

REVIEW STATEMENT

written by a member of a scientific jury,
for the acquisition of an educational and scientific degree "doctor"
in "D. A. Tsenov" Academy of Economics - Svishtov

The statement was prepared by associate professor Plamen Petkov, PhD

Author of the dissertation: Diana Ivanova Markova

Topic of the dissertation: Statistical study of demographic processes in Bulgaria - regional aspects

I. General presentation of the dissertation.

This statement was prepared as a result of participation in the composition of the scientific jury for the defense of the dissertation according to Order No. 76/09.02.2024 of the Rector of the "D. A. Tsenov" Academy of Economics. The presented dissertation work on the topic "Statistical study of demographic processes in Bulgaria - regional aspects" with author Diana Ivanova Markova is in a volume of 222 pages, of which 173 pages are pure text, one page is with a Declaration of originality, 16 pages are with bibliographic reference and 32 pages are included appendices presenting the initial data subjected to statistical analysis as well as the main results of the empirical study. The dissertation is characterized by a logical connection between the individual components, combined with the necessary balance and a smooth transition between them. Structurally, it consists of a table of contents, an introduction, three chapters, a conclusion, a statement of originality, a list of cited literature, and appendices.

In the introduction, the rationale for the relevance and significance of the changes in demographic processes occurring in Bulgaria over the last two decades is presented, some main publications in the Bulgarian literature on the discussed issues are presented and the object, the subject, the research thesis, the aim and the tasks are defined, the main information sources that were used to implement the empirical part of the dissertation, the software products used, and the restrictive conditions that accompany the current development are derived. The title is formulated correctly and clearly directs the reader to the issues that will be discussed in the present work - what is the essence of demographic processes in Bulgaria, what are the main information sources for monitoring the state and dynamics of demographic processes and what are their regional dimensions. The answers to these questions are completely satisfactory and presented correctly.

II. Assessment of the form and content of the dissertation.

The discussed issue is undoubtedly more than topical. The problems related to the ongoing demographic processes are well-known and are becoming more and more serious - a high degree of external migration, the tendency of the population to seek a living in large cities and especially in the capital, aging of the population and the related increase in mortality rates while constantly decreasing of the birth rate.

The object of research is the demographic processes in Bulgaria in a regional aspect for the period 2000-2021, and the subject of research is directly related to the study of regional differences and regularities in the development of demographic processes in Bulgaria. With the raised research thesis, it is claimed that there are differences between the regions of the country in terms of the state and dynamics of demographic processes, and these

differences deepen under the influence of demographic and socio-economic factors. The main goal of the dissertation is to substantiate a theoretical, methodological and empirical study of the state and development of demographic processes in Bulgaria for the period 2000-2021 at the national and regional level, as well as establishing regularities and estimating factor influences on demographic processes. To specify the goal, 6 research tasks have been set, 2 of which are of a theoretical-methodological nature, and 4 are with a practical-applied nature. With a theoretical-methodological focus are the tasks related to clarifying the essence of demographic processes and systematizing the factors influencing them and presenting the sources of information for statistical research of demographic processes. The practical-applied tasks are associated with tracking the state, dynamics and regional differences in birth and death rates, with establishing the main trends, regional features and differences in migration processes, with revealing and modeling the factor influences on birth and death rates, as well as with the development of short-term forecasts of the main demographic processes using selected models to characterize the development trend.

The structure . correctly reflects the presented information by following the principle "from the general to the specific". In the first chapter, having a theoretical-cognitive nature, the essence of the demographic processes is clarified, their features are presented and the necessity of their study is argued. The main indicators with which the statistical monitoring of demographic processes is carried out are systematized and the factors influencing the demographic processes are indicated, divided into three main groups - demographic, socio-economic and psychological. Views of others authors regarding demographic processes in different time periods are presented and basic methods and models suitable for studying the dynamics of demographic processes are demonstrated. The second chapter is of a methodological nature. It is dedicated to the information provision of statistical studies of demographic processes in Bulgaria. On the one hand, the emphasis is placed on population censuses as the main source of information about demographic processes, and on the other hand, the peculiarities of current statistical reporting, through which demographic process-specific information is obtained, are examined. At the end of the chapter, there is an overview of the features of the statistical study of demographic processes at the regional level. The third chapter has a practical-applied nature. It presents the regional dimensions of demographic processes in Bulgaria. The status, dynamics and regional differences in birth and death rates are explored. The trends, regional features and differences regarding the migration processes in Bulgaria have been established. An analysis of factor influences on demographic processes was carried out. Short-term forecasts were made based on the indicators of birth and death rates by planning regions and for the country as a whole.

A total of 206 literary sources are included in the bibliographic reference. Of these, there are 173 works in Cyrillic (in Bulgarian only), of which 152 are scientific publications, and 21 are methodologies, national and European normative documents and regulations. The remaining 33 sources are in English.

The abstract is 42 pages long. It reflects the dissertation work in too much detail and gives a complete picture of the conducted scientific research. It presents the main stages and results of the study. 5 scientific publications written in Bulgarian are attached to the dissertation work (one co-authored study, three articles and one report). The publications predominantly reflect the results obtained from empirical analyzes of the demographic processes in Bulgaria and are directly related to the topic, object, subject, purpose and main thesis of the dissertation work.

III. Scientific and applied contributions of the dissertation.

In general, the dissertation has demonstrated a serious depth in terms of the scope of the research, which is demonstrated theoretically, methodologically, and empirically. Optimum efforts have been made in relation to the investigated issues, the distinctions and specific features of the demographic processes taking place in Bulgaria in the last two decades have been revealed, the scientific achievements have been analyzed in the necessary depth and the unresolved problems related to the state and trends of the demographic processes taking place in Bulgaria have been highlighted. Regarding the style and language of the work, there is a correct presentation of the information, which is largely stylistically and semantically clean, considered in the necessary depth and presented in a manner that befits a completed scientific work.

To verify the adequacy of the partial (for the individual regions) and general (for the country) models tested in the third chapter, a methodology suitable for the analysis of dynamic series was used, during the implementation of which all necessary procedures and algorithms from a statistical and econometric point of view were correctly applied – tests to check the presence of a trend, tests to select the best model to describe the trend, tests to check goodness-of-fit, tests to check the significance of the regression parameters, tests for the presence of autocorrelation and other appropriate tests to check the requirements, associated with residual elements.

The dissertation contains scientific and scientific-applied contributions that build on theoretical and empirical research in the field of statistical research of demographic processes in the country. The contributions are correctly defined by the PhD student in the abstract and correspond to the results obtained in dissertation. Their number is reduced to five. Three of the declared contributions are of a theoretical-methodological nature, and two contributions have an empirical nature. The first one is associated with the establishment of trends and regional differences in birth and death rates, deepening differences in the dynamics of migration processes and the structure of migrated persons, and the second one is connected with an estimation of the impact on the demographic processes birth and death rates of basic macroeconomic indicators such as gross domestic product of head of the population, age dependency ratio, employment ratio, average gross salary of employed persons.

IV. Questions and recommendation on dissertation.

I have no questions for the author of the dissertation, but I would like to make a recommendation. The terminology, although generally known, is specific, which implies that the terms and concepts used must be correctly defined and presented, as actually done here, but it would be good to include a list at the beginning of the dissertation with the main concepts and the specific terminology used, as well as the abbreviations used for example.

V. Summary evaluation and conclusion.

In conclusion, taking into account the completed nature of the presented development, taking into account its merits and positive sides, I dare to assert that the PhD student possesses theoretical knowledge and skills for practical application of appropriate statistical and econometric tools in the study of demographic processes, for the correct use of statistical methods and techniques for forecasting time series and has demonstrated to the necessary extent abilities for reasoned defense of own views and for carrying out a critical analysis of

theory and practice. Based on all of the above, as well as the fact that the author has the necessary number of publications, which fulfills the minimum national requirements, I give a **positive assessment** of the dissertation and offer the members to the Scientific Jury **to award** the educational and scientific degree "Doctor" in Professional direction 3.8. "Economics", Scientific specialty "Statistics and demography" of **Diana Ivanova Markova**.

05.03.2024

Svishtov

Signature:

(Assoc. prof. Plamen Petkov, PhD)