

# **Spatial Durbin Model for Poverty Mapping and Analysis**

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## **Abstract**

The use of spatial regression models for describing and explaining spatial data variation in poverty mapping has become an increasingly important tool. This study considered the spatial Durbin model (SDM) in identifying possible causes of poverty in Bari region of Somalia using Somalia settlement census data. Data properties were identified using exploratory spatial data analysis (ESDA) and the output ESDA provided input into the spatial Durbin model. Parameter estimation and hypotheses testing and assessment of goodness of fit were carried out for the specified model. Dissimilarity of neighbouring settlements in North West Somalia and similarity of neighbouring settlements in North East and South Central Somalia with respect to the variables of interest were observed using the Global and Local Moran's I test statistic. The proportion of families who cannot afford two meals per day was taken as a proxy indicator for poverty level and the implication of the findings on policy decision making for development planning are discussed.

**Keywords:** spatial regression, spatial Durbin model, poverty

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