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Bayesian Dynamic Stochastic General Equilibrium Models

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Abstract

The purpose of this study is to solve the measurement and estimation problems of Dynamic Stochastic General Equilibrium (DSGE) macroeconomic models applied to the tourism. Nowadays, there is a need to establish a procedure for measuring the level of tourism impact on economic growth (Liu & Wu, 2019). To this end, previous studies have used DSGE models (Zhang & Yang, 2018), often developed by Monte Carlo method (Farkas & Tatar, 2020), which generates multiple data problems (Ditzen & Gundlach, 2016). We evaluate the estimation of economic growth regressions of the Solow model based on the Stochastic Simulation Algorithm formulated according to the Next Reaction method. Our results improve the accuracy levels of the DSGE models applied to the tourism as they achieve faster convergence of the coefficients of the variables, thus reducing possible measurement errors and the level of deviations. Our findings have important practical and social implications for the economic contribution of tourism. The improved accuracy of the DSGE model developed allows for optimal decision making. This study contributes to the literature on DSGE models by providing more robust results that allow predictions to be made with a lower level of error and bias, which is of vital importance for public institutions and other stakeholders in macroeconomic and tourism analysis.

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