Multifunctional Transition of Agriculture and Impacts on Habitat Quality

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# Abstract

The multifunctional development and transformation of agriculture are driven by a series of emerging requirements and challenges stemming from urbanization. These include promoting the sustainable development of the agricultural economy, addressing the diversified demands of consumers, strengthening the foundations of food security, and mitigating habitat fragmentation. While previous research has primarily examined the spatial and temporal characteristics of agricultural functional transformation, it has often overlooked its coupling with broader socio-economic development indicators. Employing a quantitative evaluation approach, this study constructs a comprehensive multifunctional assessment framework for agriculture encompassing four dimensions: production function, living function, ecological function, and landscape cultural function. The spatial and temporal evolution of dominant agricultural functions and habitat quality is analyzed at the raster scale. Furthermore, spatial autoregressive models (SAR) are utilized to assess the spatial dependence between agricultural function transformation and habitat quality. By positioning habitat quality as a focal point, this study explores the underlying mechanisms influencing agricultural functional transformation, offering novel insights for the optimal restructuring of agricultural functions and the efficient allocation of resources.

# Keywords

Agricultural multifunctionality, Habitat quality, Spatial autoregressive models