



Measuring parking search behaviour using GPS data

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Abstract

Abundant and mispriced parking supply in cities attracts more car users and thus encourages more car use. Searching for parking in downtown areas is yet another negative consequence of poorly managed parking supply. Although previous studies conclude that an average of 30% of the total traffic in downtown areas is caused by cruising for parking, more recent studies using GPS data show that parking search traffic is not as substantial.

This study analyzes the extent of parking search behaviour in Zurich, Switzerland using segmented and labelled GPS data collected from a smartphone-based GPS tracking app. The GPS data corresponding to over 10,000 car trips ending within the city of Zurich are map-matched to the underlying OSM road network, and the least-cost path between the trip start and end points are then computed on the same network, with the difference in path length and travel time assumed to be attributed to parking search behaviour.

Different parking search metrics are computed, including the excess travel distance, search time, duplicate travel distance and distance between the parking location and final destination. The computed metrics are found to vary depending on the trip purpose, the availability of parking at home and the type of parking at work.

Keywords

GPS tracking, map-matching, parking search, metrics, MOBIS study

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