Kolloquium „Statistische Methoden in der empirischen Forschung"

Wann: 06. Februar 2024, 17:00 – 18:30 Uhr

Wo: [Campus Charité Mitte | Hörsaal der Nervenklinik | Bonhoefferweg 3, 10117 Berlin](#)

   Online-Übertragung: der Link wird auf der [Website](#) zur Verfügung gestellt

Andrzej Jarynowski (FU Berlin)

Causal Model Revealing the Impact of Healthcare Access on COVID-19 Burden in Poland

This talk will show the process of discovering the intricate relationship between healthcare access and the actual burden of COVID-19 in Poland. We employed causal modeling to analyze the heterogeneity in geographical distribution of COVID-19 cases and deaths. The study highlights the significant role of healthcare access, both in terms of supply and demand, in shaping the geographical variations in COVID-19 incidence and fatalities. By examining a range of variables, including acquired immunity (post vaccination or post infection) and various healthcare access indicators, the study provides a nuanced understanding of how healthcare access contributes to the 'dark figure' of unreported or undiagnosed COVID-19 infections. We applied Gaussian Bayesian networks to model the data and used Bayesian Information Criterion (BIC) to select the optimal structure of the model. We used nonparametric bootstrap to assess the strength of a link as a fraction of models in the bootstrap population where the link exists. The findings suggest that demand for healthcare access is a critical mediator influencing the incidence rates. Besides, our approach has also proved the effect of vaccines on preventing deaths mediated by the supply of healthcare access. Moreover, we also explore causal models for further countries (the UK and Germany) showing the need for epidemic intelligence systems and data triangulation. Our results are relevant for healthcare policy and pandemic preparedness planning.