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### ASSESSMENT AND EVALUATION OF INDIAN MARKET STRATEGY AND CONSUMER BEHAVIOR FOR PASSENGER CAR

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#### ABSTRACT

The automobile industries was immensely preserved domestic car manufactures in India since late 1980s. The Indian Government policies of foreign investment companies and economical legalization drastically shifted the way of automobile industries since the early 1990s. From this ensuing decade many car manufacturers wish to enter in Indian automobile industry with their proposal of models and brands. Many of passenger car leader industries like Toyota, Honda, Suzuki, Ford and Hyundai etc. set up their manufacturing plants in India, utilizing on the liberalized Foreign Direct Investment Policy of the Indian Government. The heart and mind of Indian car consumers captured by these manufacturer companies with their advanced technology, latest car models and innovative product offers in quality with reliability. This made huge transformation from seller's market to consumer's (buyer's) market. Car customers had started establishing their own personal preferences and buying patterns, which were formerly unknown in the Indian automobile segment. This article contains the influences of various characteristics and factors in the consumer purchase behaviour of passenger cars. The logistic modelling approach evaluated as to why the car customers prefer different car segmented models in comparison to a base category car model. The article attempted to build a passenger car purchase modelling approach, to evaluate consumer behavioural preferences, which eventually influences the purchase behaviour of passenger car owners. The results of the research would contribute to the practical knowledge base of the automobile industry, specifically to the passenger car segments. The model developed has also a great contributory value addition, to the manufacturers and dealers, for evolving a customized marketing strategy approach.

Keywords: Consumer Behaviours, Car Segments, Marketing Strategy, Car Models, Satisfaction Level

## INTRODUCTION

### Passenger Car Industry in India

Though till the early 1980s, consumers had very limited options for passenger cars, the automobile industry has been in the booming phase for the past 15 years, on the strength of the Indian government's liberalized economy policy and freedom from the License Raj. The Government of India allowed Foreign Direct Investment in the automobile industry and encouraged foreign joint ventures with the Indian automobile manufacturing industry since early 1990, with a view to make available a wider choice for customers. This was intended to develop healthy competition in the automobile sector. This saw many automobile giants entering the Indian market with their models, readily available, without much waiting time for the delivery. Sudden interest of major global players has made the Indian auto industry very competitive, as India provides twin benefit of ready market and low-cost manufacturing base for them. With the explosion of the automobile industry, due to its globalization and liberalization, car manufacturers introduced much innovative and technological advancement in their models. Customers have started thinking to change over to the new models of cars, with relative ease than before, to suit their changing lifestyles.

The Indian automobile industry is one of the largest in the world. The industry accounts for 7.1 per cent of the country's Gross Domestic Product (GDP). As of FY 2014- 2015, around 31 per cent of small cars sold globally are manufactured in India. India's automotive industry was around \$74 billion worth, as of October 2015 and expected to grow \$300 billion by 2026, clocking a compounded annual growth rate (CAGR) of 15 per cent. Now, more and more foreign manufacturers are coming to India and existing companies are coming up with new models. In passenger vehicle segment, still Maruti Suzuki is the leader with around 50 per cent market share followed by Hyundai Motors with 19 per cent, and Tata Motors with 16 per cent. Other players in this segment are Honda Siel Cars and Ford India Pvt. Ltd, Toyota, General Motors etc. According to Society of Indian Manufacturers (SIAM), growth in sales of passenger vehicles in India was the fastest among the eight largest auto markets in the world in the months of 2015, as vehicle purchases slowed in China and declined in Japan and the US. At 7.64 per cent growth over the previous year, India led the top eight markets as the country's economy bottomed out and public investment improved market conditions for domestic auto firms during 2015.

## 2. LITERATURE REVIEW

The researcher evaluated various secondary studies conducted on the consumer behaviour of passenger cars by other researchers in the relevant area, in different countries, India, and specifically in the state of Kerala. Sagar et al. discussed as to how the Indian car industry has advanced technologically, driven by a confluence of factors such as intense competition, demanding consumer preferences, government policies (especially tightening emission standards), and the global strategies of the various players. They elaborate that cars manufactured in India are based on designs, incorporating advanced technologies, that are often comparable with those available globally and Indian car exports are also growing.

Mukherjee and Sastry discussed that penetration of passenger cars in rural and semi-urban areas is extremely low and could provide fresh markets. Their opinion was that new car entrants in the market will have to deal with uncertainty of demand, different and evolving customer needs, a relatively poor supplier base, and a market, crowded with competition and industry-wide capacity shortages. As per Kotwal, buyers now prefer to have cars with the space, comfort, and luxury of a mid-size saloon or sedan models. With the growing affluence and technological advancement, there develops a certain maturity in taste, as evidenced by the growing popularity of the Indian hatchback market.

### Role of Internet Marketing in Consumer Decision Process

As the Internet is rapidly growing and providing the platform for e-commerce marketing, many customers use the Internet partly or even fully, for all the buying process stages. Just about 1 in 17 people may have access to the Internet in India, but every third car buyer in the country's top cities start their search on the World Wide Web. As per Sharma, 4 out of every 10 new-car buyers and 3 in every 10 used-car buyers, use the Internet to do initial research, before making the purchase.

### **Virtual Brand Community Effect**

The importance of virtual brand communities is growing day by day, as a result of consumers increasingly using online tools to contact fellow consumers in order to get information on which to base their decisions. Luis et al. proposed the positive effects of participation in a virtual community on both consumer trust and loyalty to the product, brand, or organization around which the community is developed.

### **Relationship, Service Package, and Price**

In the car industry, which is predominantly driven by the product characterization, classification, and orientation, establishing a long-term relationship is being considered to be an essential marketing strategy at all distribution levels. Thus, customer knowledge and relationship building, through constantly addressing their needs, are considered to be vitally important selling ingredients to contribute to a car dealer's competitive advantage, as ascertained by Chojnacki. Sharma and Patterson stated that car dealers were implementing a strategy to position themselves, more effectively in the market place than before, by means of continuous improvement of quality maintenance through services delivery packages, as car dealers are increasingly being confronted by demanding and technologically knowledgeable consumers, shortened product model lifecycles, intensified competition, and fragmented market segments.

### **Customer Satisfaction and Loyalty**

Customer satisfaction is often used as a predictive measurement of future consumer purchases as hypothesized by Newman and Werbel. Satisfied customers are more likely to resort to repeating purchases in the time of actual instance, as reported by Zeithaml, Berry, and Parasuraman in their studies. Moreover, highly satisfied customers will convey their success stories of satisfaction and directly recommend that others try the source of satisfaction, as stated in the studies conducted by Reynolds and Arnold. Fitzell suggested that such satisfied customers shall become less receptive to the competitor's offerings. A quick observation of customer loyalty is demonstrated by repeated purchase as in the studies by Ball et al. In practical terms, firms want repeated purchases mainly because such behaviour in consumers can apparently show the customer preference for a brand or product, as stated by Bowen and Shoemaker.

### **Brand and Retail Loyalty**

Customer satisfaction can be considered the central determinant in all phases of the contact chain. Multidimensional recording of customer loyalty reveals clear differences in the interactions, first, with brand loyalty and second, with dealer loyalty. In contrast to the opinion widely held in practice, customers in the automotive sector definitely do not perceive the brand and the dealer as one unit. Since similar studies in different countries came to almost the same conclusions, it can be argued that the results are valid in several cultural settings. The results obtained by Huber and Herrmann are so fundamental that they can be translated into implications even by internationally operating companies.

In these days, car owners desire to change their models of cars, to enjoy the benefits and comforts of latest technological and environmental features, provided by manufacturers. On that account, whether to remain loyal to their existing brand/product or to switch over to a new brand/product is a million dollar question that bothers many car owners. There lies the fortunes of many automobile manufacturers and retailers. In this confusing scenario, some of the car buyers switch from one brand

to another at trade-in time, whereas some other car owners display consistent choice of sticking to their brand/product from purchase to purchase, as hypothesized by Sambanandam and Lord. When it comes to the product evaluation stage, quality products, positive showroom acoustics, ambience, positive showroom experience, and a consistent and formidable after-sales service are all essential and central to the loyalty formula, and manufacturers have been concentrating on these considerable efforts in these directions, as illustrated by Illingworth.

As the customer satisfaction level increases, in due course of the time, and as more interaction takes place between the customer and the retailer, it results in a better relationship between the dealer and the customer. An increased level of customer satisfaction leads to customer delight. At this point of time, customer delight slowly culminates into customer loyalty towards the brand and the satisfied customer at this level will have no difficulty in recommending the brand to his/her friends, relatives, and peers at office. This will definitely influence the customer's post-purchase behaviour. On the other side, if the post-purchase scenario does not lead to higher satisfaction level, customer may not be willing to recommend the brand to others. Moreover, dissatisfied customers tend to spread negative news about the brand to his/her associates. This behavioural aspect influences his/her future upgrade of the car model, whenever the customer decides to go for a replacement of the car brand/model, in future course of time.

Ewing investigated brand loyalty by examining actual past behaviour and its impact on future behavioural intentions, as well as willingness to recommend the brand to another customer known to him. Findings indicated that purchase expectation/intention remain a valid research metric. It would appear that the brand/consumer interface offers greater predictive ability than the retailer/consumer interface. Willingness to recommend a brand to another consumer does not seem to be influenced by past behaviour, but the higher the respondent's expectation to purchase the brand, the higher will be their willingness to recommend the brand. Dharmaraj conducted a study on brand preference dimensions on customer satisfaction on passenger cars on four parameters—information factors, psychological factors, economic factors, and product factors. The study reported that in the category of information factors, advertisement, friends, and relatives, and decision influenced by spouse topped the list. In the psychological factors category, brand name, brand superiority, and brand loyalty played the major role in influencing car preference. In the economic category, mileage, maintenance cost, and price play a major role in influencing passenger car customers. In product factors, quality, comfort and technology, brakes, power steering, and durability played influencing role in car passenger owners.

Kaushik and Neeraj reported in their studies conducted in south west Haryana region that customers are more influenced by friends and relatives than dealers and salespersons. Their study also brought out that brand name, fuel efficiency, and price were found to be primary determinants for buying a car in this region.

Menon and Jacob and Khan reported in their studies that there was considerable proportion of modern women car buyers, which has increased threefold in the recent years. Companies have started to dig deep into the Indian women's psyche and attention for details. Marketers may need to look at the needs of women customers, who are increasingly growing in the segment. There is also a substantial influence of women in the car purchase decision of the family. The trend has replicated in the state of Kerala as well, where we can see many women driving the car in the city and towns. Menon also observed that car makers have woken up to the new reality of the Internet playing a key role in their marketing and communication strategies. The internet has witnessed increased brand-building efforts by car companies over the past few years.

### 3. OBJECTIVES OF THE STUDY

The major objective was to build up a Consumer Purchase Behaviour Model, with major parameters influencing the behavioural patterns of the passenger car owners. More specifically, the

objectives were to study the influencing attributes of the following:

- Information Gathering and Consumer Purchase Initiation—from peers, the Internet websites, advertisements, and visit to the dealer.
- Personal Preferences of Car Features—based on personal needs, convenience factors, and comfort factors.
- Influence Factors based on the Car Manufacturer/ Dealer—dealer and showroom experience, status symbol, after-sales service, and dealer offers.
- Influence Factors based on Car Model—advanced technology, mileage, market value of the brand and model, price, interior and exterior design, security and safety features, driving comfort, and entertainment features.
- External Influence—family, parents, friends, colleagues, market goodwill, and car loan availability.

Satisfaction Level—mileage, brand, model, re-sale value, technology, safety, security, riding comfort, performance, and style.

#### 4. RESEARCH METHODOLOGY

Research methodology followed for the study was a combination of qualitative and quantitative methods. Constructs were identified based on the literature study and information gathered from the exploratory/qualitative study conducted on the car dealers and distributors. Detailed questionnaire was formulated, which was reviewed by experts. It was tested through a pilot study on 50 car owners. Based on the feedback received, the questionnaire was modified and reviewed again by experts. Thereafter, the finalized questionnaire was used to conduct a quantitative survey of car consumers in the federal state of Kerala. The study was targeted to the passenger car owners in the state of Kerala, as the population. All the brands of car users in the segments of small car, hatchback, sedan, higher sedan, and multi-purpose vehicle (MPV) consisted of the population size. Both the new- and used-car owners were surveyed from the population. Both rural and urban areas of the state were considered. The population was homogeneous, as the car market in the state was highly developed and the dealers had been following well-defined operational procedures mandated by their manufacturers to conduct the sales, delivery, and service in their premises.

The sampling strategy implemented for the research study was multistage sampling method. First, all the 14 districts of the state were taken in the first stage. In the second stage, five districts were shortlisted. It was seen that the number of cars sold in these districts were the highest, based on the data obtained from Motor Vehicles Department of the state. The final questionnaire was administered to 750 respondents, who were car owners from the rural and urban areas of the five districts of the state. Survey was conducted by in-person structured interview method, using a pre-determined questionnaire. All constructs were measured using a five-point Likert scale.

#### Theoretical Model for the Study

Based on the information collated through literature study, in-depth interviews and the subsequent final version of questionnaire formalized; the researcher conceptualized a model of consumer purchase behaviour, with major factors influencing the purchase of passenger cars, shown in Figure 1.

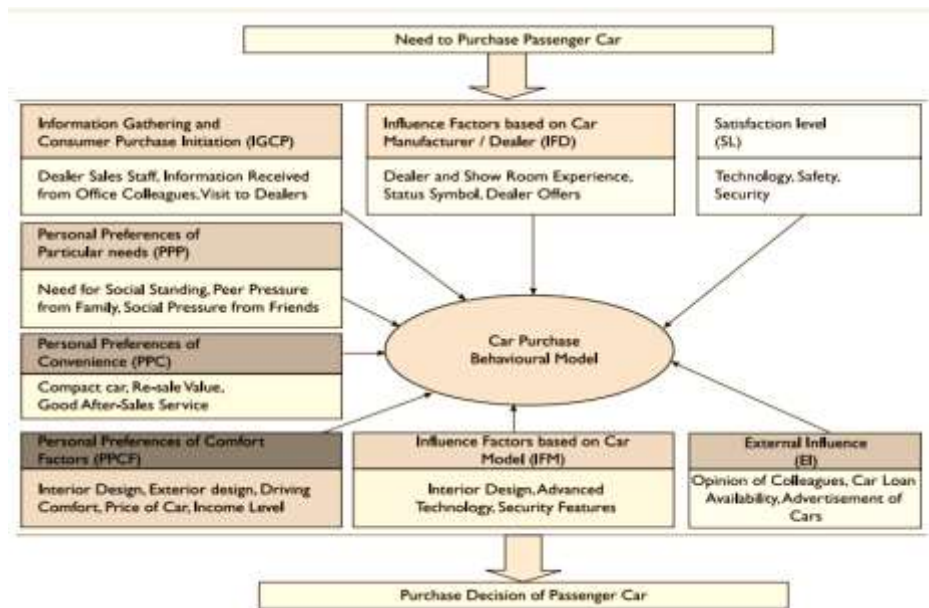


Figure 1. Car Purchase Behaviour Model

### Usage of Statistical Tools and Application

The data collected from the respondents was examined, verified, edited wherever necessary, for completeness, accuracy, and reliability. Thereafter, the data was further analysed using the statistical package SPSS. Structured equation modelling (SEM), using AMOS software was utilized to establish the validity of the theoretical model depicted in Figure 1 in section "Theoretical Model for the Study."

The data collected through a well-structured questionnaire, was classified and tabulated for analysis, in compliance with the framework laid down and clearly defined, in accordance with the objectives framed for the research study.

Regression methods form an integral part of data analysis, which are concerned with describing the relationship between the response variable (dependent variable) and one or more explanatory variables (independent variables). What distinguishes a logistic regression model from a linear regression model is that the response variable in logistic regression is binary or dichotomous in nature. Multinomial logistic regression is the extension of (binary) logistic regression, where the categorical dependent variable has more than one level.

The purpose was to develop multinomial logistic regression models/equations by developing the relationship of the dependent variable with the independent variables. The dependent variable for the research study was the Car Segment, which has five levels: small cars, hatchback, sedan, higher sedan, and MPV. The independent variables were the factors of the eight major construct variables of the car purchase behaviour model. The construct variables were IGCP, PPP, PPC, PPCF, IFD, IFM, EI, and SL. These construct variables are shown in section "Theoretical Model for the Study", Figure 1 and section "Data Analysis, Results, and Interpretation". The factors of the eight major constructs are further explained in section "Data Analysis, Results, and Interpretation" and subsections "Information Gathering and Consumer Purchase Initiation (IGCP)" to "Satisfaction Level (SL)."

Initially log likelihood of the model was developed for the specified dependent and independent variables and significance of the model was tested at  $p = 5$  per cent level. Further statistical significance of all the individual predictor variables is conducted by means of likelihood ratio tests at 5 per cent level. While developing the multinomial logit models for the different car segments, the reference category/base group was taken as MPV.

The ratio of the probability of choosing one particular category is often referred as relative risk

(and it is also sometimes called as odds). The parameter estimates give the odds ratio of the independent variable at 95 per cent confidence interval. The change in dependent variable, due to unit increase in the independent variable is explained by means of the log odds and odds ratio for that independent variable obtained during the analysis.

A five-point scale was used to measure the factors of each of the eight major variables, mentioned earlier. The questionnaire respondents were asked to specify their choices for each of the sub-items of these major variables, using a five-point Likert's scaling technique (strongly agree, agree, neutral, disagree, and strongly disagree). The score 1 was represented for the option "strongly disagree", while the score 5 on the scale, represented the category "strongly agree", for all the positive questions. A reverse scoring pattern was used for all those negative questions, using a five-point scale (5 representing strongly disagree and 1 representing strongly agree). Cronbach's reliability test was used to test the degree of dependability, consistency, or stability of the scale adopted.

One sample Z test was used to establish dominance of various factors, influencing the purchase behaviour of cars, to test the hypotheses listed.

## 5. DATA ANALYSIS, RESULTS, AND INTERPRETATION

In tune with the research objectives, this article has been structured into sections, dealing with the data analysis of the various constructs, which influence the purchase behaviour of the passenger car customers, in terms of:

- Information Gathering and Consumer Purchase Initiation (IGCP)
- Personal Preference on Particular Needs (PPP) Personal Preference of Convenience (PPC)
- Personal Preference Based on Comfort Factors (PPCF)
- Influence Factor Based on Car Manufacturers/Dealer (IFD)
- Influence Factor Based on Car Model (IFM) External Influence (EI)
- Satisfaction Level (SL)

### Information Gathering and Consumer Purchase Initiation (IGCP)

The initial log-likelihood value obtained is 1617, which is a measure of a model with no independent variable, that is, only the constant or intercept. The final log-likelihood value obtained is 1544 and this is measure of a model, by considering all independent variables. The difference between these two measures is the model chi-square value, which is obtained as 72.191 and this is significant, as value  $< 0.001$ , at significance level 5 per cent. Thus, it can be concluded that there is a significant relationship between dependent variable Car Segment and the set of independent variables IGCP1 to IGCP8. With the reference category as MPV, the multinomial logit model developed has four parts, labelled with four categories of the outcome variable, Car Segment. They correspond to the four equations, and the values are shown in Table 1.

**Table 1. Values of the Dependent Variable and Independent Variables (IGCP1- IGCP8)**

Dependent Variable – Car Segment	Log Ratio	Constant Value								
			IGCP1	IGCP2	IGCP3	IGCP4	IGCP5	IGCP6	IGCP7	IGCP8
Small Cars	$\text{Log} (p[\text{small segment}]/p[\text{MPV}])$	5.123	-0.144	-0.273	0.376	-0.278	-0.010	-0.559	-0.121	-0.281
Hatch Back	$\text{Log} (p[\text{Hatch back}]/p)$	5.272	0.024	-0.165	0.194	-0.341	-0.028	-0.485	-0.218	-0.019

	[MPV]									
Sedan	$\text{Log}(p[\text{Sedan}]/p[\text{MPV}])$	3.024	-0.185	-0.239	0.379	0.124	-0.033	-0.350	-0.293	-0.061
Higher Sedan	$\text{Log}(p[\text{Higher Sedan}]/p[\text{MPV}])$	-4.755	0.020	-0.614	0.434	0.362	0.666	-0.435	0.118	0.392

Based on these equations, it was established that the car segment-wise major influencing factors for the IGCP variable were as follows:

- Information received from the office colleagues (IGCP3) topped the rank of influencers, in the case of small car segment. There were no other positive influencers for this segment.
- Information received from the office colleagues (IGCP3) topped the rank of influencers, in the case of hatch back segment as well and searching on the Internet websites of the manufacturer (IGCP1) occupied the second spot.
- In the case of sedan segment, information received from the office colleagues (IGCP3) topped the rank of influencers and opinion from family members (IGCP4) took the second spot.
- In the case of higher sedan segment, advertisement in newspapers/magazines (IGCP5) topped the ranks, information received from the office colleagues (IGCP3) took the second rank, and influence of dealer sales staff (IGCP8) took the third rank.

#### Preference Based on Personal Needs (PPP)

The initial log-likelihood value obtained is 1782, which is a measure of a model with no independent variable, that is only constant or intercept. The final log-likelihood value obtained is 1686 and this is measure of a model, by considering all independent variables. The difference between these two measures is the model chi-square value, which is obtained as 96.003 and this is significant, as  $p < 0.001$  at significance level 5 per cent. Thus, it can be concluded that there is a significant relationship between dependent variable – Car Segment – and the set of independent variables – PPP1 to PPP9.

With the reference category as MPV, the multinomial logit model developed has four parts, labelled with four categories of the outcome variable, Car Segment. They correspond to the four equations, and the values are shown in Table 2.

**Table 2.** Values of the Dependent Variable and Independent Variables (PPP1-PPP9)

Dependent Variable – Car											
Segment	Log Ratio	Constant Value	PPP1	PPP2	PPP3	PPP4	PPP5	PPP6	PPP7	PPP8	PPP9
Small Cars	$\text{Log}(p[\text{small segment}]/p[\text{MPV}])$	3.756	0.648	-1.084	0.113	-0.140	-0.249	0.286	-0.371	-0.204	0.011
Hatch Back	$\text{Log}(p[\text{Hatchback segment}]/p[\text{MPV}])$	3.026	0.456	-0.893	0.306	-0.177	-0.247	0.101	0.019	0.188	0.155
Sedan	$\text{Log}(p[\text{Sedan segment}]/p[\text{MPV}])$	1.687	0.202	-0.605	0.189	-0.124	-0.171	0.235	-0.032	0.052	-0.048
Higher Sedan	$\text{Log}(p[\text{Higher segment}]/p[\text{MPV}])$	-2.904	0.106	-0.274	0.414	-0.380	0.134	-0.019	-0.051	-0.034	0.592

**Note:** Model derived from AMOS software.

Based on these equations, it was established that the car segment-wise major influencing factors for the PPP variable were as follows:



- Need to upgrade from two-wheeler to four-wheeler (PPP1) captured the top slot, followed by family wanted a car for functions, social gatherings (PPP6) taking the second slot, and peer pressure from other family members owning a car (PPP3) occupying the third slot for small car segment.
- Need to upgrade from two-wheeler to four-wheeler (PPP1) capturing the first rank, peer pressure from other family members owning a car (PPP3) taking the second rank, and social pressure from friends/neighbours/family members (PPP9) taking the third rank, in the case of hatch back segment.
- Family wanted a car for functions, social gatherings (PPP6), taking the first rank, need to upgrade from two-wheeler to four-wheeler (PPP1), occupying the second rank, and peer pressure from other family members owning a car (PPP3) taking the third rank, for the sedan segment.
- Social pressure from friends/neighbours/family members (PPP9) taking the first slot, peer pressure from other family members owning a car (PPP3) capturing the second rank, and upgraded the model to suit personal ambition (PPP5) took the third rank, for the higher sedan segment.

### Personal Preference Based on Convenience Factors (PPC)

The initial log-likelihood value obtained is 1585, which is a measure of a model with no independent variable, that is only constant or intercept. The final log-likelihood value obtained is 1511 and this is measure of a model, by considering all independent variables. The difference between these two measures is the model chi-square value, which is obtained as 74.406 and this is significant, as  $p$ -value  $< 0.001$  at significance level 5 per cent. It can be concluded that there is a significant relationship between dependent variable – Car Segment – and the set of independent variables – PPC1 to PPC8.

With the reference category as MPV, the multinomial logit model developed has four parts, labelled with four categories of the outcome variable, Car Segment. They correspond to the four equations, and the values are shown in Table 3.

**Table 3.** Values of the Dependent Variable and Independent Variables (PPC1-PPC8)

Dependent Variable – Car Segment	Log Ratio	Constant								
		Value	PPC1	PPC2	PPC3	PPC4	PPC5	PPC6	PPC7	PPC8
Small Cars	$\text{Log} \left( \frac{p[\text{small segment}]}{p[\text{MPV}]} \right)$	4.364	-0.093	-0.361	-0.263	0.257	0.344	0.067	-0.590	-0.414
Hatch Back	$\text{Log} \left( \frac{p[\text{Hatchback segment}]}{p[\text{MPV}]} \right)$	2.555	0.163	-0.071	-0.142	0.215	0.143	-0.319	-0.094	-0.196
Sedan	$\text{Log} \left( \frac{p[\text{Sedan segment}]}{p[\text{MPV}]} \right)$	1.590	-0.127	-0.165	-0.198	0.091	0.132	0.043	0.249	-0.294
Higher Sedan	$\text{Log} \left( \frac{p[\text{Higher segment}]}{p[\text{MPV}]} \right)$	-2.343	-0.318	0.294	0.457	0.153	-0.614	-0.082	0.701	-0.308

**Note:** Model derived from AMOS software.

Based on these equations, it was established that the car segment-wise major influencing factors for the PPC variable were as follows:

- Good after-sales service (PPC5) occupied the first position, compact car (PPC4) took the second position, and re-sale value (PPC6) took the third position for the small car segment.
- Compact car (PPC4) took the first position, inconvenience of public transport for family journeys (PPC1) took the second position, and good after-sales service (PPC5) took the third position, in the case of hatch back segment.
- Safety and security (PPC7) occupied the first rank, good after-sales service (PPC5) the second rank, and compact car (PPC4) occupied the third rank, in the case of sedan segment.
- Safety and security (PPC7) took the first rank, easy car availability in the market (PPC3) took the second

rank, and easy availability of bank loans (PPC2) took the third rank, in the case of higher sedan segment.

#### Personal Preference Based on Comfort Factors (PPCF)

The initial log-likelihood value obtained is 1140, which is a measure of a model with no independent variable, that is only constant or intercept. The final log-likelihood value obtained is 1083 and this is measure of a model, by considering all independent variables. The difference between these two measures is the model chi-square value, which is obtained as 57.569 and this is significant, as  $p$ -value  $< 0.001$  at significance level 5 per cent. It can be concluded that there is a significant relationship between dependent variable – Car Segment – and the set of independent variables – PPCF1 to PPCF6.

With the reference category as MPV, the multinomial logit model developed has four parts, labelled with four categories of the outcome variable, Car Segment. They correspond to the four equations, and the values are shown in Table 4.

**Table 4.** Values of the Dependent Variable and Independent Variables (PPCF1-PPCF6)

Dependent Variable – Car		Constant						
Segment	Log Ratio	Value	PPCF1	PPCF2	PPCF3	PPCF4	PPCF5	PPCF6
Small Cars	$\text{Log} (p[\text{small segment}]/p[\text{MPV}])$	4.767	-0.049	-0.643	-0.410	0.100	0.002	-0.145
Hatch Back	$\text{Log} (p[\text{Hatchback segment}]/p[\text{MPV}])$	3.203	0.270	-0.475	0.223	0.106	-0.139	-0.009
Sedan	$\text{Log} (p[\text{Sedan segment}]/p[\text{MPV}])$	0.206	0.136	-0.089	0.061	0.073	0.046	-0.131
Higher Sedan	$\text{Log} (p[\text{Higher segment}]/p[\text{MPV}])$	-6.753	0.533	0.279	-0.203	0.637	-0.141	0.275

**Note:** Model derived from AMOS software.

Based on these equations, it was established that the car segment-wise major influencing factors for the PPCF variable were as follows:

- Comfort in driving (PPCF4) was the only positive factor for small car segment.
- Style and looks of the car (PPCF1) took the first position, interior design (PPCF3) took the second position, and comfort in driving (PPCF4) took the third position for the hatch back segment.
- Style and looks of the car (PPCF1) took the first position, comfort in driving (PPCF4) took the second position, and interior design (PPCF3) took the third position for the Sedan Segment.
- Comfort in driving (PPCF4) took the first position, style and looks of the car (PPCF1) took the second position, and exterior design (PPCF2) took the third position, in the case of higher sedan segment.

#### Influence Factor Based on Car Dealer (IFD)

The initial log-likelihood value obtained is 1475, which is a measure of a model a no independent variable that is only constant or intercept. The final log-likelihood value obtained is 1402 and this is measure of a model, by considering all independent variables. The difference between these two measures is the model chi-square value, which is obtained as 73.237 and this is significant, as  $p$ -value  $< 0.001$  at significance level 5 per cent. It can be concluded that there is a significant relationship between dependent variable – Car Segment – and the set of independent variables – IFD1 to IFD7.

With the reference category as MPV, the multinomial logit model developed has four parts, labelled with four categories of the outcome variable, Car Segment. They correspond to the four equations, and the values are shown in Table 5.

**Table 5.** Values of the Dependent Variable and Independent Variables (IFD1–IFD7)

Dependent Variable – Car		Constant							
Segment	Log Ratio	Value	IFD1	IFD2	IFD3	IFD4	IFD5	IFD6	IFD7
Small Cars	Log (p[small segment]/p[MPV])	4.468	0.167	-0.431	-0.602	0.288	-0.408	-0.236	0.128
Hatch Back	Log (p[Hatchback segment]/p[MPV])	4.271	0.175	-0.588	-0.263	0.071	-0.334	-0.058	0.242
Sedan	Log (p[Sedan segment]/p[MPV])	2.288	0.133	-0.238	-0.237	0.167	-0.304	-0.102	0.149
Higher Sedan	Log (p[Higher segment]/p[MPV])	-6.189	-0.326	0.866	0.073	0.364	0.164	0.275	-0.158

**Note:** Model derived from AMOS software.

Based on these equations, it was established that the car segment-wise major influencing factors for the IFD variable were as follows:

- Importance customer attached to the manufacturer (IFD4) took the first position, dealer and showroom experience (IFD1) took the second position, and after-sales service package (IFD7) took the third position, in the case of small car segment.
- After-sales service package (IFD7) took the first position, dealer and showroom experience (IFD1) took the second position, and importance you attached to the manufacturer (IFD4) took the third position, in the case of hatch back segment.
- Importance you attached to the manufacturer (IFD4) took the first position, after-sales service package (IFD7) took the second position, and dealer and showroom experience (IFD1) took the third position, in the case of sedan segment.
- Your car as a status symbol/prestige value (IFD2) took the first position, importance you attached to the manufacturer (IFD4) took the second position, and dealer offers of your specific car model (IFD6) took the third position, in the case of higher sedan segment

#### Influence Factor Based on Car Model (IFM)

The initial log-likelihood value obtained is 1789, which is a measure of a model with no independent variable, that is only constant or intercept. The final log-likelihood value obtained is 1670 and this is measure of a model, by considering all independent variables. The difference between these two measures is the model chi-square value, which is obtained as 119.030 and this is significant, as p-value < 0.001 at significance level 5 per cent. It can be concluded that there is a significant relationship between dependent variable – Car Segment – and the set of independent variables – IFM1 to IFM11.

With the reference category as MPV, the multinomial logit model developed has four parts, labelled with four categories of the outcome variable, Car Segment. They correspond to the four equations, and the values are shown in Table 6.

**Table 6.** Values of the Dependent Variable and Independent Variables (IFM1–IFM11)

Dependent Variable Car		Constant											
Segment	Log Ratio	Value	IFM1	IFM2	IFM3	IFM4	IFM5	IFM6	IFM7	IFM8	IFM9	IFM10	IFM11
Small Cars	Log (p[small segment]/p[MPV])	8.708	-0.451	0.173	-0.086	-0.107	-0.034	-0.418	-0.145	0.243	-0.561	-0.362	-0.373
Hatch Back	Log (p[Hatchback segment]/p[MPV])	6.340	0.185	0.122	0.027	-0.440	-0.166	-0.019	-0.073	0.065	-0.694	-0.159	-0.026
Sedan	Log (p[Sedan segment]/p[MPV])	3.016	0.334	0.238	0.041	-0.371	-0.231	-0.022	0.077	0.229	-0.587	-0.176	-0.117
Higher Sedan	Log (p[Higher segment]/p[MPV])	-6.973	-0.319	0.278	0.148	-0.375	0.078	0.258	0.809	0.215	0.137	-0.041	0.250

**Note:** Model derived from AMOS software.

Based on these equations, it was established that the car segment-wise major influencing factors for the IFM variable were as follows:

- Security features of the specific model (IFM8) occupied the first rank and willingness to pay a higher price for fuel efficiency of your specific model (IFM2) occupied the second rank, in case of small car segment.
- Advanced technology of your model (IFM1) took the first position and willing to pay a higher price for fuel efficiency and (mileage) alone of your specific model (IFM2) took the second position, in the case of hatch back segment.
- Advanced technology of your model (IFM1) occupied the first rank, willing to pay a higher price for fuel efficiency and (mileage) alone of your specific model (IFM2) captured the second rank, and security features of the specific model (IFM8) got the third rank, in the case of higher sedan segment.
- Exterior design (IFM7) took the first rank, willing to pay a higher price for fuel efficiency and (mileage) alone of your specific model (IFM2) took the second rank, and interior design (IFM6) took the third rank, in the case of higher sedan segment.

#### External Influence (EI)

The initial log-likelihood value obtained is 282.741, which is a measure of a model with no independent variable, that is only constant or intercept. The final log-likelihood value obtained is 248.589 and this is measure of a model, by considering all independent variables. The difference between these two measures is the model chi-square value, which is obtained as 34.153 and this is significant, as p-value < 0.001 at significance level 5 per cent. It can be concluded that there is a significant relationship between dependent variable—Car Segment—and the set of independent variables—EI1 to EI9. With the reference category as MPV, the multinomial logit model developed has four parts, labelled with four categories of the outcome variable, Car Segment. They correspond to the four equations, and the values are shown in Table 7.

**Table 7.** Values of the Dependent Variable and Independent Variables (EI1–EI9)

Dependent Variable Car		Constant									
Segment	Log Ratio	Value	IFM11	IFM12	IFM13	IFM14	IFM15	IFM16	IFM17	IFM18	IFM19
Small Cars	Log (p[small segment]/p[MPV])	4.162	-1.186	-0.282	0.162	0.920	-0.017	0.492	0.309	-1.240	0.437
Small Cars	Log (p[small segment]/p[MPV])	3.061	-0.143	0.177	0.136	0.370	-0.421	0.434	-0.031	-1.027	0.093
Hatch Back	Log (p[Hatchback]/p[MPV])	4.620	-0.936	0.810	-0.050	0.466	-0.511	0.263	-0.059	-0.904	-0.069
Sedan	Log (p[Sedan]/p[MPV])	-20.425	-1.438	0.474	-1.012	-0.505	2.624	0.701	2.185	2.488	-1.637

**Note:** Model derived from AMOS software.

Based on these equations, it was established that the car segment-wise major influencing factors for the EI variable were as follows:

- Friends (EI4) occupied the first position, market goodwill (EI6) took the second position, and other reasons (EI9) took the third rank, in the case of small car segment.
- Market goodwill (EI6) occupied the first rank, friends (EI4) took the second rank, and parents (EI2) took the third rank, in the case of hatch back segment.
- Parents (EI2) took the first rank, friends (EI4) took the second, and market goodwill (EI6) occupied the third rank, in the case of sedan segment.
- Opinion of your colleagues (EI5) took the first rank, advertisement of cars (EI8) took the second rank, and car loan availability (EI7) took the third rank, in the case of higher sedan segment.

### Satisfaction Level (SL)

The initial log-likelihood value obtained is 1864, which is a measure of a model with no independent variable, that is only constant or intercept. The final log-likelihood value obtained is 1710 and this is measure of a model, by considering all independent variables. The difference between these two measures is the model chi-square value, which is obtained as 153.717 and this is significant, as p-value < 0.001 at significance level 5 per cent. It can be concluded that there is a significant relationship between dependent variable – Car Segment – and the set of independent variables – SL1 to SL 15.

With the reference category as MPV, the multinomial logit model developed has four parts, labelled with four categories of the outcome variable, Car Segment. They correspond to the four equations, and the values are shown in Tables 8a and 8b.

**Table 8a.** Values of the Dependent Variable and Independent Variables (SL1–SL8)

Dependent Variable – Car		Constant								
Segment	Log Ratio	Value	SL1	SL2	SL3	SL4	SL5	SL6	SL7	SL8
Small Cars	Log (p[small segment]/ p[MPV])	3.304	0.247	0.586	-0.363	0.662	-0.116	-0.358	-0.440	-0.222

Hatch Back	Log (p[Hatchback]/p[MPV])	2.784	0.104	0.359	0.165	-0.337	-0.209	-0.433	-0.114	0.247
Sedan	Log (p[Sedan]/p[MPV])	1.072	-0.476	0.300	0.434	0.182	-0.276	-0.405	-0.132	0.175
Higher Sedan	Log (p[Higher Sedan]/p[MPV])	-6.201	-1.081	0.680	0.204	0.357	-0.683	-0.447	0.818	0.141

Note: Model derived from AMOS software.

**Table 8b.** Values of the Dependent Variable and Independent Variables (SL9–SL15)

Dependent Variable – Car	Constant								
Segment	Log Ratio	Value	SL9	SL10	SL11	SL12	SL13	SL14	SL15
Small Cars	Log (p[small segment]/p[MPV])	3.304	-0.195	-0.141	0.157	-0.602	-0.033	-0.481	0.497
Hatch Back	Log (p[Hatchback]/p[MPV])	2.784	-0.362	-0.172	0.221	-0.678	0.156	-0.350	0.372
Sedan	Log (p[Sedan]/p[MPV])	1.072	0.086	0.030	-0.075	-0.314	0.103	-0.238	0.503
Higher Sedan	Log (p[Higher Sedan]/p[MPV])	-6.201	-0.009	-0.266	0.784	-0.829	-0.139	1.015	0.686

Note: Model derived from AMOS software.

Based on these equations, it was established that the car segment-wise major influencing factors for the SL variable were as follows:

- Brand (SL4) took the first rank, value for money (SL2) the second rank, and after-sale service experience of your car (SL15) the third rank, in the case of small car segment.
- After-sale service experience of your car (SL15) took the first rank, value for money (SL2) the second rank, and safety (SL8) the third rank, in the case of hatch back segment.
- After-sale service experience of your car (SL15) occupied the first rank, power of the car (SL3) the second rank, and value for money (SL2) the third rank, in the case of sedan segment.
- Appearance (SL14) took the first rank, technology (SL7) the second rank, and convenience (SL11) the third rank, in the case of higher sedan segment.

## 6. Validation and Acceptability of the Model

### Reliability Analysis

It was seen that all the values of Cronbach's alpha for the eight variables under study, as shown in section "Theoretical Model for the Study", were all above the value of 0.70. The values showed that refined scale is reliable and consistent, as the calculated values of Cronbach's alpha are well above the recommended value of 0.70, demonstrating a high reliability of the data collected. The following Figure 2 shows the diagrammatic representation of the entire validated model with eight major influencing variables.

In Figure 2, the figures 0.74, 0.81, 0.81, etc. are the regression coefficients, showing their contributing share in the influence on the total Purchase Intention (PI) variable by the sub-factors IGCP, PPP, PPC, and so on. Again, the figures 0.54, 0.65, 0.66, etc. are the squares of correlation coefficients

between the total PI and IGCP, PPP, PPC, and so on.

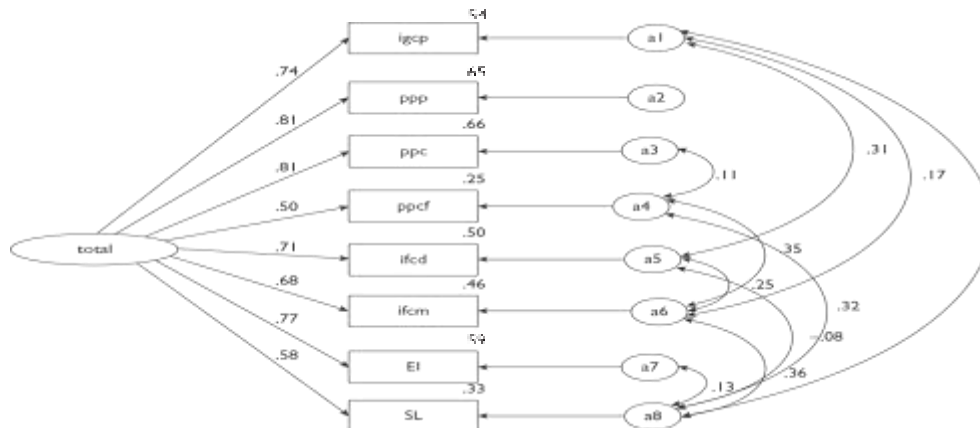
The model of PI can be expressed in the form of the following equation:

$$PI = 0.735 IGCP + 0.808 PPP + 0.810 PPC + 0.496 PPCF + 0.705 IFD + 0.681 IFM + 0.771 EI + 0.578 SL$$

### Testing of Hypotheses

There were many hypotheses, which were tested and validated. A few of them are listed in Table 9.

The mean percentage score is above 70 per cent in all the cases, except for H05. It indicates that the values have positive influence on the purchasing decision, except for H05, which is for second-hand cars. Further, to test whether



**Figure 2.** The Purchase Intention Model with Variables, their Correlations and Regression Coefficients

**Note:** Model derived from AMOS software.

**Table 9.** Z Test, H<sub>0</sub>: Mean % score = 70 against H<sub>1</sub>: Mean % score > 70. Significant Level 5%, *p*-value at 5% Significance Level.

Hypotheses Testing	Mean	Std. Deviation	Mean % Score	<i>p</i> -value	Test Result
H01: After-sales service has a dominant positive influence on the purchasing behaviour	7.56	1.16	75.58	0.022	H01 Accepted
H02: There is a positive influence of dealers and showroom experience, which affects the car purchase decision of customers	3.74	0.77	74.86	0.037	H02 Accepted
H03: Price of the car has a positive influence on the purchasing decision	3.92	0.74	78.41	0.017	H03 Accepted
H04: Advanced technology of the car model plays a positive image in the purchase behaviour	3.97	0.641	79.34	0.009	H04 Accepted
H05: There is a significant majority of customers, who prefer the second-hand cars, due to their personal and market considerations	3.27	0.57	65.31	-0.846	H05 Rejected
H06: The make and brand name have no dominance in the purchase behaviour of low-end (small) cars	3.70	0.74	36.97	-0.053	H06 Accepted

**Note:** Model derived from SPSS software.

This value is significant or not (i.e., mean % score is above 70 or not), we conducted the one sample Z test and the result is exhibited in Table 9. Test is found to be significant in all the cases (except for H05), at 5 per cent significant level. In the case of H05, it is insignificant.

### Research Findings

- About one-third of the car owners had diesel vehicles. This showed a preference towards diesel passenger cars. The research results showed that about one-seventh of car owners owned a second car in the family, which indicated an increasing trend for buying another passenger car for the city drive for family usage, while using the first car for office and business usage.
- Foreign manufacturers occupied over a simple majority market share the cars purchased by the car owners, showing a clear preference of foreign brands in the Kerala car market.
- It was found that there was a significant difference between the five car segments, while customers evaluated their customer satisfaction level for their passenger cars.
- It was observed across all the segments that in the information gathering and consumer purchase initiation stage, TV commercials on car models and brands search on the Internet websites of the manufacturer, and visit to dealers/distributors were the prime sources where customers gathered information on car models and brands.
- When it came to short listing from the alternative brands and models, personal preference based on personal needs was one of the criterion used by car passengers. In this criterion, across all the segments, car passenger's prime requirement needs in the top slots were—the need of the business firm, peer pressure from other family members owning a car, and upgrading the model to suit personal ambition.
- Personal preference based on convenience factors was yet another criterion to shortlist brands and models. Across all the segments, compact car, easy availability of bank loans, and easy car availability in the market were the dominant factors.
- In the category of personal preferences based on comfort factor requirement of the car owners, the dominant factors across all the segments were comfort in driving, value for money, and interior design of cars.
- In the category of identifying the cars based on the manufacturer criterion, it was established across all the segments that car served to project your image to the society; dealer offers of your specific car model, and importance attached to the manufacturer were the dominant factors.
- When it came to the question of why the customers choose their favourite brands, based on influencing factor of specific car models, across all the segments, entertainment features of your specific car, market value of model of your specific car, and willing to pay a higher price for fuel efficiency and (mileage) alone of the specific model, were the dominant factors.
- External influence was a dominating influential factor, in car customers choosing their selected car models. Across all the segments, opinion of colleagues, relatives, and parents were the dominating influential factors.
- On the question of customer satisfaction on their chosen models, across all the segments, the factors of re-sale value, technology, and riding comfort are the top reasons for their satisfaction.
- When it came to specific hypothesized statements on the chosen models, price of the car, advanced technology, market re-sale value of the brand and model, security features, safety features, and driving comfort were the consolidating factors, which contributed to the ultimate selection of their chosen models.

### Limitations of the Study

The study was restricted to the passenger car owners of the state. The survey was also limited to five car segments— small car, hatchback, sedan, higher sedan, and MPV.



### Scope for Further Research

There is further scope to cover other car segments, such as sports utility vehicle (SUV), executive sedan, luxury segments, and so on.

### Conclusion

As in other industries, the scenario in the domestic Indian automobile industry is quite different from the global auto- mobile industry. The industry actually developed in two clear stages – the Maruti era (1983 onwards) and the post- liberalization era (1992 onwards). Compared to the global automobile sector, where substantial research has been done, very little empirical research has been conducted on the Indian automobile industry. Moreover, no organized study has been conducted in the area of the passenger car industry in India. With some more car manufacturers launching their products in India, the study will definitely benefit the stakeholders of car manufacturers, dealers, and financing agencies to formalize and strategize their policies towards an effective marketing strategy. The eight parameters developed and the model which was conceptualized was tested through an extensive research and quantitative analysis, to establish its acceptability. This model shall be a guiding force for formulating the marketing strategy of car manufacturers and distributors.

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