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A methodology for mapping neighbourhood impacts

Ronny Klaeboe[a], Erik Engelien[b] and Margrete Steinnes[b]

[a]Institute of Transport Economics, Gaustadalleen 21, 0349 Oslo, Norway
[b]Statistics Norway, Oterveien 23, N-2225, 2225 Kongsvinger, Norway

A methodology for the spatial analysis of environmental impacts in urban areas and social gradients is presented. The methodology is computational intensive and requires access to geographically located data at the dwelling level. Neighbourhood information is harvested to provide contextual information, and a spatial smoothing technique used to provide powerful visualisations of residential and neighbourhood impacts. By focussing on impacts rather than exposures, the construction of accumulative non-monetarised and monetarised indicators of impacts such as disability adjusted life years (DALY) and health costs is facilitated. Since the residential dwelling location is, or can be made, the focal point for social, dwelling, environment, neighbourhood, and transportation related indicators, a rich network of information in a uniform format is available for construction of novel indicators. By focussing on neighbourhoods rather than individual dwellings, privacy is enhanced while maintaining useful level of detail for involving the public and politicians in local planning. By combining information on social status and environmental exposures, questions on whether transportation related impacts are distributed fairly and whether social inequity is increased or decreases as a result of a particular measure can be addressed. The methodology is not applicable to rural areas and low probability events.