, the doctoral candidate demonstrates a *high level of competence* in applying a range of methods and models of varying complexity. The study employs stochastic techniques and optimization algorithms. The quantitative approaches used in the dissertation are a logical extension of the knowledge acquired during the candidate's bachelor's and master's studies. The overall assessment is that the author *has a strong understanding of the problem and demonstrates an analytical approach* in evaluating literature sources and applying quantitative methods within the research framework.

## **4. Research Methodology**

The research methodology in the dissertation is based on quantitative analysis and mathematical modeling, providing an objective evaluation of the scientific questions under investigation. The approach includes the application of theoretical models of economic growth, statistical hypothesis testing, regression analysis, and Monte Carlo simulations. The data used in the study are structured

as chronological time series, allowing for a dynamic assessment of key macroeconomic and financial indicators. The analysis employs stochastic process techniques and stationary distribution calculations to ensure the reliability of the results. The methodological framework also incorporates calibration with financial instruments, such as Credit Default Swaps (CDS). Furthermore, mathematical modeling is used to identify optimal sectoral structures that could minimize the negative economic impacts of regulatory changes. The chosen methodology effectively supports the achievement of the research objectives and provides relevant answers to the scientific inquiries posed in the study.

## **5. Characteristics and Evaluation of the Dissertation and Its Contributions**

The dissertation is structured into two main chapters, along with an introduction and a conclusion. The first chapter is dedicated to the methodological foundations of the applied analytical tools, while the second chapter focuses on the empirical analysis. In fact, the empirical research *constitutes the core scientific contribution of the study*. This section applies quantitative methods, including econometric analysis, regression models, optimization techniques, and stochastic process analysis, making this part of the research both original and practically applicable. The data used in the analysis ensure a high degree of reliability.

The author identifies several key contributions, including an analysis of the impact of carbon constraints on the economy and an assessment of the potential for applying financial instruments to mitigate the effects of environmental regulations. These stated contributions *can be confirmed*. Indeed, the empirical section presents original quantitative assessments of the economic consequences of climate policies. The use of translogarithmic production functions and optimization models are classical scientific approaches, but their application in the context of climate-neutral growth gives them a contributory and innovative character.

The plagiarism check with Strike Plagiarism *did not detect any instances of plagiarism*. The only matches found relate to established scientific terms, mathematical models, and standard definitions. The dissertation constitutes an original scientific study that fully complies with academic standards.

## **6. Assessment of the Publications and the Doctoral Candidate's Personal Contribution**

The doctoral candidate is the author of three scientific publications, two of which are directly related to the dissertation and *present its main findings*. These publications apply methods such as linear programming and regression analysis, which align with the approaches used in the dissertation. This confirms that the publications reflect key aspects of the research. The third publication, although focusing on a different thematic area, is indirectly relevant to the research topic. The publications do not overlap with existing studies by other authors and include independently developed

quantitative analyses. The acceptance of these publications in peer-reviewed journals and conferences with editorial boards demonstrates their scientific value.

In all publications, the doctoral candidate *has made a significant personal contribution*, demonstrating a high level of scientific independence. The individual nature of the publications is indicative of his ability to understand and develop issues related to climate-neutral growth. The formulated scientific and applied contributions are entirely his own work, and the published studies present them in a well-argued and structured manner.

## **7. Dissertation Abstract**

The dissertation abstract has been prepared in accordance with academic requirements and presents the key findings of the research. It outlines the objectives, research hypotheses, and tasks, employing a comprehensive methodological approach that includes econometric models, statistical analyses, and optimization techniques. The abstract highlights the scientific contributions, including the modeling of the economic effects of climate-neutral growth and the development of financial restructuring tools for the economy. The conclusion confirms the achievement of the research objectives and hypotheses, emphasizing the practical and academic applicability of the results. The abstract is logically structured and accurately reflects the main scientific contributions of the dissertation. It is fully compliant with the standards for the preparation of such documents.

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

The dissertation provides *valuable quantitative analyses* that can be applied in the development of effective policies aimed at sustainable growth. The results have practical significance for legislative authorities, executive bodies, and regulators, supporting the adaptation of the economy to climate requirements.

The financial indicators used *are well-selected*, allowing for a quantitative analysis of the impact of environmental regulations on the economy. For even greater reliability, their scope could be expanded and diversified with additional indicators such as debt ratios, ROA, ROE, and others. An additional dimension in the research, based on business size, would also be valuable. Small and medium-sized enterprises (SMEs) often have limited resources to adapt to regulatory changes, putting them at a disadvantage compared to large corporations. Such a differentiation would enable the implementation of more targeted support mechanisms.

As the author himself acknowledges in his dissertation, the empirical tests could be expanded to cover a broader range of economic sectors. Additionally, this could be complemented by a comparative analysis between countries with different levels of environmental regulations. Regardless of the scope of the sectors examined, the dissertation *proves something highly applicable* — namely, that climate-neutral growth has *mixed effects*, with some specific industries benefiting while others lose out. However, with the right policies, losses can be minimized. In this context, is it possible

that some of the industries in Bulgaria currently considered “losers” in the transition could, in fact, emerge as winners?

The shared remarks do not diminish the quality of the dissertation but rather aim to stimulate discussion and will be valuable for the practical applicability of the research.

## CONCLUSION

The dissertation demonstrates that doctoral candidate Todor Anev possesses in-depth knowledge of the research topic and econometric skills, enabling him to conduct independent scientific research. This gives me full grounds *to provide a positive assessment* of his research presented in the dissertation (summarized in the abstract) and *to recommend that* the esteemed academic jury award Todor Anev the educational and scientific degree of "Doctor" in the field of higher education: 3. „Social, Economic and Legal Sciences“, professional field 3.8 „Economics“, doctoral program "Finance and Accounting.".

3.02.2024

Prepared by: ...../n/.....

(Signature)

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