DIPARTIMENTO DI METODI E MODELLI
PER L'ECONOMIA IL TERRITORIO E LA FINANZA
MEMOTEF

SAPIENZA
UNIVERSITÀ DI ROMA

AVVISO DI SEMINARI

Dipartimento di Metodi e Modelli per l'Economia, il Territorio e la Finanza
Facoltà di Economia, Sapienza Università di Roma

martedì 21 ottobre 2025
Ore 10.00, Laboratorio Antonio Amato - III piano (Palazzina Presidenza)

la Prof.ssa Sara Geneletti (London School of Economics and Political Science) e Trevor Wrobleski (dottorando in Statistica, LSE), terranno i seminari dal titolo

Bayesian interrupted time-series models and their applications on welfare and mental health (S. Geneletti)

This talk is an overview of the research output of the Epitome project funded by the Wellcome Trust. The project involved 4 research streams, and we showcase results from each one of them. The main aims of this project were to a) understand the impact of Conservative government and their "austerity" policy which led to widespread cuts in social spending and b) to develop novel methodologies in the context of interrupted time series designs using Bayesian methods. Our project found that changes in welfare benefits had a detrimental effect on mental health which also had a spatial dimension, and that the impact of the "hostile environment policy", an anti-immigration policy on the mental health of African and Carribean communities was negative. We further extended the Bayesian Structural Time Series approach to accommodate multiple data points and confirmed the impact of the hostile environment policy using this alternative method. Finally, we developed a Cohort Markov Model to evaluate the impact of the welfare benefits change by looking at how it impacted different segments of the population.

Robustness and Sensitivity in Bayesian Dose-Response Risk Assessment (T. Wrobleski)

Bayesian methods are increasingly central to toxicological risk assessment, yet their application to sparse dose-response data presents unique challenges. This presentation examines three drivers of analytical robustness: (i) the choice of likelihood for overdispersed quantal data, (ii) the inferential impact of selective dose-group deletion, and (iii) the sensitivity of results to prior specification. Using simulations and a case study of antimony trioxide carcinogenicity, we quantify the impact of these choices on benchmark dose (BMD) estimates and the posterior distribution, using metrics like Mean Squared Error and symmetrized Kullback-Leibler (KL) divergence. Our findings show that modeling overdispersion with a Beta-Binomial likelihood is important for accurate uncertainty quantification. We also demonstrate that deleting informative mid-range dose groups can degrade precision and shift inference. Finally, for the Dichotomous Hill model, the prior on the Hill coefficient is the dominant lever on the BMD, capable of inducing multi-fold changes in the risk estimate.

Tutti gli interessati sono invitati a partecipare.

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