

**Tutor's review of the diploma thesis by Maxat Kulzhanbekov
„Development of lung cancer mortality in the European Union from 1980 to 2006“**

Maxat Kulzhanbekov's diploma thesis „Development of lung cancer mortality in the European Union from 1980 to 2006“ consists of 112 pages of text. The thesis has a standard structure. It is divided into seven numbered chapters along with a conclusion, an overview of abbreviations and lists of tables and figures as well as the bibliography and data sources sections. The thesis' integral part includes annexes with tables.

The selected research theme is highly topical, which primarily arises from the fact that malignant neoplasms of trachea, bronchus and lung constitute one of the most significant causes of death from the group of neoplasms. Moreover, in almost all countries under observation, we have witnessed a growing intensity of female mortality from this disease over the approximately past 30 years.

The assessed diploma thesis has set the following five main objectives:

1. To describe the development of mortality from malignant neoplasms in 24 member countries of the European Union in 1980–2006;
2. To analyse the differentiation of the development of mortality from malignant neoplasm of trachea, bronchus and lung;
3. To ascertain other most important forms of neoplasms that most significantly contribute to mortality from malignant neoplasms;
4. To delineate the main factors underlying the mortality from malignant neoplasm of trachea, bronchus and lung;
5. To present the measures implemented in the EU with a view to lowering mortality from the above cause of death.

Roughly one-half of the main text or six chapters are devoted to the theoretical and methodological aspects of the thesis. The first chapter sums up the introduction, consisting of four parts: the definition of the problem; the objectives of the thesis; its importance; and a description of its structure. The second chapter primarily focuses on a discussion of professional literature and current knowledge of the research topic. The following chapter examines the theoretical background. It is divided into two subchapters: basic terminology and relevant theories. The basic terminology is defined on the basis of the Multilingual Demographic Dictionary. The subchapter of theories characterizes endogenous as well as exogenous factors of mortality and describes the epidemiological transition. In the fourth chapter, the student formulates in an understandable way seven research questions and five hypotheses. The next chapter presents the used sources of data (the European Health for All Databases and WHO Mortality database) and in a relatively great detail describes the applied methods (direct standardization and cluster analysis). In this part of the text, Maxat Kulzhanbekov also examines the classification of diseases and comparability of data according to this classification and explains the reasons of why the evaluated sample was divided into Western European and post-communist countries. The sixth chapter is divided into four separate parts dealing with risk factors, prevention, the European anti-smoking policy and the European anti-cancer policy.

The seventh, analytical chapter constitutes the core part of the thesis. With a correct logic, the student gradually moves from an analysis of mortality of the most important groups of causes of death (in the following structure: total mortality, diseases of the circulatory system, malignant neoplasms and other causes of death) to the presentation of standard mortality rates in total and selected most important malignant neoplasms (lung; colon, rectum and anus; stomach; bladder; prostate for males and breast for females) and eventually to an

analysis of the intensity of mortality from the malignant neoplasm of trachea, bronchus and lung itself. At the end of the chapter, the student presents the results of an applied hierarchical cluster analysis. The conclusion of the thesis sums up the obtained findings, however, in a rather inconsistent way.

Maxat Kulzhanbekov drew up his thesis independently, using listed literature and available data sources. When working on the thesis, he showed an interest in the chosen topic. On the other hand, it should be said that the student did not try to apply any advanced techniques or analyses. The thesis is largely based on the calculation of standardized mortality rates and their comparison on the level of the countries under observation. The results are only described in the text, while the student only exceptionally tried to make a detailed explanation of the ascertained trends.

The quality of the submitted thesis is considerably affected by a large number of defects of both its content and formal aspect. I present the most important ones:

1. The author does not use all the available data sources. This is exemplified by Figures 1 and 2 (pages 32–33) where I miss the latest data on the prevalence of smoking in the countries under observation.
2. In a number of places in the thesis (see the whole subchapter 2.1), one can find some quotations that do not appear in Bibliography. Moreover, some of the quotations are incorrectly constructed (such as Demoscope 2004, etc).
3. In the thesis, the author often writes about the evaluation of the extent of differentiation of the analysed countries from the viewpoint of mortality from malignant neoplasms, but his conclusions are not based on the calculation of suitable indicators of variability.
4. In the Conclusion, the author does not present any confirmation of entry hypotheses. Besides there is no mention of the conducted cluster analysis in this part of the text.
5. The Appendices include a number of tables to which the author does not refer in the text and whose content he does not comment.
6. As far as the formula for direct standardisation is concerned (p. 28), there is no explanation of the all used symbols.
7. It is often unclear in the used charts (for example Figure 4) with what criteria individual countries were sorted. In some charts, there are incomplete titles (such as Figures 8–10).

Despite the presented reservations, I can state that the student has displayed the ability of making a professional work on a level required from a graduate of Master studies in Demography. This is why I recommend the acceptance of Maxat Kulzhanbekov's diploma thesis „Development of lung cancer mortality in the European Union from 1980 to 2006“ for defence.

Prague, December 15, 2011

RNDr. Boris Burcin, Ph.D.

tutor