

## Abstract

### Jan KABRDA: Changing spatial pattern of land use in the Czech Republic and its driving forces

The main objective of my dissertation thesis is to analyse changes of spatial pattern of land use in the Czech Republic since the mid-19<sup>th</sup> century. My secondary aim is to discuss advantages and limits of various methods that can be used for this research. The text is divided into two main sections. The first one includes an overview of literature on the given issue. The second one comments six attached articles that constitute the main body of the thesis, representing main results of my research.

The first section of my thesis consists of three chapters. In the first one I discuss the term “land use” itself; importance and practical applicability of its research; and theoretical approaches used throughout the world to explain patterns and changes of land use, and to create schemes for its research. Chapter Two includes an overview of methods and data sources used in land use research, especially of quantitative ones, in the whole world in general, and in Central Europe in particular. In the third chapter I summarize the main processes of land use changes – of current changes at global level, and of changes during last two centuries within the Central European context.

The six attached articles represent main findings of my study. In five of them I applied a quantitative approach, analysing changes of regional pattern of land use with the help of the “Database of long-term land use changes in Czechia (1845 – 1948 – 1990 – 2000)”. In the first article, I assessed changes of division of the area of the Czech Republic into four types of structure of agricultural land use (intensive, sharply and moderately intermediate, extensive). In the second and third article, I analysed regional differences of land use changes in the Czech Republic in relation to proximity to state border; and in relation to distribution of soil types, respectively. The fourth and fifth article examined land use changes in the Vysočina region based on quality of natural conditions (altitude, slope, official price of agricultural land); and on socio-economic exposedness (proximity to main centres of settlement and to important traffic lines), respectively. The last article is different, based on a more qualitative approach. It analyses behaviour of farmers in two model regions (Český Brod and Sněžné) after the accession of the Czech Republic to the European Union.

Main findings of my research can be summarised into three statements. Firstly, land use in the Czech Republic is spatially structured into a logical pattern corresponding to local conditions. Intensity of land use increases with improving natural conditions and growing socio-economic activity / attractiveness. The influence of the so-called “differential rent I” is the main force forming this pattern.

Secondly, regional differences in land use grew during the examined period (1845 – 2000). The processes of intensification in better conditions and extensification in worse ones resulted into a creation of more compact typological land use regions. Causes of these trends lie at two levels. On the one hand, this differentiation, specialisation and concentration within a previously more homogenous system were results of a general modernisation of society, economy and technology – of “social metabolism”. On the other hand, different „driving forces“ in partial time periods modified this general trend. During the years 1845 – 1948, free market economy resulted into intensification in better conditions; extensification in worse conditions between the years 1948 – 1990 was caused by a socialist neglect of inaccessible plots, by a large-scale agricultural concentration, and by a massive mechanisation of farming; and continuing extensification in worse conditions during last time period (1990 – 2000) was a result of restored market forces and of new state policies.

Thirdly, I showed that the wide range of used natural and socio-economic characteristics influences land use pattern only to a certain extent. This fact is partly caused by an existence of other, mostly non-quantifiable factors, especially institutional; and partly by a plurality of behaviour of individual actors.

Application of various quantitative methods revealed not only their advantages, but also constraints and limits. I would like to stress two of them. Firstly, there exists a danger of a confusion of causality with correlation, and thus of an emergence of a “false dependency”. This is given by significant and complex interconnections between individual natural and socio-economic variables influencing land use pattern. And, secondly, with quantitative methods we do not examine natural nor social processes themselves, but only their manifestations and reflections in landscape. Thus, these methods tend to be more descriptive than explanatory, less contributing to our understanding of reality.

Therefore, I suggest enriching our research of land use changes in the Czech Republic by two approaches, which would lead us to a deeper understanding of processes occurring in landscape. The first one is social metabolism, which can serve to outline a general pattern of modernisation and changes of Czech agriculture and economy. The second one is behavioural approach, or qualitative methods to be precise, that would explain behaviour of individual actors within this general frame.

*Key words:* agriculture – modernisation, Czech Republic, driving forces, land use, landscape – macrostructure, quantitative methods, spatial pattern.