

EVALUATION REVIEW

On the procedure for obtaining the degree of "Doctor" at the D. A. Tsenov Academy of Economics – Svishtov, in the Professional Field (PF) 3.8 "Economics", scientific specialty "Statistics and Demography"

Reviewer: Prof. Dr. Venelin Nikolaev Boshnakov

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Author of the dissertation: Diana Ivanova Markova

Theme of the dissertation: "Statistical Study of Demographic Processes in Bulgaria – Regional Aspects"

I. General overview of submitted dissertation.

The submitted thesis has a total volume of 222 pages, of which 173 pages of main text. The dissertation consists of an introduction, three chapters, a conclusion, a list of 206 references (of which 173 specialized sources in Cyrillic and 33 in Latin) and appendices. The work contains 20 tables and 21 figures, and a declaration of originality of the contents of the thesis is included.

The subject of the dissertation is the demographic processes in Bulgaria in regional aspect and the subject limits the topic to the regional disparities and trends in the development of these processes. The temporal scope of the study is defined in the limiting conditions, namely the period from 2000 to 2021.

The defined subject and object of the dissertation directly correspond to its main objective, namely to carry out a methodological and empirical study of the state and development of demographic processes in Bulgaria for the period 2000-2021 at national and regional level, identifying the tendencies and revealing the factor influences on these processes. The main methodology of the study includes statistical methods for time series analysis and forecasting, as well as econometric modelling with time series.

To achieve the objective, six research tasks have been formulated and the necessary evidence for their accomplishment is provided throughout the dissertation. According to the main research thesis, Bulgarian regions differ in the status and dynamics of demographic

processes, and the divergence intensifies under the influence of demographic and socio-economic factors.

II. Statement on the form and content of the dissertation.

1) Relevance and elaboration of the research problem.

Undoubtedly, the relevance of the researched problem stems from the constantly high role and importance of population reproduction and the provision of human resources, without which the modern European economy and society is unthinkable. An important point here is the search for useful information of an analytical nature to support the rationale and decision-making on demographic policy in Bulgaria, especially in its regional aspects. It is important to bear in mind that heterogeneous regional effects exacerbate different inequalities, posing specific problems whose solution requires adequate information provision. The research of the status and dynamics of demographic processes in Bulgaria implies the use of the potential of statistical methodology to provide reliable and up-to-date information that supports the processes of analysis of regional imbalances and disparities.

I believe that the chosen topic has the potential to support the implementation of regional demographic policies, as far as an appropriate research approach has been chosen. The thesis content shows that the PhD student is well informed about different research approaches to the study of demographic processes in Bulgaria and the key statistical indicators of the status and dynamics of these processes. A considerable range of relevant Bulgarian and foreign specialised literature sources have been studied, and by their systematization the author demonstrates her own attitude to the issues under study.

2) Language, scope, tools and illustrative material used

The overall impression of the thesis is very good, with a clear style of exposition, correct terminology and adequate conceptual apparatus. The volume of the thesis meets the usual requirements for such a scientific work. The methodology proposed for utilization provides opportunities to estimate patterns of secular trend and to derive extrapolation forecasts for indicators, as well as to conduct regional comparative analysis. Classical methods of time series analysis are chosen in cases where long series are not available. Evidence of correctly performed diagnostic tests is presented to validate the empirical results obtained.

Appropriate tables and relevant graphical representations are used to illustrate the nature of the time series dynamics under study. The content of the dissertation undoubtedly testifies to the knowledge and skills acquired by the PhD student to conduct independent applied research and obtain useful analytical results.

3) Extended abstract, publications to the dissertation, and compliance with the rules of scientific ethics

The submitted abstract is of optimal length and structure, reflecting the main aspects of the thesis to the required extent, as well as the results obtained therein. Five scientific publications are attached to the dissertation, of which four self-authored, including one extended article, three articles in specialized journals, and one paper presented in a scientific forum. These publications substantially reflect the achievements of the dissertation, meeting the minimum scientific requirements for a PhD thesis in Scientific Area "3. Social, economic and legal sciences". No unacceptable violations of the usual rules of scientific ethics were observed.

III. Scientific and applied contributions.

I would distinguish the following main scientific and applied contributions achieved in the dissertation:

- On the basis of a systematic analysis of specialized literature on the topic, five main problem areas have been identified for a comprehensive study of the regional aspects of demographic processes, namely: population marriage rate; reproductive behavior and population reproduction; population aging; population mortality; migration processes.

- On the basis of a critical analysis of causal relationships, three groups of main factors of population dynamics are distinguished - purely demographic, socio-economic, and socio-psychological; the effects of specific impact of selected variables out of the different groups of factors are empirically measured.

- Through the application of selected statistical methods, the existence of persistent regional disparities and trends in the dynamics of fertility and mortality, the deepening disparities in the patterns of migration processes dynamics, as well as the structures of migrated persons is demonstrated.

The paper contains new and up-to-date empirical results that reflect significant aspects of the dynamics of demographic processes in Bulgaria. The results, obtained in particular for

its individual regions, are of certain relevance for the analysis and justification of regional development policies.

IV. Critical remarks, questions and recommendations

I have two questions for the dissertation:

1) What is the purpose of including the c^* component in equation (1.20) and what conclusion can be drawn if the null hypothesis is rejected in the significance test of the coefficient "c"?

2) Is it possible to find at least one additional factor variable that is specific in terms of a given dependent variable in the models presented in Section 3.4 "Factor influences on demographic processes at national and regional level", taking into account the effects of the same set of independent variables (GDP per capita, age dependency ratio, employment rate, and average gross wage of employees).

I would recommend that the dissertation author deepens her research in the area of demographic dynamics by extending and deepening the causal analysis approach adopted at the end of the dissertation. There is also a certain potential for research on internal migration flows arising from imbalances in the socio-economic development of Bulgarian regions.

V. Summary conclusion and opinion

On the basis of the above assessment of the submitted dissertation, I can say that the requirements of the Law on Academic Staff Development in the Republic of Bulgaria (Article 6), the Regulation on the Application of LASDRB, and the Regulation on the Application of LASD at the D. A. Tsenov Academy of Economics - Svishtov regarding the award of the PhD degree have been met. My evaluation the dissertation is **positive** and I propose the Scientific Jury to award Diana Ivanova Markova the degree of "Doctor" in PF 3.8 "Economics", scientific specialty "Statistics and Demography".

07.03.2024

Sofia

Signature:

/ Prof. Dr. Venelin Boshnakov /