REVIEW

By Prof. Tsvetana Aleksandrova Stoyanova, PhD, Management Department, University of National and World Economy (UNWE), Sofia, higher education area Social Management, professional field 3.7 Administration and Management, of the scholarly works for participation in a competition for the academic position of Associate Professor, in professional field 3.7 Administration and Management (Quantitative Methods in Management), announced in the State Gazette, issue 95, dated 8 November, 2024, with Chief Assistant Professor Ekaterina Rumenova Tsvetanova-Georgieva, PhD, as the sole candidate

I. Evaluation of the compliance with the minimum national requirements and the requirements of the New Bulgarian University

The competition for Associate Professor in professional field 3.7 Administration and Management (Quantitative Methods in Management) was announced in strict compliance with the established legal procedures, for the needs of the Administration and Management Department at New Bulgarian University.

Only one candidate, Chief Assistant Professor Ekaterina Rumenova Tsvetanova-Georgieva, PhD, is participating in the competition.

The documentation submitted for the competition meets the requirements stipulated in the Development of Academic Staff in the Republic of Bulgaria Act (Article 2b) and the Regulation on the Implementation of the Development of Academic Staff in the Republic of Bulgaria Act (Article 1a, subparagraph 1), as well as the requirements of NBU, as outlined in the Regulation on the Development of the Academic Staff at NBU.

For participation in the competition for the academic position of Associate Professor, Chief Assist. Prof. Ekaterina Rumenova Tsvetanova-Georgieva, PhD, has submitted a self-assessment report and evidential materials, which are in full compliance with the provisions of the national legislation and the normative documents of the NBU. The candidate has fulfilled the minimum requirements for scientific and teaching activity for higher education area 3. Social, Economic and Legal Sciences, professional field 3.7. Administration and Management, as defined by the Regulations on the Implementation of the Development of Academic Staff in the Republic of Bulgaria Act, as well as the requirements of the Regulation on the Development of Academic Staff at NBU, which candidates for the academic position of Associate Professor must meet.

For each indicator group, the candidate has provided sufficient evidence to confirm the following scores:

- Indicator group A "Dissertation for awarding the educational and scientific degree of Doctor"

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– 50 points (required: 50 points);

- Indicator group C "Habilitation work – monograph" – 100 points (required: 100 points);
- Indicator group D "Additional scientific publications" – 246.13 points (required: 200 points);
- Indicator group E "Citations in monographs and collective volumes with scientific peer review and in non-refereed journals with scientific peer review" – 120 points (required: 50 points).
- Indicator Group G – 70 points (required: 50 points);
- Indicator Group H– 100 points (required: 70 points);
- Indicator Group I – 80 points (required: 50 points).

Additionally, the requirements for internal NBU candidates, as defined in Annex 2 of the Regulation on the Development of Academic Staff at NBU, have also been met, as follows:

- Indicator Group G – 70 points (required: 50 points);
- Indicator Group H– 100 points (required: 70 points);
- Indicator Group I – 80 points (required: 50 points).

II. Research (creative) activities and results

1. *Evaluation of the monographic work, creative accomplishments, or other publications equivalent in scope and comprehensiveness to a monographic work, including evaluation of the scientific and applied contributions of the author*

The habilitation work submitted for the competition by the candidate Chief Assist. Prof. Ekaterina Rumenova Tsvetanova-Georgieva, PhD, is entitled "Health Status Indices of the Population in Bulgaria: Can Social Progress Preserve More Lives than Medicine?", Sofia, NBU, 2024, ISBN 978-619-233-320-1. The reviewers of the book are Assoc. Prof. Ivan Kostov, PhD, and Prof. Hristo Hinkov, PhD, and Prof. Kristiyan Hadzhiev, PhD, served as the editor.

Thematically, the monograph is divided into five chapters. The first chapter provides a systematic analysis of currently existing conceptual models for health status evaluation. The analysis, which covers publications from 1960 to 2024, allows for trends to be established and significant gaps in the representation of health status evaluation approaches to be identified. A lack of quality published information related to the technical construction of health status assessment models was ascertained. Based on the analysis conducted, it was concluded that the health status index is one of the best assessment tools that is easy to interpret, intuitive, and can reach a wider audience.

Chapter two examines the key health indicators describing health factors and health status. Health behaviors, clinical care, socioeconomic and physical environment are identified as such. Indicators describing the current health status of the population in Bulgaria such as premature mortality, average life expectancy, etc. are also analyzed. Their analysis highlights the need to take action in order to improve the health status of the population across the country, measures such as reducing smoking, improving services related to preventive and prophylactic clinical care, and improving air quality, among others.

The third chapter presents a complex methodology for constructing an index of the health status of the population in Bulgaria at the level of administrative districts. The chosen approach is based on best practices in the construction of composite indices. A methodology that covers four main stages has been developed:

- construction of a panel dataset on the basis of which a health status index is created;
- selection of a method for estimating health indicator weights - linear regression and principal component analysis;
- choice of indicator aggregation method - linear aggregation, geometric aggregation and the Borda method—used for a model where no weights need to be assigned to rank the domains;
- sensitivity analysis which allows to confirm that the health status index chosen out of several possible indices is the one that provides the most accurate and robust results.

Chapter 4 traces the process of constructing the first index for assessing the health status of the population in Bulgaria. Information on 53 health indicators for the 28 administrative districts for the 2010 to 2022 period was collected and processed. The data were transformed so that all indicators follow one direction, and the closer to one the indicator is, the better it is for public health.

To identify statistically significant indicators and their contribution to health status, an iterative process was used with two statistical methods - principal components analysis and linear regression, and Cronbach's alpha reliability analysis of the included indicators. Seventeen statistically significant health indicators were extracted and their contribution assessed. The resulting averaged weights were used to determine the contribution of each of the four health factors: health behavior – 30%; clinical care – 20%; socioeconomic environment – 40%; and physical environment – 10%.

The health status index includes health indicators that have different impacts. The author points out that the indicators that have the greatest impact on the health status, by increasing the likelihood of its deterioration, are adult smoking (10%), adult obesity (7%), adolescent pregnancies (7%), unemployment (7%), poor diet (6%), and youth who are neither in school nor employed (6%). When aggregating the data for the health indicators, the author applied linear and geometric aggregation, as well as aggregation using the Borda count.

Chapter 5 features the results of the ranking of Bulgarian districts according to the health status index. The analysis thereof shows a general increase in the health status of the population in Bulgaria. The district of Sofia-city ranks the highest with a significant lead over other districts during the whole period from 2011 to 2023. The largest variations in the ranking over the years are from the second to the seventh position - the districts of Varna, Ruse, Haskovo, and Veliko Tarnovo replaced Gabrovo, Plovdiv and Dobrich due to a significant behavioral shift in the population in the respective districts. The administrative districts are divided into four groups based on the health status score. Analyzing the latter thus allows to derive recommendations for taking measures to improve the health status of the population in them.

The above analysis of the presented monographic work allows us to outline the following contributions:

- A comprehensive study of the health status of the Bulgarian population and the factors on which it depends has been conducted.
- An index of the health status of the Bulgarian population has been constructed on the basis of different statistical methods. The results obtained are statistically significant, which is a key success for the applied methodology.
- The state of the health status at district level is analyzed and policy recommendations are made for groups of districts.
- Reasoned suggestions are made for the collection of additional statistical data that are needed to obtain even more reliable assessment of the health status of the Bulgarian population.

2. *Evaluation of contributions in the other attached publications (creative accomplishments) made after the appointment to the academic position of Chief Assistant Professor*

The research interests of Chief Assist. Prof. Ekaterina Rumenova Tsvetanova-Georgieva, PhD, fall within the field of application of quantitative methods in management. The candidate for this competition has presented the results of her research at various national and international conferences and scientific and practical forums—7 national and 11 international within the last five years.

In addition to the habilitation work for participation in the competition for Associate Professor, Chief Assist. Prof. Ekaterina Rumenova Tsvetanova-Georgieva, PhD, has also submitted the following publications:

- Articles and reports in non-refereed publications with scientific peer review or editing of scientific volumes (Indicator D-7) − 26 items;
- Studies published in scientific journals, refereed and indexed in globally recognized databases of scientific information (Indicator D-8) − 2 items;
- Studies in non-refereed publications with scientific peer review (Indicator D-9) − 2 items.

These publications do not overlap with the ones submitted by the applicant for obtaining her PhD degree and for holding the academic position of Chief Assistant Professor. I am not aware of any proof of plagiarism in the scientific work of the candidate to have been legally established.

The content analysis of the scientific production presented by the candidate for the position of Associate Professor shows that it is within the field of the announced competition, that it is up-to-date and significant for science, practice and education. The publications relate to the study of a wide range of issues. The scientific and applied contributions in these publications are related to the following:

- Development of a model for predicting the risk of insolvency of Bulgarian privately-owned companies; Publications in Group D, indicator 7, items 1 and 2 printed in non-refereed

publications and 1 study in a publication that is refereed in SCOPUS - Q2 (Group D, indicator 8, item 1);

- Development of a model for assessing the credibility of polling agencies − 8 articles published independently and jointly in non-refereed journals in (Group D, indicator 7, items 14-21);
- Application of quantitative methods for solving macroeconomic problems such as estimation of price elasticity of fuel consumption, GARCH models and Monte Carlo simulations for estimation of currency pairs, price elasticity of goods in the consumer basket of Bulgaria, 2 articles (group D, indicator 7, items 7 and 8) and one study (group D, indicator 9, item 2) were published;
- The analysis of the macro environment and changes in the way companies are managed by assessing the potential impact of the development of artificial intelligence on corporate governance and in particular human resource management (Group D, indicator 7, item 4) and analysis of corporate practices in a turbulent environment - COVID-19 (Group D, indicator 7, items 5 and 6).

I believe that the presented scientific production is of high scientific quality, presented in reputable publications and accessible to a wider audience. The subject matter addresses specific issues of science and practice and has contemporary scientific and applied relevance.

3. Citations by other authors

The publications of Chief Assist. Prof. Ekaterina Rumenova Tsvetanova-Georgieva, PhD, have been cited in the research conducted by other researchers (19 citations), which is a testimonial for the positive reception of her theses and the results of her research.

One article is cited in scientific publications, refereed and indexed in internationally recognized databases of scientific information or in monographs and collective volumes. Three articles have been cited in monographs or collective volumes with scientific peer review, while 15 others in non-refereed journals with scientific peer review.

The required number of citations is verified by a summary report provided by the applicant for the competition. The candidate fully meets all requirements under this criterion.

III. Educational and teaching activity

The candidate Dr. Tsvetanova was awarded a PhD in Business Administration in 2018. Since 2019 she has been Chief Assistant Professor in professional field 3.7 Administration and Management (Quantitative Methods in Management) at New Bulgarian University. The candidate began her teaching career in 2015 as a full-time PhD student on a scholarship at NBU.

1. Teaching and extracurricular workload, engagement in "MOODLE – NBU" e-learning module, ensuring student internships and placements, work with students and doctoral candidates

Dr. Tsvetanova's teaching and extracurricular workload encompasses courses, not only for

Bachelor's degree programs, but also for Master's degree programs, both in full-time and distance learning modes. The disciplines that she teaches cover management of corporate risks, quantitative methods in management, economic foundations of management, fundamentals of microeconomics, and modern economics. She is also actively involved in teaching in the joint programs between NBU and York University: *Business Statistics* (Bachelor's degree) and *Econometrics for Finance* (Master's degree).

The courses taught by Dr. Tsvetanova-Georgieva are provided with teaching content in accordance with NBU's Standard for e-learning. It includes study texts, presentations, case studies, databases, exercises, links to online resources, which are updated annually based on development of the academic discipline, student feedback and participation, as well as departmental publications and projects.

Dr. Tsvetanova is actively involved in creating opportunities for student internships, both by organizing practical trainings for students that is not part of the curriculum, and in her administrative capacity at NBU, by organizing events like the Sofia Business School and the Management Academy, involving students in NBU projects. She has also been instrumental in organizing forums aimed at the practical training of NBU students, such as the Vienna Economic Forum and All About Economy Film Days.

In the last five years, the applicant has supervised the work of 20 graduands who successfully defended their diploma theses, reviewed 26 diploma theses, and participated in state examination boards and/or diploma theses defenses of 101 graduands.

2. *Student feedback ratings*

As it is evident from the report of the Centre for Quality Assurance and Assessment, Dr. Tsvetanova's teaching performance was rated Excellent 4.56, the maximum rating being 5.00, which is an increase compared to the data submitted in the procedure for Chief Assistant Professor. The students' evaluation attests to her expertise, competence and teaching skills.

IV. Administrative and public service

1. *Participation in collective governing bodies at NBU*

The candidate has gained administrative and managerial experience at NBU since 2017. Until June 2021 she was program consultant for Business Management and Entrepreneurship Bachelor's degree program. From July 2021 until September 2024, she was director of the School for Professional and Continuing Education at NBU where she was in charge of organizing continuing education at the university. Since 1 July 2024, she has served as Dean of the School of General Studies at NBU and member of the Faculty Council of the Law department. She has served as member of the Program Council and is currently serving as Department Council member of the Administration and Management Department, as well as member of the Rector's Council and the Academic Council of NBU.

2. Public Service

Throughout her career development, the candidate has served as a macroeconomic analyst (2014) and consultant at ASTOR BG—a company for management consulting (2015-2017). Dr. Tsvetanova's membership in the Center for Risk Analysis and Management at NBU (2013-2019) enabled her to further broaden her experience in applying quantitative methods in management both at company level and at the sector and state level. As part of her project activity, aimed at applying quantitative methods in agribusiness management, she is currently a member of EGU—Europea Geoscience Union (2024).

V. Personal impressions of the candidate (if any)

I have no personal impressions of the candidate, but the competition submissions give a positive impression of her work.

VI. Opinions, recommendations and comments on the performance and accomplishments of the candidate

I have no critical remarks on the materials presented by Chief Assist. Prof. Dr. Ekaterina Tsvetanova, PhD. I recommend she continue her research by using different quantitative methods to solve problems both at the administrative level for a given company or groups of companies, and at the macroeconomic and political level.

I believe that the candidate undoubtedly has the potential to participate in research projects in the European scientific space and the knowledge to extend her research in the field of heuristic methods.

Conclusion

The application of **Chief Assistant Professor Ekaterina Rumenova Tsvetanova-Georgieve, PhD**, for the academic position of Associate Professor, fully aligns with the requirements of the Development of Academic Staff in the Republic of Bulgaria Act, the Regulation on the Implementation of the Development of Academic Staff in the Republic of Bulgaria Act, as well as the requirements of the NBU's Regulation on the Implementation of the Development of Academic Staff in the Republic of Bulgaria Act. The candidate's scientific publications for the competition contain important theoretical, methodological, practical, and applied contributions, which are the product of her personal scholarly pursuits and further develop management science.

On these grounds, I convey my positive assessment of the submitted candidature and declare that I will strongly support the appointment of Chief Assist. Prof. Ekaterina Tsvetanova, PhD, to the academic position of Associate Professor at NBU, in professional field 3.7 Administration and Management (Quantitative Methods in Management), and I propose that her selection be confirmed by the Academic Council of NBU.

Dated 10 February, 2025   Signature ……………
                                                             /Prof. Tsvetana Stoyanova, PhD/

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