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Consumer preference and Automobile Market in India

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Abstract

Consumer preferences combined with their budget culminates into final purchase which the automobile industries need to tap. The paper evaluates a Engel-Coleman-Blackwell model through which consumer preferences can be determined which is a four stage process of Input, Information, Decision process and variable Influencing. In the next segment, methods of estimating consumer preference is discussed including survey and its limitation as well as Revealed Consumer preference which gauges the preferences in retrospect after the choice has been made. Using the latter, the paper analyses the consumer preference in Electric car segment, technological innovation, high priced small car segment, diesel-petrol preference and body style. At the end, paper does a case study on Toyota Kirloskar cars to find out the consumer preference regarding particular features on comparing Toyota with other companies and itself by the criterion of sales. The paper concludes by stressing on the enumeration of consumer preference for successful decisions on product designs, branding and distribution and focus on predicting it to an extent with the consumer research activity which is indispensable to satisfy the consumers in the long run.

Article

Consumer preferences are defined as the subjective (individual) tastes, as measured by utility, of various bundle of goods. They allow the consumer to rank these bundles depending upon the quantum of utility derived by their consumption. It is to be noted that preference is independent of income and prices.[1] One's capability to purchase is not a determinant factor for one's likes or dislikes. For instance, One can have a preference of Mercedes over Nano but have the budget constraint of purchasing only a Nano.

Consumers make decisions by allocation of their scarce income across all possible bundle of goods in order to derive greatest satisfaction. The preferences may depend on plethora of factors inter alia, culture, education and individual tastes. [2] The preferences can be mapped through use of indifference curves. The dawn of automobile manufacturing started in India when Hindustan Motors in 1942 and premier auto in 1944 started indigenous production. [3] The industry has come a long way since then with the fiscal year ending in 2012 with production of 20,366,432 vehicles of which share of two wheelers, passenger vehicles, three wheelers and commercial vehicles were 76 percent, 15 percent, 4 percent and 4 percent respectively as shown in Table 1. Passenger Vehicles segment grew at 4.66 percent during April-March 2012 over same period last year. Passenger Cars grew by 2.19 percent For the first time in history car sales crossed two million in a financial year [4] as shown in Table 2.

CONSUMER PREFERENCE IS THE FOUNDATION OF CONSUMER DEMAND. HOW HIGH THE PRICES WILL BE, WHAT WILL BE THE REACTION OF CONSUMER BY CHANGE IN PRICE, HOW MUCH THE CONSUMER IS WILLING TO PAY AND ACCORDINGLY PROFITABILITY DEPENDS UPON UNDERSTANDING OF CONSUMER BEHAVIOUR.

HOW DO CONSUMERS MAKE CHOICE

THE ENGEL-KOLLAT-BLACKWELL MODEL OF CONSUMER BEHAVIOUR

A model of consumer decision making will help us to better understand the formation of consumer preference. The Engel-Kollat-Blackwell model [5] was formed to describe increasing amount of knowledge of consumer behavior. It is a four stage process:

1. **Input** -The focus of the model is on five fundamental decision-process stages:
Problem recognition, search for alternatives, alternate evaluation (during which beliefs may lead to the formation of attitudes and preference) which in turn may result in a purchase intention and purchase outcomes, elaborated in Table 3.
2. **INFORMATION**- information is sought by the consumer to make a satisfying and in all probability, better choice. The process of search begins typically when the consumer takes a conscious decision to purchase a product and ends with its purchase. There are two ways in which information can be obtained. First is the external search which includes information from sources such as friends, books and magazine articles on automobiles, sales-persons at dealerships, and actual experience test-driving new automobile. Second is to scan long term memory which requires little cognitive effort. [6]
3. **DECISION PROCESS**- in this stage, the consumer's exposure, attention, perception, acceptance, and retention of incoming information come into play. The buyer is initially exposed to the information, then he interprets the stimuli, and retain the message by transferring it into long term memory. [7]
4. **VARIABLES INFLUENCING**- it consists of individual as well as environmental factors that influences the preference and consequently choice of customer. Individual characteristics represent lifestyle, personality, values, motives and the social influences are reference teams, family and culture. Situational influences like consumer's money condition also influence the consumption choice method [8].

I. ESTIMATION OF CONSUMER PREFERENCE

Estimation of consumer preference provides managers with necessary insight to help them formulate product design policies and determine optimal sales. Identification of preferences is one of the major problems so that changes in demand of a differentiated product can be estimated when quantity of one or more attributes is modified. [9] The automobile industry adopts the following methods:

- A. **Survey**- it is the most conventional method used to obtain large and random market data of consumer belonging to varied groups, having varied tastes. Then psychometric techniques such as factor analysis, multidimensional scaling, cluster analysis, preference regression, expectancy value and choice analysis are utilized. [10] After these processes, a rough estimate is arrived at.

Limitations [11]

- Justification bias- an already chosen or an alternative which is familiar is preferred by the consumer to reduce decision effort.
- Lexicographic response bias- consumers consider only the subset of attributes and ignore and ignore trade offs with other attributes.
- Experimental bias- interviewer/respondent interaction, lack of cogency in performing experimental tasks etc
- It represents desire rather than preference under constraints.(eg budget constraint)

B. Revealed preference [12]the concept of revealed preference theory is that it works in reverse order because it is difficult to assume that the consumer has in his mind a mathematical formula while making a choice between different options. So what this theory does is that it infers these utility functions, based on the choice that has actually been made. Thus, by **closely analyzing the sales of automobiles** in different segments across the market, one can gauge the inclination of the consumers of that market.

It is based on two axioms:

- Weak axiom of revealed preference [13]: it means that if A is revealed preferred to B, then it means that if consumer ever chooses B it is because there was enough left over in budget to facilitate choice of B too.
- Strong axiom of revealed preference [14]- it brings in transitivity. If A is reveal preferred to B and B is reveal preferred to C, then it means that A is indirectly reveal preferred to C, graphically represented in Fig 1.

This substantially reduces the quantum of empirical evidence needed to define consumer preference. The aggregation of the collected data helps find out the general truth about a population's preference.

ANALYSIS OF CONSUMER PREFERENCE IN THE AUTOMOBILE MARKET

A. FOR ELECTRIC CARS

In a survey conducted by Zpryme Research and Consulting involving 1046 men and women about their hunch to buy an electric vehicle in the next two years, 8.2% of respondents agreed that they were **very likely** to buy an electric vehicle, 28.7% considered **somewhat likely** and in the next five years, 25.8 % of the **somewhat or very unlikely** category will buy one, [15] shown in Fig 2.

According to 66.8% of those surveyed, **price** was the primary reason for the purchase consideration. For the 50.4% of the respondents, it was **fuel efficiency**, for 64.1% of those who were very or somewhat likely to buy, **environmental concern** was a big concern. [16] shown in Fig 3.

Of those who were **very or somewhat likely**, 33.7% would settle for a driving range of 650 kms whereas 33.3% would settle for 500kms. [17] shown in Fig 4.

31.1 percent of those surveyed said they would pay a bit more for an electric vehicle than for a conventional vehicle, with 12.6% saying they would pay upto 2.5 lakhs more, and 5.2 percent agreeing to pay extra 5 lakhs. [18]

From the data it can be inferred that in the next 2-5 years there would be a reasonable demand for electric vehicle somewhere between 30-40% with driving range of about 500-650 kms with consumers willing to pay 2.5_5 lakhs more than the conventional vehicles.

B. FOR TECHNOLOGICAL INNOVATION IN DRIVING EXPERIENCE

In a survey conducted by Cisco examining consumer's preference for technology in driving as well as **buying** experience. The consumers are using much advanced tools of communication technology to bring on board both car dealership and manufacturer. Almost half(**47%**) of the 1500 people surveyed globally give credence to brand's technological reputation while purchasing a vehicle.

Main Highlights:

- Most Consumers begins their purchasing process online- 83% of the consumers begin their research for information online as compared to only 17% who prefer to call up or visit the dealership.
- Preference for a more automated for tracking maintenance cost tracking of gas prices from vehicle is desired by 52% of the consumers which was the highest priority as compared to 46% of consumers for tracking insurance prices, and 35% for tracking roadside assistance availability, and 32% wanted to track recall information. [19]
- Willingness to trade personal information for customization security and savings
 - a. **Lower insurance/maintenance:** 74% are willing to save on insurance and maintenance cost by trading their driving habits. [20]
 - b. **Increased personal security:** 60% are willing to trade their biometric information like DNA and fingerprints for car security. [21]
 - c. **Customized cars:** 65% would trade their Height/Weight and entertainment preference for a more customized car suitable to consumer's preference. [22], Fig 5.
- Preference for driverless or automated automobiles: more than half i.e. 57% of the total surveyed agreed that they will prefer a driverless, self propelling automated car over manually driven one. in **India, 86% of the sample** acquiesced to it. [23]

C. PREFERENCE FOR HIGH PRICED SMALL CARS

according to the J.D. Power Asia Pacific 2012 India Sales Satisfaction Index (SSI) Study [24] average time period required by a consumer to purchase a small car remains at 10 months. Although the level of income and transaction price has risen in India, the preference for owning small cars remains unchanged. What has changed primarily is aspirations of consumers to own high priced small cars. [25]

This has resulted in greater choices for consumers who have a propensity to migrate towards value offering. An increase in the average household income and preference of consumers for better styling and features has driven vehicle shoppers to buy higher-spec small cars, resulting in owners' income stretch remaining unchanged. [26]

D. PREFERENCE FOR DIESEL CARS OVER PETROL ONES

In 2012, high petrol prices made consumers shift towards diesel propelled vehicles and as many as 43% of the total purchase was of diesel cars which was 11% higher than what it was in 2011. [27]

But it substantially increased the waiting time to 17 days on average which was double to what it was in 2011 because of increased demand. [28]

E. BODY STYLE DISTRIBUTION

55% of the total purchase in the market is of hatchbacks as compared to 18% each of sedan and MUV and 9% SUV [29]. The consumers show preference for hatchbacks as it costs less, especially in the Indian market because of wide spread income disparity. [30] shown in fig 6.

A CASE STUDY: TOYOTA

Toyota Kirloskar is the fifth largest car maker in India. [31]. It has 9 different passenger car models in the Indian market. It has been chosen to study the consumer preferences as it is the top car maker of the world. [32]. The models of Toyota have been compared to the models of different manufacturers to dig deep into the prevalent preferences.

A. TOYOTA INNOVA AND RENAULT DUSTER

Innova is the most popular MUV offering of Toyota in India and Duster of Renault in SUV segment. The comparison of features and dimensions is mentioned below:[33]

FEATURES	INNOVA	DUSTER
PRICE	9.6-14.71 LAKHS	8-12.5 LAKHS
SEATING	8	5
POWER	100BHP/3600 RPM	108BHP/3900 RPM
LENGTH	4585 MM	4315 MM
FUEL EFFICIENCY	9 KM/L	17KM/L

From the table 4 it is seen that from July to December 2012 Innova sold 36004 units as compared to 23731 of Duster. Innova, despite having higher price, lesser power and significantly lower fuel efficiency as compared to Duster sold more. The only visible factor here is the seating availability which is 8 as compared to 5 of Duster. It can also be the Brand loyalty for Innova with respect to Renault.

Thus the consumers have a strong preference for space over speed and fuel efficiency.

B. TOYOTA ETIOS LIVA AND MARUTI SUZUKI SWIFT

Liva and Swift belong to the hatchback segment. Maruti Suzuki has the highest market share in India of about 45% with production capacity of about 1.5million units [34]

FEATURES	ETIOS LIVA	SWIFT
PRICE	4.7-6.6 LAKHS	4.6-7.68 LAKHS
FUEL EFFICIENCY	20 KM/L	18 KM/L
POWER	67 BHP, 3800 RPM	74 BHP, 4000 RPM

[35]

In the period from July to December 2012, ETIOS LIVA sold 12500 units as compared to 17436 units of SWIFT which was also the second biggest car sale by volume. [36] On a closer look at the table, even though Swift costs more than Etios Liva, it offers more power others remaining almost same.

Thus it can be inferred that consumers prefer automobiles with more horse power and are willing to pay more for it.

C. TOYOTA ETIOS LIVA AND TOYOTA ETIOS

To find out the preference of consumers within the same brand, two variants of Toyota, Etios and Liva have been taken. Former is hunchback and latter sedan.

FEATURES	ETIOS LIVA	ETIOS
PRICE	4.7-6.6 LAKHS	5.4-8 LAKHS
LENGTH	3775MM	4265MM

***other features remain the same.**

In the period between July to December 2012, Etios Liva sold 12500 units as compared to 16500 units of Etios even though the price was higher. But Etios offered 490 mm of extra space.

Thus consumers preferred extra space which gave them more satisfaction. For 490mm of extra space, they are willing to pay rs. 70,000- 1,40,000 more.

Conclusion

The substantial changes in lifestyle patterns of the consumers have caused tremendous changes in market place which is a result of globalization and integration of world economies. The measure of behavior of consumer of current generation has become difficult to gauge as time tested marketing concepts have failed. The preference is characterized by distinctiveness of an individual's expectations, for multiple options, heavy tendency of abandoning Brand loyalty and switching towards competitor brands which provide higher value to the consumer. The new generation consumers are difficult to classify by conventional demographic factors and unless their thought process and buying behavior preferences are fully understood, decisions on product designs, product variants, branding and distribution channels are likely to be misled. [37] With change being unavoidable, Indian companies must learn to recognize the reason and direction of this change most likely to affect India in the coming future, and identify new competencies that will enable producers to respond to these fast changes. Consumer preference can definitely not be exactly predicted but it can be done to an extent with the consumer research activity. Globalization has heralded along with it competition in the passenger car segment and the businesses will have to concentrate on analyzing the consumer preference to satisfy the consumers in the long run. The income changes and increasing petrol prices is driving demand of small cars in India. Small car sector offers huge potential as penetration and consumption of small cars is very less in India compared to its Population.[38] For promoting the product consumption and creating awareness Manufactures have used advertising campaigns to promote higher consumption by influencing consumer preference of passenger cars. Thus, consumer preference plays an indispensable role in predicting market demand and consequent production by the manufacturers.

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APPENDIX

TABLES

Table 1



Table 2

Other Vehicles Production

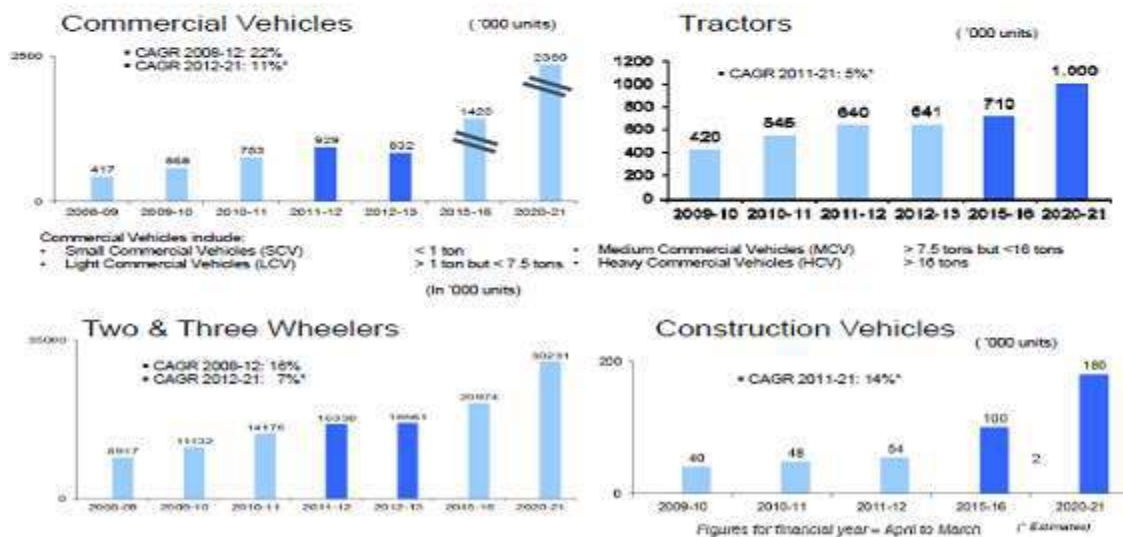


Table 3

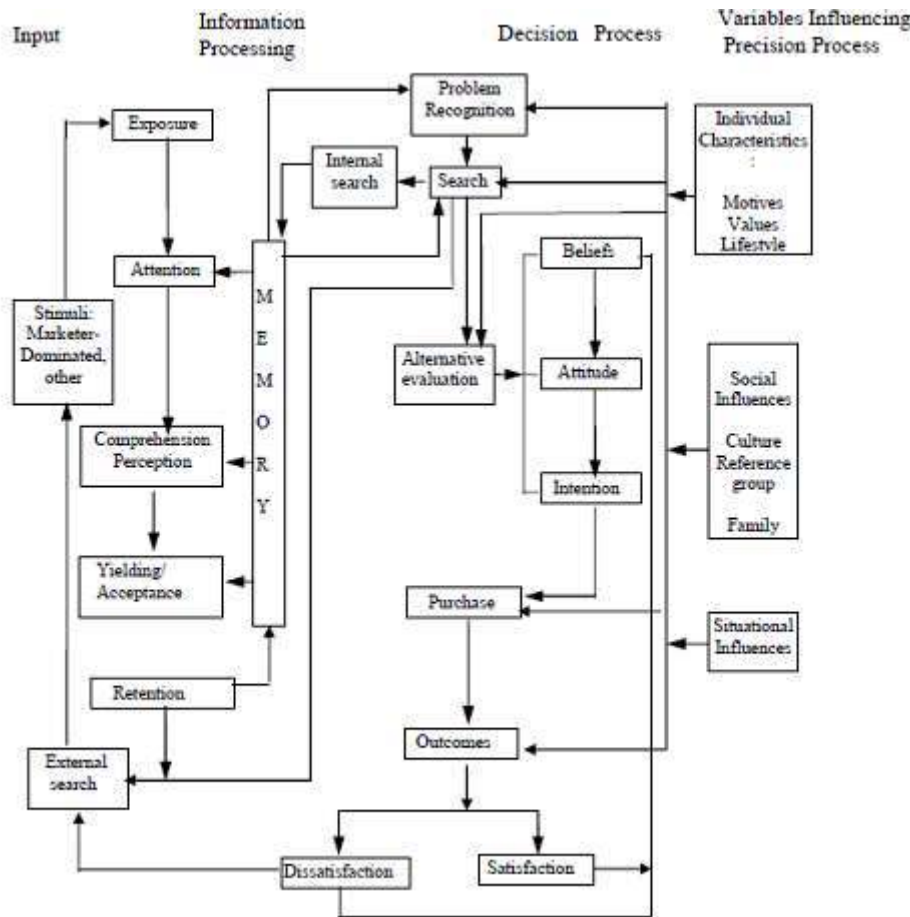


Table 4

Make	Model	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Segment	Body	MoM %	YoY%
Renault	Duster	1194	3184	4211	5406	5251	4485	C2	SUV	-14.6	
	Fluence	102	131	128	107	82	68	D1	Sedan	-17.1	-54.4
	Koleos	43	29	26	57	31	36	D2	SUV	16.1	-12.2
	Pulse	437	572	524	483	436	515	B2	Hatch	18.1	
	Scala		120	688	737	807	820	C1	Sedan	1.6	
Skoda	Fabia	215	291	222	256	133	219	B2	Hatch	64.7	-85.1
	Laura	151	168	236	225	209	216	D1	Sedan	3.3	-42.4
	Rapid	1505	1128	1433	1131	1099	1890	C2	Sedan	72.0	45.8
	Superb	89	125	146	163	120	199	D2	Sedan	65.8	-57.7
	Yeti	85	77	284	6	51	52	D1	SUV	2.0	-84.0
Tata	Aria	65	39	25	147	341	5	D1	MUV	-98.5	-98.0
	Indica + Vista	8852	7591	7936	6692	6956	5600	B1	Hatch	-19.5	-39.8
	Indigo + Manza	6816	3629	3706	5748	3079	3455	C1	Sedan	12.2	-49.8
	Nano	5485	6507	5491	4004	3503	2202	A	Hatch	-37.1	-70.5
	Safari + Storme	865	1167	864	1005	1052	1374	C2	SUV	30.6	18.4
	Sumo	5896	3329	3335	3318	2959	1451	Utility	MUV	-51.0	-55.3
Venture	259	249	295	205	141	98	Utility	MUV	-30.5	-83.9	
Toyota	Camry	0	60	85	61	46	19	D2	Sedan	-58.7	
	Corolla	540	492	424	332	362	155	D1	Sedan	-57.2	-39.7
	Etiios	3760	3721	2627	2105	2050	2157	C1	Sedan	5.2	-60.4
	Fortuner	1316	1289	1301	1378	1025	1260	D2	SUV	22.9	55.0
	Innova	6678	6439	5858	5889	4682	6458	Utility	MUV	37.9	28.6
	Landcruiser	3	11	5	15	4	5	Premium	SUV	25.0	66.7
	Liva	2264	1977	1813	2491	2181	2010	B2	Hatch	-7.8	-54.3
	Prado	13	3	2	9	2	2	Premium	SUV	0.0	-77.8
	Prius	0	3	0	1	0	5	Premium	Sedan		400.0
Volkswagen	Beetle	0	0	0	0	0	0	Premium	Coupe		-100.0
	Jetta	258	342	206	207	199	293	D1	Sedan	47.2	36.9
	Passat	55	68	78	93	62	96	D2	Sedan	54.8	-13.5
	Polo	3498	2431	2974	3399	3390	2096	B2	Hatch	-38.2	-26.1
	Toureg			7	14	7	4	Premium	SUV		-42.9
	Vento	1546	1556	1905	1894	2023	1975	C2	Sedan	-2.4	-19.0

Make	Model	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Segment	Body	MoM %	YoY%
Hyundai	Accent	182	154	131	240	234	267	C1	Sedan	14.1	-53.6
	Elantra	54	608	781	668	513	428	D1	Sedan	-16.6	
	Eon	4985	5418	6244	7872	8449	7849	A	Hatch	-7.1	26.1
	i10	6113	6300	8099	8988	9782	7187	B2	Hatch	-26.5	-10.2
	i20	7775	7712	7814	9058	7761	5119	B2	Hatch	-34.0	-10.5
	Santa Fe	85	65	56	56	53	46	D2	SUV	-13.2	-31.3
	Santro	3059	3101	3412	3826	3913	3377	B1	Hatch	-13.7	-31.3
	Sonata	32	19	20	20	20	20	D2	Sedan	0.0	81.8
	Verna	5300	4880	4294	5050	4026	2404	C2	Sedan	-40.3	-39.9
Mahindra	Bolero	9312	8717	9499	11071	10098	9278	Utility	MUV	-8.1	1.2
	Quantro			1782	2497	2297	2948	Utility	SUV	28.3	
	Rexton				80	121	197	D2	SUV	62.8	
	Scorpio	4378	4204	4064	4681	4277	3308	C2	SUV	-22.7	-24.6
	Thar				686	584	687	Utility	MUV	17.6	
	Verito	1261	2102	1536	1553	1235	1026	C1	Sedan	-16.9	-18.8
	XUV500	4007	3979	4603	4320	4237	3566	D1	SUV	-15.8	58.3
	Xylo	2401	2214	1658	2044	1756	1751	Utility	MUV	-0.3	19.9
Maruti	800	1411	1382	1414	1438	1101	1246	A	Hatch	13.2	-23.1
	Alto	17422	10488	21209	26600	23550	26234	A	Hatch	11.4	8.8
	A-Star	583	114	71	587	953	1001	B1	Hatch	5.0	27.0
	Dzire	11413	3085	11694	14389	13502	13076	C1	Sedan	-3.2	42.3
	Eeco	930	5672	6193	4232	3360	3155	Utility	MUV	-6.1	16.5
	Ertiga	7091	6643	7116	7289	7337	5208	Utility	MUV	-29.0	
	Estilo	1079	828	1079	1217	866	1034	B1	Hatch	19.4	2.8
	Grand Vitara	4	0	0	0	0	2	D2	SUV		
	Gypsy	199	240	108	111	102	237	Utility	MUV	132.4	-0.4
	Kizashi	2	0	12	35	71	45	D2	Sedan	-36.6	-11.8
	Omni	5949	5921	6427	4559	5290	4742	Utility	MUV	-10.4	-8.8
	Ritz	3259	4427	7598	5809	5648	4012	B2	Hatch	-29.0	22.6
	Swift	11421	804	9136	15433	17335	17436	B2	Hatch	0.6	6.5
	SX4	679	447	288	695	692	329	C2	Sedan	-52.5	-61.0
WagonR	9582	10078	16456	13608	11075	4316	B1	Hatch	-61.0	-64.2	
Nissan	Evalia				195	262	182	Utility	MUV	-30.5	
	Micra	1028	1187	1546	649	849	716	B2	Hatch	-15.7	-30.9
	Sunny	2436	2757	2023	1007	1663	1517	C1	Sedan	-8.8	184.6
	Teana	3	2	4	2	8	2	D2	Sedan	-75.0	-77.8
	X-Trail	14	4	3	0	5	2	D2	SUV	-60.0	-88.9

FIGURES

FIG 1

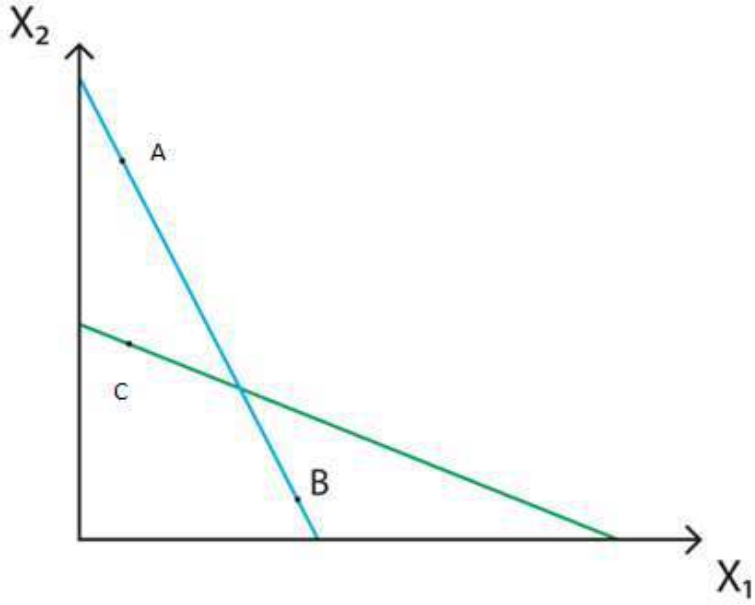


FIG 2

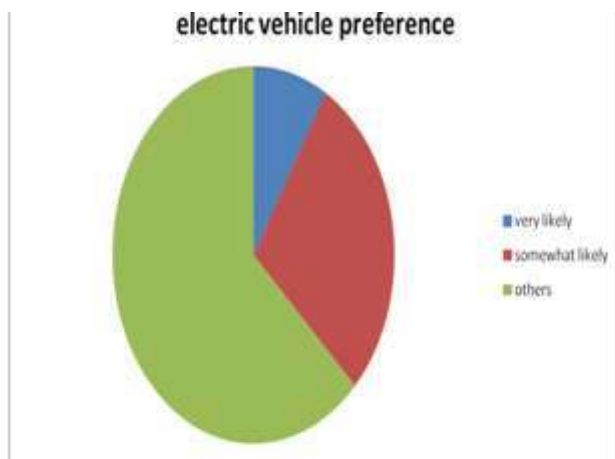


Fig 3

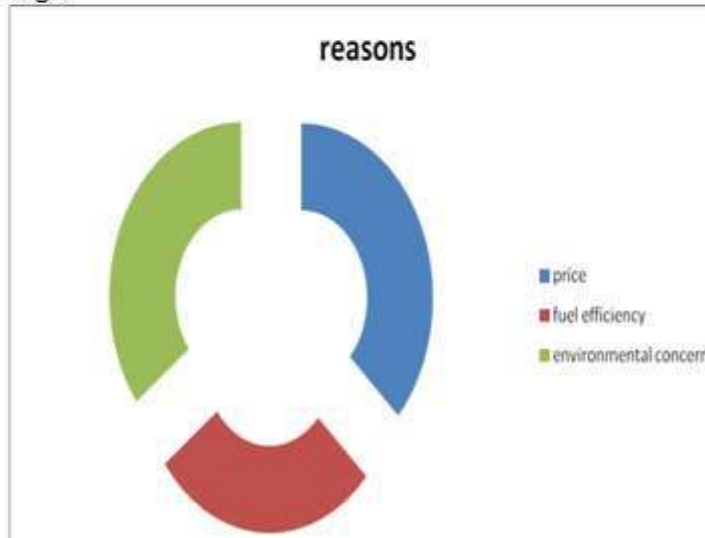


Fig 4

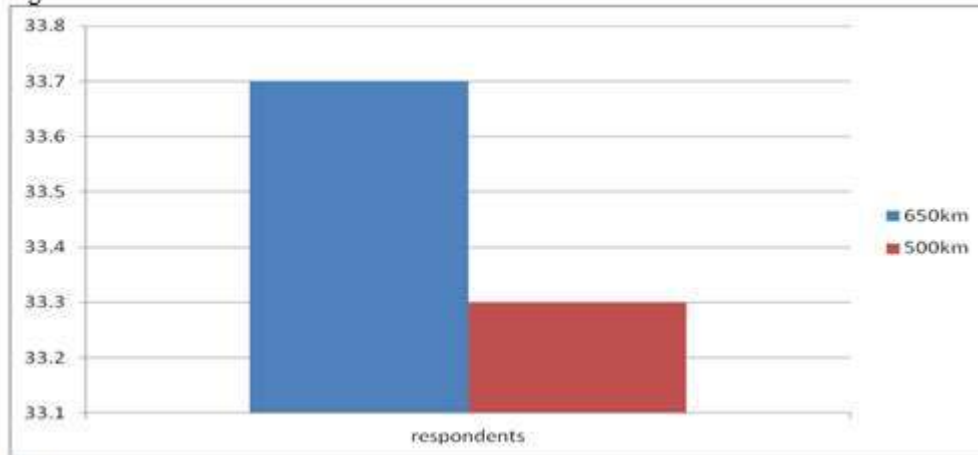


Fig 5

Automobile Cost Tracking

Consumers Seek Smarter Insights Into Auto Operating Costs



62%

want a device on their car that tracks their budget for gas mileage and auto maintenance



52%

want their car to be able to monitor gas prices

CISCO Source: Cisco Consumer Experience Report for Automobile Industry, May 2014. Survey of 1,511 consumers in the U.S.

Fig6

