

**Macroeconomics and demographic transformations.
Determinants and econometric models**

Thesis Summary

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Recent evolution of economic phenomena, both at European and globally level, has emphatically highlighted the need for specialized studies in order to identify a number of explanatory factors and evolution trends, evaluate empirically a series of new hypotheses or propose new research directions in the field. Equally, the evolutions regarding the size and structure of population and also the demographic phenomena draw the specialists' attention and underline the need of researches to evaluate the nature of the relationship between socio-economic and demographic factors, medium and long-term effects of recent demographic changes etc. The research activity of this thesis's author has been performed at the intersection of these two current directions. The emphasis on quantitative analysis and the use of econometric modeling methodology represent a particularity of my research work, both by the nature of training and the teaching activity, as a titular of Statistics, Econometrics and Demography courses.

The habilitation thesis is divided into three parts. The first part includes two chapters that present the main results of research activity obtained during the past few years which are structured on the two directions mentioned above. The second part highlights several research perspectives that sustain the enhancement and development of previous activity. The last part presents the references used.

The first chapter of the thesis is dedicated to the studies performed on the causality relationship between inflation, economic growth and their uncertainties in Romania and some European emerging economies. Romania, as well as other Central and Eastern European countries, has passed through a process of social and economic transformations required as a result of the European integration. Among the aims of economic policies of Central and Eastern European countries, a main focus is to achieve price stability for the purpose of maintaining economic growth. In this context, an important research aim is to analyze the causality relationship between economic growth, inflation and their uncertainties, in order to identify concrete measures that can achieve the convergence objectives proposed by these states. The obtained research findings related to this subject have been concretized into several papers that were presented at international conferences and published in specialized scientific journals. In previous studies, the focus was on empirical evaluation of a small number of hypotheses elaborated in the literature that concerns the relationship between: inflation and inflation uncertainty; inflation uncertainty and output; output uncertainty and inflation; uncertainty of economic growth and output. The modeling results for Romania are in compliance with a series of studies from literature which sustain that a monetary policy of inflation targeting will lead to a decrease in inflation uncertainty, caused by the stability of prices on long-term. Based on the analysis of the relationships between inflation, economic growth and their uncertainties for the emerging economies of Central and Eastern Europe, the results show that an increase in inflation leads to more uncertainty about inflation, and the latter has a negative impact on economic growth. Reducing inflation and stimulating economic growth are the main directions that the economic policy makers from these countries should follow.

The second chapter includes studies performed by the author regarding the dynamics of demographic phenomena such as fertility and infant mortality, in Central and Eastern European (CEE) countries, in Romania and at territorial level. The research related to demographic phenomena and economic and social development has a double motivation and also a special importance for career development. On the one hand, there is the academic activity of teaching the Demography course within Statistics specialization, case in which the educational process implies the need to explain the evolution of demographic phenomena and to perform case studies. On the other hand, the demographic situation of Romania and CEE countries register a specific evolution process with long-term negative effects that require a careful analysis and several demographic recovery solutions. In Romania, the demographic changes that started last century follow a pattern explained by the theory of demographic transition. After a steady decline in fertility, since 1995 a new stage of demographic transition has started, involving a relative stability of the evolution of main demographic indicators. Through the studies conducted we were interested to indentify the determinants of fertility decline in Romania and CEE countries, to analyze comparatively the demographic situation of Romania and these countries during the communist period and post-communist one. The most important methodological instrument used is the econometric modeling of panel data. From an empirically point of view, the studies performed sustain several of the hypotheses developed in the literature concerning the determinants of fertility: economic and conjunctural variables have a significant negative impact on fertility; the positive impact of nuptiality on fertility show that the traditional family model remains important in the former communist countries; the positive influence of net migration on fertility could contribute to the recovery of phenomenon if these states would be open to receive immigrants; the positive relation between female occupation rate and fertility represents another element of the past that need to be explored in order to elaborate some future demographic policy – the double status of women in the communist period remains a positive mark which could be an important mechanism for the recovery of birth rate level in the future.

In the second section of the thesis are presented several future directions concerning my career as a researcher and academic professor in Economics field, with emphasis on research statistics and econometrics models. The first research direction is related to modeling the causality relationship between inflation, economic growth and their uncertainties. In the future, it is intended to extend the study to a larger set of hypotheses that cover all the possible relationships between the two variables and their uncertainties. We aim to evaluate empirically these hypotheses for Romania and other European countries with emerging economies. We also attempt to improve the methodology used until now, which was based on heteroscedastic econometric models such as ARCH and GARCH, and to work with multidimensional models. Regarding the second research direction, the main interest is represented by the study of demographic phenomena in post-transitional context. By using econometric modeling, our concern is to identify an evolution pattern of demographic phenomena at regional level and also the determinants of fertility that explain both the differences among regions and its evolution in time. Future research results related to this direction consider also the intention to identify some possible demographic policy measures correlated with social and economic situation of Romania, at both national and regional level.

The career plan for the next period aims to mix the activity of research with that of teaching. By teaching the Statistics, Econometrics, Demography and Research Methodology courses, in Romania and France, I intend to improve the quality of this activity by analyzing the research directions and results obtained, both at courses and seminars and by elaborating projects, bachelor, master and doctoral theses.