Growing car ownership and dependence in India and its policy implications

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ABSTRACT

Reducing car traffic to improve sustainability of transport has become important policy tool in recent past. Most of the developed countries have realized that building more roads for an unrelenting growth of vehicles is not a solution for the problems like congestion and pollution. In spite of this realization in developed world, India is still experiencing exponential growth in ownership and use of cars owing to various reasons that elicit a deeper study and understanding to determine the various underlying factors that are causing these trends in India and what policy interventions are possible to control them. This paper focuses on studying the antecedents of car ownership in India with respect to: attitudinal factor, safety factor, time and cost factors and environmental factors and addresses questions like: why people in India wish to own a car, how dependent car owners are on their cars, in what circumstances they may be willing to shift to sustainable modes like, public transport, etc. The methodology consists of an online survey, using structured questionnaire, with car owners which has been done on sample basis in different Indian cities with an attempt to obtain unbiased and representative responses. The statistical analysis and interpretation of the collected data have brought out the main contributing factors behind the car ownership and use trends in India, and their policy implications.

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1. Introduction

Owning a car has always been a dream of every Indian, especially for the large middle class segment of the population. With increase in per capita income, friendly pro automobile policy of government, and easy availability of cars to cater the needs of different income segment accompanied by easy finance schemes in India; the number of cars running on Indian roads have increased manifold in last decade. The attractive marketing strategies adopted by various car companies have been very successful in raising the aspirations of Indians, now every Indian want to own a car very moment they can afford one. Looking back to the basic of consumer behaviour, there is always a human need and desire that result in owing various products by an individual. Psychologist Abraham Maslow (Maslow, 1954) proposed a hierarchy of biogenic and psychogenic needs that specifies certain level of motives. The theory postulates that an individual seek to satisfy lower-level needs before higher needs emerges. In his hierarchy-of-needs, physiological needs are the first and most basic level of human needs followed by safety and security needs that become the driving force behind human behaviour. The third level of Maslow's hierarchy includes social needs such as love, affection, belonging-ness and acceptance. The next level is concerned with egoistic needs, where a person seek for self-esteem, success, independence, prestige, reputation, recognition and status. Last level is the need for self-actualization or self-fulfillment. Marketers have been very successful in positioning cars at each level and people believe that the car satisfies needs on all the levels as described by Maslow. The small car companies have positioned it as a product that is so important when one travels in bad weather with the family, it provides shelter and security. It is also a powerful status symbol for Indians, a car owner is always perceived as being well-off compared to someone who does not own a car. Finally, driving a car can be a pleasure in itself, car is a means of expression, a means of fulfillment.

The data in Table 1 explain about the change in borrowing rate and aggregate sales of three automobile companies namely Maruti Suzuki, Hyundai Motor India Limited (HMIL) and Tata Motors Limited. It can be observed that there is a continuous drop in interest rates throughout the years and an increase in sales over the same period. So, if a correlation of the data is considered, a correlation co-efficient of −0.911 is found. This shows that

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Table 1
Cumulative sales of three automobile companies and borrowing rate over 10 years.

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Borrowing rate (%)	17	16	15	14	13.5	13	11	13	12	11
Total sale of 3 companies	436,336	569,381	681,273	806,237	892,227	1,066,517	1,141,797	1,175,053	1,420,673	1,747,655

Source: Indian passenger vehicle industry: growth momentum to continue (ICRA, 2011).

borrowing rates have direct impact on the car sales and companies' marketing strategies involving tie up with financial institutes and low interest campaigns were fruitful.

It is evident from above statistic and understanding of human behaviour and its needs as described by Maslow that it is not feasible to stop people to own a car but at the same time sustainable transport being a key transport objective, it is important to reduce the usage of car. Relatively, very fewer studies have focused on understanding why people own a car and its usage in India. In light of this, the objectives of the present study are

- To determine the reasons of owning a car by an individual;
- To determine the dependence of an individual on its car;
- To find the factors that can deter the car owners from driving and influence their choice behaviour.

2. Past studies

Reducing car traffic to improve sustainability of transport has become important policy tool and global transport objective in recent past. One of the major ways of improving sustainability as argued by Banister (1999) and Commission of the European Communities (2001) is to reduce car ownership and use and encourage a modal shift towards public transport. Goodwin et al. (1995), Begg (1998), Banister (2001) and Dargay (2001) argue that once a car has been acquired, it becomes less of a luxury and more of a necessity as the owner becomes increasingly dependent on it. Wootton (1999) suggests that once a car has been acquired, the number of journeys increases substantially and some existing journeys transfer from public transport to the car. Further, Kitamura (1989) concludes from his analysis of households in the Netherlands that "a change in car ownership leads to a change in car trips, which in turn leads to a change in transit use". Later Cullinane (2002), in a survey conducted in Hong Kong city argued that car ownership can be deterred by the existence of good public transport. However the paper also argued that once a car has been acquired, there is a tendency for it to be used irrespective of how good the public transport is. The results of the study done by Cullinane and Cullinane (2003) suggest that in Hong Kong if controlling car use is an objective of transport policy then main deterrent can be the priority given to public transport on the road and making parking difficult and expensive. These studies have given a base to carry out similar study in India and to understand the activity based car usage and the factors that may deter car ownership in India. Further, most of these studies are focused on developed world and there is little understanding in India in this direction, which has been the motivation for carrying out this study. The next section discusses the methodology.

3. Methodology

The objective of this study is to understand the antecedents of car ownership in India with respect to; personal factors, market factors, and environmental factors and to address questions like: why people in India wish to own a car, how dependent car owners are on their cars, what factors may deter them from driving a car and shifting to sustainable transport like, public transport, etc.

3.1. Data collection and sampling

The empirical data were collected using an on-line survey in India. For the present study the respondent must own a car, hence non-probability sampling technique was adopted. Nearly 400 email request were sent to participate in the survey during the month of April and May 2013 using snowball sampling technique, response rate was only 31.5% as out of 400 only 126 responses were received. Out of 126 responses, 115 were usable, since 11 questionnaires received were partially filled and cannot be used for analysis. Additional 111 responses were collected during the month of February 2014 and first week of March 2014, to increase the sample size. Thus the actual sample size used for analysis is 226 (115 plus 111). When the respondent was a student who drives a car, income was taken as his/her family income, and children were taken as children in his family not necessarily his own children. Collecting large number of responses was a major challenge in this study, and hence the snowball sampling method was adopted in which respondents' network was used to increase the participation in survey. Responses were collected through referrals, respondents were also requested to forward the on line survey link to their know people who also own a car. These efforts lead to collection of survey responses from almost 56 cities of India. Maximum responses (76 nos.) were received from Bangalore followed by Jaipur (26 responses), and Hyderabad (13 responses). Though this method is useful for niche market, but is not very reliable for estimating sampling error. Chances of non-sampling errors like, response error are there. As mentioned earlier the response rate was just 31.5% and there were few partially filled questionnaires as well where respondents were not ready to provide pertinent information during the survey. Possibility of error due to prestige bias of respondent may also be there. On line survey method also carry the risk of fudging the data by respondent. These are some of the possible limitations of the snowball sampling technique.

3.2. Survey design

The Questionnaire consist of three categories of questions namely, demographic details of respondents, reasons for owning a car, and factors that deter them from driving a car. Pilot testing was done to refine the questionnaire and to ensure that the respondent understand the questions clearly. Questions based on attitudinal factor, safety factor, time factor, cost factor and lack of good public transport especially buses were asked to know the reasons for owning a car. A total of 61 questions were used to meet the objectives of the study. All questions were designed as closed ended questions. Some questions were based on 5-point Likert scale varying from strongly disagree (1) to strongly agree (5).

4. Survey results

4.1. Demographic and travel profile of respondents

The demographic and travel profile of the respondents includes, gender, age group, marital status, education profile, income range per month, occupation of respondents, family size, average commuting distance, and total distance travelled (Table 2). There is a notable difference in the gender when it comes to driving or