

Abstract of the Ph.D. Thesis

Netrdová, P.: Current trends in quantitative analysis of geographical data: potentialities and limitations of spatial analysis

The thesis is a contribution to the discussion about the potentialities of the quantitative approach in geography. It follows the current trends in quantitative analysis of geographical data, specifically spatial analysis, particularly from the perspective of changes in the concept and character of applied methods and their possible contribution in geographical research. Due to the research focus of the author, the entire work is focused primarily on the issue of using quantitative methods in terms of social geography. Attention is focused particularly on statistically spatial analyses, which are the most widely used techniques in social geography, with a wide range of possible applications. One of the goals of this work is to bring the current development in quantitative geography closer to the Czech academic community, and thus contribute to the increased awareness of the potentialities of the application of quantitative methods and spatial analyses in geographical research. Methodological problems in the analysis of spatial data, theoretical changes in the concept of quantitative analysis and also newly emerging quantitative methods have not so far been the subject of such attention in Czech geographical literature – attention which they would surely deserve. The presented work attempts to call attention to the significance of this issue both from a general point of view and in specific examples.

The thesis is divided into two parts. The first part of the work is characterized by a theoretical-methodological entrance to the subject area. Its goal is, based on a study of current geographical academic literature, to discuss and assess conceptual questions related to the topic and the possibility of application of quantitative methods, specifically those of spatial analyses, in geographical research. In addition to a discussion of general theoretical and methodological changes in terms of quantitative geography, the primary discussion is of current trends related to the use of quantitative methods. Modern quantitative geography is introduced, in which there is an emphasis on the spatial, exploratory and local aspect of the used methods.

The second part of the thesis constitutes a collection of five articles by the author, written either alone or as a co-author. All articles originate from the period from 2007 to 2010 as part of the author's doctoral studies in social geography and regional development at the Faculty of Science at Charles University in Prague, and were published in peer-reviewed academic journals. The articles concentrate on methodological and application aspects of geographically weighted regression and spatial autocorrelation. The goal of the second part is to document the significance of changes in the field of quantitative geography, based on the examples of selected newer quantitative methods of spatial analyses, and point out their contribution to geographical research. On the basis of a discussion of the possibilities and limitations of the individual methods in comparison with the methods which are typically used in geography for those purposes, their usability and potential contribution to geographical research is assessed. The application potentialities of the selected methods were verified in specific analyses with empirical data, which brought new and challenging findings about Czech regional differentiation.