



Car ownership perceptions and intentions amongst South African students

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ABSTRACT

High levels of car ownership have major impacts on congestion and thus the mobility, accessibility, health and liveability in cities. Increasing car ownership is already reflected in high congestion levels in South African cities and does not appear to be reducing, despite policy interventions. The factors that drive the high car ownership intentions thus need to be investigated, so that policy efforts can be appropriately directed. The study aimed at investigating the car ownership intentions of students, as being most likely to drive car sales in the future, with the purpose of understanding the factors underlying the high desire to own a car. The study finds that although costs are the main barrier to market entry, and that most students intend to purchase a car as soon as they can afford it. These intentions are largely driven by the view that the quality of public transport constrains the movement of people and does not provide a travel alternative that is considered to be a reasonable alternative to the car, as indicated by the view that cars are a necessity. The study finds that although there are differences in the valuation of public and alternative modes of transport, based on demographic elements, familiarity with car usage and psychosocial factors, most students intend to own a car as the best means of travel, with little seeming to moderate the decision. The poor valuation of public and alternative transport suggests however that, whilst other measures to curb car use and promote public transport may have value, only significant service level improvements in public transport is likely to drive real behaviour change.

1. Introduction

It is often asserted that people, especially younger people, have a decreasing desire to drive and purchase cars. The popular press frequently refers to the concept of peak car ownership and the decline of car ownership in major metropolitan areas, such as London and Paris (The Wall Street Journal, 2015; Moss, 2015; Tuttle, 2015; Arquati, 2014; BBC News, 2014; Ross, 2014; Rosenthal, 2013 and London Transport Data, 2011). Although this appears to be true in some countries, Belgiawan et al. (2014) assert that it is only in a limited range of developed countries. They considered car ownership motivations amongst students and found that there are significant discrepancies between students from developed and developing countries.

Although the World Bank indicates that car ownership figures in developing countries such as South Africa are considerably lower than developed countries such as the United States or the United Kingdom, 165 per 1000 people, compared to 809 and 519 (The World Bank, 2016), the latest South African National Household Travel Survey (NHTS) (Statistics South Africa, 2014) indicates that the number of households in the country that own cars is approximately 28.3%, increasing significantly from 22.9% in 2003. This is reflected in total vehicle sales, which have risen, from an average of 30,000 per annum

in 1996 to approximately 50,000 per annum in 2016 (Trading Economics, 2016b). Although the growth has stabilised over the last five years; stability when GDP has effectively declined (Trading Economics, 2016a) provides some indication that car ownership intentions remain high amongst the general population.

High levels of car ownership are undesirable in urban areas. Although car ownership is popularly associated with higher levels of mobility, more frequently it results in high levels of congestion, urban sprawl, additional time spent in traffic, increasing pollution levels, high transport costs and resultantly, lower levels of mobility and accessibility, as well as decreases in the liveability of cities. It is therefore important, from a policy and planning perspective, to determine the factors that drive car ownership intentions, so that interventions can be designed to mitigate against rising ownership levels.

Johannesburg, the largest metropolitan area in South Africa, is ranked as the 77th (of 146) most congested city in the world (Tomtom, 2016). South African transport policies (Department of Transport, 2015; National Planning Commission, 2011; Department of Transport, 1996) prioritise public over private transport, however the above figures reflect that they have not been effective in reducing car ownership levels and these are thus likely to worsen over time.

Most of the growth in global car ownership is projected to take place

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in developing countries (Ecola et al., 2014; Dargay et al., 2007). Although much research has been done on car ownership around the world (Verma, 2015; Belgiawan et al., 2014; Zhu et al., 2012; Clark, 2009), very little has been done in Africa (Salon and Aligula, 2012), much less South Africa. Johannesburg, as the economic hub of South Africa, with the highest population density, is the city most likely to be affected by congestion and, as such, is appropriate for the review of car ownership intentions in the country. The aim of this work is to describe these intentions amongst students based at a major metropolitan university in Johannesburg. Based on research done by Zhu et al. (2012), university students were chosen as the research population because of the relatively high possibility they had of being able to afford a car in the future (as well as their diverse demographics, ease in recruitment, and the ability to survey them in a controlled environment), thereby providing some indication of the motivations for the high levels of car ownership in the country.

2. Previous research

Existing research investigating car ownership intentions reveals that these differ considerably from country to country. Whilst literature from some developed countries generally tends to indicate a decline in car ownership, that from developing countries appears to reflect a growing desire to own a cars. Studies from developed countries such as Germany (Kuhnimhof et al., 2012) and the Netherlands (Oakil et al., 2016) suggest that car use amongst young adults has decreased in recent decades.

Kuhnimhof et al. (2012) asserted that the primary reason for the decrease has been the use of alternative modes of transport. Even in developed cities such as Dublin, where car ownership has slowed but is still increasing, McGoldrick and Caulfield (2015) found that the availability of public transport impacted car ownership levels. Sigurdardottir et al. (2014) found three groups of intentions in Danish adolescents, i.e. early car users, who are car enthusiasts and have car-oriented networks; early licence holders and later car users who associate cars with high instrumental values, but view the expense as a barrier and late licence holders and car users, who are generally car sceptics, have a low interest in cars. Car sceptics tend to be from urban areas, whilst enthusiasts were less likely to reside in cities, implying that the availability of a public transport system impacts the ownership intention. Clark (2009) also asserted that location impacts car ownership. Regardless of whether ownership is increasing or decreasing, these studies showed that car ownership intentions were largely influenced by the location of the household (urban populations generally have better access to public transport) and the availability of alternatives. Higher levels of public transport are thus likely to reduce car ownership.

High car ownership intentions are not however only related to the relative lack of public transport services, but also to the quality of the public service offering. In one of the few publications that discusses car ownership in Africa, Salon and Aligula (2012) considered urban travel patterns in Nairobi, Kenya and reported growing car ownership. Although a large portion of the population could not afford to travel regularly, the middle income group who couldn't afford cars was almost completely dependent on the informal public transport system, which provided good coverage at low service levels. They found that without policies to improve public transport service, car use would increase as residents became wealthier. Wu et al. (2016) indicated that the larger the city, the higher the levels of car ownership, unless the city controlled this through aspects such as the provision of excellent public transport. They further indicated that, in metropolises, an increase in the comfort levels of public transport was associated with a decrease in car ownership. Zhu et al. (2012) showed that Chinese students valued aspects of car ownership such as comfort, transporting goods and saving time. Verma (2015) asserted that, in India, car use was growing exponentially and also largely attributed this to the lack of good public transport. The study found that cars were often considered a safer

method of transport. The study also highlighted other quality aspects as important determinants, such as the flexibility provided by cars, the lack of good public transport and shorter times associated with car trips. Oakil et al. (2016) asserted that car ownership was declining in urban areas in the Netherlands, probably due to better accessibility to public transport, reducing time and place constraints and therefore implying a lower need to own cars. Anowar et al. (2015) study in Canada also found that improvements in public transport services can reduce car ownership levels. These findings are supported by Kuhnimhof et al. (2012) who showed that driving in urban areas has been actively discouraged by improvements in public transport services in many urban areas and McGoldrick and Caulfield (2015) who highlighted not just the availability of public transport that impacted car ownership intentions, but the level thereof. These findings suggest that the mere provision of public transport is insufficient to impact car ownership intentions, but that service levels should be of such a nature that public transport is considered as a viable alternative to the car. Aspects such as comfort, coverage, the ability to travel further and carry more items, safety, trip times, frequencies and the hours of service were highlighted in these studies. These findings also seem to indicate that these aspects have largely been recognized in some developed countries, where better public transport service levels have resulted in decreases in car ownership. Whilst some developing countries appear to recognise this (Zhu et al., 2012), most of those reviewed have not provided sufficiently high levels of public transport to reduce car ownership intentions.

Associated with the provision of public transport is city structure. Oakil et al. (2016), Wu et al. (2016), McGoldrick and Caulfield (2015), Sigurdardottir et al. (2014), Zhu et al. (2012) and Clark (2009) all found that the density of the area impacts ownership levels, attributable to higher levels of public transport in bigger cities. This suggests that the provision of high levels of public transport services tends to be associated with high density urban areas, thus enabling lower levels of car ownership. This is not however true in some of the studies from developing countries, where cities had not developed higher levels of public transport services and rather provided car-centric infrastructure which was unfavourable to public transport users (Salon and Aligula, 2012; Verma, 2015). City structures therefore impact car ownership levels, in as far as they affect the ability to provide good public transport.

Given that many developing countries appear to be poorly serviced by public transport, the reviewed studies then suggest that the primary barrier to car ownership is income and as it increases, so too does car ownership. This is not only true in developing countries. Clark (2009) found this in the UK and Wales and Sigurdardottir et al. (2014) early licence holders and later car users were those that indicated that once a financial threshold had been reached, their intention was to purchase a car. Wu et al. (2016) stated that the sharp increase in car ownership since 2000 was linked to an upward trend in the economy. Belgiawan et al. (2014) found that income levels partially explained purchase intentions in developed and developing countries. As previously noted, Salon and Aligula (2012) directly associated income with car ownership intentions and Kuhnimhof et al. (2012) also highlighted this association by suggesting that shifts in travel behaviour could largely be attributed to increased cost of driving and the decline in real income. Income levels thus appear to be a significant determinant of car ownership intentions, but must be seen in conjunction with the provision of public transport services; where these are at a relatively high level, the impact of income increases on car ownership intentions appears reduced.

Although car ownership intentions thus appear to be primarily influenced by the provision of good public transport and income levels, there are a number of other aspects that may influence the decision. Oakil et al. (2016) and Clark (2009) identified household composition and Anowar et al. (2015) suggested that socio-demographic variables were an important predictor of car ownership. Tilley and Houston (2016), Bastian and Börjesson (2015) and Stokes (2012), for example,

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