



# Do people live in urban neighbourhoods because they do not like to travel? Analysing an alternative residential self-selection hypothesis



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## ABSTRACT

Previous research has indicated that mode-specific attitudes can affect travel mode choice through the residential location choice. According to the principle of residential self-selection, people will try to choose a residential neighbourhood that enables them to travel with as high a share as possible of their amount of travel with their preferred mode. In this study, however, we will analyse whether differences in travel distance, travel time and travel satisfaction in urban versus suburban neighbourhoods are due to travel-liking attitudes, the residential location or a combination of both. Results of this study – analysing leisure trips within the city of Ghent (Belgium) – indicate that suburban respondents are, compared to urban respondents, more satisfied with their trips, which are also longer in time and distance. Suburban respondents also have a more positive stance towards travelling, suggesting a possible residential self-selection process. Travel lovers might prefer a residential neighbourhood where travel distances and travel time are relatively high, while people who do not like to travel might prefer to live in a neighbourhood that enables more short-distance and less travel-time intensive trips. This study suggests that especially people who do not like to travel self-select themselves in urban neighbourhoods in order to limit travel distance and travel time. In contrast, respondents with a more positive stance towards travelling are equally distributed in urban and suburban neighbourhoods. Results also indicate that travel distance and travel time are mainly affected by respondents' residential neighbourhood, while travel satisfaction is mainly affected by travel-liking attitudes.

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## 1. Introduction

Previous research has shown that walking, cycling and public transport use are significantly higher in compact, mixed-use neighbourhoods than in low-density neighbourhoods, while car use is significantly lower (e.g., Cao et al., 2009; Cervero, 1996; Ewing and Cervero, 2010; Mokhtarian and Cao, 2008). This can be partly explained by the physical appearances of these neighbourhoods. Low densities and diversities in suburban neighbourhoods result in higher average trip distances, encouraging car use. Besides, the dispersed land use pattern of these neighbourhoods makes it difficult to efficiently organise public transport services, resulting in low frequencies and long average distances to public transport stops. In urban neighbourhoods, average travel distances are shorter due to a more compact and mixed-use pattern, stimulating active travel and making it easier to organise high-frequency public transport within walking distance of a substantial share of the

neighbourhoods' residents. As a consequence, urban planners have – since the 1990s – tried to reduce negative effects of (long-distance) car use, such as congestion and greenhouse gas emissions, by encouraging the development of compact, mixed-use neighbourhoods (e.g., Cervero, 1996; De Vos et al., 2012; Schwanen and Mokhtarian, 2005a).

The built environment, however, is not the only important explanatory variable of peoples' travel behaviour. Over the past years various studies have shown that (travel-related) attitudes are important determinants of travel mode choice (e.g., Bagley and Mokhtarian, 2002; Kitamura et al., 1997; Van Acker et al., 2011). A positive stance towards a certain mode of transport will result in a higher use of that mode, as long as the use of this mode is not restricted by elements such as the built environment. These attitudes can also affect mode choice indirectly; individuals with an affinity towards a certain kind of travel will often choose a residential location that enables them to use their preferred travel mode for the most of their trips (e.g., Cao et al., 2007; De Vos et al., 2012; Kamruzzaman et al., 2015; Schwanen and Mokhtarian, 2005a, 2005b; Handy et al., 2005; van Wee, 2009; van Wee et al., 2002). Since most low-density suburbs were

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designed to be well accessible by car, car-loving persons will try to self-select themselves in these neighbourhoods, while short average distances in urban-type neighbourhoods might attract people who prefer to walk or cycle to their destination. Some studies also indicate that people attaching great importance to the proximity of the workplace, shopping facilities, recreational activities and other amenities, try to self-select themselves in compact, mixed-use neighbourhoods (Næss, 2009, 2014). Næss (2009, 2014) found a negative effect of the importance attached to proximity (to the workplace, shopping opportunities and public transport) and living in or close to a city centre on the distance travelled by car, while Scheiner (2010) indicates that preferences for proximity do not play an important role on travel distance.

Since average travel distances significantly differ between urban and suburban neighbourhoods, it might also be possible that people who dislike travelling prefer to live in an urban neighbourhood where most destinations are nearby, while people who like travelling are not opposed living in a more suburban-type neighbourhood with longer average distances. Although not analysed to the same degree, studies also indicate that average travel time (see Ewing and Cervero, 2001) and travel satisfaction (De Vos et al., 2016) – i.e., the way people value their travel – is lower in urban neighbourhoods than in suburban neighbourhoods. However, these differences might also be due to varying travel-liking attitudes.

In this paper we will analyse whether differences in travel distance, travel time and travel satisfaction are due to the residential location, travel-liking attitudes or both; based on trips to respondents' most recent out-of-home leisure activity within the city of Ghent (Belgium). Leisure trips were chosen because of the assumption that mode choice and destination choice – and consequently travel distance and travel time – are most free for such trips, especially compared to more mandatory trips such as commute trips. The paper is organised as follows. Section 2 reviews the literature on how travel distance, travel time and travel satisfaction varies according to the residential location, and how these differences could be affected by travel-liking attitudes. Section 3 explains the used data and methods, while the main results are provided in Section 4. Discussion and conclusion are provided in Section 5.

## 2. An alternative residential self-selection hypothesis

### 2.1. Travel distance, travel time and travel satisfaction according to the residential location

Varying travel distances between urban and suburban-style neighbourhoods are well accepted in travel behaviour studies. People living in suburban neighbourhoods travel longer distances than urban residents. Of course, this is not a surprise since average densities and diversities are higher in urban areas reducing the average distance to the nearest destination (e.g., Cervero and Kockelman, 1997; Frank and Pivo, 1994; Vance and Hedel, 2007; van Wee, 2002). Furthermore, the street network also affects the travel distance. The connectivity (i.e., the ease of moving) is high and average distances are low in a neighbourhood with a gride-like street network with small building blocks. By contrast, low connectivity and long average distances can be found in neighbourhoods characterised by a lot of dead-end streets and a low density of intersections (due to large blocks). However, as neighbourhoods with a high connectivity are often found in compact, mixed-use city centres, it makes it difficult to determine the independent contribution of the street network on travel distance (Cervero, 1996; Ewing and Cervero, 2001; Saelens et al., 2003). Furthermore, differences in travel distance (due to density, diversity

and the street network configuration) will also result in a higher car ownership in suburban neighbourhoods since a lot of destinations are not within reach via slow modes. This high car ownership, however, will subsequently result in a high car dependency and even more long-distance (car) travel.

The link between residential location and travel time is less clear than the link between residential location and travel distance, since longer distances are often compensated for by using faster travel modes. In suburban neighbourhoods, distances are often too long for active travel, forcing people to travel by motorised travel modes. The longer distances in suburban neighbourhoods – compared to urban neighbourhoods – will therefore not necessarily result in longer travel times. Nevertheless, studies do indicate that people living in suburban-type neighbourhoods have longer travel times for both work and non-work trips compared to people living in more compact, mixed-use neighbourhoods (e.g., Dill, 2004; Ewing and Cervero, 2001; Ewing et al., 1994; Khattak and Rodriguez, 2005; Schwanen et al., 2005).

Recently, travel behaviour studies are starting to show more interest in how people experience their travel and how satisfied they are with it (De Vos et al., 2013; Ettema et al., 2010, 2011). Although these studies indicate that there are substantial differences in the way people experience and evaluate their trip according to varying trip characteristics (e.g., weather conditions, congestion levels) and the chosen travel mode (Abou-Zeid, 2009; De Vos et al., 2015, 2016; Duarte et al., 2010; Ettema et al., 2011; Friman et al., 2013; Olsson et al., 2013), the link between residential location and travel satisfaction has not been analysed thoroughly. To the best of our knowledge, only two studies have analysed this relation. According to De Vos et al. (2016) – using the same data as this study – suburban residents experience more positive feelings during travel and evaluate their trip more positively compared to urban residents, and this for all travel modes. Also Cao and Ettema (2014) indicate that travel satisfaction is lower in high-density neighbourhoods compared to low-density suburbs, although public transport availability seems to positively affect travel satisfaction. It is not directly clear, however, why travel satisfaction differs according to the residential location. Cao and Ettema (2014) state that self-selection plays a significant role in explaining travel satisfaction. Individuals are likely to seek a neighbourhood enabling them to have satisfying trips. This could be obtained by living in a neighbourhood that stimulates the use of a preferred travel mode, but also by living in a neighbourhood that brings along a certain preferred trip length (in time and distance). It might therefore be possible that travel-liking attitudes – besides mode-specific attitudes – attenuate the effect of the residential neighbourhood and that travel satisfaction is affected by these attitudes, through the residential location choice. In this paper we will analyse these relations.

### 2.2. Travel liking

From an economic point of view, travel – and travel time in particular – is a cost to be paid in order to participate in a certain activity at the destination of the trip. Therefore, travel time savings have always been one of the most important components of transport policies in order to convert 'unproductive' time into economically valuable time (Jain and Lyons, 2008; Lyons et al., 2007; Metz, 2008). However, some studies indicate that people do not always want to reduce or minimise their travel time indicating that – besides offering access to spatially separated activities – travelling itself also possesses a positive utility (Redmond and Mokhtarian, 2001). First of all, people can perform activities while travelling, especially when using public transport. Public transport users can use travel time productively to work or study, enhanced by using mobile technology such as smartphones and laptops (e.g.,

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