

NMST611 *Advanced Statistics Seminar*

Small area estimation – introduction, models and real data application

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Abstract

Small area estimation (SAE) is a branch of mathematical statistics which deals with the problem of estimating population parameters in subsets (called areas or domains) of a population where the sample sizes are not large enough to provide reliable direct estimates. For this purpose, SAE introduces statistical models that “borrow strength” from related small areas, data from external administrative sources or data from different time periods. An overview of basic principles, models and problems encountered in SAE is given in the first part of the presentation. Then, the ideas are illustrated by an application of a unit-level logit mixed model to the estimation of poverty proportions in counties of the region of Valencia in Spain.