

# DSS Statistics Seminar

May 27, 2022, 12:00

**In person** Room 1 (CU002)

**Webinar** <https://uniroma1.zoom.us/j/86881977368?pwd=SWRFcVFjMDZTa0lXZk05TE1zNm5adz09>  
Passcode: 432940

Model-assisted indirect  
small area estimation

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Generalised regression is the most common design-based model-assisted method for estimation of population means and totals in practical survey sampling. However, it is often unacceptable in the context of small area estimation, where one is interested in population means and totals for a large number of areas (or domains) and the sample sizes are either small or non-existent in many of them. In this seminar, we discuss an approach to extend generalised regression from direct estimation for the whole population to indirect estimation of all the small area populations. This requires to trade variance off with bias and enables a practical methodology for estimation at the different aggregation levels, which is coherent numerically (self-benchmarking) as well as conceptually in terms of the design-based model-assisted inference outlook. Estimation can be conducted by means of an *\*extended\** weighting system that has as many sets of weights as the number of small areas: each set produces the estimate for a domain mean of one or more survey variables of interest and is, in this sense, multipurpose.



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