

# Small Area Estimation of the Italian Poverty Rate

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## Abstract

This paper focuses on the application of EURAREA project results to real data provided by Italian households survey. One of the aims of the project was first to assess the performances of some small area standard estimators and then to improve them using a spatial autocorrelation structure based on the Euclidean distance among areas.

On the basis of the methodological aspects developed within EURAREA project, this work intends to compare the performances of standard and enhanced methods to estimate the poverty rate at NUTS3 level. In order to evaluate the properties of the methods under study a simulation study has been carried out using bootstrap techniques. Two different sets of auxiliary variables has been considered: the first set of variables consists of cross-classification of sex and age, while the second set has been derived clustering the population in homogenous groups with respect to the target variable.

The simulation study has been based on 1000 samples drawn from a pseudo population using two-stages sample design (municipalities-households) and the methods have been compared in terms of relative bias and relative mean square error related to the small area estimates.

The overall evaluation criteria show that the model based estimator implementing the spatial autocorrelation structure performs better than the others estimators.

## Bibliography

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