Transport infrastructure and technical efficiency in a panel of countries: accounting for endogeneity in a stochastic frontier model

SN Business & Economics
Número:
34
DOI:
https://doi.org/10.1007/s43546-022-00412-1
Publicado:
Viernes, 10 Marzo 2023
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In this paper, a production frontier is estimated using stochastic frontier models to assess the contribution of transport infrastructure to countries' real GDP. We find that the role of infrastructure is underestimated under the exogeneity assumption indicating that handling endogeneity is crucial in the estimation. Potential endogeneity problems may arise in estimating the production frontier due to the relationship between the real GDP and the infrastructure variables. Since economic output might affect the demand and supply of infrastructure and transport infrastructure determines real GDP. We use an instrumental variable (IV) approach in the stochastic frontier models to handle endogeneity. Results suggest that a better infrastructure endowment contributes to economic output, highlighting its importance in explaining countries' real GDP differences. Efficiency measures indicate that high-income countries are more efficient than low- and middle-income countries, suggesting that there is room for improvement in the latter's economic production. Also, strong institutions are essential to improve countries' economic output.

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