

Major Research Project Report on
FACTORS AFFECTING SALES OF PASSENGER
CARS

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CERTIFICATE FROM THE INSTITUTE

This is to certify that the Major Research Project Report titled “**FACTORS AFFECTING SALES OF PASSENGER CARS**” is bonafide work carried out by Ms. **Bhavya Chojar** of **MBA 2017-19** and submitted to Delhi School of Management, Delhi Technological University in partial fulfillment of the course requirements for MASTER OF BUSINESS ADMINISTRATION (MBA) Program.

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DECLARATION

I, Ms Bhavya Chojar hereby declare that the Major Research Project Report titled “**FACTORS AFFECTING SALES OF PASSENGER CARS**” submitted in partial fulfillment of the **Masters of Business Administration (MBA)** is based on my own work carried out during the course of my MBA degree.

I further declare that the information presented in this report is authentic to the best of my knowledge and this work has not been submitted to any other Institution for any other Degree, Diploma or Fellowship.

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EXECUTIVE SUMMARY

Economically and demographically, India's car industry is well-placed for development, servicing both domestic needs and, progressively, export demands. An anticipated increment in India's working-age population is probably going to help simulate the blossoming market for private vehicles. Rising income levels, easy access to funds and increasing affordability is expected to see four-wheelers picking up volumes, albeit two wheelers will remain the primary choice for most of the buyers, especially from the rural regions, the youth market and women. In India, some consolidation and partnerships are expected, driven by the requirement for need for better innovation, production facilities, services and distribution systems. The components market is in a solid position to capitalize on India's cost efficient, productivity and globally recognized engineering capacity. As the advantages of collaborations become increasingly obvious, super-specialists may rise in which each car is treated as a framework, with each expert concentrating on a sub-part, similar to the IT industry. Despite the fact that this methodology is radical, it could demonstrate a significant advance in reducing unpredictability and investment requirements, with growing standardization and fulfilling client needs.

Producers are as of now preparing for the future: early advocates of technological and distribution partnerships have yielded by and large positive results, empowering local/domestic OEMs to access global technology , and allowing them to develop their ranges with fewer financial risks.

Conclusion: Current low car penetration, rising success and the increasing affordability of private vehicles offer a sound forecast for the Indian car industry. The companies profiting most from this changing landscape will be those who forge well thought out partnerships and resource-sharing agreements, who prepare well for the green technologies, and who stay adaptable to respond to the twin needs of private light transport and mass transport plans.

The aim of this research is to study various factors that directly or indirectly impact the sales of passenger cars in India .Also to understand the buying behavior of consumers and how that affects the market share of different brands.

Keywords: OEMs, buying behavior, green technology

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1.INTRODUCTION

1.1 Industry Profile

The Indian auto industry became the 4th largest in the world with sales expanding to 9.5 per cent year-on-year to 4.02 million units (barring two wheelers) in 2017. It was the 7th largest producer of commercial vehicles in 2017.

The Two Wheelers segment still dominates the market in terms of volume owing to the growing middle class and the young population. Additionally, the growing interest in the rural markets further helped in the growth of the sector.

India is also a major auto exporter and has solid export growth expectations in the near future. Automobile exports grew 20.78 per cent from April-November 2018. It is anticipated to grow at a CAGR of 3.05 per cent amid 2016-2026. Additionally, several initiatives by the Government of India and the major automobile players in the Indian market are expected to make India the world leader in two wheeler and four wheeler market by 2020.

a. Market Size

Domestic automobile production grew at a rate of 7.08 per cent CAGR between FY13-18 with 29.07 million vehicles produced within the country in FY18. During April-November 2018, production of automobile grew to 12.53 per cent year-on-year to reach 21.95 million vehicle units.

Overall domestic automobiles sales increased at 7.01 per cent CAGR between FY13-18 with 24.97 million vehicles getting sold in FY18. Amid April-November 2018, highest growth in domestic sales among all the categories was recorded in commercial vehicles at 31.49 per cent taken followed by 25.16 per cent year-on-year growth in the sales of three-wheelers.

Premium motorbike sales in India crossed a staggering one million units in FY18. . During January-September 2018, BMW registered a growth of 11 per cent year-on-year in its sales in India at 7,915 units. Mercedes Benz ranked at the first position in terms of sales satisfaction in the luxury vehicles segment as per the J D Control 2018 India sales satisfaction index (luxury).

Sales of electric two-wheelers are recorded to have crossed 55,000 vehicles in 2017-18.

b. Investments

In order to keep up with the growing demand, several automobile producers have started investing in different segments of the industry during the last few months. The industry has

pulled in Foreign Direct Investment (FDI) worth US\$ 19.29 billion during the period April 2000 to June 2018, as per the data released by Department of Industrial Policy and Promotion (DIPP).

Some of the recent/planned investments and advancements within the automobile industry in India are as follows:

- Ashok Leyland has planned for a capital expenditure of Rs 1,000 crore (US\$ 155.20 million) to launch 20-25 new upcoming models in various commercial vehicle categories in 2018-19.
- Hyundai is planning to invest US\$ 1 billion in India by 2020. SAIC Motor has moreover announced to invest US\$ 310 million in India.
- Mercedes Benz has increased the production capacity of its Chakan Plant to 20,000 units per year, highest ever for any luxury car manufacturer in India.
- As of October 2018, Honda Engines Company is planning to set up its third factory in India for launching hybrid and electric vehicles with a cost of Rs 9,200 crore (US\$ 1.31 billion), its largest investment in India so far.

c. Government Initiatives

The Government of India encourages Foreign Direct Investment (FDI) in the automobile sector and permits 100 per cent FDI under the automatic route.

Some of the major initiatives taken by the Government of India are –

- The government plans to develop India as a global manufacturing center an important R&D hub.
- Under NATRiP, the Government of India is planning to set up R&D centers at the cost of US\$ 388.5 million to assist the industry to on par with global standards.
- The Ministry of Heavy Industries, Government of India has shortlisted 11 cities in India for the introduction of electric vehicles (EVs) in their public transport systems under the FAME (Faster Adoption and Manufacturing of (Hybrid) and Electric Vehicles in India) scheme. In addition, the government will be setting up incubation centers for start-ups working in electric vehicles space.

d. Achievements

The Government of India has achieved the following in the past four years:

- Number of vehicles supported under FAME scheme has grown from 5,197 in June 2015 upto 192,451 in March 2018. During 2017-18, 47,912 two-wheelers, 2,202 three-wheelers, 185 four-wheelers and 10 light commercial vehicles were supported under FAME scheme.
- Under National Automotive Testing And R&D Infrastructure Project (NATRIP), several testing and research& development centers have been established in the country since 2015
 - International Centre for Automotive Technology (ICAT), Manesar
 - National Institute for Automotive Inspection, Maintenance & Training (NIAIMT), Silchar
 - National Automotive Testing Tracks (NATRAX), Indore
 - Automotive Research Association of India (ARAI), Pune
 - Global Automotive Research Centre (GARC), Chennai
- SAMARTH Udyog – Industry 4.0 centers: ‘Demo cum experience’ centers are being set up throughout India for promoting smart and advanced manufacturing helping SMEs to implement Industry 4.0 (automation and data exchange in manufacturing technology).

e. Road Ahead

The automotive industry is supported by several factors such as accessibility and availability of skilled labor at low cost, new R&D centers and low cost steel production. The Indian industry itself provides ample opportunities for investment and direct employment to skilled and semi-skilled workforce. Indian automobile industry (including component manufacturing parts) is anticipated to reach Rs 16.16-18.18 trillion (US\$ 251.4-282.8 billion) by 2026 (“Automobile Industry in India”, 2019)

Exchange Rate Used: INR 1 = US\$ 0.015 as of March 1, 2018

1.2 OBJECTIVES OF THE STUDY

1. To study the trends in passenger cars sales in the last 14 years.
2. To study the impact of per capita income and passengers carried by domestic private airlines on the sales of passenger cars.
3. To understand the buying behavior and factors affecting the popularity of top brands.

2.LITERATURE REVIEW

The automobile industry, and the auto components industry, is one of the fastest growing industries in India. A well-developed transportation network plays a vital role in the growth and development of an economy, especially in an emerging economy like India. Automobile industry is one of the key contributors to the GDP owing to its strong forward and backward linkages with several key players. The industry has been recognized as one of the drivers of economic growth in the country. Such a thought is in line with international performance trends since in many of the developed countries the automobile industry's performance is considered as a reflection of the economy's overall health.

The development of an automobile industry is imperative for the growth of an economy, particularly due to the fact that the automobile industry has strong multiplier effect. In several researches, it has been revealed that the automobile industry has the power to generate employment directly or indirectly for about 10 more people for every one person employed directly in the automobile manufacturing sector.

The indirect employment opportunities are presented in ancillary and component industries, loaders and cleaners of commercial vehicles, automobile service stations mechanics, and institutions providing credit facilities & people driving commercial vehicles and hired vehicles ("Automobile Industry in India," n.d.)

There seems to be a direct relationship between the growth of an economy and the rising demand for passenger vehicles. In the last few years, the manufacturing systems in India have seen a revolutionary change with the advent of technology. A lot of micro and macro environmental factors have contributed to the growth of this sector. Following are some of the important growth drivers:

a. Road Infrastructure Development:

Infrastructure development in India has contributed greatly in the country's economic growth and development in the last decade. With a total length of 4,320,000 kilometers, road network of India is the second largest in the world. There has been constant development and upgradation of the road infrastructure in terms of timely connectivity and quality of roads. Several projects have been initiated to connect the rural areas by road. The ongoing development of road infrastructure (especially national highways and state highways) has made transportation by road a viable, cost effective and quick option of transportation for both passengers and goods.

b. Increase in per capita income:

India's gross national income per capita was estimated to be around 1,670.00 in 2016. Over the past 50 years, the value of this indicator has somewhat fluctuated between 1,670.00 in 2016 and 90.00 in 1962, which is quite something. This has hiked the demand for passenger vehicles especially cars in India directly. Also, there has been a rise in the demand for commercial vehicles indirectly due to the retail boom and industrialization of consumer durables. Rising disposable incomes of the Indian population has increased the affordability, domestic demand for vehicles, especially in the hatchback and lower car segment.

c. Cost effectiveness:

Due to the availability of skilled engineers and workforce, India has a competitive edge over other developing countries in terms of labor costs. According to a research conducted by KPMG back in 2007, the labor cost per hour in developed nations like UK, USA and other European countries was around \$20, while in India it was estimated to be around \$1.60. India is known for being a low-cost global manufacturing hub especially for small car segment.

d. Research & Development and Innovations:

Research & Development and Innovations have proven to be fuel for development of the automobile industry. Since survival of the fittest is determined by innovation, the innovation of new processes and techniques by leveraging technology is at the heart of the automobile sector. Car manufacturers are investing more than 1% of their total sales on Research and development. Changing customer preferences and demands need to be met in order to stay at par with the global players. National Automotive Testing and R&D infrastructure Project (NATRIP) has been set up by the Indian government in Rae Bareilly, Ahmednagar, Pune, Manesar, Silchar, Indore and Chennai for further powering the R&D infrastructure.

e. Rapid Urbanization:

Rapid urbanization due to the migration of the rural population and people from small cities to metro cities for higher education and in search of better opportunities has helped in the growth of the Automobile Industry in India. Joint families in towns and villages have given way to nuclear families migrating to the cities for jobs. As of now, only 21% of the population of India lives in the urban areas. Given how India is performing, the figures are expected to reach 35% by 2020 and 40% by 2030.

f. Growing middle class population:

With the Increase in per capita income of the country, hike in employment opportunities more and more firms coming up in the private sector, there has been a transition in the population from lower class to middle class. As per the Planning Commission report, more than 130 million people have been added to the working population in the last decade. According to several findings, the middle income group is further expected to grow up to

550 million by 2025. Due to this increase, the demand for two wheelers and four passenger cars has gone up. Today, among the middle class segment, a car has become more of a need than a luxury.

g. Availability finance facility:

Not only the financial institutions, but all national and state banks offer loans for purchasing passenger and commercial vehicles offering low interest rates on installment basis to their consumers. Due to this factor the dream and aspiration for the middle class for owning a vehicle has become a reality. With the continuous changes brought by the improvement in technology, more and more models are coming up in the market, the banks and financial institutions are offering plenty of customer-friendly loans. This has further raised the demand in the automobile industry.

h. Favorable Government policies:

Government plays an important role in creating an environment that is conducive for any industry to grow. The Government of India has always been staunch supporter of the Automobile Industry. The first step the Government of India took was of abolishment of licensing policies in 1991. Subsequently allowing 100% FDI under the automatic route in this sector including the passenger car segment has paved way tremendous development of automobile sector. The new automobile policy attracted many global players in the Indian markets. The foreign investors, perception has changed overtime. The ease of doing business in India has increased. Few multinational auto companies are still lined up for entering the Indian auto market by 2020. Almost every global player has either set up or is in the process of setting up a manufacturing unit in India. The Indian Auto Policy of 2002, came up with measures like low entry barriers and investment opportunities by the local governments to attract foreign companies to India.

i. Car buyers are getting younger:

India has one of the youngest populations in the world with a median age of almost 26 years. This is much lower than the World's developed economies. The working class constitutes majorly of young population. The car buyers are getting younger as people have started purchasing cars in the beginning of their careers rather than waiting till their 30s to save and purchase. With the option of EMIs and loans with low rate of interests, the youngsters are not shying away from this investment.

j. Rising per capita GDP:

India's GDP Per Capita reached a high of 2045.794 USD in Mar 2019, as compared to 2015.228 USD back in Mar 2018. This is further expected to further increase by 2020. Due to this phenomena the purchasing power of the population will also increase, which will subsequently result in increase in demand of automobile industry in India.

2.1 PORTER'S FIVE FORCES INDUSTRY ANALYSIS

Supported by robust volumes as well as realizations, car producers have registered an amazing growth across the globe over the past couple of years. The scenario within the domestic market is no different. In reality, it has enjoyed double digit growth supported by a robust developing economy over the last decade. Car producers are continuously subjected to industry forces which they have to keep dealing with constantly. And irrespective of the size or stature of the business or its dominance in the market in terms of brand esteem or market share, there's no getting away the fact that these competitive forces could dislodge the car manufacturing company from its position of dominance in the market due to some unforeseen events.

Porter (1979) and Porter (2008) gave five major forces of competition that can be applied to every industry including to that of the automobile producers that needs to be tracked, if they want to be successful in the highly competitive and dynamic world. The 5 competitive forces that shape/affect strategy are:

- Threat of New entrants
- Bargaining power of Suppliers
- Bargaining Power of Buyers
- Threat of Substitute products or services
- Intensity of Rivalry among existing competitors.

a. Threat of New Entrants

According to Porter (2008), the new players bring new capacity and a desire to gain market share that puts pressure on existing prices, costs, and the rate of investment necessary to compete in any industry. Therefore, the threat of new entrants puts a cap on the profit potential of the industry by increasing the number of players. The threat of entry of any industry is determined by the level of entry barriers that are how the incumbents are expected to respond to the threat. The barriers to entry includes the factors like Economies of Scale and Capital requirement to set up business; Brand identity/image, Product Differentiation and Customer Switching Costs; Access to latest technology, raw material and Channels of distribution; and Government policies and protection offered.

· ***Economies of Scale and Capital requirement*** to act as a barrier for new players in the automobile industry, a huge amount of capital is required. Other than capital, a new firm that is interested in entering the market needs to conduct an in-depth analysis beforehand. The entering firm would need a great amount of tacit and explicit knowledge in order to design and produce a product that has never been presented or offered in the market before. An automobile manufacturing facility is very specific and specialized; in the case of any failure or malfunction, the cost of repair will be quite extensive. In last several years the global players like Renault, Nissan, Volkswagen, Fiat etc. have overridden this factor by creating strategies like alliances with domestic/local players initially, or alliances based on engineering for their production and marketing in case of Fiat with Tata and Renault with Mahindra and Mahindra or setting up the production facilities in alliances like Renault - Nissan and Volkswagen for its offered brands including Skoda, Volkswagen and Audi. Due to this factor, large amount of capital for entering the industry is required.

· ***Brand identity, Product Differentiation and Customer Switching Costs:*** Brand identity is a strong barrier to entry in any industry. High quality car brands have already established a high brand equity-value over time for themselves. Because of this, people are willing to pay premium price for the same. Even though the barriers to the automotive market are substantial, there are still several ways around this problem. Brands that are already well established in the automobile industry may enter the new market (luxury cars) by forging strategic partnerships with others or through acquiring or merging with others. Maruti Suzuki India Limited has established itself as India's biggest and leading passenger car company that currently holds a market share of biggest market share of the domestic car market, despite the entry of various global brands in the Indian market over the year since 1991. Although, in last couple of years Tata Motors which was a leader in the commercial vehicle segment only has become a top player in Indian Passenger cars as well with a huge market share. Tata motors soon entered the luxury and premium car segment by acquiring the very popular Jaguar and Land Rover Brands on one hand and launched the world's cheapest car "Nano" few years back in India on the other hand, which changed and shifted the automobile sector landscape due to which many other brands have now started focusing on the lower segment of the industry. Other important players in the Indian automobile industry have also done well in the last two decades and have contributed to the economy. With the growing per capita income & purchasing power of the Indian population with a special emphasis the middle class society, the sales of luxury cars has grown and so has their market share. India is expected to be amongst the top three luxury car market in the world by 2020.

· Many foreign players are aggressively entering the ***high growth potential emerging markets*** like India and China after the slowing demand in the developed countries. Volkswagen succeeded in establishing its presence and name in the Indian automotive market since it entered the country back in 2008. The threat of new entrants is mostly high

in the automobile industry generally but it is especially high for the small car segment. The growing economy and the rising purchasing power of the Indian population has allowed every automobile player to get hold of some market share in the small car segment.

· ***Other factors like access to raw material, technology and distribution channel*** in the automotive industry are concerned; they are not easily accessible or easily established by anyone. With the new regulation policies related to fuel emission, efficiency and a projected efficiency rating; rising fuel prices; there is a downturn in the economic scenario and new segments like compact sedans, compact SUVs, luxury hatchbacks etc.

Another barriers for the any new entrant and even the fresh entrants in the industry would be to compete with the established key players like Maruti Suzuki, Hyundai and Tata's which have well developed dealership and service networks for their vehicles even in Tier II and Tier III cities. With saturation in the urban market demand, small cities are going to play an important role in the sales of passenger vehicles.

· ***Government policies and protection for the automotive:*** since the automobile sector in India is an important contributor to the growing economy and the GDP, the government has liberalized the policies and made them flexible. As of now, the Government of India allows 100% foreign direct investment (FDI) in the automobile industry through automatic route and is also in talks to introduce fuel-efficiency ratings for automobiles to encourage sale of cars that consume less petrol or diesel. Another major step taken by government to promote the industry is the Make in India Campaign launched by Prime Minister of India, Shri Narendra Modi in 2014 and Automobile industry is an important component for the same.

b. Bargaining Power of Suppliers

The automobile industry is considered to be a capital and labor intensive industry as a major part of the cost of production include wages and salaries paid to the labor; material costs including steel, aluminum, glass, dashboards, seats, tires etc.; along with intensive advertising and market research activities undertaken to market the cars. Though, the automobile market majorly comprises of the vehicles, but the auto components make up the other half of the industry which involves the parts manufactured by the original equipment manufacturers (OEMs) themselves and the replacement parts or accessories that are procured from the suppliers across the industry.

The suppliers play an integral role in the entire value chain of the automotive industry and affect the entire supply chain right from procurement to providing quality end products to

the customer, and thus, analyzing the bargaining power of the suppliers this industry is important.

- As far as ***number of suppliers in Indian automotive industry*** is concerned, there are a little than 500 auto component manufacturers as a part of the organized sector which is largely represented and reported by the Automotive Components Manufacturer's Association of India - ACMA apart from other thousands of manufacturers in the unorganized sector which cater to the local market demand. Apart from the available suppliers in all the categories of required components, the car manufacturers also have the option of sourcing the components from nations which have free trade agreement with India and from the nations for which India has low duties and taxes.

- ***Contribution of suppliers in cost and quality*** of the product, it is quite significant in the automotive sector, but with alternative options available to the producers ranging from the large number of domestic suppliers to globally supplier sources.

Thus, on the aspect of the bargaining power of suppliers in the Indian automobile industry, based on the obvious dependence of producers on the component suppliers ranging from both domestic market sources and global suppliers having access to latest technologies, it may be concluded that overall the bargaining power with the suppliers in the current Indian automobile scenario is moderate to low.

c. Bargaining Power of Buyers

In today's competitive world and customer driven markets, the bargaining power of the buyers is important and affects every decision that the manufacturers make. As per Porter (2008), the bargaining power of buyers can be evaluated on the basis of number of buyers or customers in the industry, the availability of close substitutes, switching costs involved etc.

- The Indian automotive industry has been enjoying the CAGR of somewhere around 10 percent in the last decade or so and with the untapped potential of rural markets, it is expected to continue the run or even go up in the next couple of years. With growing purchasing power, a developing state of the economy and large untapped potential rural markets, the **number of customers and potential customers** in India is big.

- With the ***changing preferences of customers, changing income graphs*** and saturation of the urban markets, also the increasing number of close substitutes, be it mode of transportation, the types of vehicles or the number of players in the market and the cars ranging from sedans to SUVs and luxury car segments, the power lies in the hands of the

customers. There are already a lot of options available in for every segment in the Indian market. Further, most of the car producers are either in course of launching new models or are in the development stages of building newer ones.

Thus, it can be said that the relationship between the automobile industry and its customers or buyers of finished vehicles, the power axis is tipped more towards the consumers. The consumers enjoy having the upper hand here due to the fairly standardized nature of the product. However, the automotive industry remains marginally powerful due to the large customer to producer ratio.

d. Threats from Substitutes

The threat to any car producer is not just that a customer would go for a different brand of car but they also need to keep in mind that a potential customer might take an alternative mode of transport including bus, train or airplane. The higher the cost of operating and maintaining a vehicle, the more likely people will look for alternative transportation options. Fuel prices also have a big impact on consumer's purchase decisions. Apart from cost factor while determining the alternative options, other factors including time, money, personal preference and convenience are also considered here. When analyzing the threat of substitutes, one needs to consider other parameters as well like availability of close substitutes, switching cost and substitute's price and value.

· As far as other alternatives are concerned, rail and air travel comprise of 10 % of the total passenger travel and rest 90 % of passenger travel is undertaken by roads. The biggest threat and an available substitute for passenger cars is the two-wheeler vehicle segment, which has grown from 8 per cent from the time of independence to a staggering 72 % currently. This segment involves very low switching cost and price. There have been several initiatives from the respective state governments to encourage the people to use the public transportation modes, but the positive shift in the income graphs and purchasing power of the people the usage of private vehicles has gone up. Although in the metro cities like Delhi, there has been an increase in usage of the public transport which has been proven to be economical to the people.

It may be concluded that threat of alternatives or close substitutes of passenger cars is significantly high and thus the industry attractiveness on this aspect is low.

e. Intensity of Industry Rivalry

The automobile industry is considered to be an oligopoly industry, which helps to minimize the effects of price-based competition in the market. The industry rivalry has been divided into two key phases: the phase before the economic policy changes in 1991 i.e. before liberalization and the other post liberalization. In the first phase there were only three big players in the market - the Maruti Udyog, Hindustan Motors and Premier Automobiles which were competing with each other in the passenger car market where they were not even able to meet the market demand at that time. Such factors and other economic conditions led to the economic changes that opened up the market for new foreign players that had great potential. Currently, the Indian market has more than 20 domestic and foreign players offering 120 locally manufactured products and their variants.

It has been suggested, parameters such as number of competitors, industry growth rate, product differentiation factors, switching costs to assess the industry rivalry among existing competitors.

- The ***number of competitors*** in the Indian car segment has grown significantly in the last decade or so and many others are expected to enter the market over the next few years due to 100 per cent FDI that is allowed in Indian automobile sector. The industry has grown with a CAGR of 10 per cent in the last decade and though it might have slowed down due to the current economic scenario across the globe, but is expected to stabilize the growth over the next couple of years.

- The ***intense product war*** in the Indian automobile market with little to no differentiation, where every player offers similar products in the defined segments. Stiff competition exists in the small car or the hatchback segment which makes up nearly 80 per cent of the total car sales. But in last few years the SUVs and luxury segment has grown with a CAGR of nearly 30 per cent. Big brands have focused on new product launches; newer upgraded versions of the existing products or launching a completely new product altogether. The new product launch competition is so intense that the big players are considering it as the key strategy to capture new market share, as the market shares have increased for major players like Honda, Maruti Suzuki, Renault, Ford and others.

- With ***decreasing brand loyalty*** among the Indian consumers, number of alternative options and nature of the product with low switching costs, the producers need to review, revive their customer experience continuously. Car Manufacturing/Assembling sector being highly capital intensive in nature involves high strategic stakes of everyone involved in the industry. Even though, major players like Maruti Suzuki, Tata, Mahindra and Mahindra, Toyota, Ford and others, have a diversified business be it in two-wheeler or commercial

vehicles; or are big conglomerates, but the stakes in this industry for every player is quite high.

Based on the several reports and analysis on different factors involved it may be concluded that the intensity of rivalry is bent towards the higher side and therefore the attractiveness in the industry may be considered as pretty low in this aspect.

2.2 INDUSTRY AT A GLANCE

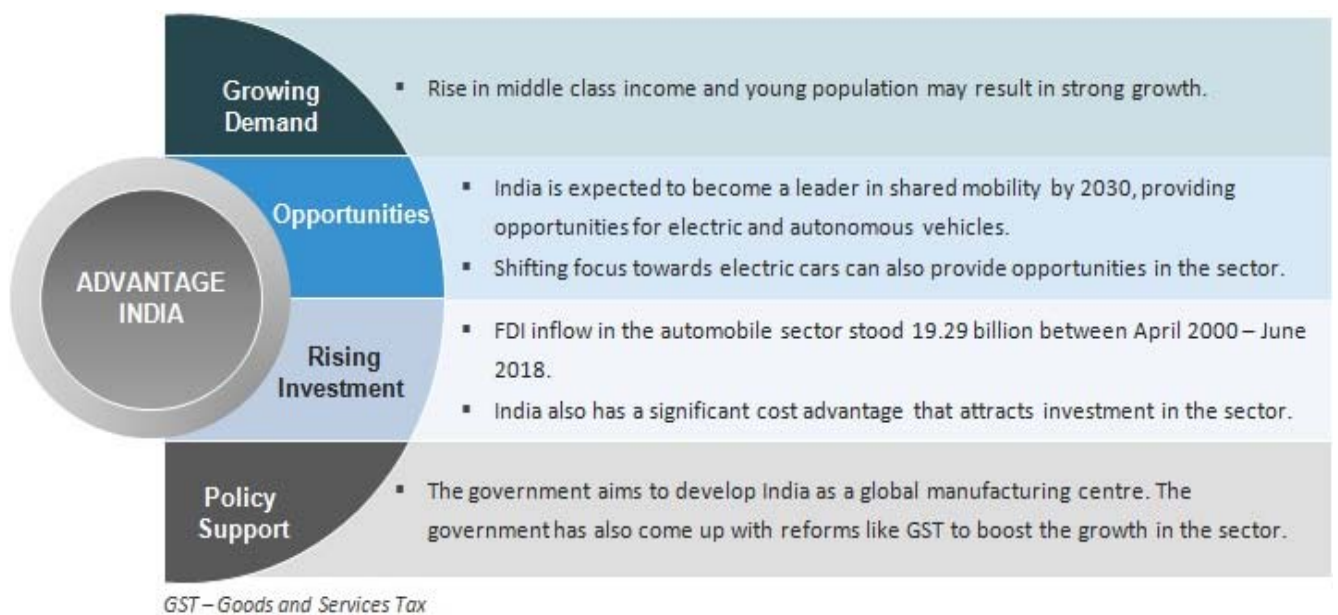


Figure 2.1 Automobile Industry in India

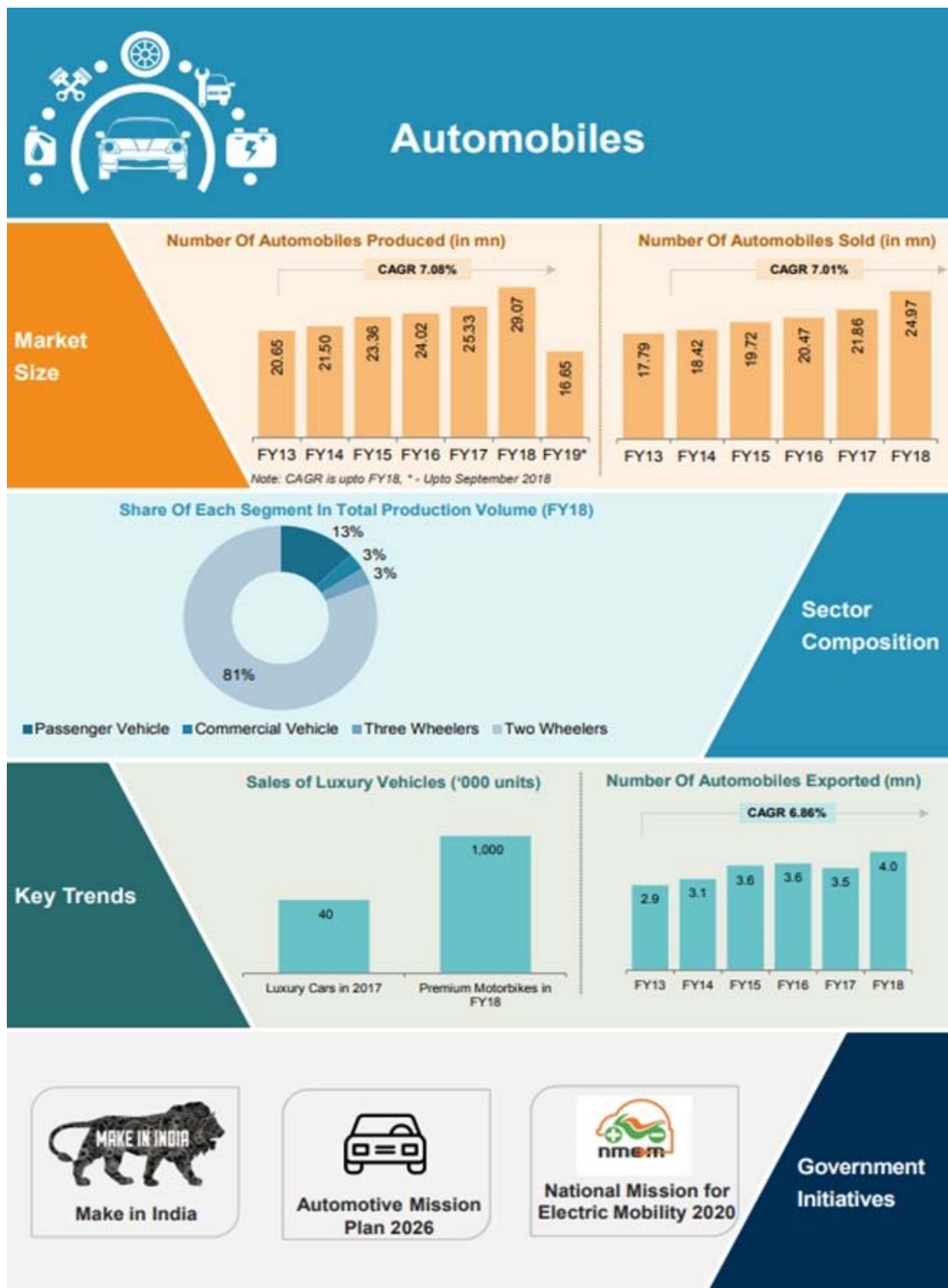


Figure 2.2 Automobile Industry at a glance

2.3 CAR MANUFACTURING COMPANIES IN INDIA



Fig 2.3 Car Manufacturers in India

The automobile (automotive companies) industry over the years has changed into a mature and well established industry. Constant innovation and production of vehicles has helped the industry become a profitable one. Automobile producers have contributed significantly to the growth and development of the world's economy by creating jobs, paying taxes and earning foreign exchange. There are many automotive companies in the India that produces vehicles in big numbers.

Top automobile manufacturing companies in India are:

a) Tata Motors:

Tata Motors is the largest in Asia and the 17th largest automobile manufacturing brand in the world. Tata Motors is known for manufacturing of cars, trucks, vans, coaches and so on. Tata Motors recorded the highest sales in 2017.

The company is known for anticipating the needs of the market by providing the best commercial and passenger vehicles world over along with the best customer experiences.

Tata Motor cars can be found on and off-road in more than 175 countries around the world. Cars, buses and heavy vehicles of Tata Motors roll out at 20 locations in the world, 7 in India and then in the Indonesia, Thailand, South Korea, South Africa and UK.

b) Mahindra & Mahindra Ltd:

Mahindra & Mahindra Ltd is a global federation of companies worth more than US \$19 billion. The company is the biggest tractor producing company in the world and also second largest vehicle manufacturing company here in India. Mahindra & Mahindra tops the Indian SUV car segment. It also produces two wheelers, buses, pickups, tempos, trucks, and other commercial vehicles.

Mahindra & Mahindra plans to multiply their output both in quantity and quality with a major focus on innovation and manufacturing excellence. This company has further created several industry-leading and category-defining brands across the country.

c) Maruti Suzuki:

Maruti Suzuki had brought a big revolution in the automotive industry especially in India. Maruti is one of the oldest companies with a strong expertise in production of cars. The company has launched several successful cars in the Indian market like Omni, Alto, Swift Dzire etc. The total annual production capacity of the company is about 14, 50,000 units.

Maruti Suzuki works with the aim of providing a car for every individual, family, need, budget and household. Therefore they have several variants for every category catering all the segments of the society.

d) Toyota Motor Corporation:

Toyota Motor Corporation amongst the top most automobile manufacturing companies in the world. The company designs, produces and markets various cars ranging from SUVs, minivans, trucks and buses among others heavy vehicle categories.

Toyota Motor Corporation has some other manufacturing subsidiaries also which include Daihatsu Motor for manufacturing mini-vehicles and Hino Motors for manufacturing buses and trucks. Toyota is fitting its cars with either combustion or hybrid engines.

e) Chevrolet:

Chevrolet is an American division of the General Motors. The company has several trucks, cars and commercial vehicles in its product line. It also offers services including oil changing, vehicle insurance, financing facility, sales and repairs. Chevrolet has the reputation of being able to manufacture cars of all purses and all purposes. It has wide range of vehicles in different categories includes subcompact automotive and medium duty commercial trucks among others.

f) Ford Motor Company:

Ford Motor Company is a leading automobile manufacturers in the world that ranks high within automobile manufacturers. Some of its most popular brands include Lincoln, Taurus,

Focus, Mustang, and Fiesta etc. In the past, Ford manufactured some of the best, trucks, buses and tractors.

2.4 NATURE OF THE AUTO INDUSTRY

For any customer belonging to any section of the society, a car is usually the second most expensive purchase after buying a home. A passenger car is a durable good. A customer can defer or delay buying a vehicle if the economy isn't doing well. This makes the auto sector cyclic. The industry depends on a number of micro and macroeconomic conditions:

- unemployment levels
- consumer confidence
- disposable income
- credit availability

The best time to invest in a vehicle is when the above mentioned conditions start doing better.

Some believe that India, with its giant market and growing economic growth, will be able to offer much needed respite to global automotive manufacturers. The Indian automobile industry is one of the fastest growing across the globe. As per, SIAM(Society of Indian Automobile Manufacturers), India's total sales quantity, including both passenger cars and commercial vehicles, hit an all-time high of 4.01 million units in 2017-18, an increase of nearly 10 percent.

By 2020, experts have predicted India will surpass Japan and become the world's third-largest passenger car market, right after China and the US. India is viewed as the automobile market offering the best growth potential in the last decade or so.

As per the Economic Survey, India with a per capita income of around \$2,100, the country currently has got over 50 motor vehicles per 1,000 people, China being more prosperous — has per capita income about \$7,500 — has more than 200 motor vehicles per 1,000 people. Experts figure that the low penetration in India means the market still has a lot of untapped growth potential.

3.RESEARCH METHODOLOGY

The study is based on the data analysis for the period of 2004-05 to 2017-18. In line with the stated objectives and scope of the study, secondary data has been used besides some primary data from respondents who constituted a random sample aimed at understanding the factors affecting their choice of automobile.

a. Primary Data

Convenience sampling was used to collect the primary data to get an unbiased representation of the total population. The respondents had the choice of filing in the questionnaire online or by hand.

While executing the research process, utmost care was taken to observe and maintain the integrity of the data collected. The respondents who have filled the form are of varying age, years of professional experience and gender & educational qualification.

b. Secondary Data

For the purpose acquiring secondary data, Annual reports of SIAM (Society of Indian Automobile Manufacturers) or its website was referred for obtaining the data series on automobile production and sales data in India for the stated period.

Besides reports of IBEF and Economic Survey for 2017-18 and for 2015-16 were also used for obtaining annual data series on per capita income and cumulative data on passengers carried by private airlines for each year during the study period from 2004-05 to 2017-18.

4.DATA ANALYSIS& INTERPRETATION

4.1: To study the trends in passenger cars sales in the last 14 years.

a. Sales Data

Year	Sales
2004-05	1061572
2005-06	1143076
2006-07	1379979
2007-08	1549882
2008-09	1552703
2009-10	1951333
2010-11	2501542
2011-12	2629839
2012-13	2665015
2013-14	2503509
2014-15	2601236
2015-16	2789208
2016-17	3047582
2017-18	3287965

(“Domestic Sales Trends,” 2019)

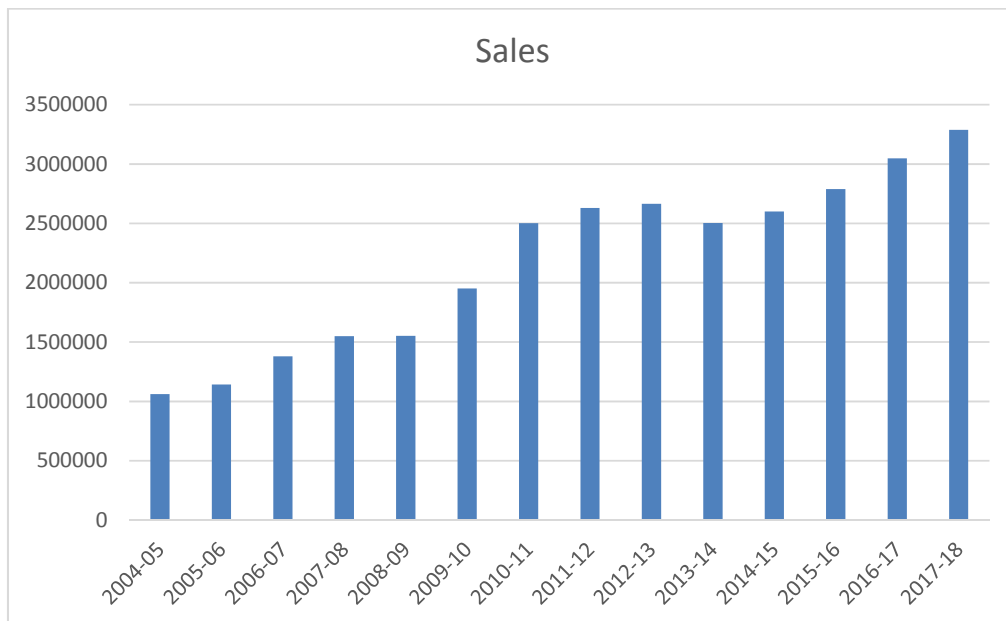


Chart 4.1 Domestic Car Sales

The chart 4.1 visually represents the domestic car sales in terms of number of vehicles sold starting from 2004-05 to 2017-18. Clearly, the growth trend has been increasing over its preceding year sales except for the years 2008-09 and 2013-14. The drop in the year 2008-09 was mainly due to the automotive industry crisis as a part of global financial downturn. To overcome this obstacle, a stimulus package was given by the government during this period, in which excise duty was reduced for small cars. The slow economic growth, high interest rates and fuel prices, high inflation affected the demand for passenger vehicles in 2013-14.

b. Production

Year	Production
2004-05	1209876
2005-06	1309300
2006-07	1545223
2007-08	1777583
2008-09	1838697
2009-10	2357411
2010-11	2982772
2011-12	3146069
2012-13	3231058
2013-14	3087973
2014-15	3221419
2015-16	3465045
2016-17	3801670
2017-18	4010373

(“Production Trends,”2019)

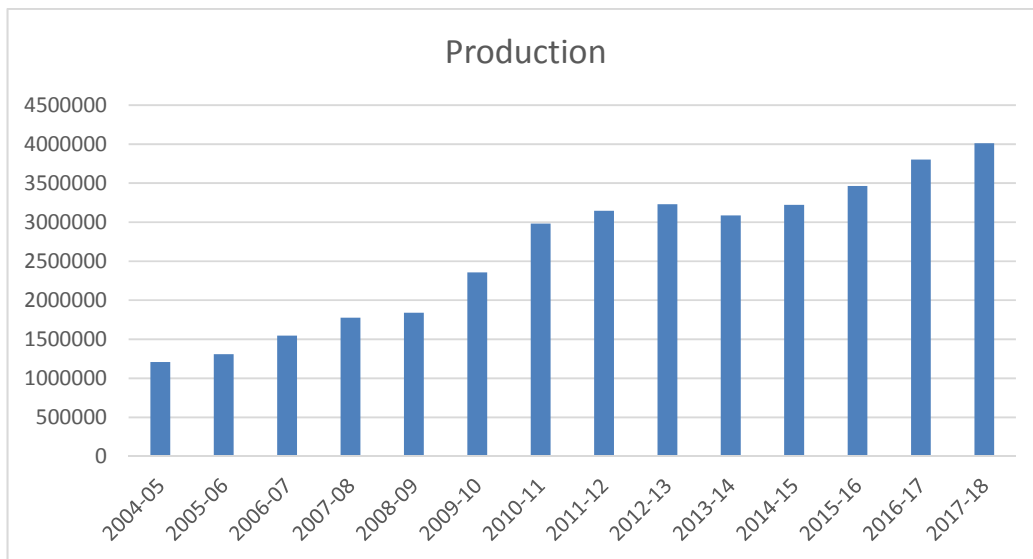


Chart 4.2 Domestic Production of passenger cars

The Chart 4.2 shows the production volume in the study period starting from 2004-05 to 2017-18. The total production units show a steady increase over the years. Owing to several micro and macro-economic factors the demand has increased which in turn has increased the production over the years.

c. Exports Data

Year	Exports
2004-05	166402
2005-06	175572
2006-07	198452
2007-08	218401
2008-09	335739
2009-10	446145
2010-11	444326
2011-12	507318
2012-13	559414
2013-14	596142
2014-15	621341
2015-16	653053
2016-17	758727
2017-18	747287

(“Export Trends,” 2019)

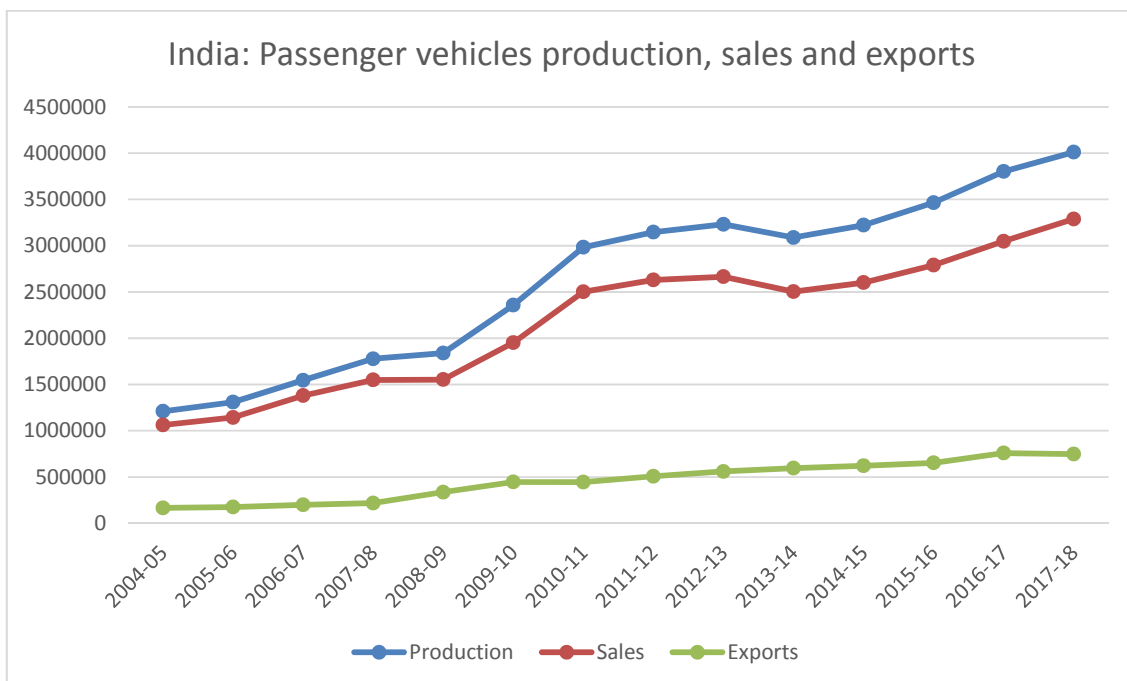


Chart 4.3: Passenger car production, sales and exports

Chart 4.3 represents the production, sales and exports during the period under study. The overall demand for passenger cars has grown both in the domestic as well as foreign markets. There has been a steady rise in production of passenger cars due to which order fulfillment is done in a timely manner.

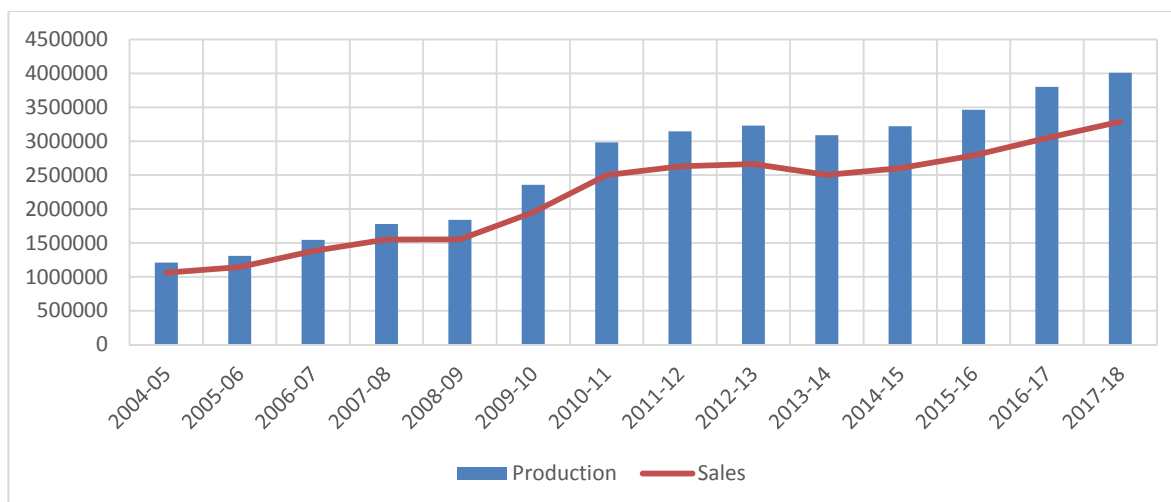


Chart 4.4: India: Production and Sales of Automobiles in India: 2004-05 to 2017-18

The Chart 4.4 represents the Production and Sales of passenger cars. Both the values have been growing steadily in last decade with the growth of automobile industry in India.

d. Factors – Per capita Income & Passengers carried by Domestic Airlines

Year	Production	Sales	Exports	Per capita income	Passengers carried by private Airlines
2004-05	1209876	1061572	166402	26629	118.2
2005-06	1309300	1143076	175572	28639	180.7
2006-07	1545223	1379979	198452	30805	289.6
2007-08	1777583	1549882	218401	33446	380.3
2008-09	1838697	1552703	335739	33987	365.7
2009-10	2357411	1951333	446145	36249	422.2
2010-11	2982772	2501542	444326	39270	512.9
2011-12	3146069	2629839	507318	63462	588.3
2012-13	3231058	2665015	559414	65538	548.5
2013-14	3087973	2503509	596142	68572	580
2014-15	3221419	2601236	621341	72862	672.6
2015-16	3465045	2789208	653053	77803	821.6
2016-17	3801670	3047582	758727	82269	1009.2
2017-18	4010373	3287965	747287	86660	1071.5

(“Economic Survey,” 2018)

4.1.1 Compound Growth Rate

Regression Analysis: C3 versus C1

The regression equation is
 $C3 = 13.90 + 0.08531 C1$

S	R-sq	R-sq(adj)
0.120781	90.44%	89.64%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	1.65561	1.65561	113.49	0
Error	12	0.17506	0.01459		
Total	13	1.83067			

C1 is time period 2004-05 to 2017-18 in the form of 1,2, ... 14, i.e. the number of years for which data is there.

C2 is passenger vehicle sales for the period 2004-05 to 2017-18 .These are the absolute numbers.

C3 is log(to the base 10) values of passenger vehicle sales for the period 2004-05 to 2017-18

Antilog of β_2 coefficient 0.08531 is 1.21705. On subtracting 1 from it and multiplying by 100 i.e.

$\text{Antilog}(0.08531) - 1 = 1.21705 - 1 = 0.21705 \times 100$, or $0.21705 \times 100 = 21.7\%$

Fitted Line: C3 versus C1

C3 is the dependent variable and the C1 the independent variable

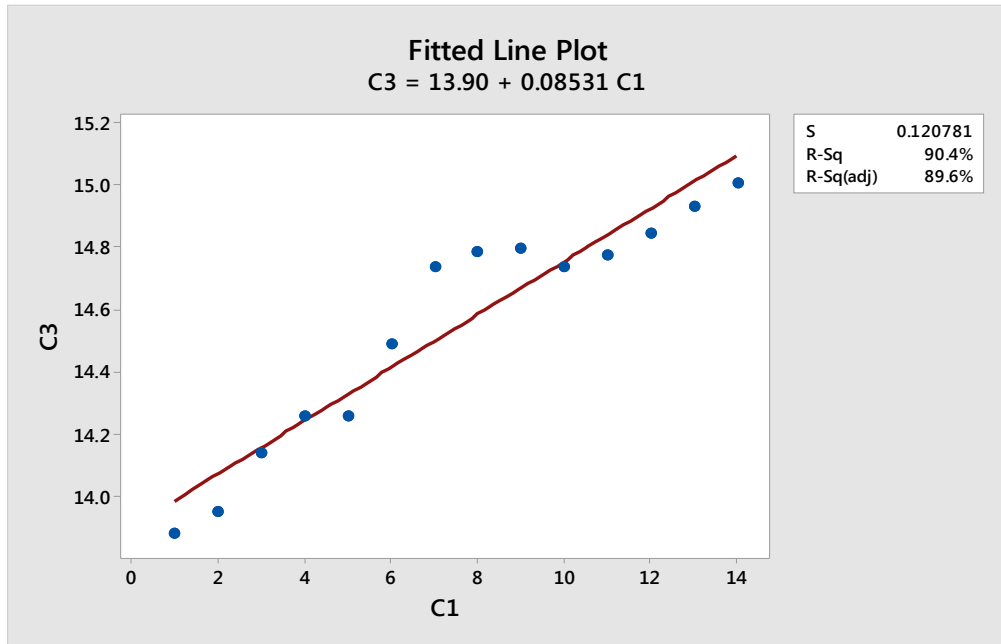


Chart 4.5: Passenger car sales

4.1.2 Trend Fitting

Year	Vehicle Sales
1	1061572
2	1143076
3	1379979
4	1549882
5	1552703
6	1951333
7	2501542
8	2629839
9	2665015
10	2503509
11	2601236
12	2789208
13	3047582
14	3287965

Note: Years are from 2004-05 to 2017-18

a. Linear Fitted Line Plot

Regression Analysis: C2 versus C1

The regression equation is
 $C2 = 921769 + 169140 C1$

S = 198662 R-Sq = 93.2% R-Sq(adj) = 92.7%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	1	6.50838E+12	6.50838E+12	164.91	0.000
Error	12	4.73598E+11	3.94665E+10		
Total	13	6.98198E+12			

Fitted Line: C2 versus C1

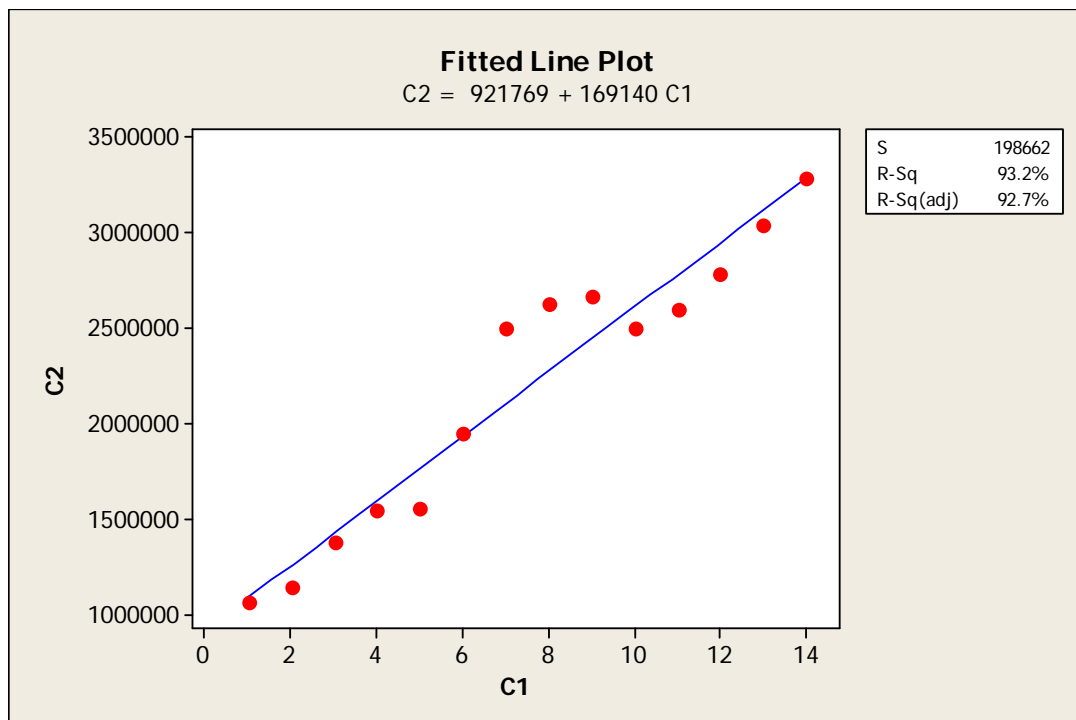


Chart 4.6: Passenger car sales

b. Quadratic Fitted Line Plot

Polynomial Regression Analysis: C2 versus C1

The regression equation is

$$C2 = 709356 + 248794 C1 - 5310 C1^{**2}$$

S = 188651 R-Sq = 94.4% R-Sq(adj) = 93.4%

Analysis of Variance

Source	DF	SS	MS	F	P
Regression	2	6.59049E+12	3.29525E+12	92.59	0.000
Error	11	3.91481E+11	3.55892E+10		
Total	13	6.98198E+12			

Sequential Analysis of Variance

Source	DF	SS	F	P
Linear	1	6.50838E+12	164.91	0.000
Quadratic	1	8.21168E+10	2.31	0.157

Fitted Line: C2 versus C1

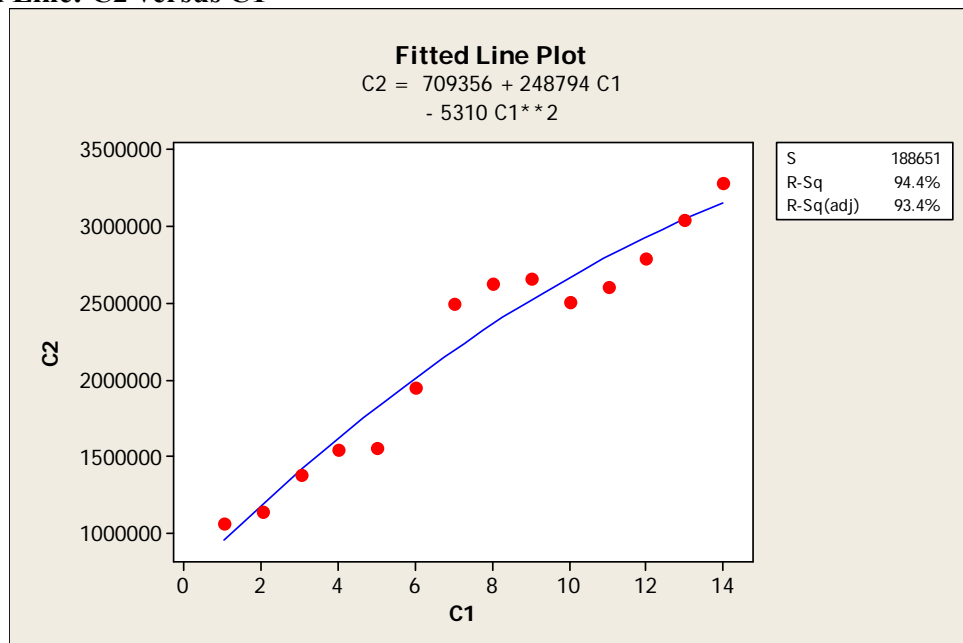


Chart 4.7: Passenger Car Sales

4.1.3 Coefficient of Variation

C2= Production of passenger vehicles from 2004-05 to 2017-18

C3= Number of passengers carried by domestic private airlines from 2004-05 to 2017-18

C4= Sales of passenger vehicles from 2004-05 to 2017-18

Descriptive Statistics: C2, C3, C4

Variable	N	N*	Mean	SE Mean	StDev	CoefVar	Sum of Squares	Minimum	Q1
C2	14	0	2641748	253004	946654	35.83	1.09E+14	1209876	1719493
C3	14	0	540.1	75.7	283.4	52.46	5127539.1	118.2	346.7
C4	14	0	2190317	195863	732854	33.46	7.41E+13	1061572	1507406
Variable	Median	Q3	Maximum	Range	IQR	Mode	N for Mode	Skewness	Kurtosis
C2	3035373	3289555	4010373	2800497	1570062	*	0	-0.26	-1.42
C3	530.7	709.9	1071.5	953.3	363.2	*	0	0.51	-0.26
C4	2502526	2696063	3287965	2226393	1188657	*	0	-0.27	-1.36

CV has been used to measure three data sets /time series, out of which two have the same but the third has dissimilar,units of measurement vis-à-vis the rest of the two series.. The main advantage if this is that it is unit free measure of dispersion. The CV is the standard deviation expressed as a percent of the mean. However, it is appropriate for the positive data.

$$CV = s/\bar{x} \times 100$$

C2=35.83%

C3=52.46%

C4=33.46%

From the above results, it is obvious that C4-sales of passenger vehicles exhibited least variability compared to passenger traffic growth C3, at the airports and production of passenger cars C2. A high degree of variability/CV in C3 representing passengers handled by domestic private airlines at airports is attributed to the favorable aviation policy of the Govt. resulting air fleet expansion of airlines, and secondly due to price/ticket cost competition among Airlines.

On the other hand, production of passenger cars C2 showed higher variability /CV owing to sudden export orders or interest in particular cars models by car owners and commercial tourist service operators.

India: Graphic view of Sales of passenger cars vs. expansion in passenger traffic handled by domestic private airlines

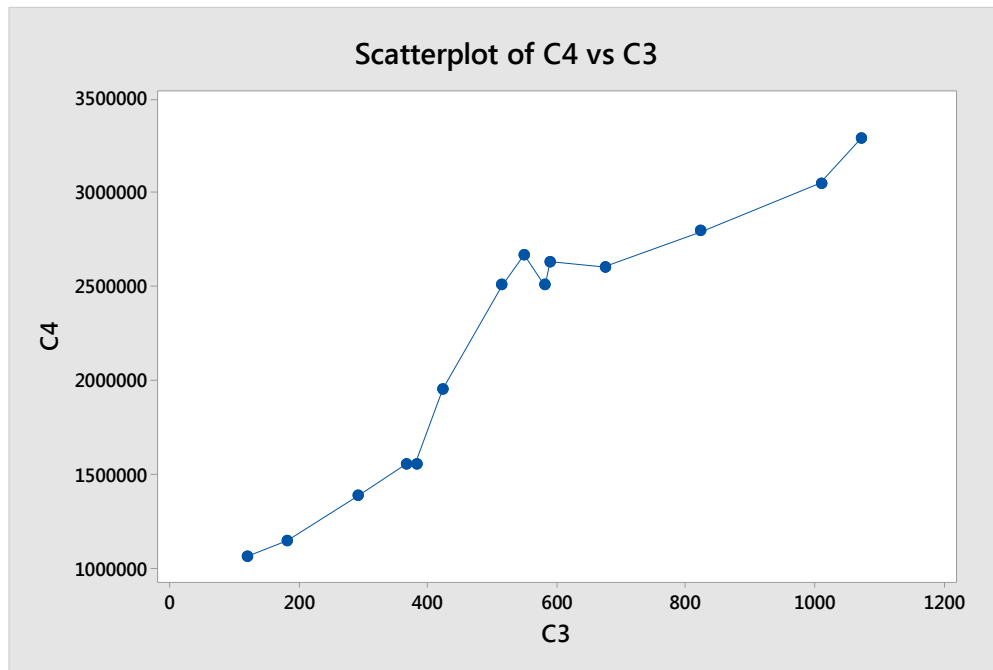


Chart 4.7 : Passenger Car Sales

4.1.4 Correlation

Correlation: C2, C3 Correlations

Pearson correlation	0.943
P-value	0

The analysis showed that passengers carried by domestic airlines represented by variable C3 are highly correlated with the production of passenger vehicles as indicated by variable C2.

Correlation: C3, C4

Correlations

Pearson correlation	0.939
P-value	0

Correlation analysis showed that sales of passenger vehicles-C4 are highly correlated with the passengers carried by private Indian airlines-C3

4.1.5 Regression Analysis

Regression analysis were done to find out the effect of per capita income i.e. variable C3 and passengers carried by private Indian airlines as represented by variable C4.

Regular regression as well as stepwise regression was used to find out as to which was the most influential predictor/explanatory/independent variable that influenced the variation in the dependent variable C2 i.e. the sales of passenger cars during the study period 2004-05 to 2017-18.

The equation obtained is as follows;

$$C2 = 692305 + 13.68 C3 + 1423 C4$$

t-values (3.75)** (1.64)* (2.16)**

p-value (0.003) (0.129)
(0.053)

R-square= 90.50 %; R -square adjusted= 88.78%, R-square predicted=84.07%

F-Value = 52.42

** significant at 1 % ; * significant at 5 %

n indicates number of observations=14, k denotes the number of parameters, and n-k represents the degrees of freedom(df)

Thus df is 11, number of regressors are 2; the number of parameters to be estimated or estimated including constant term are 3.

Regression Analysis: C2 versus C3, C4
Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	2	6.32E+12	3.16E+12	52.42	0
C3	1	1.62E+11	1.62E+11	2.69	0.129
C4	1	2.82E+11	2.82E+11	4.68	0.053
Error	11	6.63E+11	6.0269E+10		
Total	13	6.98E+12			

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
245497	90.50%	88.78%	84.07%

Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	692305	184499	3.75	0.003	
C3	13.68	8.34	1.64	0.129	7.5
C4	1423	658	2.16	0.053	7.5

Regression Equation

$$C2 = 692305 + 13.68 C3 + 1423 C4$$

Fits and Diagnostics for Unusual Observations

Obs	C2	Fit	Resid	Std Resid	R
7	2501542	1959670	541872	2.53	R

R Large residual

Regression Analysis: C2 versus C3, C4

Stepwise Selection of Terms

α to enter = 0.15, α to remove = 0.15

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	2	6.32E+12	3.16E+12	52.42	0
C3	1	1.62E+11	1.62E+11	2.69	0.129
C4	1	2.82E+11	2.82E+11	4.68	0.053
Error	11	6.63E+11	6.03E+10		
Total	13	6.98E+12			

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
245497	90.50%	88.78%	84.07%

Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	692305	184499	3.75	0.003	
C3	13.68	8.34	1.64	0.129	7.5
C4	1423	658	2.16	0.053	7.5

Regression Equation

$$C2 = 692305 + 13.68 C3 + 1423 C4$$

Fits and Diagnostics for Unusual Observations

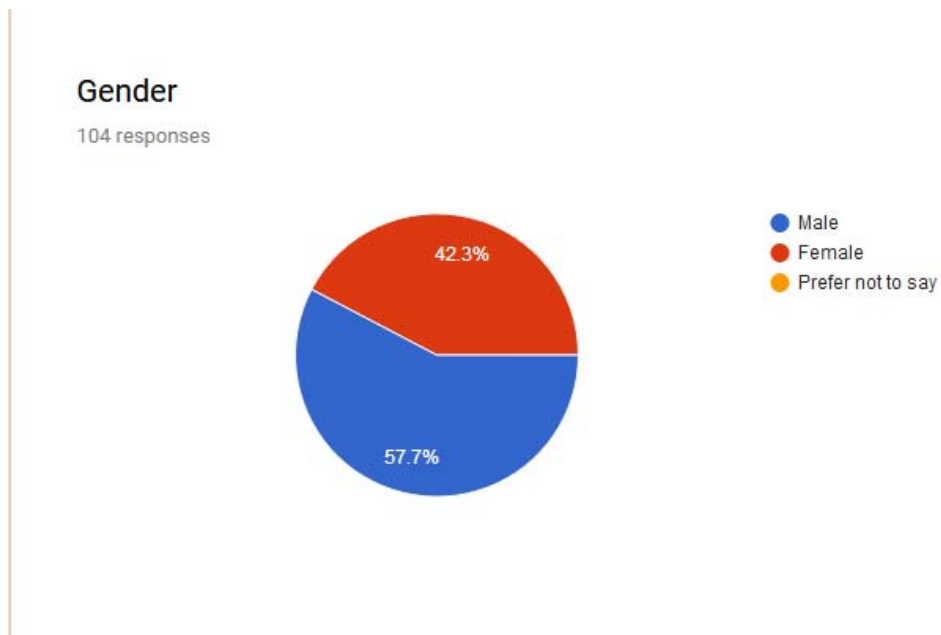
Obs	C2	Fit	Resid	Std Resid
7	2501542	1959670	541872	2.53 R

R Large residual

4.2: To understand the buying behavior and factors affecting the popularity of top brands.

Question wise Analysis

Chart 4.8: Gender Demographics of Respondents



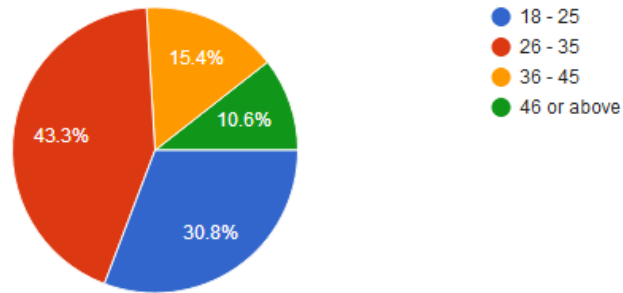
The graph reveals:

- 42.3 % of the respondents are females
- 57.7% of the respondents are male

Chart 4.9: Age group of the respondents

Age

104 responses



The pie chart reveals:

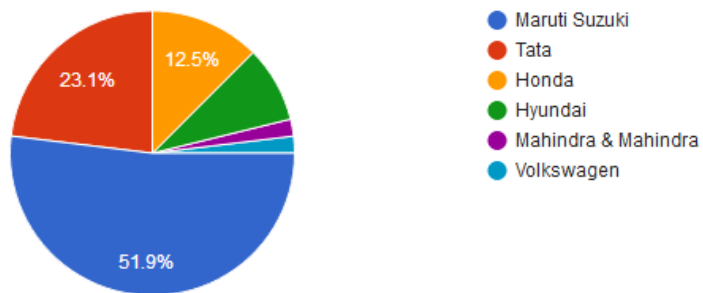
- Out of 104 respondents, 30.8 % are individuals in the age group of 18- 25 i.e. students or young professionals.
- Majority of the respondents belong to the age group 26-35 i.e. professionals with some experience under their belt, with some knowledge of the automobile market.
- 26 % respondents are above the age of 35.

1. Car Brand

Chart 4.10: Brand of Car respondents are using

Which brand of passenger car are you using?

104 responses



The pie chart reveals:

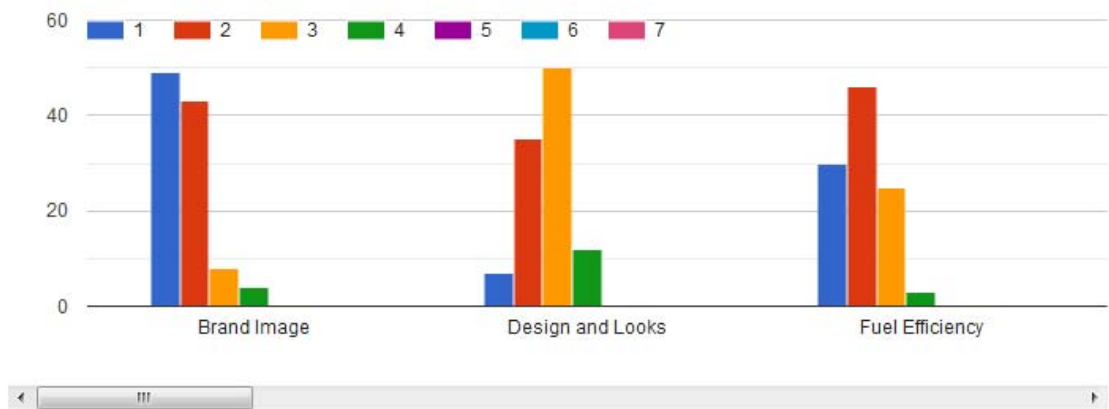
- As stated in the literature review, Maruti Suzuki is most definitely the market leader in the passenger cars category with 51.9 % of the respondents using Maruti brand.
- This is followed by Tata, with 23.1 % respondents using their cars.
- This is closely followed by Hyundai, Mahindra & Mahindra and Volkswagen respectively.
- Note: These figures are indicative of the sample size taken for the research.

Respondents were asked to indicate the level of importance they attach with each of the attribute listed below when purchasing a car, with 1 being the most important to 7 being the least important.

2. Brand & Aesthetics

Chart 4.11: Brand and Aesthetics

How important are the following parameters to you?

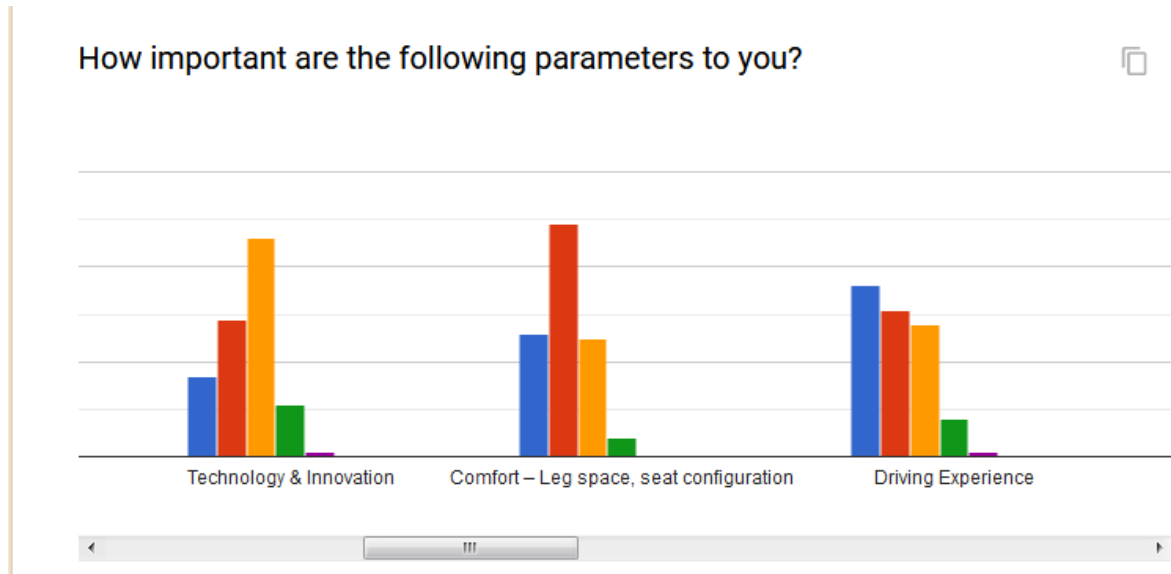


The bar chart reveals:

- Respondents give priority to the brand image of a passenger car when purchasing one.
- Some importance is also given to the design and looks of the car.
- Importance is also given to fuel efficiency of the car they are looking to buy after going for the brand image.

3. Experience

Chart 4.12: Before and after purchase experience

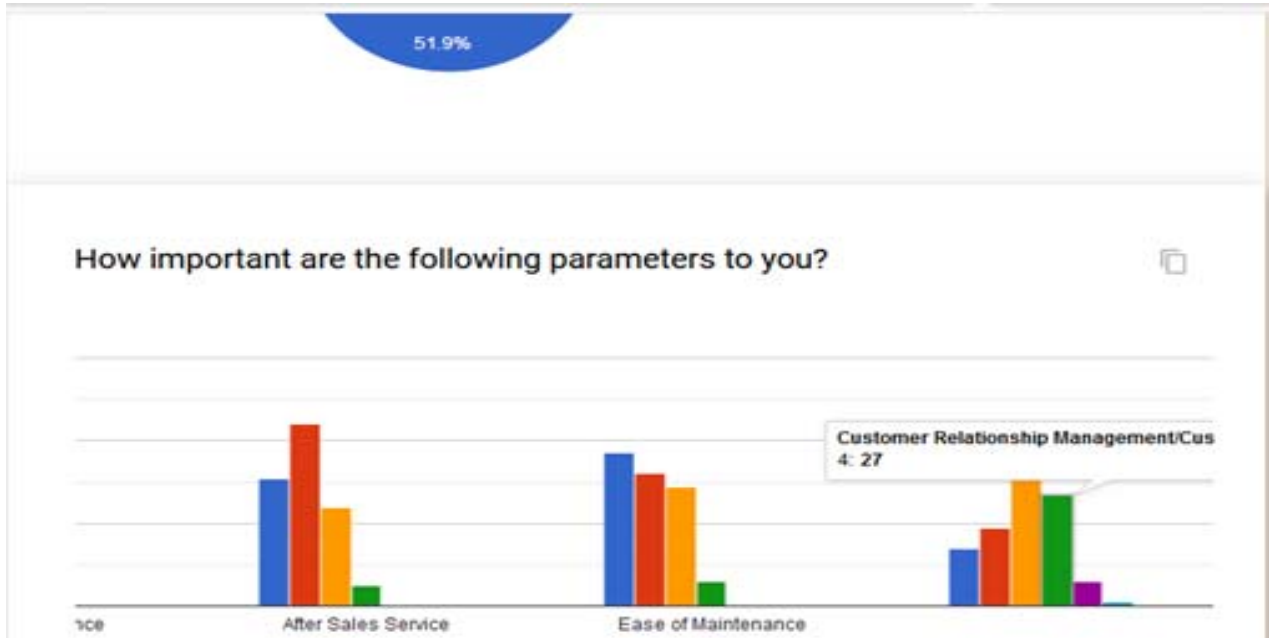


The bar chart reveals:

- Technology & Innovation is also given some consideration when purchasing a car but it takes a backseat when compared to driving experience and comfort.

4. Vehicle Maintenance

Chart 4.13: Car and customer experience



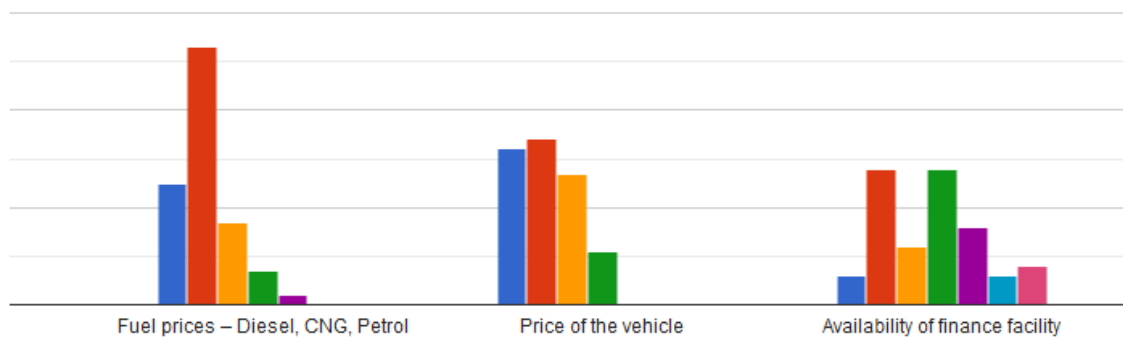
The bar chart reveals:

- Ease of maintenance is an important attribute that affects the purchase decision followed by after sales service and customer relationship management.

5. Life Time Costs

Chart 4.14: Life time costs

How important are the following parameters to you?



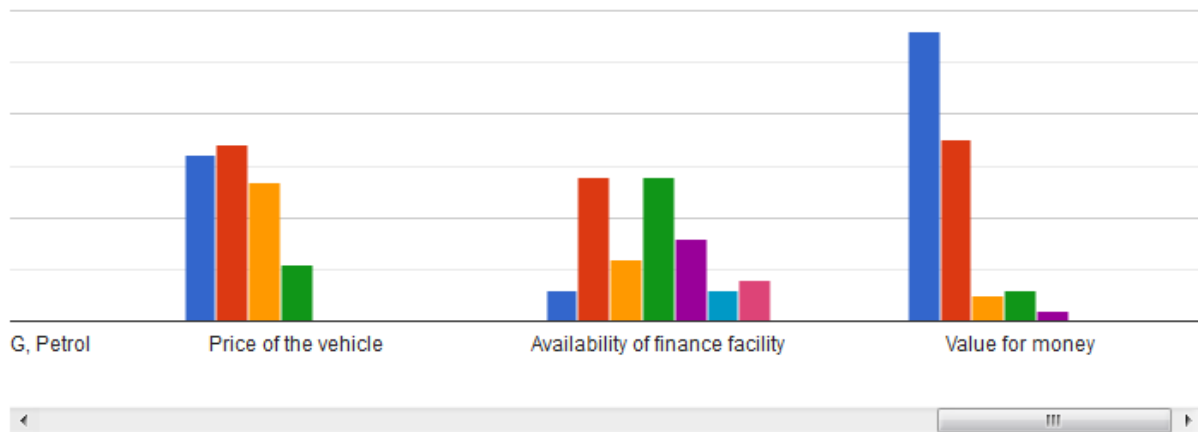
The bar graph reveals:

- Price of the car is a very important factor that affects the buying decision.
- Fuel prices also factor in but are not given a lot importance while purchasing a car.
- Availability of financial option to facilitate the purchase is not an important factor while making a purchase decision.

5 Value

Chart 4.15: Car Value

How important are the following parameters to you?



The bar chart reveals:

- The car has to give value for the money paid. This can be found out by doing some research or going over market trends.

4.3 DATA ANALYSIS METHODOLOGY

4.3.1 Growth Rate Measurement

To measure the growth rate of automobile or passenger vehicle sales for a period of time from 2004-5 to 2017-18, the following semi-log model was used:

$$Y_t = Y_0(1+r)^t \quad \text{----- (1)}$$

Where 'r' is the compound growth rate of t

Y = Sales of passenger vehicles

t = Time period i.e. 2004-05 to 2017-18 which will take values 1,2,3,.....14

Taking logarithms (to the base 10) on both sides of above equation we get,

$$\text{Log } Y = \text{Log } Y_0 + t.\text{log}(1+r) \quad \text{-----(2)}$$

Now putting,

$$B_1 = \text{Log } Y_0$$

$$B_2 = \text{log}(1+r)$$

We get,

$$\text{Log } Y_t = B_1 + B_2 t \quad \text{-----(3)}$$

The equation (3) is like any other regression model in the sense that parameters B_1 and B_2 are linear. The 'regressand' is the logarithm of Y and the 'regressor' t is time which takes the value 1,2, 14 for the said time period under study.

The equation (3) is called semi-log model because in this case 'regressand' Y appears in logarithmic form, whereas the regressor t is in linear form. For descriptive purpose, it is also called "Log-lin" model.

The slope coefficient B_2 measures the constant proportional change or relative change in Y for a given absolute change in the value of regressor, in the present case it is t i.e. time.

Since $B_2 = \text{log}(1+r)$, we will have to take the anti-log of estimated B_2 and subtracting 1 from it and multiplying the difference by 100. The resulting value so obtained is the compound growth rate (CGR) of Automobile sales for the period under study.

$$\text{CGR} = [\text{Antilog}(\text{estimated } B_2) - 1] \times 100$$

4.3.2 Trend Fitting

In order to analyze trend in passenger car sales for the period 2004-05 to 2017-18, the following two trend models were used:

a. Linear Trend Model

$$Y_t = a + bt$$

Where

Y_t = sales of passenger vehicles for a particular year

a = intercept

b = Slope coefficient

t = time period, where $t = 1, 2, \dots$

b. Quadratic Trend Model

$$Y_t = a + bt + ct^2$$

Y_t = Sale of passenger vehicles for a particular year

a = intercept

b and c = slope coefficients

While the linear trend model is widely used the quadratic trend is also used to find out if it could prove to be useful owing to possible turning point(s) in the time series data used in the analysis.

Minitab was used for analyzing the data and for plotting the graphs and estimating the concerned slope (regression) coefficients. The two models were compared on the basis of curve fitted which were based on computed value, computed R- square and R- square (adjusted) values besides t or p – values calculated by minitab output.

4.3.3 Coefficient of Variation

CV was used to measure the variability in production (C2), sales of passenger vehicles (C4) and number of passengers carried by the domestic private airlines carried on cumulative basis (C3) from 2004-05 to 2017-18.

CV is represented by the following formula:

$$CV = s/\bar{x} \times 100$$

Where s is sample standard deviation,
 \bar{x} is the sample mean

The purpose of this exercise was to see which series exhibited least variability as represented C2, C3 and C4 variables.

4.3.4 Correlation

Pearson's Correlation Coefficient was calculated between the variables C2 and C3, then C3 and C4 i.e. between production of passenger vehicles and number of passengers carried by private domestic airlines and between number of passengers carried by domestic airlines and sales of passenger vehicles during the study period.

The linear correlation coefficient as indicated by r varies by -1 to +1. The positive and negative series are used for positive and linear relationship. Moreover it is a dimensionless unit, it does not depend upon the units employed by variables under study. If the value goes close to +1 it indicates strong correlation and close to -1 indicates negative correlation.

4.3.5 Regression Analysis

Regression analysis was used to study the impact of per capita income represented by variable C3 and passengers carried by private domestic airlines C4 on cumulative basis on the sales of passenger vehicles C2 in India between the period under study.

$$\text{Let } C2 = Y$$

$$C3 = X_1$$

$$C4 = X_2$$

Then,

$$Y = a + B_1X_1 + B_2X_2$$

Minitab was used to compute the various regression coefficient along with R square, R square (adjusted) values besides t values, p values.

Regular regression involving both independent variable as well as stepwise regression was used to find out the most significant independent variable in the final equation.

The final equation so obtained was same in both methods even when C4 representing passengers carried by domestic airlines was more significant than the variable in per capita income while explaining the total variation in the dependent variable C2 i.e. size of passenger vehicles in India.

5. FINDINGS

a. Secondary Data

1. The findings indicate, the demand and subsequent sales of passenger vehicles including SUVs and MUVs is showing an increasing trend during the study period – 2004-2018.
2. It can be seen from the equation, compared to per capita income, the variable representing passengers carried by private domestic airlines on cumulative basis is more significant in explaining the total variation in the dependent variable i.e. passenger car sales.
3. Linear and quadratic trend analysis has been done which can be further extended to predict passenger car sales in the next 3-5 years with some degree of certainty on the assumption slope coefficient will remain more or less the same.
4. A vibrant private airlines industry coupled with the ability to afford air-travel due to expansion of business across India and rising personal and corporate incomes have resulted in the investment in cab and taxi companies to ferry passengers to their destinations within the cities and across cities and regions. Emergence of SUVs and MPVs marketed by Toyota, Mahindra, Maruti-Suzuki and to some extent other players like Hyundai and Tata have led to the growth in automobiles and consequently production of passenger cars, inclusive of SUVs, which are being used by BPO offices and other offices who work in three shifts and for them carrying employees to work and back to their homes is an important function to ensure round the clock services for their clients. Even cities like Delhi and Mumbai and some other metros SUVs have become norm for families of 5-6 people who like to travel together to attend social functions.

b. Primary Data

Time and time again, it has been said that India is a challenging market and a tough nut to crack. Despite spending millions and billions of dollars in market research, automobile companies are left flabbergasted when their target buyers don't respond well to their new products. Before beginning to develop a new commodity, all the companies spend hours trying to understand the needs of their prospective customers rather than pushing the commodity on them after production.

Several times, there is a gap between what the organizations perceives about the market needs and what the car buyers are actually looking for. Due to this the most important question arises - what exactly are the Indians looking for?

The needs of car buyers vary according to the segment or category they are looking at. The needs of a prospective SUV buyer will be totally different from that of a potential luxury car buyer. Similarly, the needs of a first-time car buyer will be much different from someone who is considering upgrading to the latest model or a bigger car.



Fig 5.1: Buying behavior

As per the responses collected during the primary research, the following attributes/factors are important and influence the buying decision of the customers in the order of preference:

a. Brand and price

For the majority of us, our dream cars are something that cannot be driven daily. That is because not all cars are exactly affordable for a regular buyer. Buying a new car is a financial investment that requires weeks or months of careful planning. So, when it comes of dishing out the money, one is bound to think and become selective.

As per researches, the first priority for all prospective first time buyers is setting the budget. It is not unheard for a person to consult his or her friends and family before setting the budget or estimating the cost. Mostly, the budget is somewhat flexible and goes up extended by roughly Rs 20,000 or Rs 50,000. This usually happens after visiting the dealership one tends to understand that going for an upgraded model is more sensible as it will have more features. Customers start considering the various offers or benefits being offered by the dealerships like discounts, credit facility, exchange bonuses, extended warranty and insurance premiums.

Other than the price, the brand of a vehicle is equally important. In this competitive environment, very few automobile companies have managed to taste some success. Understandably, every brand has a different brand identity that is perceived differently by the customers. Before going for a particular brand, customers try to research about the customer's perception, reliability, brand value etc.

b. Fuel economy and performance

Every human being is unique and has their own set of expectations from their vehicle. However, one thing is common that strings all Indian customers together is their need for good fuel economy.

India's largest car manufacturer market themselves as makers of most fuel-efficient cars. The customer's obsession with mileage may never reduce, but over the years buyers are beginning to prefer a blend of performance as well as efficiency with good fuel economy.

c. Design & Looks

Styling is subjective and what appeals to one set of customer segment might be rather unappealing for another. Nowadays cars are used more as a status symbol, for making a style statement and are considered to be an extension of one's personality. A lot of people go for flashy cars due to this. They are not interested in a safe design which may seem boring after some time.

d. Comfort and safety features

A longer list of features not only increases the value for money appeal to the customer of a car. Customers prefer features like a power windows, good quality speakers and tweeters, electrically adjustable wing mirrors and reverse camera. These features make one's life behind the wheel much more comfortable.

Also, customers in India nowadays are also taking into consideration the standard safety features before reaching any decision.

e. After sales and service costs

Purchasing a car is only the first step. The actual work and ownership process begins when the customer starts using it. That's when the actual wear and tear starts; some parts need to be replaced. Buying a car is not enough; one should have the capacity to maintain it long after. Getting it serviced regularly from an authorized workshop may seem expensive but it is required to for the car to keep running or functioning smoothly.

A widespread dealer network or authorized workshops is also an important deciding factor while making a purchase decision as it implies that the car can be easily serviced somewhere local. Even the availability of spare parts or auto components is looked into.

f. Dealership experience/ Customer service

A decade ago there were only a few car brands for buyers to choose from. The cities have also grown bigger, and one brand now has more than one dealer in a city. Due to this, competition amongst the dealers has also gone up. It is common to hear people reject a particular company or authorized dealership because they didn't like their customer service or how the representatives spoke to them. Due to this reason car showrooms are getting bigger and flashier by the day. They are becoming more attentive to prospective customers, are better prepared for walk-in customers and keep cars ready for possible test drives. Buyers at times even compare their dealership experiences with each other before settling for a brand. Therefore companies rigorously train their employees and try to offer the best customer experience.

6.RECOMMENDATION

a. How automakers can adopt a Strategy That Works

Achieving and maintaining a coherent strategy takes discipline and a willingness to chart an unorthodox path. After several researches it has been found that to build and maintain stability, a company needs to undertake five unconventional acts of leadership:

- Committing to a brand identity
- Translating the strategic policy everyday
- Shaping the future
- Cutting back costs

Sensible companies don't just run on a growth treadmill, going after multiple market opportunities, without really researching the pros and cons. Instead, they are clear-headed about what their competitive advantage is, develop a solid value proposition and build capabilities that differentiate them from the others, that will last for the long term.

The growing demand for app based cabs like Ola and Uber, online shopping websites and a wide spreading metro network across different cities has caused an upheaval in the automobile industry. Passenger car sales have started declining after tremendous growth in the last decade, with most automakers reporting drastic decrease in sales.

The desire to own a car is at an all-time low further due to rising parking problems, traffic congestions and higher parking rates. Environmental factors also have an impact on customers falling desire to own a personal car.

Slowdown in car sales has been reported across all major cities in the country. As per reports, Delhi, the India's largest car market has registered a growth of just 1.6% while Bengaluru, country's second largest car market has seen lower sales of new cars up to 11%. Passenger car sales has also dipped by 20% in Mumbai in the FY2017-18 with only 97,274 cars sold during the fiscal year as compared to 1.22 lakh cars sold in FY2016-17.

Metro transportation in metro cities like Delhi, Haryana, Chennai, etc. has seen more footfalls as against driving their own cars. In areas or cities where a metro network is not available, app based cabs have come to the passenger's rescue, taking away with the hassle of driving, looking for parking and managing the ever increasing traffic jams.

Shared mobility has also proved to be more financially feasible as compared to owning and maintaining a car. Due to all these reasons car sales have declined in bigger cities and metros.

However, car sales in smaller cities and non-metro areas have seen a hike in demand for passenger cars. Car sales rose by 25% in Lucknow, UP in FY2017-18 while sales in upcoming cities like Jaipur, Ahmedabad and Chandigarh went up by 15% during the same period.

• **CURRENT SCENARIO**

The sales and production figures have only been released till FY17-18, the scenario has changed since 2018 and much to the chagrin of the car manufacturers, the numbers have continued to dip in 2019.

As India goes to elections, vehicle purchases have declined, with sales across all vehicle categories dipping in the first month of FY2020.

The industry has recorded a substantial de-growth in sales across passenger vehicles in April 2019, what with somewhat reduced buyer interest and poor market conditions in lieu of the ongoing general elections.

- While the subdued interest is in continuation of the tough festive season of FY2019, industry experts don't foresee any positive shift in these conditions until the next quarter of the ongoing fiscal. With high fuel prices, low access and availability of funds and increasing acquisition costs have led to declining sales; people in the urban cities are finding shared mobility more convenient, which is now replacing new car ownership in India's metro cities ("Car News," 2019).
- The pace of adoption of the new mobility patterns has surprised everyone. This means automobile companies must quickly adapt themselves to a future where every Indian family that can afford a new car but won't necessarily buy one. Developed countries like the Europe, UK and US are already in the middle of this shift.
- In addition to high petrol prices and rise in commodity prices by car manufacturers, a rise in the cost of insurance provided by third parties has prompted many customers to defer their purchases for now.
- The general sentiment has been down in the last one year, especially in urban cities, after the increase in insurance cost, which led to the rise in total costs of the vehicle
- The automobile industry has suffered from regulatory and policy uncertainties in the past. With rising pollution levels, India had initially decided to skip the BS-V emission norms completely. Then the Supreme Court gave the verdict to ban the sale of vehicles conforming to BS-IV standards starting from April 1, 2020. Now car manufactures will have to comply with BS-VI standards starting from 2020 — four years earlier than what was decided. Therefore, Maruti has decided to not manufacture any diesel vehicles from April 2020.
- The shift to electric vehicles is another area of uncertainty. Companies are not completely ready for this shift due to high infrastructure and per unit costs. While the Indian government has rolled back its initial goal of moving to a 100 percent electric fleet by the year 2030,

- **FUTURE SCOPE**

Five trends for upcoming years

Self-driving will accelerate

Manufacturers will need to decide whether they can develop the technology to stay for the long haul in this competitive arena. If it is not feasible, they may have to form partnerships with any other manufacturer that can provide them the latest car technology. Additionally, any manufacturer planning to compete in the self-driving market must pay head to the impact on supplier relationships and production operations (Auto industry growth strategies, PwC).

- 1. Self-driving will accelerate
- 2. Electric vehicles will take off
- 3. Connectivity will expand
- 4. Profit pools will shift through new services
- 5. Business models will become more local

These trends are just a glimpse of the imminent future for the automobile industry. Not included in this picture are the daily challenges that are a part and parcel of the modern auto industry, which we expect will only become more taxing as time goes on. Among them: required engineering improvements for the traditional internal combustion engine, anticipation of consumer design preferences, complexity management, pricing management, and the threats posed by new competitors moving into popular vehicle segments.

In this tough environment, automobile companies can no longer hope to be everything to everyone. There are simply too many technical options, markets, and social and demographic changes to address. And as the competitive landscape intensifies, being average at many things will not be good enough anymore; companies will need to pick their bets and become great at the things that truly matter for the customers they have chosen to serve. Each auto company must be very clear about how it plans to add value for its particular set of customers; in other words, it has to confidently choose its way to play. And auto companies must determine which distinctive capabilities — that is, which unique processes, tools, knowledge, skills, and organization — will allow them to deliver on this value proposition better than anyone else and create a clear right to win.

Armed with a coherent system in which distinctive capabilities, a strong way to play, and suitable products and services are aligned, automobile manufacturers can generate sustained profitability. Such a system is hard to replicate, provides real value to customers, and differentiates companies from other competitors.

According to secondary research, across all industries, companies that have strong foundation and are clear about what they want are 3 times as likely as firms that are incoherent to grow faster than the industry average, and they are 2.5 times as likely to generate higher profitability as the industry average. That is because these firms, by focusing on their main distinctive capabilities, continually make changes and improve in the parts of the business that matter most to their customers, and curb spending in areas that are non-differentiating and do not really matter either way, such as unnecessary “lights on”.

Moreover, companies showing or claiming that they are passionate about their differentiating capabilities have more engaged employees and are able to recruit the best and brightest talent in the areas that matter most to them.

Selecting the right system that will give your company a distinctive advantage requires a thorough analysis of the company’s current strengths and the capabilities it can realistically develop, as well as penetrating insights into where the market is heading and what customers will increasingly demand. In our view, for manufacturers, there are currently nine ways to play, each of which has its own set of required capabilities. These ways can be further categorized as either traditional, those that have been a part of the auto industry historically, and emerging, those that are fueled by recent technological or regulatory developments and changing customer behavior (Jorg Krings & Steffen Hoppe, n.d.)

Traditional and emerging models

Experience providers

These are companies that create an experience, engagement, and emotional attachment through strong brands or experiences with the customers. Required capabilities include managing strong differentiated brands; managing a consistent brand experience across all models, geographies, and channels; and recruiting dedicated and enthusiastic employees.

Traditional models

- Experience providers
- Premium players
- Value players
- Fast followers
- Reputation players

Emerging models

- Regulations navigators
- Innovators

- Solutions providers
- Platform providers

It's important to note that choosing one of these ways to use and building the corresponding capabilities system does not guarantee long term leadership in a sector. Automakers must constantly recharge their capabilities systems to address the evolving trends and to further improve their value proposition to customers, which in turn allows them to protect and enhance their competitive advantage. Depending on which model the company decides to carry forward, different trends will have different impact on a firm's capabilities system.

For example, a value player must focus on having the best economic equation to maintain its niche as the producer of inexpensive, high-quality vehicles. Other than that, the value player may share R&D costs and products with other third-party companies, provide off-the-shelf & non-custom technology, and be more selective about picking a particular advancing feature. By contrast, an innovator should be agile & flexible and aim to lead in the new connectivity developments; this type of firm should control the possible breakthroughs in this niche and should be able to influence the legal framework of their country for adapting these features. Also, an innovator could also tap new possible markets that show potential.

For auto manufacturers, the future is full of challenges but also huge number of opportunities that need to be seized at the right time. In this era, the industry is trying to handle the unprecedented shifts in powertrain design & vehicle technology. One thing is sure: In the next 10 years, new vehicles that will hit the road will not at all resemble what we see today on the roads; new drivetrains, models, features, networks, vehicle-to-X communications, and artificial intelligence will come forward. To succeed in this landscape, automakers will need to ask themselves a fundamental question: "Who do we want to be?" In other words, "How should we be different from the competitors to create value?" Automakers need to determine which skills, systems, processes, tools, and culture they can leverage or build to establish a differentiated way to play and implement a strategy that works.

- **CONTINUED GOVERNMENT FOCUS ON SUPPORTING THE INDUSTRY**

The Automotive Mission Plan, the National Electric Mobility Mission Plan and with the other such initiatives, the Indian government aims to achieve two objectives—facilitate long-term oriented growth in the automobile industry and reduce the emission and oil dependence (Shivanshu Gupta, Neeraj Huddar, Balaji Iyer, and Timo Möller, 2018).

In the Automotive Mission Plan 2026, the government of India and the automobile industry has set a target to triple the revenues, to around \$300 billion, and increase the number of

exports, to \$80 billion. To achieve these targets, it is estimated that the sector will be creating more than 60 million additional direct and indirect jobs in the industry, which may result in improved manufacturing competitiveness and lowered emissions.

To solve emission problem, the government plans to get local standards at par with the global standards, enabling India to jump from BS-IV to BS-VI emissions (the Euro 6 equivalent) by 2020 easily.

Additionally, to address pollution problem from old vehicles, the government planning an initiative that focuses on formulation of end-of-life policies for old vehicles. It has decided to give incentives for adopting these policies by providing lower taxes, discounts on prices, and compliance processes.

To reduce the country's dependency on oil imports, the Indian government is encouraging adoption of alternative fuels as well. Furthermore, to promote immediate adoption, a lower goods and services tax (GST) of 12 percent is applied to all battery electric vehicles, compared with 31 to 48 percent for fuel running vehicles.

- **THE DEVELOPMENT OF INDIA AS A MANUFACTURING HUB**

The World Economic Forum has ranked India 30th on the global manufacturing index, which analyzes the manufacturing capabilities of more than 100 countries across the globe. The Indian government's "Make in India" plan has played an important role in improving country's position. In the last 3 to 4 years, India improved on several parameters ease of doing business (Shivanshu Gupta, Neeraj Huddar, Balaji Iyer, and Timo Möller, 2018).

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10. ANNEXURE

Factors Affecting Sales of Passenger Cars

* Required

Gender *

Mark only one oval.

- Male
- Female
- Prefer not to say
- Other:

Age *

Mark only one oval.

- 18 - 25
- 26 - 35
- 36 - 45
- 46 or above
- Other:

Which brand of passenger car are you using? *

Mark only one oval.

- Maruti Suzuki
- Tata
- Honda
- Hyundai
- Other:

How important are the following parameters to you? *

Using the scale below, please indicate the level of importance do you attach with each of the attributes listed below while purchasing a car with 1 being the most important to 7 being the least important.

Mark only one oval per row.

1 2 3 4 5 6 7

Brand Image

1 2 3 4 5 6 7

Design and Looks

Fuel Efficiency

Technology &
Innovation

Comfort – Leg space,
seat configuration

Driving Experience

After Sales Service

Ease of Maintenance

Customer Relationship
Management/Customer
Service

Fuel prices – Diesel,
CNG, Petrol

Price of the vehicle

Availability of finance
facility

Value for money