

# OPINION

**By:** *Associate-professor Dr Stela Stoyanova Raleva*

Faculty of Economics and Business Administration, Sofia University „St. Kliment Ohridski“

Professional field 3.8. Economics

Academic specialty „Political economy”

**Regarding:** contest for associate-professor at Sofia University „St. Kliment Ohridski“ on professional field 3.8 Economics (Statistics, Econometrics and Economic Modelling - in Bulgarian and in English), promulgated in State Gazette, issue 30 of 15 April 2022.

**Grounds for the submission of the opinion:** member of the scientific panel for the contest for associate-professor to meet the needs of the Faculty of Economics and Business Administration of SU pursuant to Order № RD-38-277/6 June 2022 of the Rector of Sofia University.

**Participant in the contest:** *Dr. Andrey Andreev Vassilev*

## **1. Information about the candidate**

Dr Andrey Vasilev holds a master’s degree in International Economic Relations from the University of National and World Economy and Applied Mathematics (Specialization in Applied Statistics) from Sofia University “St. Kliment Ohridski”. In 2008 he acquired educational and scientific degree „doctor” in the area of study „Mathematical Modelling and Application of Mathematics” at SU. From 1999 to 2003 he worked consecutively as an expert, senior expert, chief expert and head of the department „Macroeconomic Modelling and Politics” at the Agency for Economic Analyses and Forecasting. From 2001 to 2002 he worked as an analyst for Raiffeisenbank. From 2003 to 2018 he was head of the department „Macroeconomic Studies” at the Bulgarian National Bank. Later he was head of the „Research and Development” section at DILL Ventures Ltd. and DILL Analytics Ltd. He has an extensive experience as a part-time lecturer at the Faculty of Mathematics and Informatics and the Faculty of Economics and Business Administration at SU. He has participated in 5 international and 8 scientific and applied projects. He speaks English, French and Russian. He uses a number of specialized software products. He is a member of the Bulgarian

Macroeconomic Association and between 2016 and 2017 he was vice chairman of the Managing board.

## **2. Fulfillment of the requirements for taking the academic position**

Dr Andrey Vasilev has submitted a reference for the fulfillment of the national minimal requirements pursuant to art. 2b of the Law for the Development of the Academic Staff in the Republic of Bulgaria and the appendix to art. 1a, para. 1 from the Rules for the Implementation of the LDASRB where all necessary evidence is provided. He participates in the contest with 34 publications, including one individual monograph (habilitation work); second monograph in co-authorship; 5 articles and 2 papers in co-authorship, published in journals and topical collections, refereed and indexed in Scopus; 13 studies, 3 articles and 8 papers from conferences, written in co-authorship and published in non-refereed journals with scientific review or in edited collective volumes. His habilitation work „Strategic Trade Models under Protectionist Policy” fully matches the subject matter of the contest, which complies with the respective indicator of the national requirements. The number and types of the remaining publications, their volume and the individual participation of the applicant considerably exceed the minimum of the indicators in group G. A list containing 17 citations is submitted, including 2 in scientific editions, refereed and indexed in world-famous data bases with scientific works which provides for compliance with the indicators in group D of the national requirements. 26 of the publications are in English, with the majority of them being published abroad. In their totality, they correspond to the profile of the contest and illustrate the candidate’s recognition by the academia.

## **3. Assessment of the teaching and methodological performance**

The candidate in the contest started his teaching career at SU in 2003 and he is still teaching there. During this nineteen-year long period he has delivered lectures in Econometrics, Macroeconomics I and Macroeconomics II at the Faculty of Mathematics and Informatics, Applied economic modelling with Python, Applied econometrics II, Macroeconomic modelling and Microeconomic modelling taught in English in the Faculty of Economics and Business Administration of SU. He was a scientific supervisor for two postgraduate theses in masters’ programmes „Mathematical modelling in economics” and „Applied econometrics and economic modelling” at the two faculties.

The teaching of the subjects given above and the learning of the content taught is further supported with the developed teaching and methodological materials which are presented in the Reference for additional indicators under article 112, para. 2 of the Rules and regulations for the terms and conditions for the acquisition of scientific levels and the taking of academic posts at SU „St. Kliment Ohridski”. A result of the long-term accumulated teaching experience is the textbook published in co-authorship „Introduction to macroeconomics” which features an innovative structure and provides skillful combination of basic concepts and formal dependencies which are presented in a comprehensible way.

#### **4. Assessment of the submitted research materials**

The most important among the publications submitted for the contest is the individual monograph „Strategic Trade Models under Protectionist Policy” (№33). The author presents an in-depth analysis of the models of trade relations with game theory element included. The monograph presents a description of a model construction from the theory of international trade with strategic interrelation and the theory of the industrial organization with a small number of buyers and draws a comparison with the traditional smaller and larger dynamic models of international trade. It examines a dynamic model of trade between two countries with full and partial protection of the local consumer and in both cases the existence of Nash equilibria is proven and the structure of that equilibrium is described. The dynamics in the first case is introduced through the changes in prices in discrete and continuous time, presented as dependent on the availability of unsold quantities of goods and unspent domestic financial resources, whereas in the second case, which is limited to discrete time the equilibrium achieved is applied to the selected mechanisms for price correction on the basis of number of simulations. What is interesting here are the presented extensions of the constructed models through: adding a stochastic element, more regions and introducing manufacturers as well as their outlined specifics against the classical economic models. The monograph is a study, conducted independently and fully by the author, of important economic dependencies and in that sense has the characteristics of a classical habilitation work. In synthesis, some of the discussed and relevant issues are analyzed in publications №2, №4, №20 and №22-23.

The second group of publications is the largest and is related to macroeconomic modelling. In some of them - №1, №9, №12 and №14, the behavior of a small open economy based on the example of Bulgaria is studied and a dynamic model of general equilibrium under a currency board

is constructed, the role of fiscal rules is outlined, the GDP determinants in the interrelations between different monetary unions are presented and the setting up of an equilibrium exchange rate is discussed. In publications №15-16, №19, №25-27 and №34 a factor analysis is conducted and a framework for forecasting labour demand and supply in Bulgaria is developed, the disparity between them is explained, the impact of the active policy on this market is analyzed and the Phillips curve is characterized. Publications №17, №21 and №24 present software applications of the small open economy model, the Solow model and the IS-LM model, while №29 and №31-32 offer evaluation of different policies at EU level based on calculable general equilibrium model.

The third group of publications - №5-8 and №10, are in the area of space economy and study the optimal behavior of the economic agent in the process of making decisions regarding consumption and saving and complementing them with decisions concerning moving in space when allocating the salary with a single maximum.

The last set of issues included in the publications related to the contest concern the development of a specialized set of tools for modelling (№11, №13, №28 and №30). These papers study the solution of dynamic optimization problems, review the use of multi-agent systems in macroeconomics and finance and focuses on the economic application of the reaction networks theory.

## **5. Major scientific and applied contributions**

The main contributions and results included in the publications of Dr Andrey Vassilev can be summarized in the following way:

*First:* The presented author's systematization of the existing research into the application of game theory in international trade and the market structures models with a limited number of buyers and the outlined areas in the dynamic modelling of international trade.

*Second:* The construction of trade models when there is strategic interaction with microeconomic interpretation, orientation mostly towards the goods market and when there is lack of market power of the consumers.

*Third:* The specific way of dynamizing trade models which is expressed in the perception of the dynamics in behavior context, the dependency of price dynamics on the behavior only of consumers, as well as the formulated conclusion that the evolution of prices in discrete and continuous time depends on the selected form of the dynamic aspect of the model.

*Fourth:* The creation of a dynamic stochastic model of small open economy with a currency board, the adjustment of its parameters and the study of the expected response of the economy to exogenous shocks.

*Fifth:* Modelling fiscal policy through included fiscal rules, setting up aggregate production as a function of domestic and international prices and the exchange rate and the development of a basic dynamic model for setting the equilibrium trajectory of the nominal exchange rate.

*Sixth:* The developed modular framework for making medium- and long-term forecasts for labour demand and labour supply in different structural planes, the development of a macroeconomic model with microeconomic foundations for the evaluation of the net effects of the labour market policy, modelling the decision to participate in the labour market with statistical and machine learning methods and the dependencies of the Philips curve type and the efficiency of the labour market, which are evaluated using econometrics.

*Seventh:* The presented software applications of a simplified model of a small open economy with added risk premium, the Solow model with high applicability in the educational process and of the IS-LM model allowing for an interactive study of the effects of macroeconomic policy.

*Eighth:* The studied variants of a model of optimal special behavior of an economic agent in discrete and continuous time and with one-dimensional and two-dimensional space.

*Ninth:* The developed specialized technical set of tools based on the graphs and reaction networks theories, the methods for solving tasks for optimal control in discrete time with an infinite horizon and the multi-agent systems and the disclosure of their application in macroeconomic and financial modelling.

## **6. Personal impressions**

I gained personal impressions about Dr Andrey Vasilev at the time he was a student at UNWE. Even as a student he demonstrated excellent theoretical knowledge and clearly expressed fondness for analytical activity. These impressions of mine were later confirmed with my observations of his work at the BNB where he illustrated his skills of a thorough researcher with considerable contribution to the econometric models developed by the bank and the macroeconomic analyses and forecasting conducted in the bank.

## **7. Critical remarks and recommendations**

I do not have any critical remarks concerning the content of the work presented by the candidate. I would like to recommend that he should expand his contacts with representatives of academic institutions in the country and abroad, by conducting international research or teaching mobility included.

## **Conclusion**

On the basis of the significant publication activity of Dr Andrey Vassilev, on his undoubted scientific results and contributions, his long teaching experience, his theoretical and methodological expertise, and his intensive work on science and science and applied projects, I think he is an appropriate candidate for the called contest. Taking into consideration the abovementioned and the fact that he fully meets the requirements of the the Law for the Development of the Academic Staff in the Republic of Bulgaria, and of the Rules and regulations for the terms and conditions for the acquisition of scientific levels and the taking of academic posts at SU Saint Kliment Ohridski, I am fully convinced to recommend that the members of the scientific panel should vote in favor of his appointment as associate professor.

25 August 2022

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(Assoc. prof. Stela Raleva, PhD)