

SIMULATED GEO-COORDINATES AS A GENERAL MEANS FOR REGIONAL ANALYSIS: THEORY AND EXAMPLES

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Kernel density estimates are a powerful tool for the construction of maps, which display regional concentrations. However, they need geo-coordinates at the individual level, which is typically not at hand in socio-economic applications and the analysis of voting behaviour. Instead, local aggregates for some regional units, like voting districts, have to be used. Recently, Gross et al. (2017), have proposed a Bayesian setting to disaggregate the local aggregates by simulated geo-coordinates. This simulated EM-approach is now extended in two ways: the computation of regional percentages and the computation of densities which do not overlap unsettled areas or areas outside the region of interest.

Several applications are demonstrated: 1) The solution of the discontinuity problem of traditional choropleth maps. 2) The display of concentration areas which are not linked to the areas system. 3) A switch of case numbers between different area systems. 4) The derivation of local shares of a political party in elections. 5) An analysis of the regional distribution of error terms to identify in the case of voting results areas where a party is overly successful or unsuccessful beyond what is explained by demographic variables. 6) The use of open data with low level local aggregates to establish local service maps for childcare.

References

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