Discussion

Summary of the BIG THREE findings (1, 2, 3), i.e. the higher-level idea

We managed to create a workflow for modeling the walkable environment using the Detour Index (DI) and the Local Significance Index (LS).

Furthermore, we found a way for an intuitive visualization of the two indices that might help future city planners and decision makers.

The workflow is applicable, and – with limitations – comparable on a European scale.

We could show the effect of changing parameters in

Local index maps:

Local Significance (LS) maps are intuitive

Detour Index (DI) are harder to interpret but can also yield inference

* Both indices work (with limitations) also in areas with sub-optimal OSM data coverage
* LS: values might be lower than “in reality” due to incomplete residential building coverage
* DI: should be accurate for all buildings that are digitalized in OSM
  + One of the largest limitations of the DI is that the DI values do not account for further obstacles people have to overcome on their ways to the nearest UGS.
  + For example, there can occur high DI values in close proximity to UGS, even though the residents have to cross larger streets or pass traffic lights on their trajectory to the UGS.
  + Low DI values also occur in close proximity to the LVP as an artifact of small network and Euclidean distances.
  + In these cases, a minor difference can lead to a low DI value even though the overall traveling distance to the next green space entry in relatively small (DISCUSSION?).
  + Both indices only account for the fasted route from A to B given the underlying network.
  + People might choose their trajectories towards UGS based on different factors than pure distance, though.

European comparison maps:

OSM coverage:

* Mostly central European cities (Poland, Czech Republic, Austria, Northern Italy, Switzerland, France, Netherlands)
* Approach not really suited for a European comparison
* Due to incomplete digitalization of buildings in OSM

For each of the findings:

How does this map/relate to previous findings?

Compare to e.g.

How does this add to previous findings?

Comparability / applicability with public data

Challenges

Implications

notes:

OSM coverage:

UA polygons covered by at least one OSM polygon is only a proxy for the „real“ coverage. No real inference about the nature / quality of the OSM data.

Cortinovis, C., Haase, D. Geneletti, D. 2022. Higher immigration and lower land-take rates are driving a new densification wave in European cities. Nature Sustainability. In press.

Yet, there are countries with large city samples and a high percentage of population reaching green spaces in 500 meters network distance, like Germany (126 cities, 73%) or Poland (68 cities, 69%)

→ Das bestätigt bisherige studien (kannste in den disc auch nochmal erwähnen).

we can for example observe relatively high average LS values at the green space entries in mid- to southwestern Germany.