

Business Economics

Project: Group Project Report (GPR)

Economic Analysis of Industry



Contributors

Lakshit Adhikari (401908008)

Nalin Choudhary (401908011)

Varnika Singh (401903002)

Sayantana Pradhan (401908013)

Table of Contents

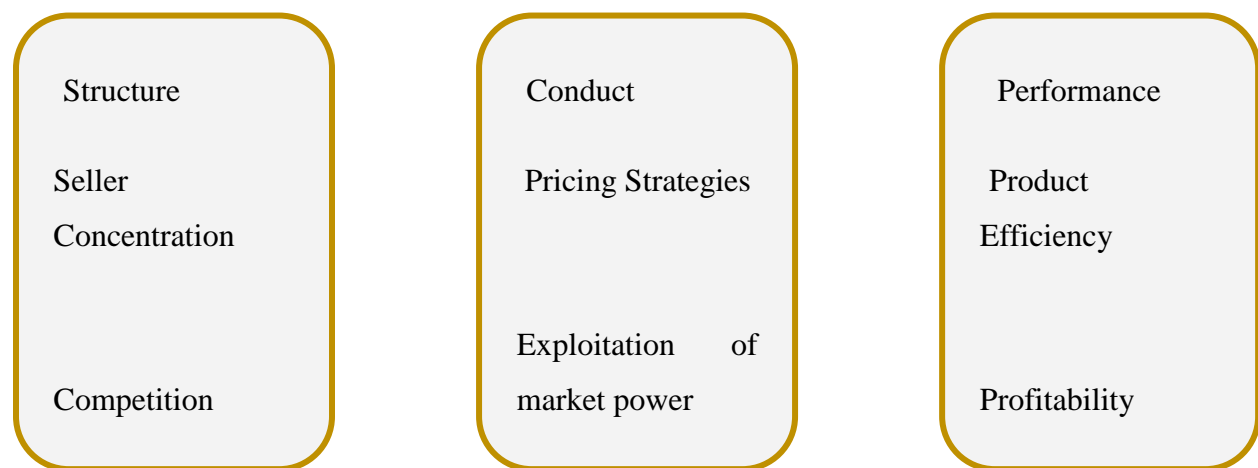
INTRODUCTION	3
SCP OVERVIEW	3
INDUSTRY OVERVIEW	4
Recent Trends	7
STRUCTURE	8
CONDUCT	9
Exploitation of Market Power.....	10
Tacit Collusion.....	11
PERFORMANCE	11
Product Efficiency	11
Allocative Efficiency	12
Profitability	13
Growth	13
REFERENCES	15

INTRODUCTION

The automobile industry is an essential driver of economic growth in India and one of the thriving sectors in which the country has high participation in global value chains (GVCs). As a primary assessment tool for this report, the SCP framework (Structure, Conduct, and Performance) is used to create a fundamental skeletal analysis of the Economic Analysis of the Automobile Industry.

Additional value addition will be provided through a detailed overlook of the crucial decisions that were undertaken that affected the automobile industry of India. The direction in which this industry is likely to go in the next few years will also be discussed briefly.

SCP OVERVIEW



SCP (Structure, Conduct, and Performance) paradigm was first published by economists Edward Chamberlin and Joan Robinson in 1933. Further, Joe Bain developed this into a model in Industrial Organization Economics which offers a causal theoretical explanation for firm performance through economic conduct on incomplete markets.

– **Structure**: Set of variables that are relatively stable over time and affect the behavior of sellers and/or buyers. It is primarily due to supply concentration, demand concentration, product differentiation, and entry barriers to markets that markets fail to follow perfect competition conditions. Also, the structure of the market will always be determined by the nature of the product

and the technology available.

– **Conduct**: The ways in which buyers and sellers behave, both amongst themselves and amongst each other. Firms choose their own strategic behavior, investment in R&D, advertising levels, collusions, etc.

– **Performance**: Measured by comparing the results of firms along the industry in efficiency terms. The variables considered at this level are such as product quality, resource allocation, production efficiency, etc.

The dynamic behavior of buyers and sellers influences the markets, making it harder to predict and establish fixed market structures. One of the most critical limitations when using this methodology to analyze a market or industry is the difficulty of defining the limits or boundaries of a given industry

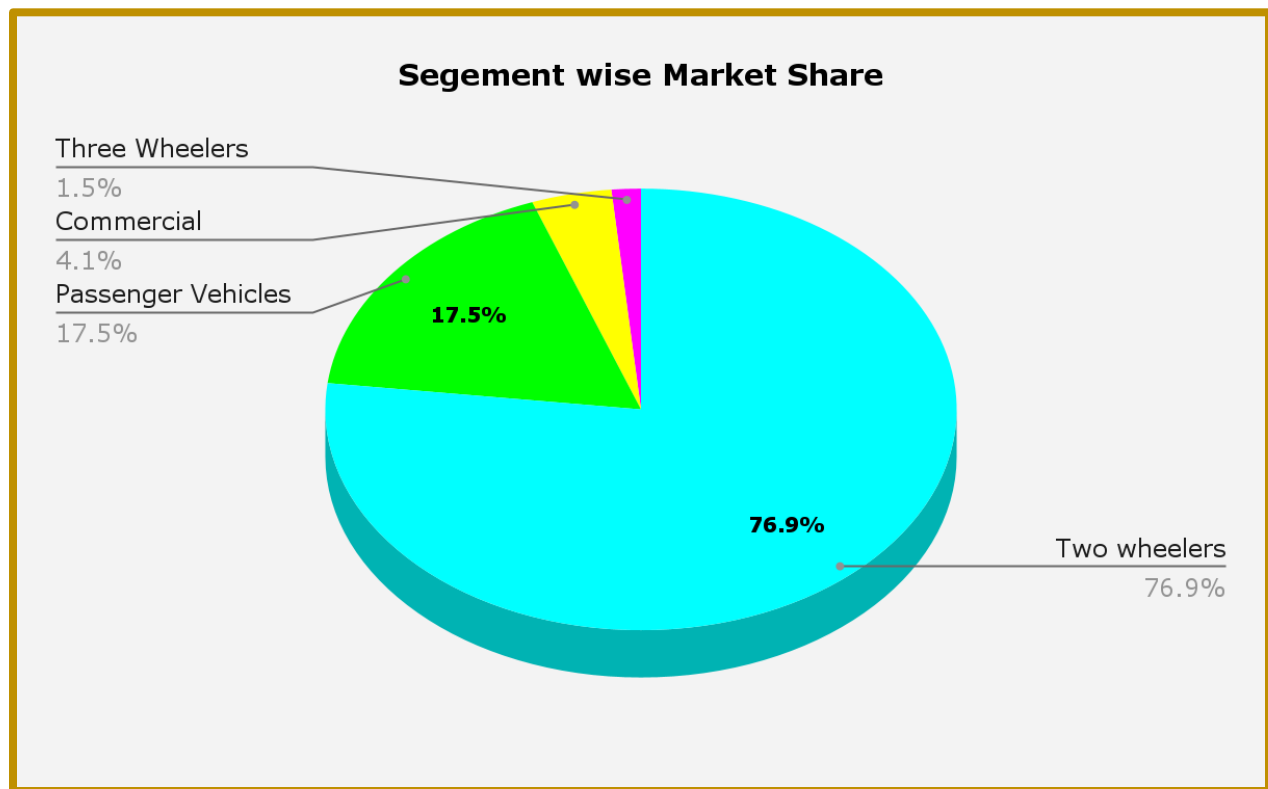
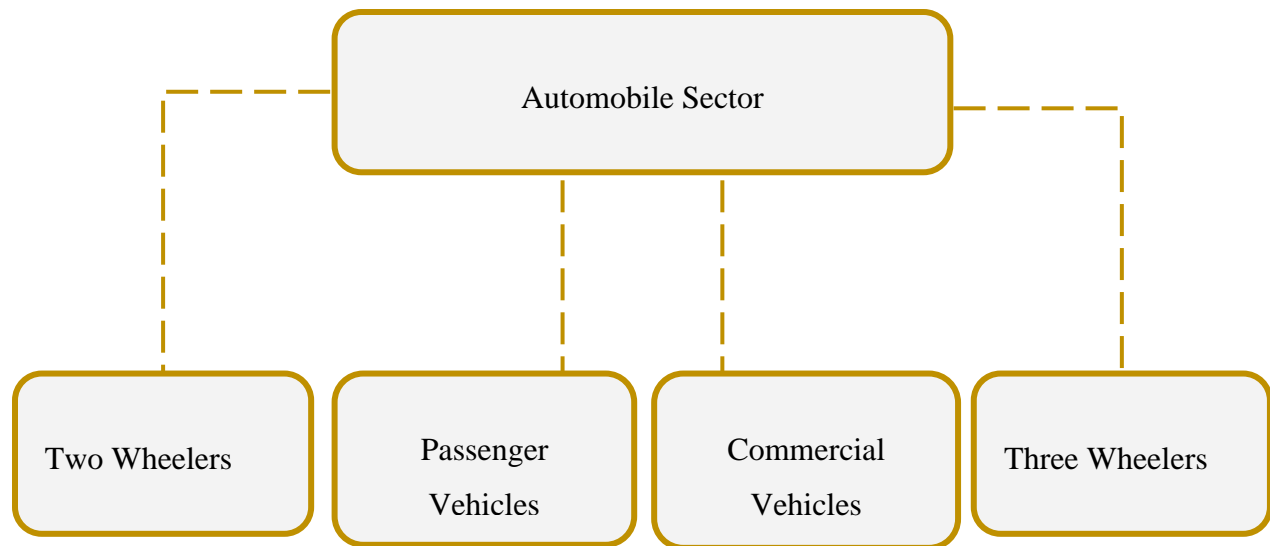
INDUSTRY OVERVIEW

To have clarity on the current state of the Indian automobile industry, it is essential to divide the industry into a comprehensive timeline.



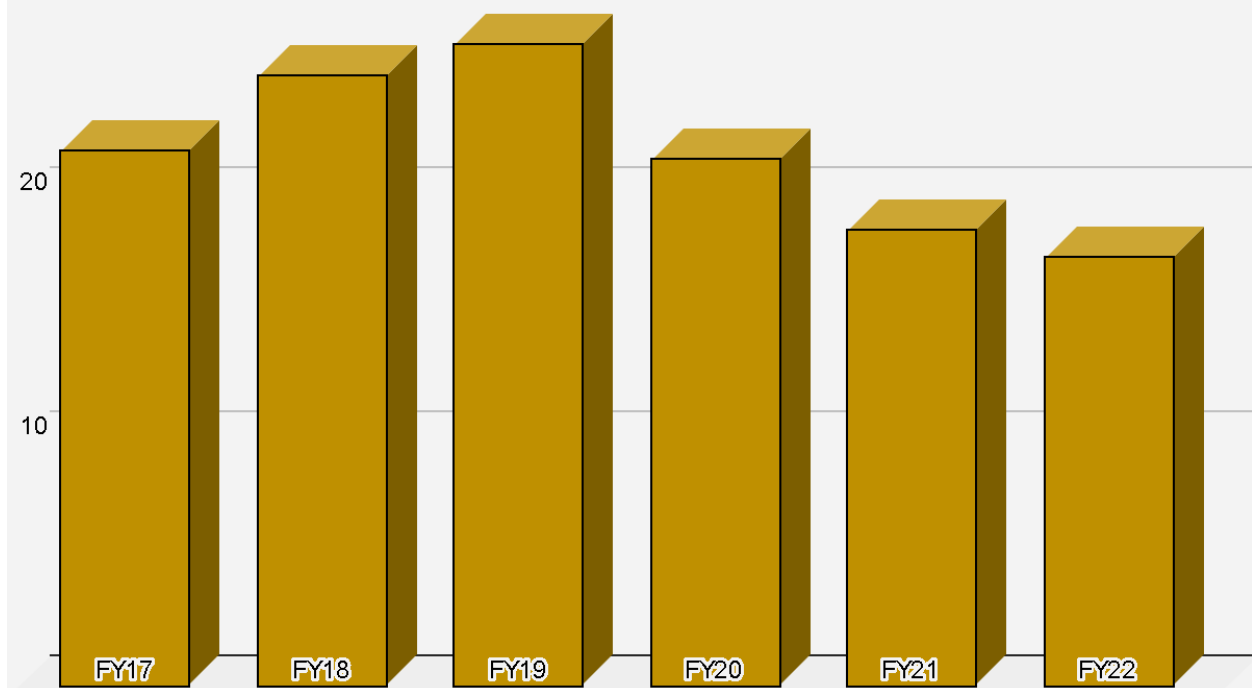
Mainly the Indian automobile industry can be categorized into 4 eras to date. These mark the different phases through which the industry has progressed over decades.

As it goes till date, current market segmentation goes mainly to the above four given product categories. However, amongst them, the division of market capitalization goes as follows:

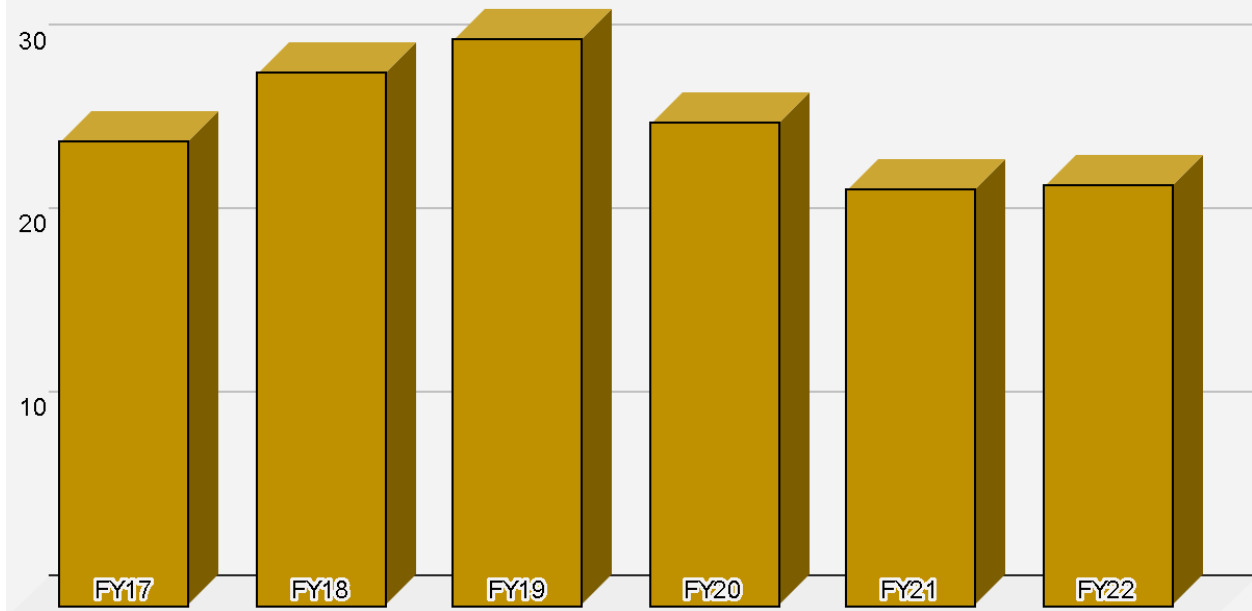




Automobile Sold in India (millions)



Automobile Production in India (millions)



Recent Trends

- Most firms, including Kia Motors and Volkswagen have adapted themselves to cater to the large Indian middle-class population by dropping their traditional structure and designs. This has allowed them to compete directly with domestic firms, making the sector highly competitive.
- In September 2021, Hero Electric announced plans to expand production capacity at its facility in Ludhiana, Punjab, to >5 lakh units by March 2022.
- Tata Motors has increased its capital expenditure by 30% to Rs. 32,000 crore (US\$ 4.11 billion) in FY23, against Rs. 23,000 crore (US\$ 2.95 billion) in FY22. The company plans to use this capex to accelerate its shift toward electric vehicles (EVs).
- The electric vehicle (EV) market is estimated to reach Rs. 50,000 crores (US\$ 7.09 billion) in India by 2025.
- According to NITI Aayog and Rocky Mountain Institute (RMI), India's EV finance industry is likely to reach Rs. 3.7 lakh crore (US\$ 50 billion) in 2030.

- In February 2022, a memorandum of understanding (MoU) was signed between electric two-wheeler company Ather Energy and Electric Supply Companies (ESCOMs) of Karnataka for setting up 1,000 fast charging stations across the state.
- The Automotive Mission Plan 2016-26 (AMP 2026) targets a four-fold growth in the automobile sector in India which include manufacturers of automobiles, auto components, and tractors over the next 10 years.

STRUCTURE

Parameters	Till 1982	1983-1992	1992-2020	2020- onwards
Competition	Oligopoly	Oligopoly	Monopolistic Competition	Monopolistic Competition
Entry Barriers	Blocked/High	High	None	None
Product Differentiation	Very little to none	Little	Different	Different

The Indian automobile sector is a highly consolidated industry– comprising of the automobile and the segments of the automotive components – is one of the critical drivers of economic growth of India.

Being deeply integrated with other industrial sectors, it is a significant driver of the manufacturing gross domestic product (GDP), exports, and employment.

This sector has grown on account of its traditional strengths in casting, forging and precision machining, fabricating (welding, grinding, and polishing) and cost advantages (on account of the availability of abundant, low-cost skilled labor), and significant foreign direct investment (FDI) inflows.

India was the sixth largest producer of automobiles globally, with an average annual production of about 29 million vehicles in 2017–2018, of which about 4 million were exported. India is the largest tractor manufacturer, second largest two-wheeler manufacturer, second largest bus manufacturer, fifth-largest heavy truck manufacturer, sixth largest car manufacturer, and eighth largest commercial vehicle manufacturer.

The Indian passenger car market was valued at US\$ 32.70 billion in 2021, and it is expected to reach a value of US\$ 54.84 billion by 2027 while registering a CAGR of over 9% between 2022-27.

The electric vehicle (EV) market is estimated to reach Rs. 50,000 crores (US\$ 7.09 billion) in India by 2025. A study by CEEW Centre for Energy Finance recognized a US\$ 206 billion opportunity for electric vehicles in India by 2030. This will necessitate a US\$ 180 billion investment in vehicle manufacturing and charging infrastructure.

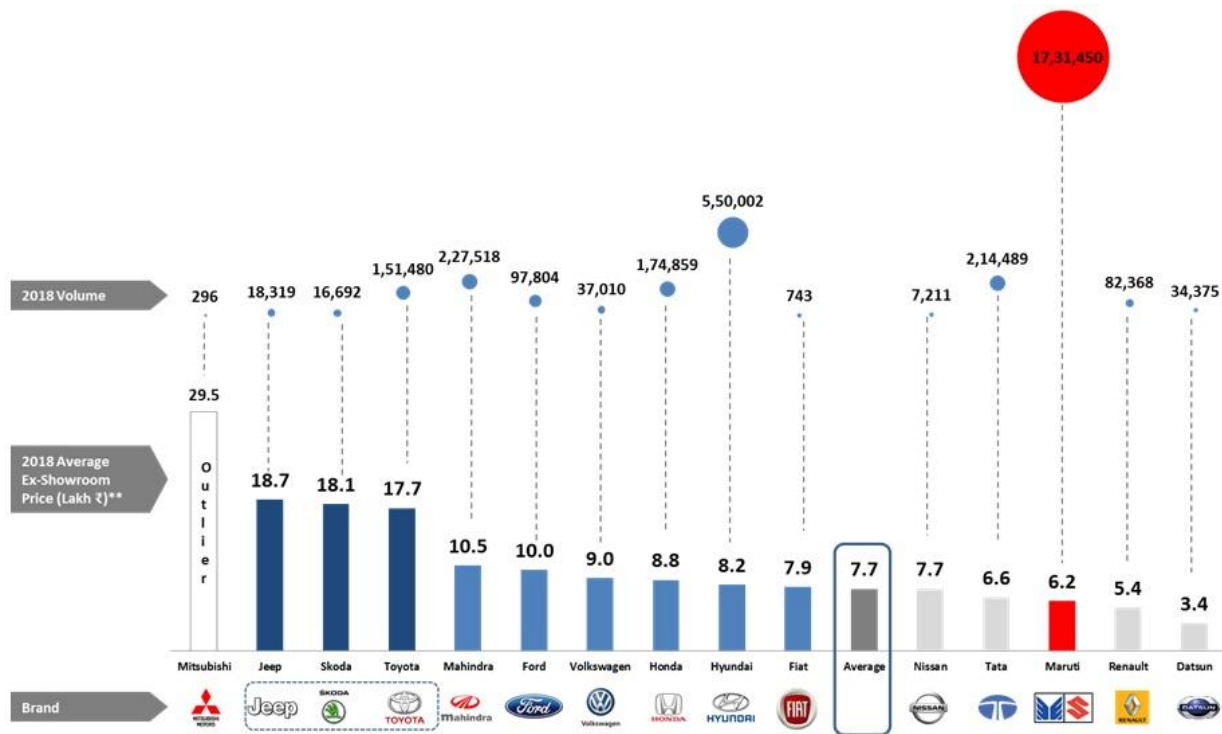
According to NITI Aayog and the Rocky Mountain Institute (RMI), India's EV finance industry is likely to reach Rs. 3.7 lakh crore (US\$ 50 billion) by 2030. A report by the India Energy Storage Alliance estimated that the EV market in India is likely to increase at a CAGR of 36% until 2026. In addition, a projection for the EV battery market is expected to expand at a CAGR of 30% during the same period.

Indian automotive industry is targeting to increase the export of vehicles by five times during 2016-26. In FY22, total automobile exports from India stood at 5,617,246.

CONDUCT

Pricing

Indian car buyers seem to be moving up the price ladder when it comes to the purchase of cars. Last year's sales data shows that the highest-selling model was the **Maruti Dzire**, which sold 264,612 units. The compact sedan sold more than the traditional top seller, the **Maruti Alto**, by a small margin, which settled in the second spot with an annual sale of 256,661 units. The average price tag of cars sold in India is now almost **₹ 7.7 lakh**. This is a clear indicator of the increased buying capacity of new car buyers. Interestingly, the Maruti Dzire alone has managed to generate as much revenue as the entire lineup of Toyota.

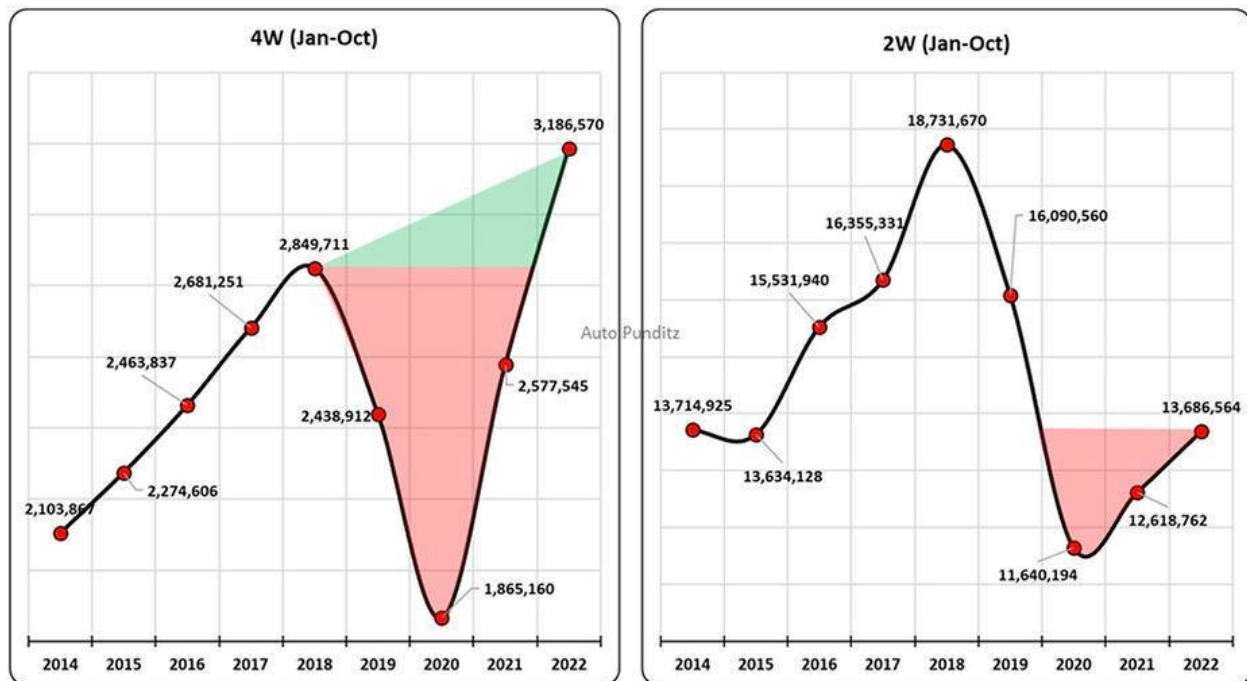


Exploitation of Market Power

While some manufacturers focus on high volume and low margin per car to keep profitability (E.g., Maruti Suzuki) while some brands though do not have equally high-volume sales but makeup in relatively higher margin per car to cover their operating expenses and generate some revenue.

The Indian automotive sector is witnessing a K-shaped growth path. The passenger vehicle market has had a V-shaped recovery since it bottomed out in 2020 due to the COVID-19-induced pandemic, and in recent times it has touched all-new heights due to growth momentum generated by pent-up demand.

However, the 2W market has been stuck with a poor growth rate ever since the COVID-19 pandemic.



4W: four-wheelers; 2W: two-wheelers

Tacit Collusion

Tacit collusion is a collusion between competitors, which do not explicitly exchange information and achieve an agreement about coordination of conduct. There are two types of tacit collusion - concerted action and conscious parallelism.

Tacit collusion is essential to the oligopoly market structure. The automotive industry around the world often is in inexplicit agreements for their mutual benefit. Several parameters can be controlled, such as price, and advertising costs, amongst other factors. The firm about to set the price for others must consider responses from other key players in the market. This can be resolved theoretically by the payoff matrix, which is derived from game theory.

PERFORMANCE

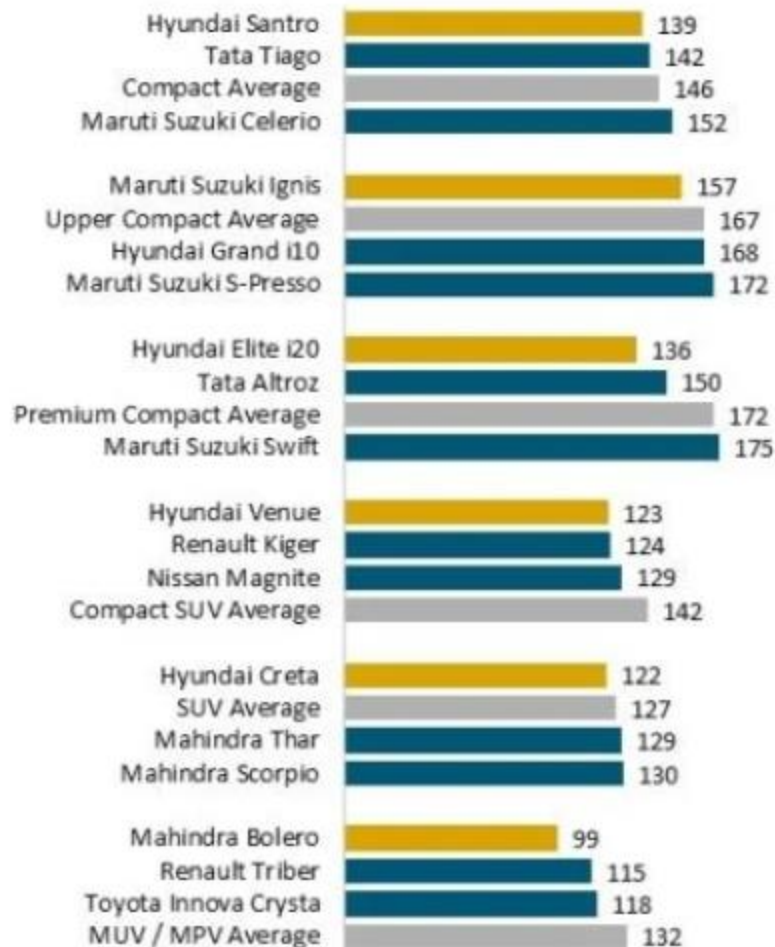
Product Efficiency

J.D. Power 2021 India Initial Quality Study (IQS)

Top Three Vehicles per Segment in Initial Quality

Problems per 100 Vehicles (PP100)

Lower score reflects higher quality performance



Product efficiency differs from brand to brand; there is not a pattern that emerges that gives clarity on which brand provides the best product and following service on their vehicles

Allocative Efficiency

Allocative efficiency occurs when consumer demand is entirely met by supply. However Indian

automobile market has some amount of excess capacity as India is considered to be one of the lowest levels of per capita ownership (28 vehicles per 1000 individuals) as compared to other countries.

A rise in middle-class income and the young population may result in strong growth in the following years. Post-COVID pandemic has seen slight growth in vehicle sales in India

Profitability

Though the industry saw an unexpected major halt in the manufacturing of automobiles in 2020-2021 due to the COVID-19 pandemic, which hit many supply chains that these manufacturers use to their advantage.

Diversification, innovation, and affordability are factors that determine a company's profitability. Marketability and competitive intelligence are also vital factors that determine the profitability of the companies.

As seen, earlier, the average vehicle buying price is seeing a climb compared to previous years' data. Companies are following different tactics to ensure profitability, such as high-volume sales with low margins or low-volume sales with higher margins per unit sold.

Growth

- In the Union Budget 2022-23, the government introduced a battery swapping policy, which will allow drained batteries to be swapped with charged ones at designated charging stations, thus making EV's more viable for potential customers.
- Initiatives like Make in India, the Automotive Mission Plan 2026, and NEMMP 2020 will give a massive boost to the sector.
- From April 2000-March 2022, the automobiles sector received around 6% (US\$ 32.84 billion) of the total equity FDI inflows to India
- Setting up of R&D centers at a total cost of US\$ 388.5 million to enable the industry to be on par with global standards.
- Under National Automotive Testing and R&D Infrastructure Project (NATRIP), five testing and research centers have been established in the country since 2015.
- The automobile sector received cumulative equity FDI inflow of about \$ 32.84 billion

between April 2000-March 2022. The Government of India expects the automobile sector to attract \$ 8-10 billion in local and foreign investments by 2023.

- Greater availability of credit and financing options.
- Demand for commercial vehicles increasing due to high level of activity in the infrastructure sector.

REFERENCES

1. Joe S. Bain, 1956. Barriers to New Competition: Their Character and Consequences in Manufacturing, Harvard University Press.
2. Joe S. Bain, 1959, 2nd ed., 1968. Industrial Organization: A Treatise, John Wiley.
3. Society of Indian Automobile Manufacturers (SIAM), OICA
4. Union Budget 2022-23
5. Vaska, Michael K. (1985). "Conscious Parallelism and Price Fixing: Defining the Boundary"
6. <https://www.jdpower.com/business/press-releases/2021-india-initial-quality-study-iqs>
7. <https://gaadiwaadi.com/average-price-tag-of-cars-sold-in-india-is-around-%e2%82%b9-7-7-lakh/>
8. <https://www.autopunditz.com/>