

Unpacking impacts of car sharing: Insights from a qualitative research study in Melbourne, Australia

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Abstract

Car sharing as a mobility option is growing rapidly in many countries. To meet growing demand, local governments are often approached to provide support to car share providers and car share users. However there is a lack of local evidence about the effectiveness of car share in Australia. Moreover, much of the car sharing research worldwide has been empirical, focused on the net impact of services. These findings have provided insights into ‘what’ happens as car sharing increases but offer few insights into the ‘why’ dimension. This exploratory study, conducted in Melbourne, Australia, was informed by a theoretical framework informed by the mobility biographies literature. Qualitative methods were used to investigate the impact of car sharing on travel behavior in the form of lifestyle, mobility and travel choices. Focus groups (n=5 groups) and semi-structured interviews (n=18) were conducted with car share members and non-members in inner and middle Melbourne. Car sharers were classified into five categories: *car dependents*, *car avoiders*, *second car avoiders*, *car aspirers* and *car sellers*. Key findings suggest that car sharing motives and impacts vary greatly for all categories. *Car aspirers* and *car sellers* report the greatest changes in mobility choices (car ownership) and travel choices (use of a car, public transport and active modes). The study highlights the value of a disaggregated understanding of impacts for each member category. It provides evidence relevant to tailoring policy, plans, and marketing measures to encourage the use of car share as a lever for reducing car ownership and dependency.

1. Introduction

Car sharing services have been proliferating worldwide since 1970’s (Shaheen et al., 1998) however, in Australia they only entered the market in 2004. As of 2018, there are over 4,000 shared cars available in Australia (Car Next Door, 2017, Goget, 2017, Flexicar, 2017, Green Share Car, 2017). Compared to the world, Australian car share systems are still in their infancy (Shahin and Cohen, 2007). Fleet-based shared cars are owned and maintained by a car share provider (CSP) organisation. Most cars are parked on the street in designated parking bays allocated by respective local governments. Increasingly private multi-storey residential and commercial buildings are also providing designated shared car parking in parking facilities, accessible by other residents or the public. Peer to Peer (P2P) car share in Melbourne started in 2012 and allows members to borrow cars from other members of the community. The P2P CSP works as an aggregator of spare capacity on community cars, like other sharing business models such as Uber and Airbnb. In Melbourne, shared cars are mostly concentrated to higher density inner city districts and higher population density pockets in middle suburbs (see Figure 1).

In Australia, these services are mainly available in Sydney and Melbourne but also emerging in other cities such as Perth, Adelaide and Darwin (Figure 2). As of June 2018, Melbourne has two P2P CSPs and five fleet-based CSPs with over 1,500 shared cars available across inner and middle Melbourne (see Figure 1).

The key objectives of this research are to:

- Investigate the various forms of travel behaviour change that correspond with car share use.
- Unpack the processes underpinning these travel behaviour changes.

The following section reviews the literature on understanding impacts of car sharing and highlights critical gaps in knowledge. Section 3 outlines the methodology of this work. Section 4 discusses the findings of the study and section 5 provides the conclusions.

2. Literature Review

Previous research reports that between 11% to 65% car share members experience a reduction in car ownership (Shaheen and Cohen, 2012, Martin et al., 2010, Martin and Shaheen, 2011, Katsev et al., 2001, Zhou and Kockelman, 2011). It is notable that the range is very large and indicates that success of car sharing is dependent on context, culture and the wider policy environment. Per-share car 1.4 to 13 personal cars are replaced, including personal cars sold and purchases foregone (Feigon and Murphy, 2016, Shaheen and Cohen, 2012, Martin et al., 2010, Nijland and van Meerkerk, 2017). **Although on average most studies show a net reduction in car ownership, very few look beyond ‘average’ figures.** A British qualitative study identified that while some car share members ‘shed’ personal cars, others use it as a stepping stone to car ownership (Chatterjee et al., 2013). **Our study extends this work and argues that there are more than two categories of car share members when we talk about impacts.**

International studies have investigated the impact of car sharing on travel choices, **but there has not been a focus on Australia.** In North America, car sharers, who own a personal car, report a net reduction in car miles, non-car owners have shown an increase in car use (Shaheen et al., 2004). Furthermore, studies have tried to gauge if this reduction in mileage is forgone travel or increase in use of public transit use, walking or cycling. However, these studies are very few and show a variety of results which cannot be extended to represent the context in Melbourne (Cervero and Tsai, 2004, Cervero et al., 2007, Cervero, 2003). Moreover, the **intentions behind the changes and the processes themselves have seldom been recognised.**

A major gap in the literature is the role of lifestyle or life stage decisions on mobility choices, for example, marriage, childbirth (Corcoran et al., 2014), joining the workforce, retirement and buying a home. Lifestyle changes have been correlated with inducing car ownership (Young and Caisey, 2010, Zhang et al., 2017), yet to date there has been **little understanding of the correlation between lifestyle triggers and shared mobility choices.** This study aims to address these gaps in existing knowledge and provide evidence which can be useful in planning for the growing number of shared modes in Australian cities.

4. Methods

This was an exploratory qualitative study using focus groups and semi-structured phone interviews (conducted between June and October 2017). All research protocols were approved by the Monash University Human Research Ethics Committee. Focus groups (n=5) and semi-structured interviews (n=18) were conducted, and a diverse range of participants was recruited to include:

- car share members, non-members and ex-members
- fleet based and P2P car share members
- all age groups, household types and gender

- residents of inner, middle and outer Melbourne (mostly inner Melbourne)

5. Key Findings and Discussion

5.1 Key Socio Demographic Characteristics

Of the 53 total participants, 40 were current car share members, 4 were ex car share members, 9 were non members. A third of car share members used the service about once a week and just under two third members used the service once a month or less on an average.

Most car share member participants were aged between 35-44 or 25-34 years. Research suggests that these age groups are most likely to be car share members¹. Most participants (76%) were from adult only households, including almost a quarter of participants (22%) from single person households. A quarter of participants (24%) had children in their households.

5.2 Categorising Car Share Users

The overwhelming message is that there is no one right answer when it comes to ‘impact of car share’. The impacts are multilayered and vary by geography, age, household type and pre-existing car experience, among other factors. Categorising car share members allowed unpacking the richness of these processes and understanding the finer details. Transition in car dependency could be associated with tangible factors (socio-demographic, access to mobility resources) and intangible factors (attitudes, social stigma, perceived mobility needs (Haustein and Hunecke, 2007) and perceived barriers to low car dependence).

5.3.1 Car Dependents

Car dependents typically joined car share to meet a specific need, such as moving furniture, or accessing a car when theirs broke down. The personal car was the default mode for most in this category. Most participants either had access to a few car alternatives (either around home or place of work) or had high perceived mobility needs (e.g., children, nature of work). For this group, lifestyle decisions create a perceived need for car dependency (43) that makes any reduction in car dependency seem difficult. Hence, they see a minimal number of changes in car use before and after using car share, despite understanding cost and environment ramifications of their decision.

5.3.2 Car avoiders

Car avoiders are car share users who did not own a personal car and did not aspire to purchase one. Most *car avoiders* were heavily dependent on active travel or PT and were residents of inner Melbourne where there is high public transport connectivity. They attributed a combination of public transport and car share to low car dependence.

5.3.3 Car Aspirers

This group consisted of people who aspired to own a car eventually. The focus groups and interviews captured *car aspirers* at various stages of car dependency, from dreaming of a future car purchase, considering a car purchase, deciding the type of car and those who had bought a car and were negotiating a change in travel choices. Most considered a car to be a necessity of living in Melbourne. Key reasons included major changes in life events such as moving to a new city, moving to a new house, change in work situation and birth of children.

¹ Based on findings of quantitative surveys of car share members in Melbourne. Publication in preparation.

5.3.4 *Second car avoiders*

This group mostly consisted of people in multiple adult households with or without children. Unlike *car aspirers*, this group already had some level of access to a personal car before joining car share. They joined car share to get occasional access to a second car or for special purposes (e.g. moving items), mostly the former. At least one of the adult members of their household were dependent on PT and they shared the family vehicle on other occasions. They found that car share eased this for them to a great degree. Most belonged to cost-conscious households that were not afraid to undertake an extra level of planning required to make the household sharing of car possible. Most respondents agreed that while public transport connectivity was of '*paramount importance*', but the '*security*' of at least one personal car was necessary.

5.3.5 *Car sellers*

This group mainly consisted of people who had undergone major changes in lifestyle along with substantial reduction in car dependency- either from *car-dependent* to *second car avoider*, or *second car avoider* to *car avoider* (see figure above). Some of the lifestyle changes reported were full or partial retirement, divorce, kids leaving the family home, downsizing house and moving to a new city. The changes experienced by this group were what car share systems around the world claim to do and on this basis derive the legitimacy for support from public funds. However, it is clear only a proportion of car share members experience these changes. Hence, to maximise the efficiency of car share in tackling car dependency a wide range of issues need to be understood.

5.3.6 *Non-Members*

Non-members were of two types- car owning and non-car owning. The former were highly car-dependent, habituated to car access, did not enjoy the 'planning' aspect of travel and highly valued the freedom to make a trip when they wanted. Car share did not appeal to them for this reason. Noncar owning non-members were the opposite. Most of them depended heavily on PT or active modes for their travel needs. They were either not aware about car share or had considered it but rejected it in favour of Uber, perceived complexity or cost issues.

6. Conclusion

The study highlights that the impact of car share on car dependency is much more nuanced than a binary positive or negative affect often reported in empirical studies (Table 2). Car share members can be classified into five clear categories based on motivations and impacts. *Car sellers* and *car aspirers* see the maximum change in mobility and travel choices. While the former use car share as a tool to ease into low car dependency, the latter use car share as a stepping stone towards car ownership. These two categories are similar to those identified by Chatterjee et al. (2012). Data suggests that for most car sharers life events were the main cause for change in car dependency, but car sharer assisted the transition process. For others, the availability of car share got them thinking about this change. More studies are required to quantify this finding to understand this better. This is an exploratory study of the role of car share as an agent in travel behaviour change. It highlights that the impacts of car sharing are complex and hints at the role of attitudes in the equation. More research is required in understanding attitudinal factors and use quantitative methods to compare how they vary across the category of car sharer users discussed in this paper.

7. Acknowledgments

We acknowledge the support from the City of Port Phillip, Goget, Flexicar, GreenShareCar, and Car Next Door for assisting with survey recruitment. Sincere thanks to the survey participants for their time and involvement.

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