

# How does the type of urban green/blue space impact subjective well-being in London?



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## Subjective well-being & green/blue spaces

- The natural environment and interactions with it have been found to be beneficial for well-being<sup>1</sup>.
- Improving the provision of natural spaces in urban areas has the potential to not only abate the effects of poor environmental quality, but also to provide positive health and well-being benefits directly<sup>2</sup>.
- However, inconsistencies across studies in green/blue space definition mean comparisons are difficult, and the implementation of these findings in effective land use policies scarce<sup>3</sup>.

## Open Space categories

- The **Planning Policy Guidance Note 17: Planning for open space, sports and recreation**<sup>4</sup> is an existing and widely used land use typology in the UK.
- It is used to design and audit open space in each council/borough with the expressed aim to improve well-being of residents.
- To the best of our knowledge, no studies have used this typology to assess the benefits of different types of green/blue space to SWB.

## Data

- Indicators of individual SWB & socio-economic measures from the BHPS & UKHLS datasets, longitudinal UK household panel surveys ranging from 1991-2018.
- PPG17 categories/subcategories (maintained by GiGL)
- Air pollution data as annual ambient NO<sub>2</sub> levels (produced by DEFRA).
- Indices of Multiple Deprivation (produced by DGLC)



**Aim**  
Subjective well-being (SWB) is a measure of how people experience and evaluate their lives as a whole. The aim of this study is to explore if open space categories (PPG17) contribute to SWB, and if so, how much.

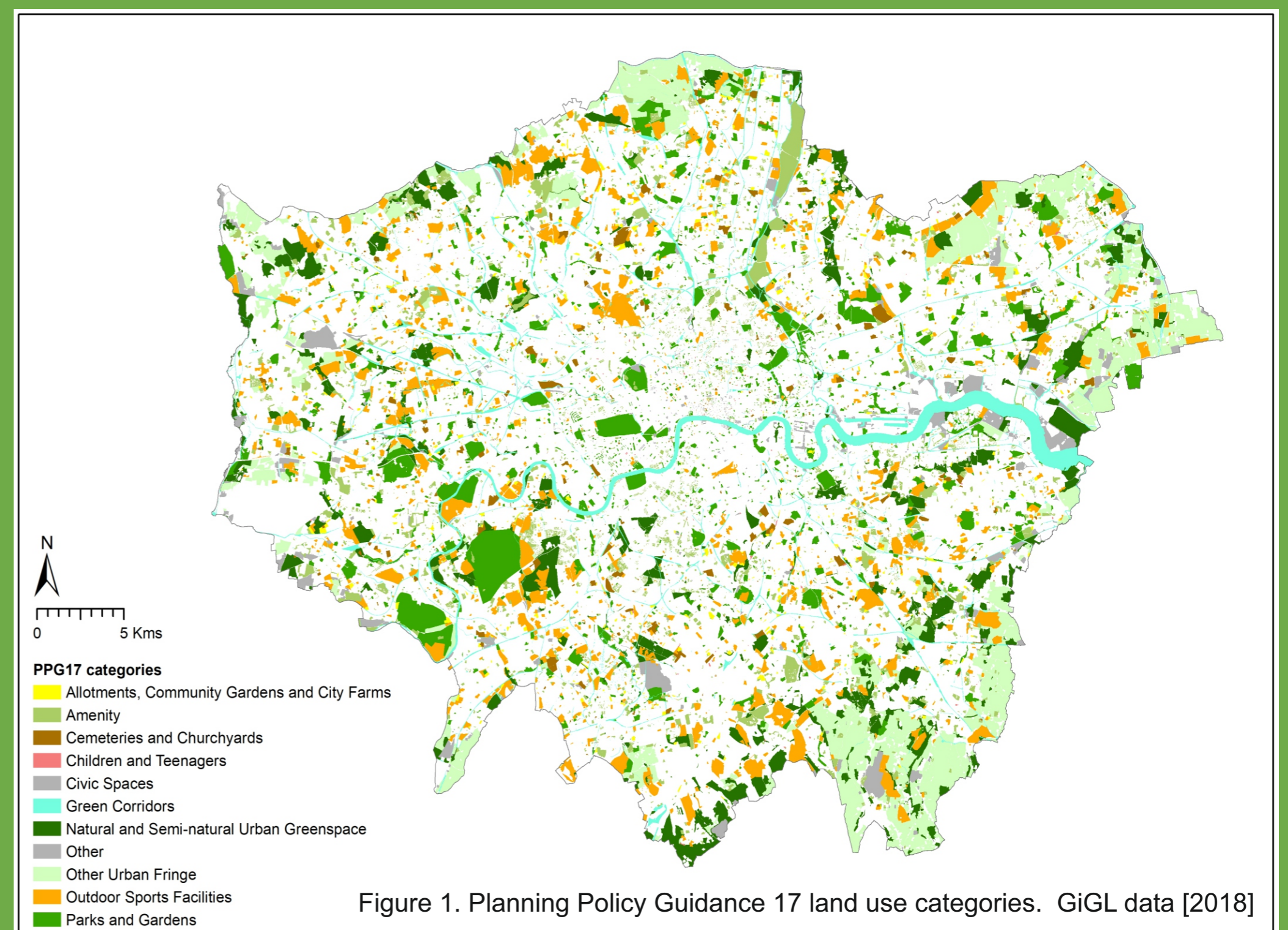


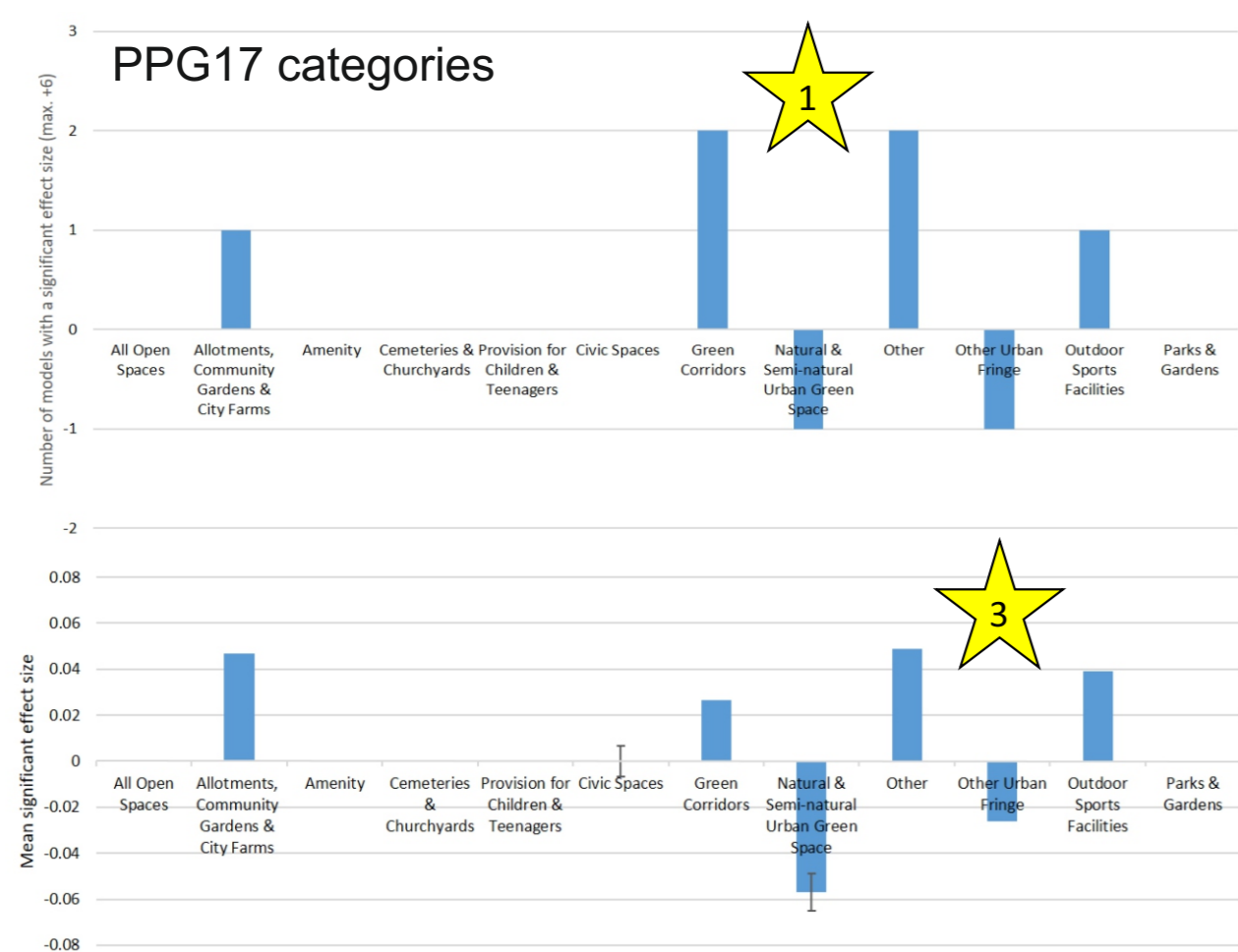
Figure 1. Planning Policy Guidance 17 land use categories. GiGL data [2018]

## Methods

- Spatially linked individual-level SWB data with PPG17 in ArcGIS.
- Attributed LSOA coverage of PPG17, and individual- and neighbourhood- level control variables to each individual.
- Conducted 6 fixed effects regressions in Stata for each PPG17 type.

## Models

- Model 1, 2 & 3 - BHPS with 1) life satisfaction, 2) General Health Questionnaire (GHQ) & 3) self-reported general health  
Model 4, 5 & 6 - UKHLS with 4) life satisfaction, 5) GHQ & 6) self-reported general health



Number of models with significant PPG17 coefficients

Mean significant effect size (& IQR)



## Results

- Green Corridors and Other categories have a positive relationship with 2 models.
- Golf courses, Canals, Land reclamation and Other subcategories have a positive relationship with at least 2 models.
- The effect sizes are small but affect a large population.
- Disused quarry/gravel pit and road island/verge subcategories have a negative association with 2 models.
- Canals, Rivers and Reservoirs (blue space) all have a positive association in at least 1 model.
- Surprisingly, several green space types have a negative/no significant relationship with SWB, e.g. public woodland, parks, nature reserves.

## What did we learn?

- Golf courses, blue spaces, allotments and 'other' are key open space types for positive subjective well-being in adults in London.
- Overall 'open space' was not a useful aggregate when examining the effect on well-being.
- Similarly, the PPG17 categories often masked relationships due to their broad definition, e.g. Parks & Gardens and splitting up blue spaces.
- Life satisfaction, GHQ and self-reported general health capture different aspects of well-being.
- Using two different surveys allows us to test different populations.
- Using large, longitudinal data allows us to use methods that attempt to address endogeneity issues.