

Spatial Transformation in Cattle Sector: A Hungarian-Slovenian Comparison

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The EU is one of the world's leading producers, consumers, and traders of bovine meat and dairy products. However, the EU cattle sector have been faced with serious challenges during the last decades. Especially cattle farms in new member states (EU-13) are threatened by high survival risks due to their smaller average scale and share in total EU production (Ihle et al, 2017; Peerlings et al, 2010). The structural transition of the cattle in Central and Eastern European countries in the 21st century is a well-researched topic (Ihle et al, 2017; Kuipers et al, 2013; Cochrane and Jorgji, 2013; Dries et al, 2011; Peerlings et al, 2010; Noev et al, 2009; Swinnen et al, 2006). However, there is a lack of studies on the spatial dimension of this transition.

The objective of this research to provide a comparative analysis of the changes in the spatial structure of the Hungarian and Slovenian cattle sector between 2000 and 2010. The paper focuses on two research questions. We investigate that how spatial concentration and spatial mobility of cattle populations have evolved in Hungary and Slovenia. On the other hand, the presence of agglomeration effects is analysed in both countries.

The empirical analysis is based on data provided by the Hungarian and the Slovenian Central Statistics Offices. Gini coefficient and Lorenz-curves are used as first step of analysis. Then, the decomposition procedure proposed by Jenkins and Van Kerm (2006) is applied to analyse the nature of change in spatial concentration. For the analysis of spatial stability, similarly to the researches specializing in foreign trade or territorial convergence (e.g. Fertő, 2006, or Fertő and Varga, 2014) we use Markov matrices to determine the spatial mobility of the cattle sector. Finally, Global and local Moran's I indices (Zhang et al., 2016; Anselin, 1995; Moran, 1950) are used to investigate the presence of agglomeration effects. Both countries have experienced decline in the cattle population development with a profound structural change leading to a smaller number of more concentrated farms with increased territorial concentration. The degree of territorial concentration and inequalities was higher in Hungary than in Slovenia and the concentration gap between the countries increased. The presence of the agglomeration effect was confirmed in both countries. However, the agglomeration effect significantly weakened in the Hungarian cattle sector during the period investigated. The concentration of farm structure and the 'pro-rich' spatial processes of cattle population was more favourable for the preservation of agglomeration effects in Slovenia. In the restructuring Hungarian cattle sector, agglomeration effects were weakened by the decreasing cattle population and the 'pro-poor' transition element.

The exploitation and policy management of spatial externalities was justified for agricultural economic and agri-environmental practice. Among issues for research in future is to analyse and compare with the

post 2010-year period. This most recent evidence could capture the cattle sectors adjustments and restructuring to post-economic crisis and instabilities in the global dairy and beef markets, which might have reduced the number of cattle population contributing to changing concentration and agglomeration paths.

Keywords: cattle sector, territorial concentration, agglomeration effects, agricultural survey data, Central Europe

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