Extended Abstract

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CAR SHARING: IMPACT ON MOBILITY AND TRAVEL CHOICES AND THE ROLE OF LIFE EVENTS AND ATTITUDES

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INTRODUCTION
Car sharing as a mobility option is growing rapidly in many countries. Studies report that car sharing leads to a reduction of car ownership and car use among members (1-5). However, most of this evidence is highly empirical in nature and concentrates on comparing ‘before and after’ or ‘car share users vs non users’. Only a few studies have explored how the impacts of car share can vary across users. A British qualitative study identified that while some car share users shed personal cars; others use it as a stepping stone to car ownership (6). There is value in understanding the various ways in which travel behavior can change due to car share and why.

Moreover, studies have shown that lifestyle choices (e.g. family size), mobility choices (e.g. car ownership) and travel choices (e.g. mode choice, scheduling) are inter-related. Ben Akiva et al. (7) postulated that exogenous variables (such as teleworking) impacts lifestyle, mobility and travel choices (LMT choices) and Muggenberg et al. (8) hinted that attitudes play a role in this interaction. This paper aims to understand how the availability of car sharing affects lifestyle, mobility and travel choices and explore the range of factors which affect this interaction. The study objectives are to:

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

The paper is based on qualitative surveys conducted in Melbourne in June – October 2017. On the basis of these interactions, car sharers were classified into five categories, and it was found that car sharing motives and impacts vary greatly across all categories. It was found that attitudes play a key role in how car share affects travel behavior. The study highlights the value of a disaggregated understanding of impacts for each member category.

METHODS
This paper is based on qualitative data collected in five focus groups and nine semi structured interviews with car share members and ex-members in inner and middle Melbourne. A combination of methods was used because it was difficult to logistically conduct focus groups for car share non members and middle Melbourne residents. The discussion points for both the groups were the same and included car share usage history, motivators for using car share, barriers in use of car share, attitudes towards using the personal car and public transport and impact of car share on lifestyles, mobility and travel choices. Data was manually transcribed and then coded and analysed using NVIVO 11 software.

FINDINGS
Five categories of car share users were established based on motivations of car share use and the changes in lifestyle, mobility and travel choices over time: car dependents, car avoiders, car aspirers, second car avoiders and car sellers.

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. Most participants had access to a personal car and high perceived mobility necessities (e.g., children, nature of work). For this group, lifestyle decisions create a perceived need for car dependency (9) 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. The motives for car ownership were utilitarian but also cultural, psychological and social.

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. Car avoiders withstood (or were ready to withstand) the changes in lifestyle such as the move to a new country, growing family etc. to keep car dependency in check. This can be attributed to their aversion to driving, commitment to health, environment and maintaining good health and to realizing the benefits of car share. Car avoiders used car share for specific purposes only where a car was necessary such as out of town excursions and road trips, big shopping, and errands, transporting guests or pets and moving furniture, etc.

Car avoiders thoroughly planned their day-to-day travel and chained their activities to formulate efficient daily/weekly travel itineraries. This was in direct contrast to car dependents who abhorred the idea of “planning every time (they) left the house” Car avoiders derived joy from using active modes, purposefulness from
minimizing possessions and meaning from sacrificing personal comfort for greater environmental good. Car share relieved the stress on this group to own a personal car (10) and helped them sustain low car dependence.

**Car Aspirers**

This group consisted of people who aspired to own a car eventually. The discussions 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. Car aspirers agreed that car ownership is a norm and usually associated with life events such as moving to a new house, change in work situation and birth of children.

While some car aspirers were only using car share until they could afford a personal car, others were more reluctant to proceed to car ownership. The latter typically had strong views towards using environment-friendly ways of travel or understood the health benefits of low car dependency yet ‘felt pressured’ to purchase one because of social pressure and changing lifestyle such as growing family and purchase of first (suburban) home. After buying personal cars, some participants dramatically increased car trips and quickly reduced PT and active trips. Others were deliberately more mindful of car use citing health, environmental and convenience reasons.

Most car aspirers used car share to relieve the stress (10) associated with low car dependency and delay car ownership. While for some this delay was voluntary and even desired, for others it was a forced delay until they could afford space and money to purchase a personal car. Those with strong cost, environment concerns transitioned into second car avoiders (applicable only for multi-adult families) while the rest progressed on to complete car dependence.

**Second car avoiders**

Unlike car aspirers, this group already had 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. They were more usually more cognizant of the downsides of car ownership, unlike car dependents, some car aspirers, and all non-sharers. Most respondents agreed that while public transport connectivity was of “paramount importance,” but the “security” of availability of at least one personal car was necessary.

While car share did not cause a reduction in car ownership, it prevented them from transitioning to car dependents and aided them in sustaining at least partial dependence on PT and active modes.

**Car sellers**

Ideally, this is the group with the greatest potential to shift to car sharers. However, in reality, this group was the smallest. It consisted of people who had undergone major changes in lifestyle along with a substantial reduction in car dependency, either from car-dependent to second car avoider or second car avoider to car avoider. 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 key is that if a trigger allows people to reconsider car ownership, car share can play a role in supporting this decision and maintaining reduced car dependency. Some of the “hooks” which can prevent car relapse included lower costs, no hassle of car maintenance, realizing that PT is easy, appreciation from friends and family and “deliciousness of a slower life”. This conversion almost for everyone in the group led to less travel, more active modes, more public transport and more efficient travel planning, i.e. lower car dependency. The changes experienced by this group support claims made by car share system operators around the world and legitimize support from public funds. However, it is clear only a proportion of car share users experience these changes. Therefore, to maximize the efficiency of car share in tackling car dependency a wide range of issues needs to be understood.

**CONCLUSIONS**

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. 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 (car ownership) and travel choices (car, PT and active mode use). 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. In addition to these categories, there are car avoiders, second car avoiders, and car dependents. These categories primarily use car share to maintain their status quo or equilibrium of lifestyle, mobility and travel choices. For them, benefits are not in the form of car dependency decreased but rather stopping car dependency from increasing further. For car sellers and car aspirers, change is car dependency coincided with major life events (retirement, entering work, change in family size).

Encouraging car share use is ill-served by a blanket policy approach, findings from this research can inform tailored policies and measures. Prioritisation of effort can also be planned based on these findings. Empirical research built on these findings can inform which categories are most dominant.

This is an exploratory study of the role of car share as an agent in travel behavior 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.

REFERENCES