Investigating the Consumer's Perception on Selection of Mid Segment Cars by Students : A Conjoint Approach

** Amit Goyal*
*** Atul Shiva*

Abstract

The aim of this article was to investigate the relationship between various attributes of mid segment cars and the selection of a best choice amongst them by the students. For this purpose, we examined different attributes affecting the buying behaviour decision making process of consumers represented by young students. The conjoint model was adopted and tested by panel data regression analysis for the formation of the best choice in selected attributes affecting the mid segment car purchase decisions. The data was collected from students of various colleges located in the District of Ludhiana in Punjab. The main results of this empirical research suggest that students preferred a petrol car with price which varied between INR 7-8 lacs having seating capacity of 7 people, horse power of the car varying between 1400-1500 cc, with fuel efficiency of 18-20 kmph with lower maintenance cost, which is lesser than INR 5000. The paper provides comprehensive empirical evidence about the selection of a particular mid segment car by the students and thus fills an important gap in the marketing literature which can be used by car manufacturers and distributors.

Keywords: **mid segment cars, conjoint analysis, panel data regression, behavior, consumers**

Paper Submission Date : December 7, 2015 ; Paper sent back for Revision : April 25, 2016 ; Paper Acceptance Date : August 2, 2016

Now in present era, minds of people especially of India are shifting towards luxuries. They try to show more than they could afford. It's not that time when everybody was happy with Maruti 800 or Fiat 1100 Delight etc. Leaving elite class aside, people of upper middle class who earlier used to buy small cars like Maruti Alto, Wagon R and others, which were around in the range of two to five lacs are now buying mid segment cars like Honda Amaze, Swift Dzire, Hyundai Verna or Aspire for upper segment cars like Ford Endeavour, Toyota Fortuner, Audi A3, Q3, which generally cost more than 12-13 lacs and somehow it's difficult to buy such expensive cars for them. On the other hand, those who belong to middle class are buying more and more mid segment cars which usually cost from about five to ten lacs as they want to show themselves as of the people of upper middle class or to present themselves distinguished from those of their class i.e. middle class, or from those who belong to lower middle class economically as this class too is having a significant number of cars or small segment cars. And if so called middle or upper middle classes' people will buy small segment cars, it will not be presentable or seems good as per the modern psychology.

Here it can be easily recognized that a large number of people are passionate for mid segment cars as most of the total customers of the car industry are from middle and upper middle class. This is further a sign of huge upcoming demand for this segment of cars. Show off is not the only reason, besides this the rapidly changing lifestyle, values, interests, behaviors etc. play a significant role behind the strong desire for having a good comfortable car which

* *Assistant Professor in Commerce,* Shree Atam Vallabh Jain College, Ludhiana, Punjab.
E-mail: amitgoyal_ldh@yahoo.com
** *Assistant Professor in Commerce,* Sri Aurobindo College of Commerce and Management, Ludhiana, Punjab.
E-mail: atulshiva@gmail.com

usually falls in the range of five to ten lacs. Besides this as India is the second most populated country in the world and the growth rate of economy of India is also good and higher than that of developed countries, this attracts the presence of huge demand in the Automobile Car Industry.

Now if we see from companies' point of view, which are manufacturing cars, for those companies "marketing involves building profitable, value-laden exchange relationships with customers" as indicated by Kotler and Armstrong (2008). But there are many companies and big business houses present in the market which want to do the same in this segment of cars. Today we see a new model getting launched into the market practically almost every month. But to build profitable and value–laden exchange relationships with customers there is only option for them is to provide customers what they actually want. There has been a sea change in the automobile industry and a paradigm shift from sellers' market to buyers' market. It would not only help the manufacturers but dealers also to customize their products to meet the preferences and desires of their customers (Balakrishnan & Jagathy, 2013).

This paper is written to study the psychology of the customers that what they actually want in their particular mid-segment car. It shall also be a contributory value addition to the literature which can be helpful to the manufacturers and dealers for customizing their marketing plans.

Review of Literature

According to Ray (2012), in spite of various challenges, this industry is growing in a balanced manner and is going in line with global trends and standards from technology aspect as well as from quality aspect. He further concluded that Indian Auto Industry will continue having advantage of lower costs for a significant time period. Goyal and Jain (2016) indicated that the consumers have become much more aware than ever before. Now they use to analyze the market before buying any product, they see the detailed specifications of that particular product; they compare the available alternative products with each other from various perspectives. Menon and Jagathy (2012) also stated that customers of cars in India have begun developing their own personal preferences and purchasing patterns because of availability of huge variety of choices to them.

Whereas Srivastava and Matta (2014) concluded that due to increasing income, purchasing power of the people has been improved and many more people have become able to afford car now. They further concluded that by understanding the consumer behavior, marketers can take better marketing decisions which will be compatible with the needs of the consumers. Adithya (2013) also indicated that many companies are fighting for a place in the consumer's mind because of strong competition in the market. They can justify their existence only by understanding and satisfying the needs of the consumers. He further revealed that advertisement and celebrity preferred for advertisement, which has a considerable influence on the purchase decision of four-wheeler. John and Pragadeeswaran (2013) indicated that customers are not much loyal to particular brands and they have tendency to switch to competitor brands if higher value is perceived. Monga, Chaudhary, and Tripathy (2012) concluded that customer considers all brands almost equal from performance aspect however the preference for a particular brand depends upon the nature and quality of service along with the maintenance, pricing, availability of spare parts etc. Gupta (2013) found out that fuel efficiency, price and powerful engine, these are three attributes which mainly derive the demand of the consumers for a particular car, whereas if price is ignored, then the customers will choose premium level, powerful and stylish passenger cars.

Guiles (2008) identified that fuel efficiency and lower maintenance cost have major impact on the behavior of the customers towards the passenger cars. Sardar (2012) also stated that in India, people are more conscious for price and fuel efficiency. Similarly, Kaushik and Kaushik (2008) conducted a study in south-west region of Haryana to investigate customers' preference towards passenger car brand through perceptual mapping obtained from multi-dimensional scaling, the results of which indicated brand name, fuel efficiency and price to be primary determinants for buying cars. So the companies which provide low priced and fuel efficient cars can easily enlarge

its sales volume and become successful. Based on the above literature search, we conducted a study on consumers' preferences to purchase mid segment cars in Indian context. This research has implications in both research and practice.

Objectives of the Study

In order to study the preferences of people towards the buying of mid segment cars, we have following objectives in the study:

(1) To analyze the impact of various factors affecting the buying behavior of mid segment cars by students in Ludhiana.

(2) To make marketers understand various attributes influencing car selection based on best choices of consumers in order to customize their marketing strategies.

Hypotheses

- **H01:** There is no association between factors affecting the choice of cars in terms of best choice exercised by the students.
- **H02:** There is no absolute selection of a particular car by the students.

Research Methodology

For the purpose of estimating the research models for hypotheses testing first, a sample of 100 students from all the Colleges present in the area of Ludhiana District of Punjab was selected. These students were from undergraduate classes in the stream of Commerce and Business Administration. Particularly students representing business class families were selected. These students were selected as a sample in our study since they have a major impact and role in determining the buying behavior and purchase decisions of their parents and various relatives. The time period of the study was from January to December 2014.To analyze and find the best choice of a car, conjoint analysis technique was used by applying convenient sampling design in the paper. Conjoint analysis was first introduced into the marketing literature by Green and Rao (1971, pp. 355-363) and Johnson (1974, pp. 121-127). Green and Srinivasan (1978, pp. 103-123) indicated that conjoint analysis is an analytical approach for evaluating the preference structure of the known testees and overall assessment. Louviere and Islam (2008, pp. 903-911) described three methodologies of Conjoint Analysis:

- Traditional conjoint analysis, based on giving preference,
- Choice – based or discrete choice conjoint analysis, based on choice,
- Best/worst (BW) conjoint.

Out of these we have utilized the traditional conjoint analysis, where respondents were asked to rate or rank the product scenarios and the analysis reveals the relative importance, called utilities of each of the different levels of each attribute. Further we have estimated the preference functions in conjoint analysis by ordinary least squares (OLS) regression method, since researches has shown that the efficiency of this technique is often similar to more complex techniques like Logit, Monnova, Linmapetc, but the results are easier to interpret (Oppewal & Vriens, 2000). Shiva (2013) applied the conjoint design and modeling to measure consumers' preference to determine the

Table 1. Orthogonal Card Design

(RATE 1 for Least Preference and 10 Most for Most Desired)

Card ID	Fuel	Price	Seating Capacity	Horse Power	Fuel Efficiency	Maintenance Cost	Ratings
1	Diesel	5-6 lacs	7 seater	1600-1700 cc	15-17 kmpl	5000-10,000	
2	Diesel	7-8 lacs	5 seater	1200-1300 cc	15-17 kmpl	Less than 5,000	
3	Petrol	5-6 lacs	7 seater	1400-1500 cc	21-23 kmpl	Less than 5,000	
4	Diesel	5-6 lacs	7 seater	1200-1300 cc	21-23 kmpl	More than 10,000	
5	Petrol	9-10 lacs	7 seater	1200-1300 cc	18-20 kmpl	5000-10,000	
6	Diesel	9-10 lacs	7 seater	1200-1300 cc	15-17 kmpl	Less than 5,000	
7	Diesel	7-8 lacs	7 seater	1400-1500 cc	18-20 kmpl	Less than 5,000	
8	Petrol	9-10 lacs	5 seater	1400-1500 cc	15-17 kmpl	More than 10,000	
9	Diesel	5-6 lacs	5 seater	1400-1500 cc	15-17 kmpl	5000-10,000	
10	Petrol	7-8 lacs	7 seater	1600-1700 cc	15-17 kmpl	More than 10,000	
11	Petrol	7-8 lacs	5 seater	1200-1300 cc	21-23 kmpl	5000-10,000	
12	Diesel	9-10 lacs	5 seater	1600-1700 cc	21-23 kmpl	Less than 5,000	
13	Petrol	5-6 lacs	5 seater	1200-1300 cc	15-17 kmpl	Less than 5,000	
14	Petrol	5-6 lacs	7 seater	1200-1300 cc	15-17 kmpl	Less than 5,000	
15	Diesel	5-6 lacs	5 seater	1200-1300 cc	18-20 kmph	More than 10,000	
16	Petrol	5-6 lacs	5 seater	1600-1700 cc	18-20 kmph	Less than 5,000	

Table 2. Explanation of Attributes and Levels (Conjoint Design)

Attribute Name	No of Items	Explanation of the Attributes and Levels given to Study Participants
Fuel Type	2	In our study, we have finalized two fuel variants for car i.e. Petrol and diesel. (Code A1, A2)
Price	3	The study may differ on the basis of price ie 5-6 lacs,7-8lacs,9-10 lacs. (Code B1, B2, B3)
Seating Capacity	2	Cars may have two versions of seating capacity i.e. 5 seater or 7 seater (Code C1, C2)
Horse Power	3	Expected cars may have three versions of horse power i.e. 1200-1300cc ,1400-1500cc ,1600-1700cc (Code D1, D2, D3)
Fuel Efficiency	3	Fuel efficiency may be divided in three categories i.e. 15-17kmpl,18-20kmpl,21-23kmpl (Code E1, E2, E3)
Maintenance Cost	3	Post purchased maintenance cost is divided into three i.e. less than 5000, 5000-10000, more than 10000 (Code F1, F2, F3)
Total Number of Attributes = 6		Total Number of Levels across all attributes = 16

*(Minimum Required Stimuli = 16 - 6 + 1 = 11)

best choice model in social networking sites and explained the research model for the developers of social media developers to design their future strategies to meet the real time consumers' requirements. Thus to identify what factors influence consumer purchase intention and the relative importance among various factors in our research study, the authors employed conjoint analysis to study the relative preferences for each attribute and its corresponding features. Conjoint analysis is a decompositional approach that uses an overall evaluation of a set of profile descriptions to determine the consumer's preference structure (Hair et al., 2006). The basic conjoint model used in this research is (Hair et al., 2006).

Table 1 represents the orthogonal matrix in 16 cards as designed by SPSS 18.0 software. The non-probability sampling technique is used to collect the opinions from the respondents falling in the age group of 17 years to 25 years. The sampling size is 100. The Conjoint Design framed on the above mentioned attributes are mentioned in Table 2.

Research Model

Essentially in conjoint analysis the analyst tries to understand the "preference structure" of a respondent. It is actually a family of techniques and methods, all theoretically based on the models of information integration and functional measurement (Louviere & Islam, 2008). In terms of the basic dependence model conjoint analysis can be expressed as:

$$U_h = \sum_{j=1}^{j} V_j = V_1 + V_2 + \ldots + V_j \qquad \ldots\ldots\ldots\ldots \qquad (1)$$

where, U_h represents the overall effect of the h -th product and $V_1 + V_2 + \ldots + V_j$ represents the attribute effect value of 1,2,…., J in product h.

Green and Rao (1971) had applied conjoint analysis to the realm of marketing for determining the conjoint impact of two or more variables upon variable ranking. Thus, the conjoint analytical mode can be represented as:

$$Y_h = \sum_{j=1}^{j} V_{jk} + \sum_{j\sim j'}^{j} T_{jk} T_{j'k} \cdots + T_{1j} T_{2j} \ldots + T_{jk} \qquad \ldots\ldots\ldots\ldots \qquad (2)$$

where, Y_h represents attributes of the product, $j = 1,2,\ldots,J$.
K represents the attribute benchmark of the product, $k = 1,2,\ldots,k$.

$\sum_{j=1}^{J} V_{jk}$ represents the main effect of attribute benchmark of the product.

$\sum_{j\sim j'}^{j} T_{jk=} T_{j'k}$ represents the interaction effect of two attribute benchmark of the product.

$T_{1j} T_{2j} \ldots + T_{jk}$ represents the interaction effect of multiple attribute benchmarks.

Analysis of Conjoint Results and Hypotheses Testing

Descriptive Analysis : As shown in Table 3, in the present study a sample size of 100 students from various colleges of Ludhiana were selected. Out of the above sample size 36% were females whereas 64% were males, which represent that majority of respondents were boys. As far as age is concerned, 63% respondents were in the age group of 19-21 years representing the senior students of second year and third years. In our study 67% of the respondents were from B.Com and rest was BBA students.

In Table 4, mentioned above, we have calculated regression which comes out to be 97.5% which is considered to be very good. R square thus calculated is 95.1% which is affordable and further adjusted R square's value is 85.3% which again is considered appropriate. The Durbin Watson value so calculated is 2.25 and the range for which is between 1.50-2.50. Since the value is 2.25 within the range so the modal thus is perfectly accepted, this is free from the problem of autocorrelations. The model is highly significant at 1% level of significance.

The Table 5 mentioned above shows the coefficients, correlations and the statistics of different attributes. While calculations the unstandardized coefficients are considered as they are responsible for forecasting the behavioural patterns of the selected respondents in our study. As told before the dependent variable is overall rating and rest of the attributes come under the category of independent variable. Variables like diesel , 7-8 lacs , 9-10 lacs , 7 seater , 1400-1500 cc , 1600-1700 cc , 18-20 kmpl , 21-23 kmpl , between 5000-10000 , more than 10000 have

Table 3. Demographic Profile of Selected Students

	Frequency	Percent	Frequency	Percent
Gender			**Class**	
Females	36	36%	**B.Com**	67	67%
Males	64	64%	**BBA**	33	33%
Total	100	100%	**Total**	100	100%
Age				
17-18 Years	37	37%		
19-21 Years	63	63%		
Total	100	100%		

Table 4. Model Summary[b]

				Change Statistics		
Model	**R**	**R Square**	**Adjusted R Square**	**R Square Change**	**F Change**	**Sig.**
Dimension	1	.975a	.951	.853	.951	9.704.011*

a. Predictors: (Constant), More_than_10000, Kms_21_23, CC_1600_1700, Seater_7, Lacs_9_10, Diesel, Between_5000_10000, Kms_18_20, CC_1400_1500, Lacs_7_8

b. Dependent Variable: Overall Rating

*Model significant at 1% Level of Significance

Table 5. Coefficients[a]

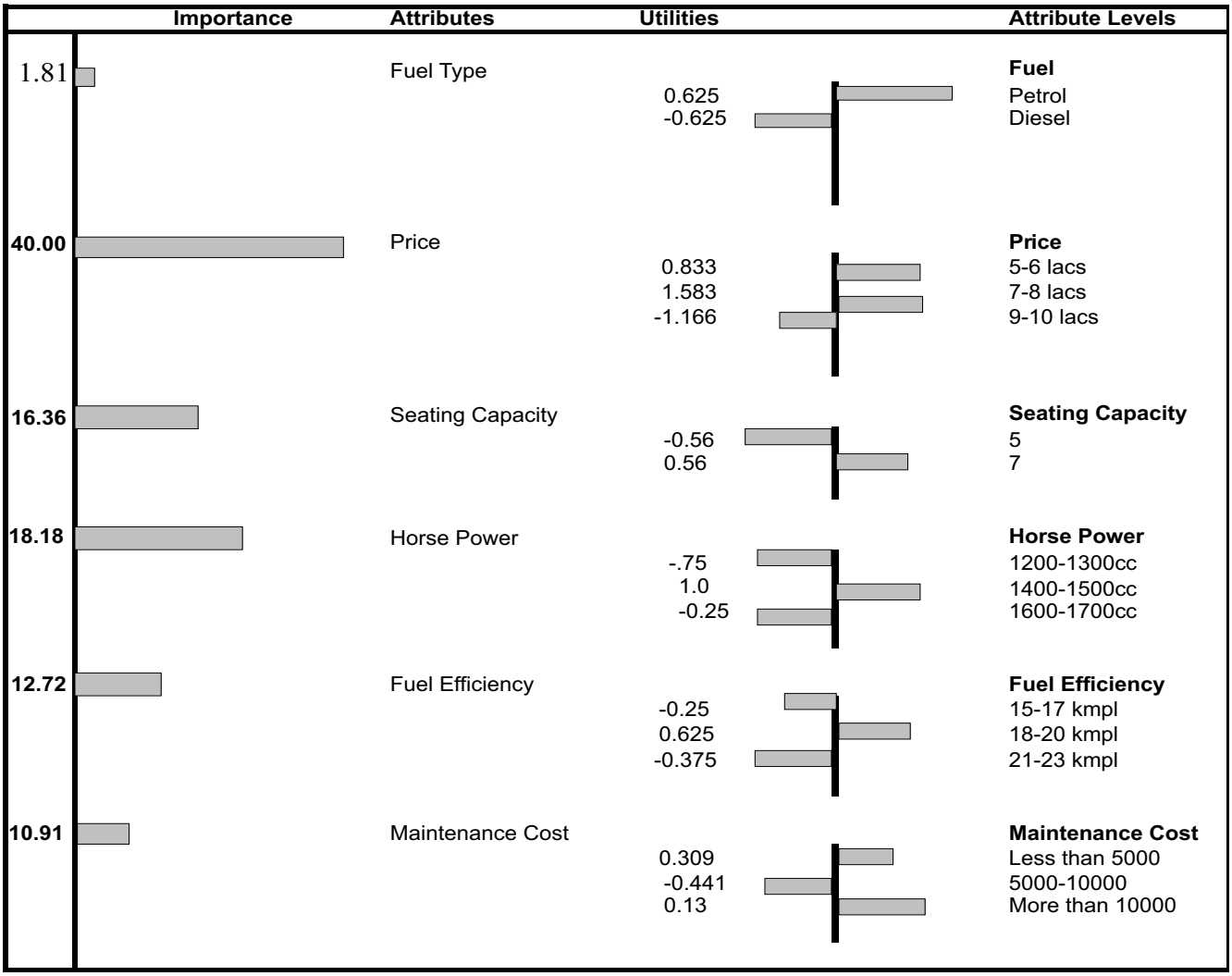
Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**T**	**Sig.**
	B	**Std. Error**	**Beta**		
1	(Constant)	4.688	.384		12.199.000
	Diesel	-.125	.290	-.043	-.430.685
	Lacs_7_8	1.500	.356	.443	4.216.008
	Lacs_9_10	-1.250	.356	-.369	-3.514.017
	Seater_7	1.125	.290	.383	3.873.012
	CC_1400_1500	1.750	.356	.517	4.919.004
	CC_1600_1700	.500	.356	.148	1.405.219
	Kmpl_18_20	.875	.356	.258	2.460.057
	Kmpl_21_23	-.125	.356	-.037	-.351.740
	Between_5000_10000	-.750	.356	-.221	-2.108.089
	More_than_10000	-.179	.356	.000	.000.840

a. Dependent Variable: Overall_Rating

coefficients to be 0.125 , 1.50 , -1.250 , 1.125 , 1.750 , 0.500 , 0.875 , -0.125 , -0.75 , -0.179 respectively which are used for further calculations.

Figure 1 represents the mean preference structure of mid segment cars in terms of importance and utilities of various attribute levels. All these helps us to understand the rankings of attributes when it comes to the choice of a mid segment cars . In Figure 1, six salient attributes and their levels were identified for making a choice for mid

Figure 1. Mean Preference Structure of Mid Segment Cars



segment cars by the students . Full Profile Conjoint Analysis was used for constructions of preference structure.

Analyzing the preference structure or the importance accorded by the students to the six salient attributes, the students accorded the maximum utility/importance to the attribute i.e Price that has 40 percent importance. Here we can conclude that price is an important attribute which has generated such a value that no other attribute has matched it. Also we can conclude that students now a days are more concerned with the price of the car than any other attribute. If we deeply see the results students prefer car with price which vary between 5-6 lacs or 7-8 lacs and no such positive response is seen for car with price between 9-10 lacs. Results further shows that horse power , fuel efficiency have more negative utilities in comparison to price and maintenance cost.

The second most important attribute in the selecting a car is horse power with an importance value of 18.18 percent and further if seen students prefer a car with 1400-1500cc .Also horse power 1200-1300cc and 1600-1700cc have negative utilities thus is not preferred by students .

Thereafter at the third place in the worth hierarchy is *seating capacity* with importance of 16.36 percent .Thus statistics shows that 7 seater is more preferred by the students on the other hand 5 seater has negative utility thus is not preferred by students .

Table 6. Computations of Utilities and Rank Transformations Mid Segment Cars

Code	Utilities	Code	Utilities	Code	Utilities	Code	Utilities	Code	Utilities	Code	Utilities
A1	.0625	B1	.08333	C1	-0.5625	D1	-0.75	E1	-0.25	F1	0.309
A2	-.0625	B2	1.5833	C2	0.5625	D2	1	E2	0.625	F2	-0.441
		B3	-1.1667			D3	-0.25	E3	-0.375	F3	0.13
Rank Transformation R1 - 0.125 In percentage - 1.81% Final Rankings of Preferences - SIXTH		**Rank Transformation R2 - 2.75 In percentage - 40% Final Rankings of Preferences - FIRST**		**Rank Transformation R3 - 1.125 In percentage - 16.36% Final Rankings of Preferences - THIRD**		**Rank Transformation R4 - 1.25 In percentage - 18.18% Final Rankings of Preferences - SECOND**		**Rank Transformation R 5 - 0.875 In percentage - 12.72% Final Rankings of Preferences - FOURTH**		**Rank Transformation R 6 - 0.75 In percentage - 10.91% Final Rankings of Preferences - Fifth**	

Then at fourth place of the hierarchical framework, is the attribute *fuel efficiency* with 12.72 percent importance. This is an important finding, as it shows that, our respondents are keen to use the cars with efficiency 18-20 kmpl . On the other hand efficiencies like 15-17 kmpl and 21-23 kmpl are not preferred and thus have negative utilities .

Here, at fifth place we have maintenance cost with 10.91 percent. Also students prefer maintenance cost to be less than 5000 and no one consider costs like 5000-10000 and even more than 10000 as they have negative utilities . They find these costs to be highly expensive and thus are not appreciable .

The last attribute is fuel in the Conjoint Design with an importance of 1.81 percent only. The respondents have very less interest in fuel a car needs . They are rarely concerned with the fuel as prices of fuels are constant these days so students don't as such consider this attribute . Petrol is such a fuel which is highly demanded on the other hand diesel has negative utility and hence is not demanded .

In the Table 6 mentioned above utilities are calculated by comparing a2 with a1. After such calculation the value of A1 and A2 come. Similarly by comparing b2 with b1 , b3 with b1 , c2 with c1 , d2 with d1 , d3 with d1 ,e2 with e1 , e3 with e1 , f2 with f1 , f3 with f1 , the result thus comes out to be (B1 , B2 , B3); (C1 ,C2); (D1,D2,D3); (E1,E2,E3); (F1,F2,F3) respectively. After the calculation of utilities, the ranks are calculated by adding the highest negative value with highest positive value ignoring the signs of the same. E.g. addition in case of code B will be between 1.583 and 1.1667, as a result we get 2.75 as rank. All the ranks are calculated in the same way. After we get ranks, all the ranks are calculated and termed as total (T) which in this case comes out to be 6.875. After this the percentage is calculated. The procedure for the same is that the individual value of rank is divided with the total and then multiplied with 100. E.g. the percentage value of A is calculated by dividing 0.125 with 6.875 and then multiplying with 100 which is equal to 1.81%. Rest of the values in percentage is calculated in the same way. After all the values are calculated in percent the ranking is done which is price holds first position with 40% followed by horse power at second place with18.18%, then comes seating capacity at third place with 16.36%, next comes fuel efficiency with 12.72%, at fifth place is maintenance cost of the cars with 10.91% and at last comes fuel with 1.81%. This clearly shows students interest towards the price of the car than the fuel it uses.

In Table 7, the Best Choice of Mid segment cars by students (Final Result) is projected where the respondents have expressed their best choice price of the car over other attributes like fuel, seating capacity, horse power, fuel efficiency and maintenance cost. This best choice selection by the respondents by Conjoint Analysis clearly rejects the second Null Hypothesis Ho2 and leads to acceptance to alternative Hypothesis that there is one absolute selection of a mid- segment cars by the students over other cars based on various attributes and attribute levels. Students prefer a petrol car with price which vary between 7-8 lacs having seating capacity of 7 people , horse

Table 7. Best Choice of Mid Segment Cars (Final Result)

Best Choice	Petrol	Price 7-8 Lacs	Seating Capacity - 7	Horse Power 1400-1500CC	Fuel Efficiency 18-20 Kmpl	Maintenance Cost Less Than 5000
	0.625	1.5833	0.5625	1	0.625	0.309
Code	A1	B2	C2	D2	E2	F1

power of the car is from 1400-1500 cc with fuel efficiency equal to 18-20 kmpl and the maintenance cost of the car is less than INR 5000.

Managerial Implications

The study provides the guidelines to the car marketers to configure their products as per the psychological phenomenon of the aspirant customers. The study will be more useful and relevant for general public as well as the car users, manufacturers and dealers. They can understand the dimensions reflecting preference of mid segment passenger cars and impact of all these factors on customer satisfaction. The result of the study suggests that consumers prefer petrol car within the price range of 7-8 lacs with seating capacity of 7 members, having horse power between 1400-1500 CC, giving mileage around 18-20 kmpl. And also the maintenance cost of car should be low. This information shall be very useful for automobile companies manufacturing cars along with the dealers who specialize in selling cars and deals with their after sale services.

Discussion and Concluding Remarks

Our study is the first attempt to empirically investigate the factors behind the choice of mid segment cars using a conjoint approach. We find that students are more concerned with the price of cars in the purchasing decision. The results presented show that the students are keener in the prices of cars in comparison to other attributes like horse power, seating capacity, maintenance cost and others. The data derived from the study suggests that students were keen to see the horse power followed by seating capacity for seven members in a car. It is for this purpose the car manufacturers can build their marketing strategies on the power and seating capacity to attract the young generation by developing striking advertisements particularly based above mentioned parameters.

Further research study indicates that students consider fuel efficiency to be the fourth parameter to take into account while purchasing and using the car but with the lesser costs associated with its maintenance. The last observation of the present study based upon the fuel type preferred by the students, which means that either of the fuel type can be used by them however relatively petrol car is preferred more by them in comparison to diesel. This result goes in line with the result of the study conducted by Kaushik and Kaushik (2008) to some extent which indicated that price and fuel efficiency are the primary determinants of buying cars as our study has also revealed that price is most important attribute in selection of cars, but our study has revealed that fuel efficiency has relatively lower importance in car buying decision. Then Sardar (2012) also stated that in India, people are more conscious for price and fuel efficiency. Again our study agrees with the price factor but not with fuel efficiency that much. Further Gupta (2013) found out that fuel efficiency, price and powerful engine, these are three attributes which mainly derive the demand of the consumers for a particular car. Here, also in case of Price and horse power of the engine our study has positive correlation with study of Gupta (2013). But in case of fuel efficiency, the result of our study differs from Gupta (2013).

Whereas our study totally differs from Guiles (2008) who identified that *fuel efficiency and lower maintenance cost have major impact on the behavior of the customers towards the passenger cars.* Means on the whole, in our

study respondents have given lesser relative importance to fuel efficiency and lower maintenance cost in comparison with price and horse power. The reason behind this may be our target audience i.e. students who are less curious about fuel efficiency and maintenance cost. They prefer a car with a good powerful engine of 1400-1500 CC ignoring the fuel efficiency. The second reason behind this may be the difference between time periods of the studies. Earlier studies were conducted few years back and this study has been conducted in recently. May be the attitude of the customers have been changed with the passage of time.

Limitations and Scope for Further Research

Our study is subject to several limitations. First, a large part of our respondents were students and the sample size is 100 (Boys 50 and Girls 50). Taking into account the fact that the tastes and preferences of students constantly change, further research should validate our findings with other population groups also. In addition, most respondents in our sample have from a particular segment of Punjab i.e. Ludhiana, which limits the scope of our study to students who is an entrepreneurial user base. Finally, the results of every conjoint analysis are highly dependent on the choice of the attributes and their respective levels. Therefore we are aware of possible disagreement on the choices we made. Addressing this argument we stress that all our decisions were based on the extensive literature review combined with pre-study interviews and careful pretesting of the conjoint design.

References

Adithya, H. S. (2013). Customer perception and behaviour of car owners : An empirical study in Bangalore city. *Global Research Analysis, 2*(1), 104-107.

Goyal, A. & Jain, D. (2016). Examining consumers' choice in selecting smartphones: An empirical study of Punjab. *Business Analyst, 36* (2), 239-251.

Green, P. E., & Rao, V. R. (1971). Conjoint measurement for quantifying judgmental data. *Journal of Marketing Research, 8* (3), 355 – 363.

Green, P. E., & Srinivasan, V., (1978). Conjoint analysis in consumer research: Issues and outlook. *Journal of Consumer Research, 5* (2), 103 – 123.

Guiles, M. G. (2008). Fuel economy takes a back seat as cars get faster and more fun. *Wall Street Journal, October,* p.33.

Gupta, S. (2013).A Study of buying decision influencers for passenger car segment in New Delhi. *International Journal of Business and Management Invention, 2*(12), 64-71.

Hair, J. F., Black, W.C., Babin, B.J., Anderson, R. E., & Tatham, R.L. (2006). *Multivariate data analysis.* NJ: Prentice-Hall.

John, B., & Pragadeeswaran, S. (2013). A study of small car consumer preference in Pune city. *TRANS Asian Journal of Marketing & Management Research, 2* (3-4), 1-14.

Johnson, R. M. (1974). Trade – off analysis of consumer values. *Journal of Marketing Research, 11* (2), 121 – 127.

Kaushik, V. K., & Kaushik, N. (2008). Buying behaviour of passenger cars: A study in South West Haryana. *Indian Journal of Marketing, 38*(5), 49 - 54.

Kotler, P., & Armstrong, G. (2008). *Principles of marketing.* New Jersey : Pearson Education. Inc.

Louviere, J., & Islam, T. (2008. A comparison of importance weights/measures derived from choice – based conjoint, constant sum scales and best-worst scaling. *Journal of Business Research, 61*(9), 903-911.

Menon, B., & Jagathy Raj V.P. (2012). Model development and validation for studying consumer preferences of car owners. *International Journal of Marketing and Technology, 2* (5), 148-173.

Menon, B., & Jagathy Raj V.P. (2013). Confirmatory factor modeling on emerging consumer purchase behaviour of passenger cars. *Indian Journal of Marketing, 43*(2), 11-26. DOI: 10.17010/ijom/2013/v43/i2/34048

Monga, N., Chaudhary, B., & Tripathy, S. (2012). Car market and buying behavior : A study of consumer perception. *International Journal of Research in Management, Economics and Commerce, 2* (2), 44-63.

Oppewal, H., & Vriens, M. (2000). Measuring perceived service quality using conjoint experiments. *International Journal of Bank Marketing, 18* (4), 154-169.

Ray, S. (2012). Economic performance of Indian automobile industry : An econometric appraisal. *Business Intelligence Journal, 5* (1), 151-162.

Sardar, R. (2012). Brand preference of passenger cars in Aurangabad district. *ZENITH International Journal of Multidisciplinary Research, 2* (3), 431-442.

Shiva, A. (2013). Investigating the best choice in social networking sites: Conjoint analysis. *Business Analyst, 34* (2), 1-18.

Srivastava, A., & Matta, M. (2014). Consumer behavior towards passenger cars : A study in Delhi NCR. *Global Journal of Finance and Management, 6* (6), 589-598.