

Opponent's review of the dissertation work

Collet Muza: The demographic revolution in developing countries and Africa with special regards to Zimbabwe

The subject of study chosen by Collet Muza is very topical in today's world. In the course of the last hundred years, not only demographers were interested with greater or lesser intensity in the issue of fundamental changes in the levels of human reproduction or in the regional differences of the onset of these changes. This issue is worth of attention since this is an essential aspect of contemporary population development that has and will have significant implications for the future situation of human populations. Primarily, Collet Muza focused on the issue of changes in the level of human reproduction in the least developed countries of southern Africa, with a special focus on Zimbabwe. Today's Zimbabwe is one of the countries that still show not only a high level of fertility but also a high level of child mortality and have been significantly affected by the AIDS / HIV epidemic.

The assessed doctoral dissertation of Collet Muza is divided into nine chapters.

The introductory chapter explains the objectives of the work and presents the data sources and research methods. Since Zimbabwe does not have the necessary infrastructure and the data on population change are available only from censuses and surveys, it was necessary to choose adequate research methods. These methods correspond to the following four research objectives: 1) Analysis of the development of fertility in Africa, in particular, the regional differentiation of this development; 2) Analysis of long-term trends in population development in Africa with regard to population ageing; 3) Research on the under-five mortality as one of the critical factors affecting fertility levels in Zimbabwe; and 4) Identification and description of determinants of decline in fertility in Zimbabwe. The author adapted research questions and research hypotheses to these goals.

The second and third chapters are devoted to the issue of demographic revolution in developed and developing countries. These chapters provide an overview of existing literature on the evolution of the countries' population according to their socio-economic situation in the second half of the 20th century, at the time when states were divided into economically developed and developing (or less developed) entities. Using the example of selected countries, the author points out the long-term trends in fertility and mortality of their populations. He also presents the theories of demographic revolution more thoroughly as well as other partial theories, in particular, those of mortality and fertility revolutions. It is the issue of the fertility revolution which is discussed in more detail since the determinants of the fertility decline are permanently in the centre of the scientific literature attention. For this reason, the third chapter also pays great attention to the possibilities of reducing the mortality rate of young children.

In the fourth chapter, the author has switched his focus to describing the course of the demographic revolution in Africa. This chapter is conceived as a separate study, where the author has included, among other things, a list of sources from which the population development of African countries can be studied (in addition to population censuses, especially those of Demographic and Health Surveys). The author shows data (Crude birth

rate, Total fertility rate, Net reproduction rate) for 48 African countries over the periods of 1960-1965, 1990-1995 and 2010-2015 in an illustrative table. Using the cluster analysis method, he divided the countries into three clusters for each period and with low, medium or high levels of indicators. By doing so, he demonstrated how regional trends in fertility development differed and pointed out the significant impact of the AIDS / HIV epidemic, which affected the situation in southern African countries, in particular, between 1980 and 2010.

The fifth chapter is conceived in a similar way as the author analyses demographic ageing in Africa, but this time for the periods of 1995-2000, 2010-2015 and 2025-2030. This analysis is based on data provided by the UN (Demographic prospects 2017) and includes the following characteristics: Median age, Fertility rate, Infant mortality rate, Rate of natural increase, Child dependency ratio, Percentage of people aged 60 years and over, and Total dependency ratio. The result of the analysis is again a series of three clusters. The author describes not only the situation of individual countries, e.g. what contributed to the inclusion of countries in clusters but also tries to explain the reasons for these changes in the order of countries. His analysis also shows that, since the pace of change differs significantly per African countries, the differentiation can be expected to continue in the future. To overcome this fact, given the continuing high growth rate in the countries with the lowest economic development, it requires considerable efforts to improve the socio-economic conditions of the people's life in these countries, which could in its turn accelerate the change in reproductive behaviour.

The following three chapters are devoted to the country of Zimbabwe. These chapters form a unified whole and are presented as a case study on the population development in Zimbabwe at the turn of the 20th and 21st centuries. Here, the author describes the geographical location of the country and the local climate, including a brief overview of major political developments, which is a very important factor in order to understand the current population development. Subsequently, he presents surveys on population health and their results emphasising the health of children under five and women aged 15-49. Further, Collet Muza also lists the main difficulties in terms of past economic development. At this point he pays a special attention to the collapse of agricultural production in 2000 as a result of the expropriation of property of persons of European descent. As Zimbabwe is one of the countries with a relatively high proportion of polygyny, the author moves to explain how this can be reflected in the country's reproductive behaviour. In addition, the author describes the mortality and fertility based on the UN estimates, including his quite interesting estimate of the duration of demographic revolution in Zimbabwe, as presented on page 128; he assumes its termination in 2040-2045.

Again, but from a different perspective, the development of fertility is analysed in chapter 7. The method of fertility analysis, as proposed by Bongaarts, is applied here to the case of Zimbabwe. Similarly, chapter 8 discusses the development and current situation in the mortality rate of children under five years of age. In this case, also indicating the existing regional differences.

In the final chapter, the author summarises the most important findings of his work, specifically the conclusions concerning the differentiation of the development of fertility and population ageing in Africa, and the changes in the fertility and mortality of children

in Zimbabwe. In the first place, the author seeks to explain the reasons behind the slowing down, or on the other hand, the increase in fertility levels in Zimbabwe since the beginning of the 21st century. In addition to the political and economic reasons, Collet Muza mentions the fact that in Zimbabwe, contraception is generally used as a method of timing childbirth, not to limit their number. In his view, fertility levels in Zimbabwe could be reduced in case of large-scale investments in raising living standards, increasing women's education levels and reducing infant mortality. The work is supplemented by a comprehensive list of literature devoted both to the general issue of demographic revolution (demographic transition) and to theories of decline in fertility and mortality. It also summarises the literature on the course of the demographic revolution in Africa.

The main contribution of this work is the analysis of the development of fertility and mortality of young children on the example of Zimbabwe - knowing the situation in this country, the author was able to explain regional differences arising from the geographical environment and the socio-economic developments.

The author knows the primary data and processes it appropriately. The methods used are also deemed adequate for the given level of data quality. Moreover, the author does not make any mistakes in his conclusions and puts the findings into the context of general knowledge about contemporary population development in general and in Africa in particular.

It is, therefore, a pity that a considerable number of minor deficiencies is present in work. This remark refers to many misspellings and other errors, such as wrongly written centuries (e.g. on page 30 he wrote about Sweden in the 17th century, but in reality, it is the period after 1751, i.e. the 18th century. Similarly, on page 38 in Fig. 3 author wrongly writes the 18th century. On page 53, he writes about the 18th century in connection with the development in Germany after 1871. There is also a typo in the anniversary of Bismarck's influence).

Further, on figures 11a and 11b, it is not clear to which line the year on the x-axis relates. Collet Muza is basing extensively on the literature, which in some cases is already relatively obsolete. For instance, in European countries such as Ireland, Albania or Iceland, the demographic revolution has already ended at the end of the 20th century (p. 32). In some cases, the quoted work is not possible to find in the bibliography (e.g. on p. 47 quoted Alter 2008 or Beach 1999 mentioned on p. 127). Several times the author wrongly refers to McKweon instead of McKeown.

As mentioned above, the submitted dissertation work is very topical and the researched issues are of a crucial importance and interest. The author managed to fulfil the aim of the work and therefore, in my opinion, his work is in the concordance with the requirements for the conditions for doctoral theses, and therefore I recommend it for the subsequent defence.

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