



On user perception of private transport in Barcelona Metropolitan area: an experience in an academic suburban space



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ABSTRACT

The negative externalities of the massive use of private transport have been widely studied and verified by the scientific community. However, the use of the automobile is still widely accepted and even vindicated among a high number of citizens. Solving this social dilemma requires analysing the reasons behind private transport use along with the perceptions of its users. This paper examines the individual motivations for using private transport to reach the Autonomous University of Barcelona (UAB); a single suburban node inside Barcelona's Metropolitan Region. We used data gathered by the Mobility Survey of the UAB to measure the use of private transport and to select a group with homogeneous characteristics for which we could perform qualitative analysis based on in-depth interviews. The analysis was focused on university staff (teaching, researchers and administrative) the university group which is using the private transport the most. Qualitative methodology identified three main stages of travel by private car upon which interviewees projected their perceptions. A strong link between car commuting and social status was revealed but unlike other studies, on this case users were compelled to use private transport because of their social standing, and not as a way to progress. Finally, time travel and convenience were also found significant but always in relation with social position.

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1. Introduction

Understanding modal choice, and especially private car use, is one of the major goals in transport analysis. It is, therefore, important to rely on quantitative data showing the mobility patterns and influence of the territorial and social contexts. However, this is not enough to appreciate why some means of transport are more used than others. If we want to understand the motivations that lead to private car use, it is necessary to perform the analysis with methodologies that make visible individual perceptions and little nuances that finally lead to choosing private transport (Beirão and Sarsfield Cabral, 2007). In addition, this process of analysis gives better results if we use small study groups, avoiding the problems related to working with excessively aggregated data (Røe, 2000).

Many citizens still identify the use of private transport with immediate benefits linked to their quality of life (Hiscock et al., 2002) and claim that using a car is a personal choice which improves their job opportunities and enhances their education and

leisure time options. These individual perspectives are in direct contradiction to the irrefutable evidence which underlines its negative environmental and social impacts. Moreover, the evidence concerning the negative impact of massive private transport use on the quality of life of citizens and cities, in general, is undeniable. Yet, the population at large appear to be out of touch with this debate and continue to defend transport on an individual and massive scale. This illustrates the traditional dilemma between individual action and collective results – positions which appear to be more divergent than ever in this field (Steg and Gifford, 2005). In this situation, it is of paramount importance to analyse the perceptions of private transport users in order to be able to design strategies that would help to reduce the appeal of using a car among certain social groups (Gärling and Schuitema, 2007).

This article analyses the perceptions of highly qualified users concerning the use of private transport to commute to a nodal point of the Barcelona Metropolitan Region (BMR) suburban periphery. The quantitative presence of this private transport commuting is addressed through a travel survey that is also used to identify and properly analyse the group of study –the university staff-. The qualitative in-depth interviews aim to examine the opinions of teaching, research and administrative staff on their

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daily commuting to the Universitat Autònoma de Barcelona (UAB). The UAB itself is a suburban campus university, located between the first and second metropolitan belts. It accommodates more than 50,000 people every day, and is served by a comprehensive rail service.

Data provided by the survey, which was conducted for the whole of the university community, makes it possible to identify the most appropriate subgroup to intensify the analysis by using in-depth interviews. The aim is to unveil the explicit and implicit reasons given by car users and to recognise the main factors affecting people's choice of private transport, in addition to what are their attitudes towards this specific kind of transport.

The remaining part of this paper is organised as follows. Section 2 provides a brief literary review of existing studies about private transport use and drivers perceptions, along with introducing the place of study: the Autonomous University of Barcelona campus. Section 3 introduces the qualitative and quantitative methodology and the collected data sources. Specific results are fully explained in Section 4 which is followed by a discussion of the findings in relation with the existent scientific literature in Section 5. Finally Section 6 concludes the article by highlighting its main contributions.

2. Work commutes in a suburban setting

2.1. The use of private transport: reasons for and consequences

Modal choice in general, and car use in particular, is determined by a large combination of factors. In this context, it has been well studied how both urban features and socioeconomic characteristics determine travel patterns (Gutiérrez and García-Palomares, 2007; Banister, 2011). Built environment features, such as density and land use, have long been found to be modifying factors of everyday mobility (Ewing and Cervero, 2002; Litman, 2012). At the same time, the effects of socioeconomic factors, such as income and gender, have also been well proven (Limtanakool et al., 2006; Scheiner, 2010).

But, once all this is taken into account, there is still plenty of room for an individual decision on whether to decide to drive or not. Travel behaviour is heavily determined by internal decisions and a sum of individual choices that are not always driven by rational thought. The sum of subjective preferences and perceptions have drawn less attention when, in fact, they are the key to understanding modal choice (Ory and Mokhtarian, 2009). Although car use has been long associated with instrumental factors, such as its comparative advantage on time, flexibility or economic cost, its predominant use is also due to symbolic and affective factors that make it much more appealing (Steg, 2005). In this regard, car use relies on some very stable perceptions that cover not only its use, but also the inability of other transports to offer the same experiences that cars do (Thøgersen, 2006). Some of these perceptions make private transport utilisation not an objective matter, but a question of mere habit along with social status (Steg, 2005; Eriksson et al., 2008). Such findings challenge the traditional analysis of travel as a derived demand, understanding that travelling can respond to a wide arrange of personal motivations and preferences (Mokhtarian, 2005). Finally, it also underlines the importance of using qualitative approaches in order to understand the key factors on private transport mobility (Beirão and Sarsfield Cabral, 2007; Barker, 2009).

This set of individual perceptions and decisions that often lead to car use are in plain contradiction with the consequences that private transport utilisation has for social and environmental sustainability (Lizárraga, 2012). It is well known how movements of the population have a direct bearing on levels of environmental

pollution, being responsible for 30% of total emissions and a determining factor in climate change with irreversible long-term effects (Banister and Anable, 2009). But, not all means of transportation contribute to the same degree: according to data from the European Union (EU-27) for 2007, cars use up to four times more energy per passenger-kilometre than most means of public transportation (ADEME, 2009) and, moreover, cars are also responsible for 71% of gas emissions into the atmosphere produced by the transport sector (EC, 2012).

To these entire environmental impacts one has to add a set of social externalities, directly derived from car use. Upon those, private transport is the cause of traffic congestion and entails an enormous loss of productive time which, according to the OECD, account for 1–3% of GDP (EC, 2012). Private vehicles are also responsible for harmful noise levels that affect more than 30% of the urban population (AEMA, 2006), notwithstanding road and pedestrian safety. Furthermore, private transport predominance can be linked with social exclusion processes (Muniz et al., 2008; Delbosc and Currie, 2011) alongside with reduced urban resilience, since over-dependence on one single means of transport inhibits cities from adapting themselves to future changes (Newman et al., 2009). These plain contradictions between individual preferences and collective detriment have made most academics label car use as clear social dilemma (Fujii et al., 2001; Polk, 2004). Such a dilemma requires analyzing the perceptions of those groups of users that share travel characteristics inside a common territorial setting.

2.2. The workplace: a metropolitan and suburban setting

Our analysis is focused on the UAB, a suburban campus university located well within the BMR, a region that covers an area of 3242 km², with close to 5 million inhabitants and 164 municipalities, and is structured by two metropolitan belts that extend from the city outwards. The first ring is denser and multifunctional, while the second one is marked by its low urban density and a notable presence of zoning (Miralles-Guasch and Marquet Sarda, 2014). The UAB is located some 15 km from the capital, it shares some of morphological characteristics of the second ring, and it is situated at an intersection between two major motorways (AP-7 and C-58) (see Fig. 1). Despite its suburban setting, the campus has high public transport accessibility, as there are three inner-campus train stations with direct links to Barcelona and other surrounding cities (Bellet Sanfeliu, 2011).

The university community consists of approximately 53,000 people, 87% of whom are students, 8.3% are teaching/research staff and 4.7% are administrative staff. As this is a suburban university campus, almost all of the community live in the surrounding municipalities, among which Barcelona accounts for a quarter (25.7%). The percentages for other major municipalities are the following: Sabadell (10.5%), Cerdanyola del Vallès (9.3%), Terrassa (6.3%) and Sant Cugat del Vallès (3.8%) (see Fig. 1). It should be noted that there is on-campus accommodation for students and visiting lecturers, which accommodates 2.7% of the university community.

3. Methodology: surveys and qualitative assessment

The aim of the present paper is to understand the subjective factors that make driving so appealing to the members of a specific group of the university community. These subjective factors include perceptions, identity and habits, and are being used to understand modal choice. But in order to do so, we must distinguish a homogeneous group that can be targeted in the same manner because of their similar needs and preferences (Wedel and

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