

# Street Hierarchy and the Distribution of Frontage Uses

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## Background and Research Topic

- **Modernist urban planning** planning broke the relationship between movement and urban place by setting up a new urban model where free-flow highways are separated from buildings and public spaces.
- **Street-based urban design approach** uses the street as the fundamental building block of urban structuring. It requires the knowledge of the relationship between street network and land use distribution in existing cities.

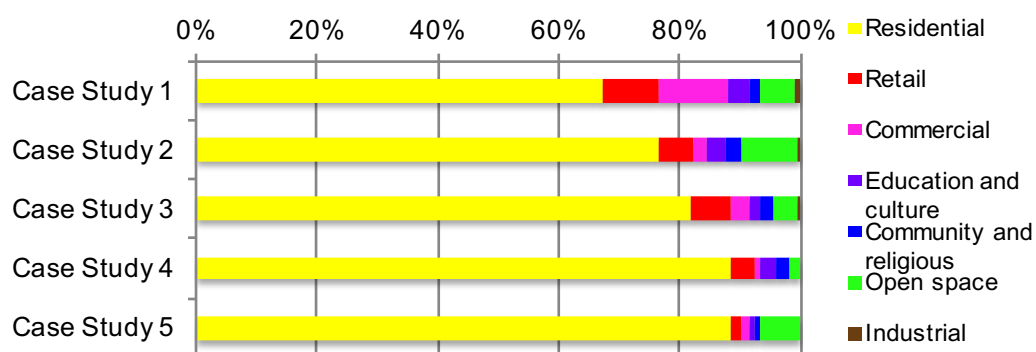
- **Classical land use theories** provide a basic understanding of the economic mechanism driving the distribution of land uses. However, the treatment of street network is either absent or simplified.
- **Street configuration** may influence the land use pattern through the movement economy process or spatial cognition. Several indices have been found of great explanatory power in the distribution land uses.

The main hypothesis: **Street Hierarchy** may contribute to explain **the Distribution of Frontage Uses**

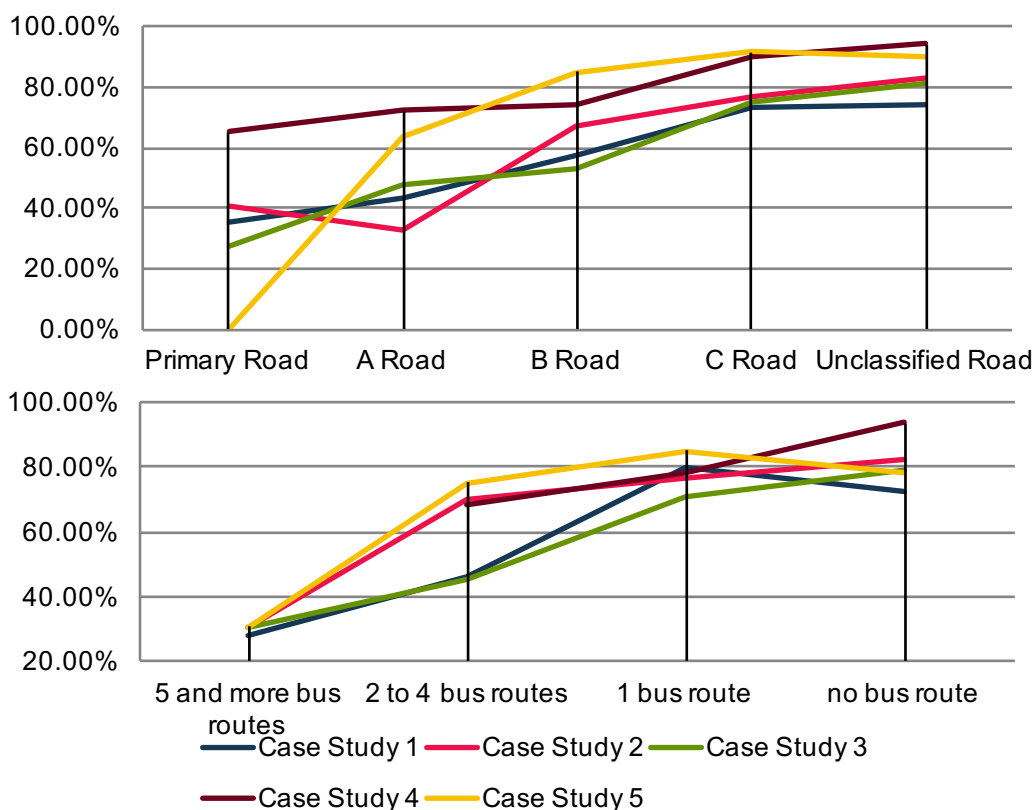
## Methodology

- Five study areas are selected.
- **The official hierarchy:** based on the UK official road classification, classifies streets into primary, A, B, C, and unclassified road.
- **The transit-oriented hierarchy:** based on the number of bus routes along a street, classifies streets into 5 and more bus routes, 2 to 4 bus routes, 1 bus route and no bus route.
- All types of frontage uses on both sides of the streets are studied.

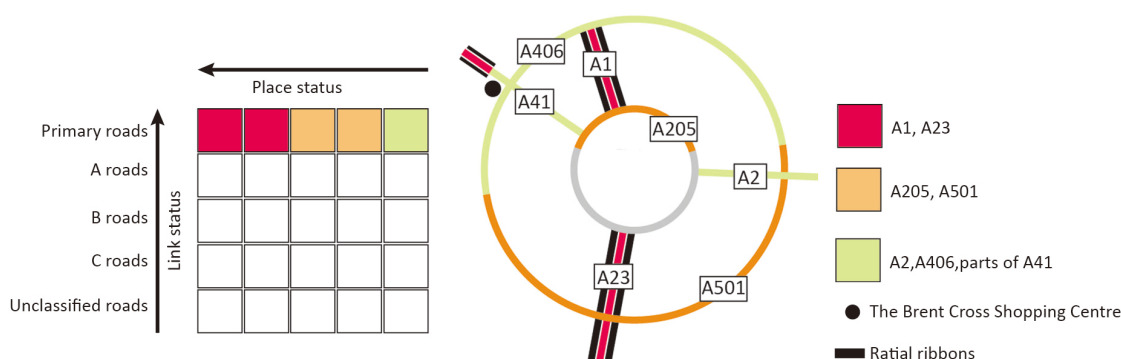
## Findings



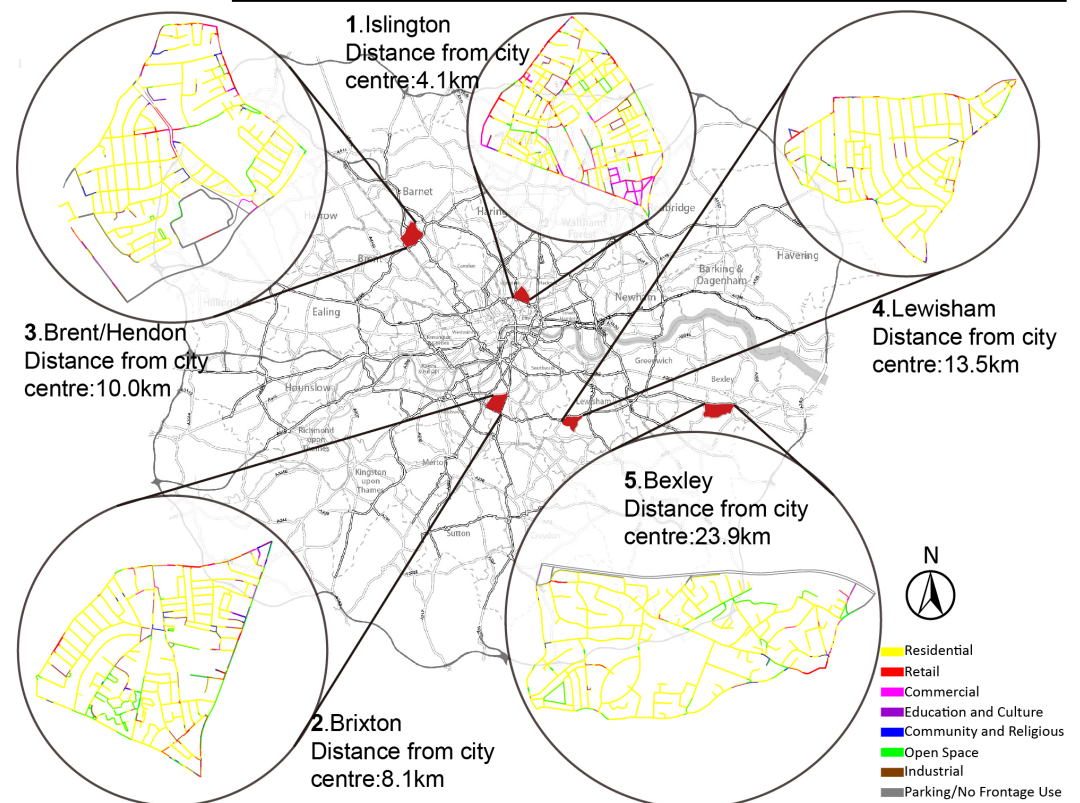
**Figure 2** The overall frontage use distribution of each case study (excluding parking/no frontage use)



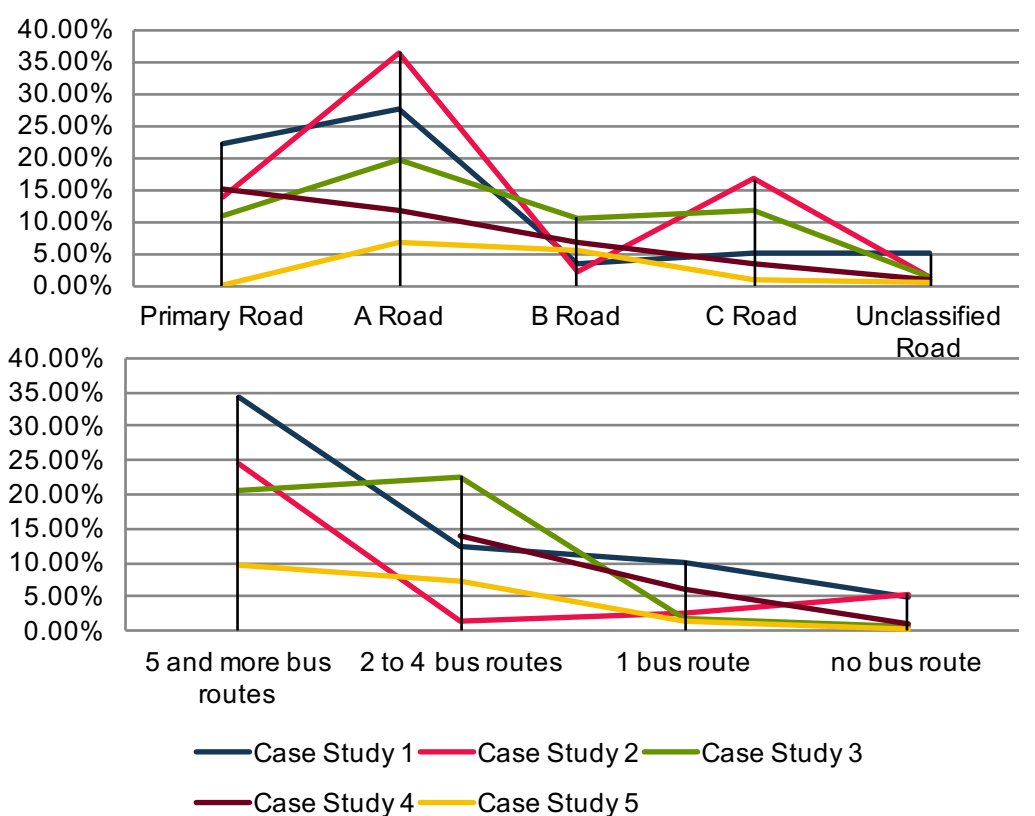
**Figure 3** The relationship between street hierarchy and the proportion of residential use



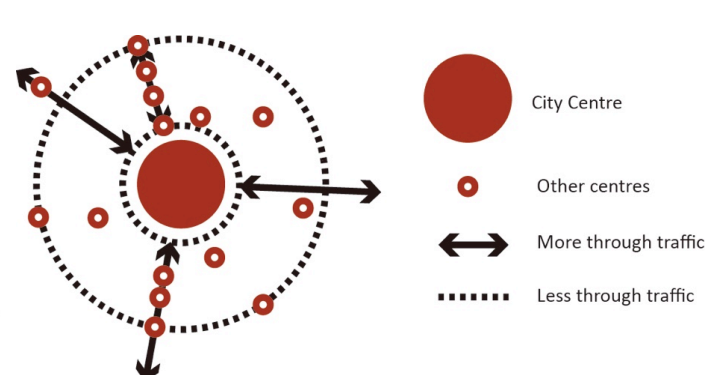
**Figure 5** Three types of primary roads



**Figure 1** Mapping frontage uses



**Figure 4** The relationship between street hierarchy and the proportion of retail use



**Figure 6** Attractions and through traffic

There is tension between a street's link and place function. Street hierarchy can be a vital factor in explaining the distribution of residential and retail frontages. The findings can inform street-based urban design practice.