Dortmunder Konferenz 2023
„Wenn möglich, bitte wenden!"
Forschen und Planen für den Sustainability Turn

Dortmund Conference 2023
"If possible, please turn!"
Research and planning for the sustainablity turn

Track 3 – Raumentwicklung und Raumbeobachtung
Session 3.4: Place and Space in Planning

Place, Big Data, and Statistical Methods

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The ongoing digitalisation of our everyday lives is leading to a steady increase in so-called Big Data. These data make our lives increasingly traceable and (often unintentionally) publicly discernible. A lot of Big Data is spatial in nature using GPS, spatial language, or checking in at places, making them accessible to spatial analysis. Unsurprisingly, a substantial number of scholarly articles have been published that make use of these novel data, providing a variety of interesting insights into aspects of everyday life that were previously difficult to access on a large scale. However, datasets such as tweets, geotagged photos, and check-ins differ from traditional, scientifically collected counterparts in that they come from platforms designed for mundane use. Main drivers of Big Data generation include communication with peers and friends, curation of digital alter egos, and enhancement of life comfort. The resulting often unscientific nature of said spatial data has implications when it comes to supposedly rigorous, quantitative analyses.

Quantitative methods attempt to uncover structures in a nomothetic way. They assume that the information analysed is representative of joint underlying processes, which show uncertainties only due to varying contextual conditions or measurement error. However, Big Data is not collected via calibrated devices, as would be the case with questionnaires or with measuring devices. Rather, these data often reflect subjective mental geographies and thus information that is much closer to the human-geographical concept of intimate place than to the concept of abstract space.

In the proposed talk I will discuss implications of applying established quantitative methods in the outlined context and thus to data for which these methods were never designed. The talk will provide a summary and synthesis of research I have been working on for over five years (e.g., Westerholt et al. 2016, Westerholt 2018). It will address both technical implications related to the quality of statistical estimates, and broader epistemic issues in the process of interpreting results. In addition, I will outline the main ideas of some alternative approaches that help to mitigate the problems arising from the mismatch between methodological assumptions and data characteristics (e.g., Westerholt et al. 2015, Westerholt 2021). The presentation will further comment on recent developments towards place-based GIS as an alternative to the established spatial form of GIS commonly used in the spatial sciences.

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Westerholt, R., Steiger, E., Resch, B., & Zipf, A. (2016). Abundant topological outliers in social media data and their effect on spatial analysis. PLOS ONE, 11(9), e0162360.

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Westerholt, R. (2021). Emphasising spatial structure in geosocial media data using spatial amplifier filtering. Environment and Planning B: Urban Analytics and City Science, vol. and iss. pending.