

## ANALYSIS ON INDIAN AUTOMOBILE INDUSTRY & FACTORS AFFECTING DEMAND OF PASSENGER VEHICLES IN INDIA

**Ms. Pooja**

Faculty, department of commerce, Dronacharya Govt. College, Gurgaon

### **ABSTRACT**

*On the canvas of the Indian economy, auto industry occupies a prominent place. Due to its deep forward and backward linkages with several key segments of the economy, automotive industry has a strong multiplier effect and is capable of being the driver of economic growth. The automobile industry contributes 22 per cent of the country's manufacturing gross domestic product. India is expected to become a major automobile manufacturing hub and the third largest market for automobiles by 2020, according to a report published by Deloitte. This paper studies relationship between various factors and demand of cars made by different automobile companies. The various factors that affect sales/demand includes income level of consumers, price of commodity, crude oil price, excise duty, bank interest rate, new launches etc. Although there are number of factors that can affect demand of car units but price is the most influential factor among them. This paper mainly focuses upon three factors namely- price of commodity, crude oil price, bank rate. Analysis has been done with the help of Karl pear son's correlation coefficient.*

**Keywords:** Demand, Sales, Commodity, Bank Rate, Passenger Vehicles

## **Introduction**

The automotive industry is one of the most important economic sectors by revenue. India is probably the most competitive country in the world for the automotive industry. It does not cover 100 per cent of technology or components required to make a car but it is giving a good 97 per cent, highlighted Mr Vicent Cobee, Corporate Vice-President, Nissan Motor's Datsun. The Government of India encourages foreign investment in the automobile sector and allows 100 per cent FDI under the automatic route. To boost manufacturing, the government had lowered excise duty on small cars, motorcycles, scooters and commercial vehicles to eight per cent from 12 per cent, on sports utility vehicles to 24 per cent from 30 per cent, on mid-segment cars to 20 per cent from 24 per cent and on large-segment cars to 24 per cent from 27 per cent.

Factors affecting demand of passenger vehicles made by automobile companies

- 1) Interest rate – It is one of the factors that affect demand made by consumers. Although drop in it helps very few people to shift from base to deluxe model, a large shift can be made only if customers want to take long term loans rather than short term loans so as to avail interest benefits. There is negative relationship between interest rate and demand of commodity.
- 2) Price- It is one of the major factor that affects demand of cars in market. As the law of demand states that with an increase in price demand of commodity decreases and vice versa.
- 3) Advertising & marketing- Due to advertising & marketing many companies have been successful in increasing their sales. In general both have positive relation with sales.
- 4) Income level of consumers- Income level of consumers is also very important factor. Increase in per capita income increases the consumption tendency of the customer. Growth in per capita income and rising aspirations and changing lifestyle is leading to increased preference for cars.

- 5) Global crude prices – Global crude prices decides Indian petrol and diesel prices. There is negative relation between fuel price and demand of cars as reduction in prices of fuel will increase affordability of cars and ease out its maintenance.
- 6) New launches- Car sales increase when a new model hits the market. Due to increased competition in Indian car market, frequency of new model launches has increased.

### **Objectives of study**

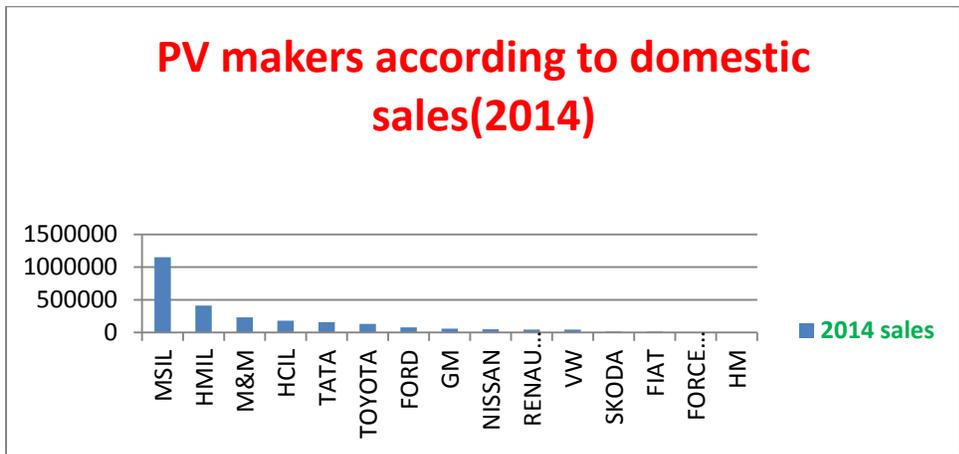
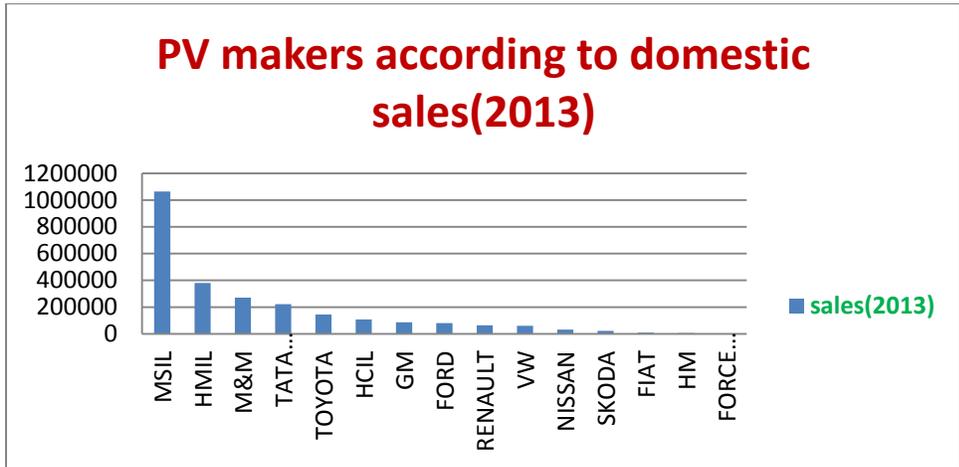
- 1) To identify factors affecting demand of car units made by consumers.
- 2) To determine relationship between price and demand/sales of Passenger vehicles.
- 3) To determine relation between bank rate & sales made by automobile companies.
- 4) To determine relation between crude oil prices & sales of automobile companies.
- 5) To identify most popular automobile company and car model among customers.

### **Research Methodology**

This study is descriptive in nature. Convenient sampling has been used. Data has been collected through secondary source. Secondary sources that I used were articles, online journals or internet primarily. Universe is Indian auto industry. Data is represented in form of tables & charts. Analysis is done by using Karl Pearson Coefficient of Correlation.

$$r = r_{xy} = \frac{n \sum x_i y_i - \sum x_i \sum y_i}{\sqrt{n \sum x_i^2 - (\sum x_i)^2} \sqrt{n \sum y_i^2 - (\sum y_i)^2}}$$

**Data analysis**



It is clearly visible from the charts above that Maruti Suzuki (MSIL) is most preferred company among Indians if they are looking for passenger vehicles. Hyundai (HMIL), M&M retained their second and third position respectively in 2014 also. Although Toyota comes at first if we talk about global sales but in India it is at fifth position. Honda (HCIL) comes at fourth.

### **A critical review of automobile industry - 2014**

**Excise Duty Cuts:** In Feb 2014, the previous government cut excise duties on small cars from 12% to 8%. This was done to support the automotive industry. The immediate impact was less as sales still continued to fall.

However, in the middle of the year, things had started to improve. Probably it was combined effect of lower excise duty, optimism from the formation of a new government.

The real impact of lower duties was seen in December as carmakers realized that the government may not continue with the excise duty cuts. Advertising ensured that customers became aware of impending price increases in January. As a result, December passenger vehicle dispatches were up more than 16% over last year.

**Safety Norms:** Through parts of 2014, several testing agencies picked up random Indian cars and subjected them to collision tests. The impact was catastrophic and it reduced our confidence in them, beyond oblivion. Nearly all cars – Maruti Alto800, Tata Nano, Datsun Go and Volkswagen Polo – failed the tests miserably.

**Diesel Deregulation and the Resulting Massacre:** Diesel passenger car sales saw a huge jump as the price gap between diesel and petrol prices soared between 2011-12. As the gap between diesel and petrol increased, customers shifted towards diesel powered cars.

All that is changing now as diesel is also deregulated. Even before that, the government had been systematically correcting diesel prices by increasing pump prices by INR 0.5 every month. Now, after deregulation, the gap between diesel and petrol has been decreasing and customers have been moving back to Petrol cars.

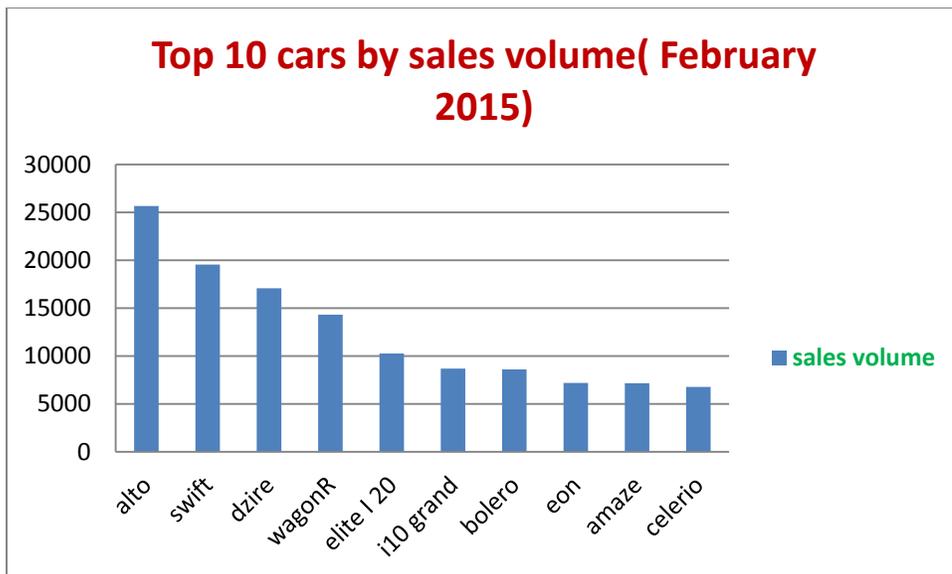
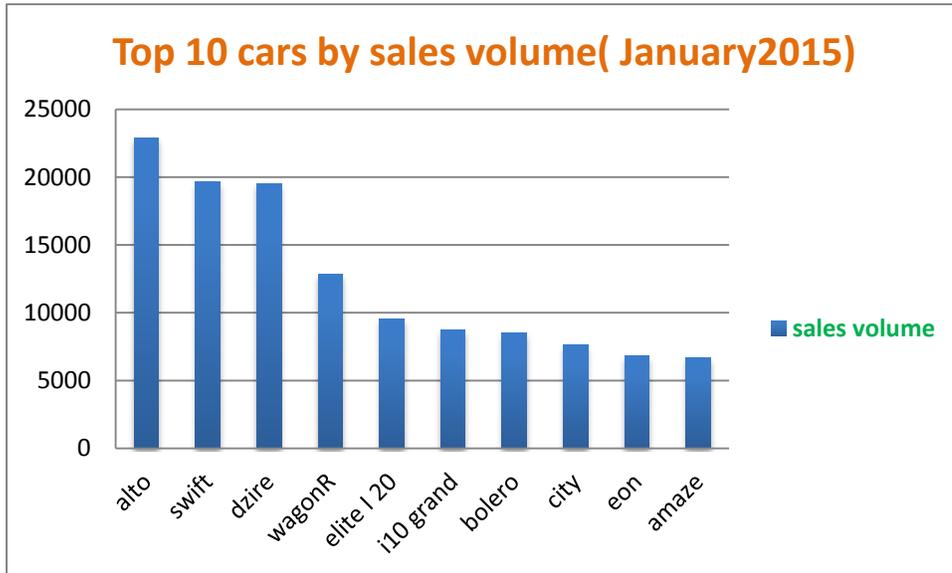
**Global Crude Prices Collapse, Indian Pump Prices Decline:** During the last quarter of 2014, global crude prices corrected by nearly 50%. Indian pump prices fell as well but not really in-line with the fall in global crude prices as the Indian government decided to raise the duty on fuel to make merry while the sun shines.

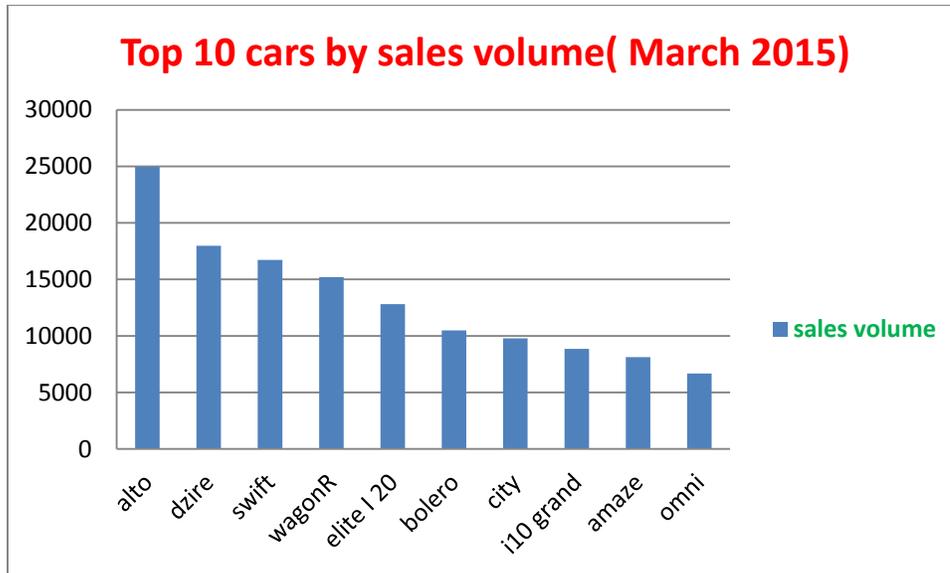
**Interest Rates on car loan Continue to Stay High:** While most of us waited eagerly through 2014, the Reserve Bank of India declined politely and kept the lending rates constant. As a result, car loan rates stayed high – double digit rates in most cases. But in 2015 it got decrease because of reduction in RBI's bank rate.

**Optimism Clouds Reality for a Few Months:** With the formation of a new government at the Centre, car sales bounced up. There was a sudden optimism in the market and this was evident in the improvement in passenger car dispatches during May-Sept 2014. However, October proved to be a dampener and we have been cautious since.

**New Vehicle Launches Drive Sales:** Passenger vehicle sales in 2014 are expected to end at the same level as 2013. This is in sharp contrast to the trend last year when sales had dipped by 7.5%. Most of the recovery was driven by the launch of new car models by Hyundai, Honda and Maruti-Suzuki. While Honda rolled out the New City, Amaze and Mobilio to improve its market share, Hyundai consolidated its grasp on the market with the i10 Grand, i20 Elite and Xcent. Maruti-Suzuki too had two important car launches – the Celerio in the Compact segment and the Ciaz in the Executive segment. Both worked and the company gained market share as a result.

A review of 2015 (Q<sub>1</sub>)





If we analyze 2015 (Q1) then from the charts above we can see that alto is the most popular car among customers whose popularity actually converts into sales to company, which is itself a car manufactured by MSIL. This thing is shown with the help of charts above as alto has been at number one from the last three months. And the second thing that we can conclude on the basis of these charts is that top 4 cars are being offered by Maruti Suzuki India Pvt. Ltd. After Maruti, Hyundai comes at second position in terms of sales volume of its cars.

**Till now we have discussed what are the important factors and how can they affect a company and its sales theoretically. This thing is proved statistically with the help of showing correlation between certain factors affecting demand/sales and demand/sales itself.**

➤ **Relationship between price and sales made by auto companies**

Model	X(price)- in lacs	Y(sale units)
Mahindra XUV 500	13.095	2756.4
Skoda yeti	20.95	13.8

Nissan Terrano	11.45	1252.4
Honda city	9.94	6509.8
Ford Ecosport	9.99	4057.8
Renault duster	11.85	3085
Chevrolet Tavera	9.1	988.5
Honda amaze	8.2	4669.25
Toyota etios	8.46	2396.5
Elite i20	7.2	9583.5

Note: Here sales units are based upon average of monthly sales obtained from October 2014 to February 2015. Prices taken are average of maximum and minimum price range in market of particular car models.

Correlation( $r$ ) between the two is  $-.59$ . it shows that there is moderate degree of negative correlation between them. And as  $r^2 = .35$  i.e. 35% change in sales is just because of price factor.

➤ **Relationship between crude oil price and sales made by auto companies**

Month	X(Sale units)	Y(Crude oil price)- avg. price in us \$ per barrel
Feb-14	213809	105.38
March-14	232524	104.15
April-14	183388	104.27
May-14	203563	105.44
June-14	212904	107.89
July-14	194152	105.61
August-14	209006	100.75
September-14	218505	95.98
October-14	216808	85.06
November-14	208926	75.57

December-14	206081	59.46
Jan-15	227125	44.38

Correlation(r) between these two is -.0198. it shows that there is low degree of negative correlation between them. And as  $r^2 = .00039$ , it shows that .039% change in Demand/sales is because of crude oil price. In future value of r will probably be increased increase because now in India fuel prices are deregulated.

(Here Companies that have been surveyed includes Maruti, Hyundai, Mahindra, Honda, Toyota, Tata, ford, Volkswagen, Chevrolet, Renault, Nissan, fiat, Datsun, Skoda, Mitsubishi. Sale units are aggregate of individual sales volume of each company mentioned above.)

➤ **Relationship between bank rate and sales made by auto companies**

Month	X(Bank Rate)	Y(Sale units)
May,2013	8.25	192565
June,2013	8.25	187152
Aug,2013	10.25	180377
Nov,2013	8.75	194713
Dec,2013	8.75	180313
Feb, 2014	9	212898
July, 2014	9	191074
Dec, 2014	9	205367
Feb, 2015	8.75	226137
March, 2015	8.5	237646

Correlation(r) between the two is -.27. It shows that there is moderate degree of negative correlation between the two. And as  $r^2 = .0729$  i.e. almost 7% change in Demand/sales is just because of change in interest rate.

(Here Companies that have been surveyed includes Maruti, Hyundai, Mahindra, Honda, Toyota, Tata, ford, Volkswagen, Chevrolet, Renault, Nissan, fiat, Skoda, Mitsubishi. Sale units are aggregate of individual sales volume of each company mentioned above.)

After analyzing all the components I found that the most prominent factor is price among these three. Income level of consumers is also equally important to price factor but its analysis part has not been shown in my research work.

## **Conclusion**

India is probably the most competitive country in the world for the automotive industry. Major players in Indian automobile industry are Maruti Suzuki, Hyundai, M&M, Honda, Tata Motors, Toyota, GM, Renault, Nissan Skoda, Ford etc. Most popular company among Indian customers is MSIL (Maruti Suzuki) because of its low range vehicles, cheap and easy servicing, high market penetration. Second most preferred company is Hyundai because of its designs and technical soundness. And if we talk about particular car models then alto is the most demanding car and swift comes after that. Calculated Value of correlation between price & demand is  $-.59$ , indicates moderate degree of negative correlation between these two factors. Calculated Value of correlation between crude oil price & demand is  $-.0198$ , indicates low degree of negative correlation. Calculated Value of correlation between bank rate & demand is  $-.27$ , indicates low degree of negative correlation. All the three factors that have been studied has negative relationship with demand/sales volume of PV in Indian auto industry.

## **References**

October 2014, Indian car sales figure, <http://www.team-bhp.com/forum/indian-car-scene/157381-october-2014-indian-car-sales-figures-analysis.html>

February2014:Indian car sales figure,<http://www.team-bhp.com/forum/indian-car-scene/148656-february-2014-indian-car-sales-figures-analysis.html>

September2014: Indian car sales figure, <http://www.team-bhp.com/forum/indian-car-scene/142573-september-2013-indian-car-sales-figures-analysis.html>

January 2015: Indian car sales figure, <http://www.team-bhp.com/forum/indian-car-scene/160444-january-2015-indian-car-sales-figures-analysis.html>

OPEC basket crude oil price development from February 2014 to February 2015 (in U.S. dollars per barrel, <http://www.statista.com/statistics/277914/monthly-average-prices-of-the-opec-crude-oil-basket/>

<http://economictimes.indiatimes.com/industry/auto/news/passenger-vehicle/cars/big-picture-how-top-15-pv-makers-ranked-in-2014/articleshow/45978270.cms>