Quantitative Analysis of Dynamic Behaviours of Rural Areas at Provincial Level Using Public Data of Gross Domestic Product

A spatial approach that incorporates three economic components and one environmental factor has been developed to evaluate the dynamic behaviours of the rural areas at a provincial level. An artificial fish swarm algorithm with variable population size (AFSAVP) is proposed for the spatial problem. A functional region affecting index (Θ) is employed as a fitness function for the AFSAVP driven optimisation, in which a gross domestic product (GDP) based method is utilised to estimate the CO2 emission of all provinces. A simulation for the administrative provinces of China has been implemented, and the results have shown that the modelling method based on GDP data can assess the spatial dynamic behaviours and can be taken as an operational tool for the policy planners.

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