

NATURVATION
cities – nature – innovation

Current & emerging research:

Can Nature-based Solutions for water management address social and health inequalities?

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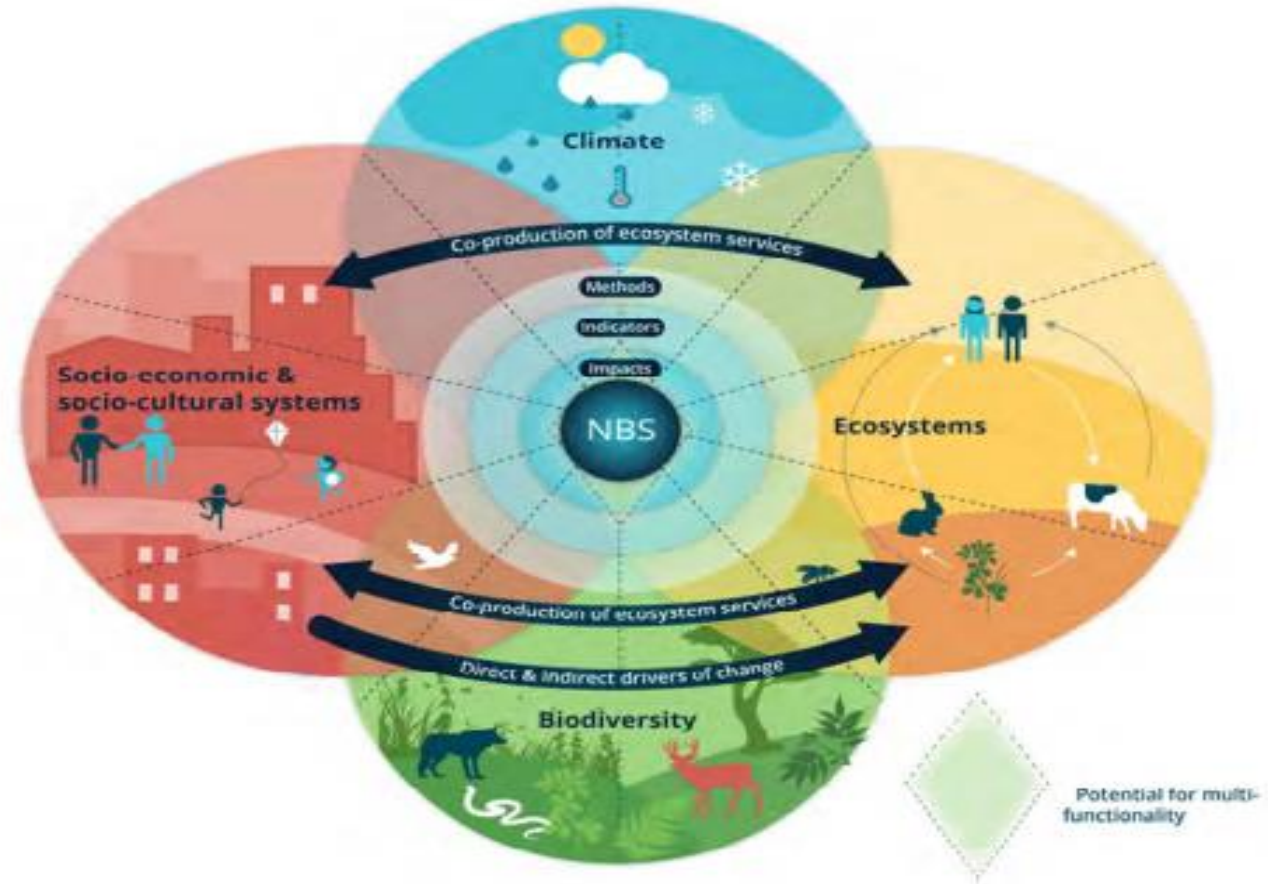


What I will cover today

- What are Nature-based Solutions?
- Social determinants of health
- Relationship between nature-based solutions & health and social inequality
- Methodology
- Preliminary results



What are Nature Based Solutions?



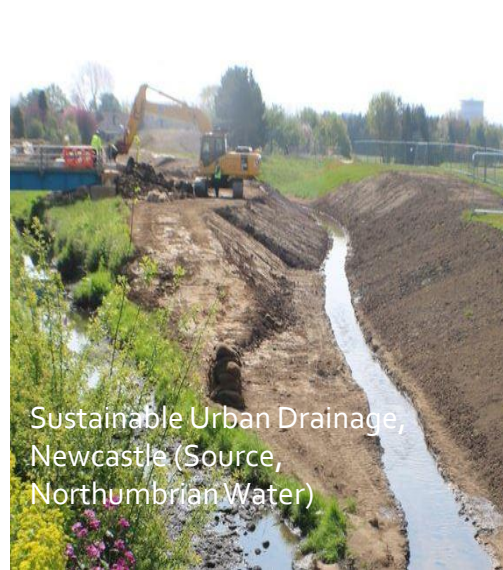
Nature-based solutions aim to help societies address a variety of environmental, social and economic challenges in sustainable ways. They are actions which are inspired by, supported by or copied from nature (European Commission, 2015c)



Examples of NBS for water management



Street Trees, St Mary's Boulevard, Sunderland



Sustainable Urban Drainage, Newcastle (Source, Northumbrian Water)



Elba Park, Houghton-le-Spring.



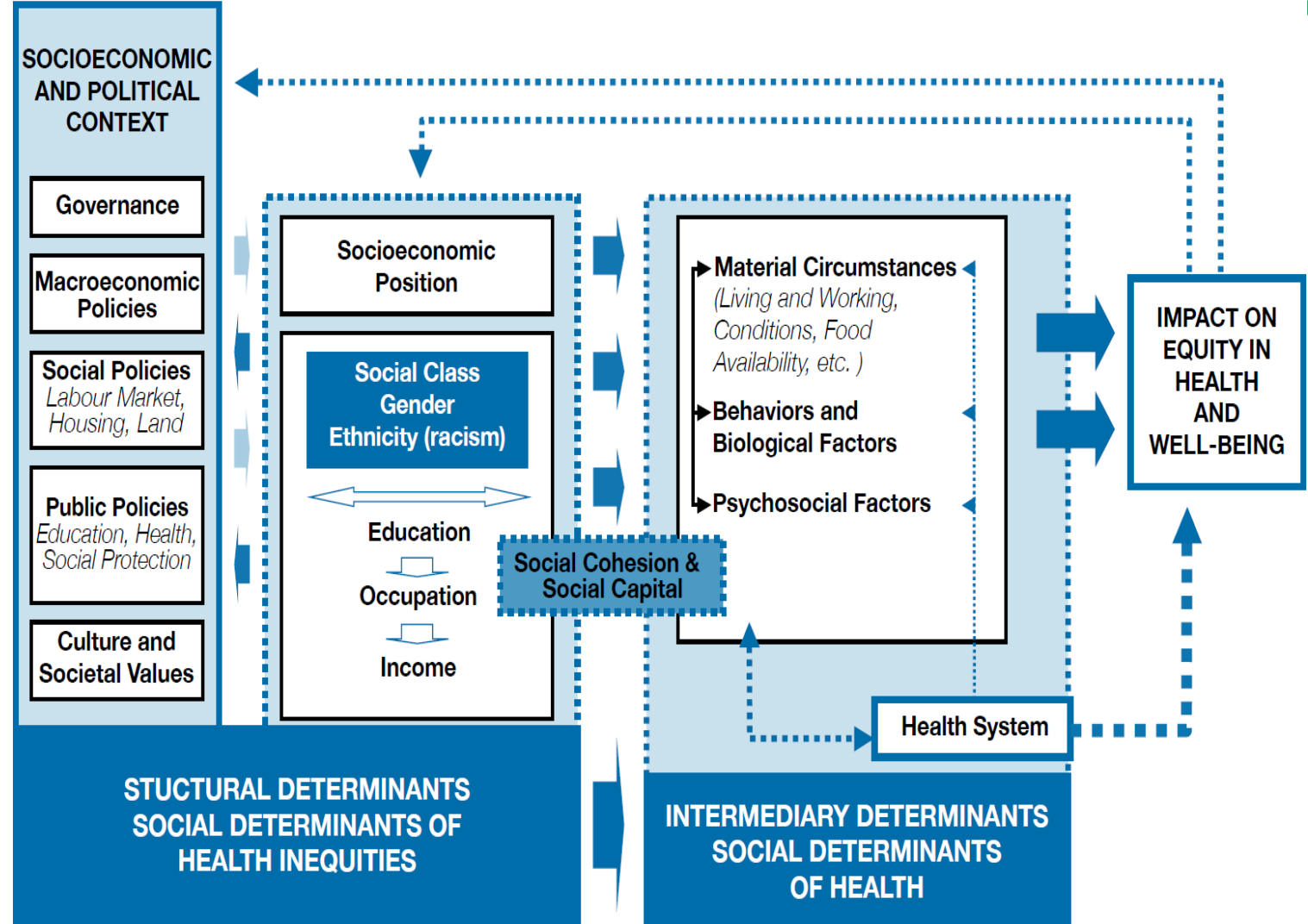
Grace House Community Garden for children with complex disabilities, Sunderland (Source: www.GraceHouse.co.uk)



Community gardening, part of the Mallings Development, Urban Village



Social determinants of health



Relationship between structural and social determinants of health Source: WHO, 2010.



Relationship between NBS, social & health inequality

- Play a role buffering the effects connected to urbanisation and climate change ^{1,2}
- Pathways proposed to explain benefits:
 - improve mental health
 - building capacity by enhanced physical activity, reduce obesity or diabetes
 - acting as a buffer against noise and air pollution, & reduce the impact of the urban heat island effect or flooding ^{3,4,5}
- Disrupt the relationship between socio-economic adversity and risk of poor health ⁶
- Greenspace inequitably distributed across different socio-economic groups creating barriers to address health disparities ^{7 - 11}



Methodology

Characteristics of NBS

Information on the objectives, goals, targets, monitoring etc.

Sustainability challenges based on SDGs

Ecological domain

Scale of the intervention

Ecosystem services

Primary beneficiaries

Power distribution

Key actors

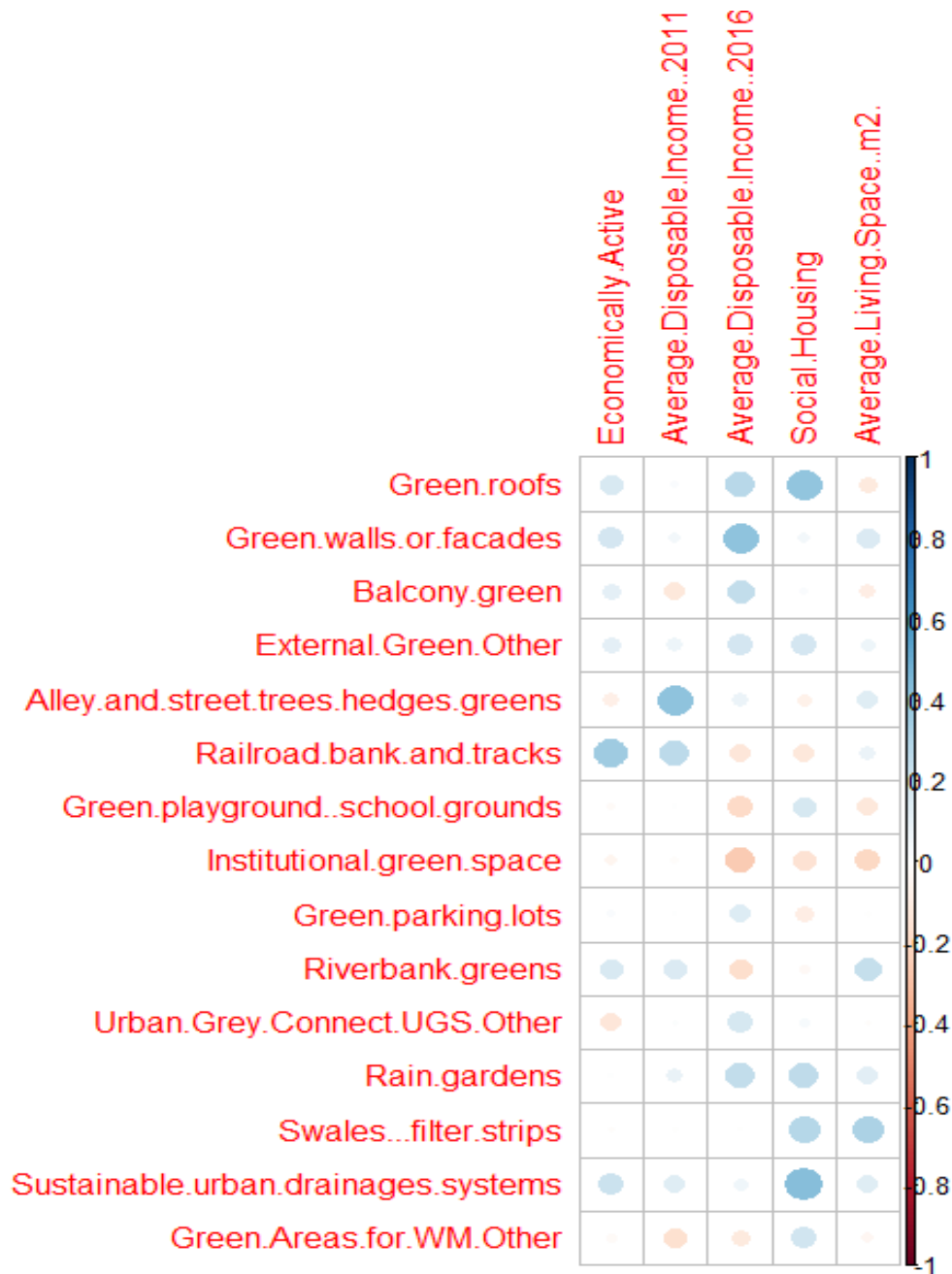
Main drivers

Total cost, source & type of funding.

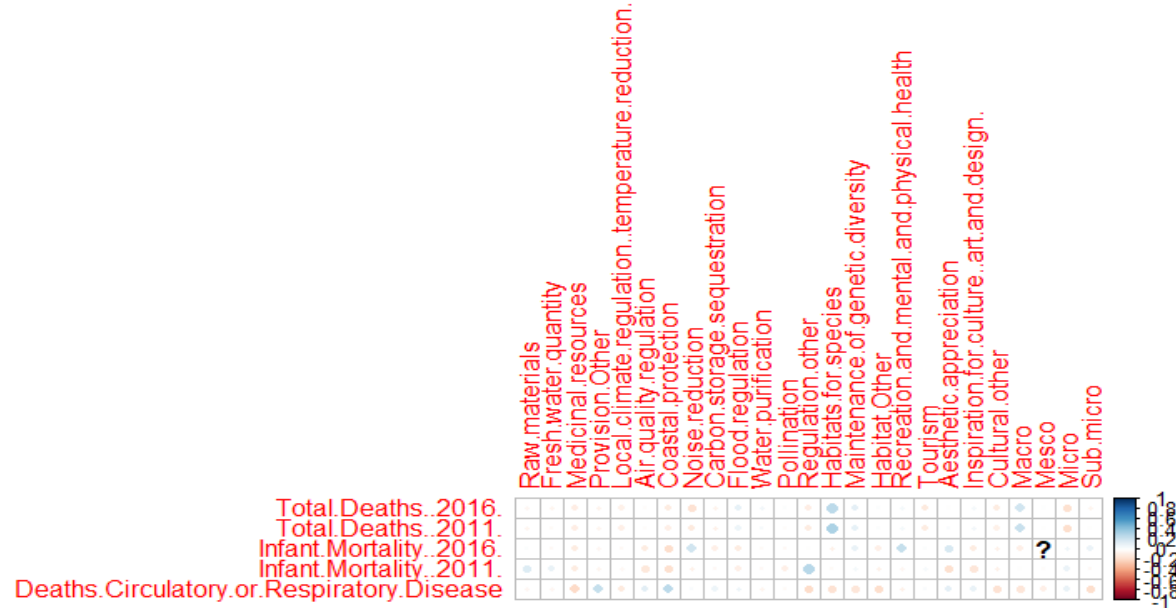
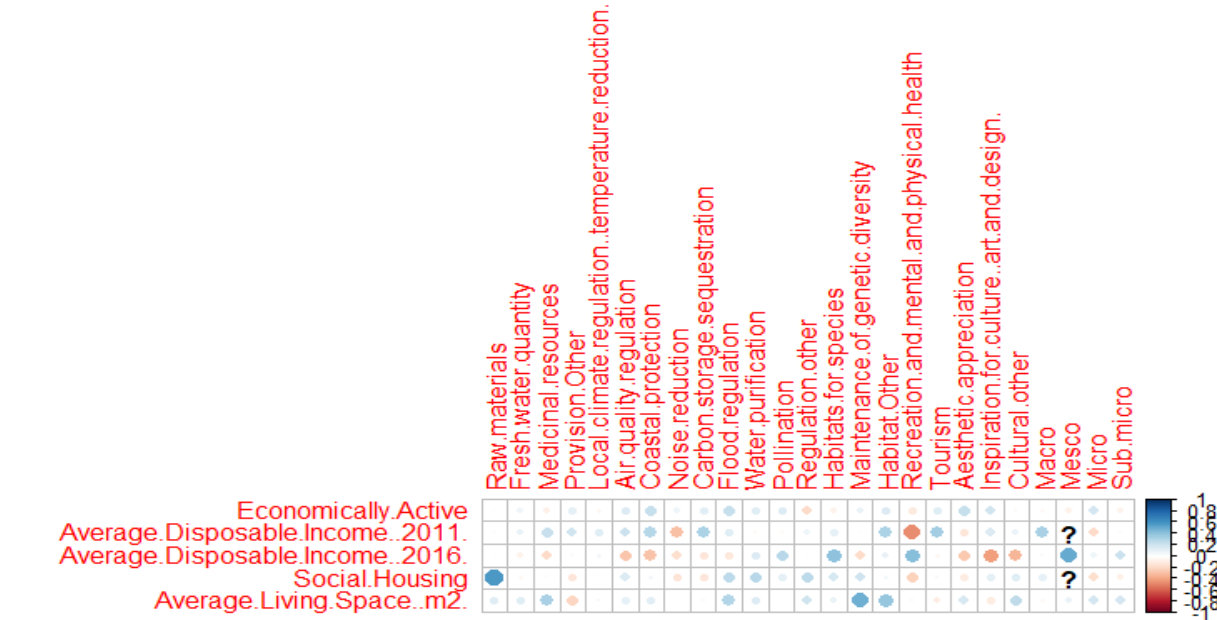
Type of innovation



Association between NBS for Water Management & social & economic characteristics for European cities

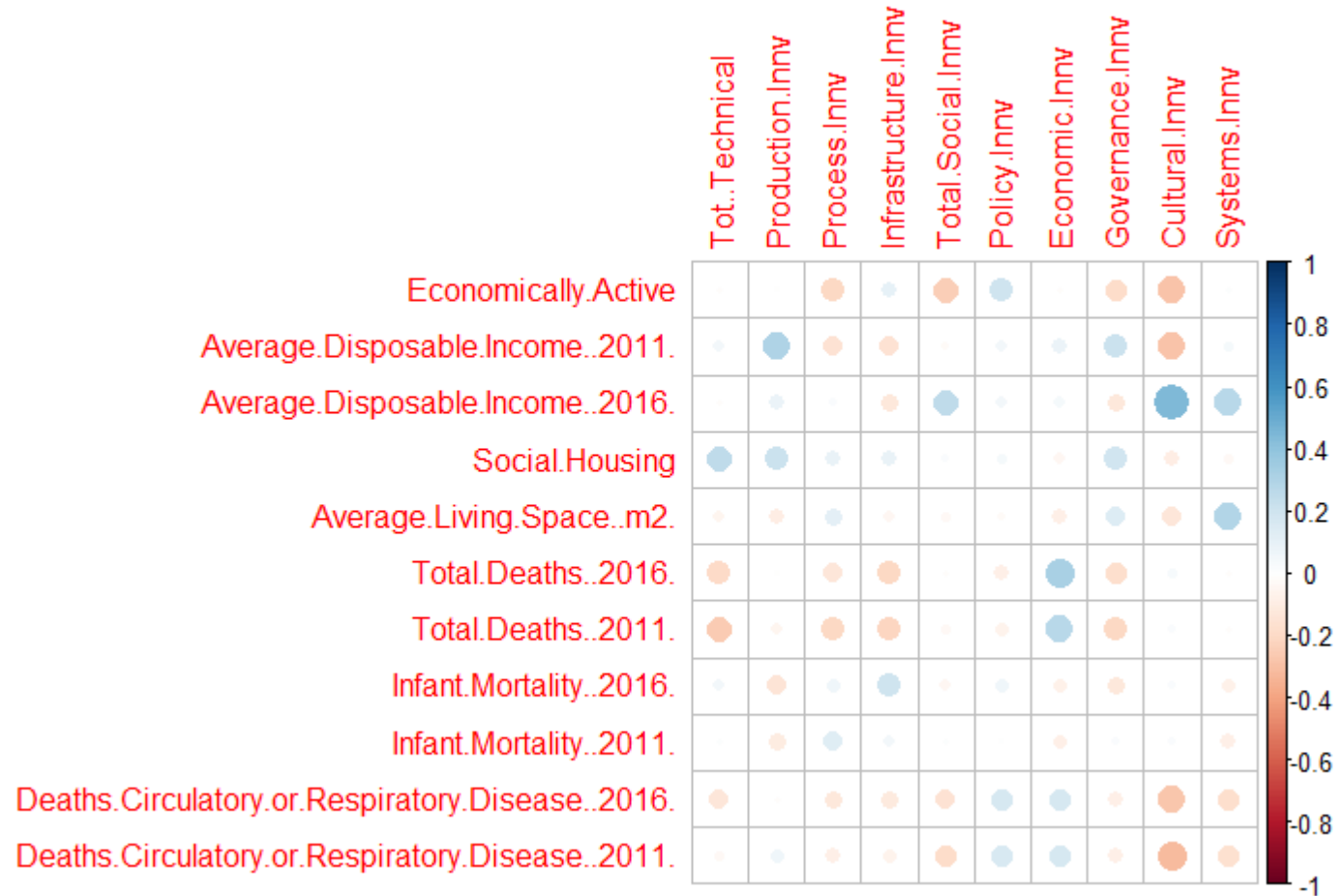


Association between ecosystem services & social, health & economic variables





Association between types of innovation & key social, economic & health factors in cities



Conclusion

- Moderate positive and negative associations between different social, economic and health factors.
- Stronger correlations between social and economic variables and differing characteristics of NBS than health variables.
- This could be explained by:
 - Ecological fallacy masking benefits of NBS being delivered at a neighbourhood or street scale.
 - Limited number of variables, particularly health variables at city scale. Data does not allow the relationship between NBS, physical exercise, etc to be investigated.
 - Lack of data for many cities due to the voluntary nature of data provision of the Urban Audit.
- Further analysis to determine how multilevel deprivation, census and health statistics relate to social and health inequalities focusing on UK case studies.





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